Vol II Issue IV Oct 2012

Impact Factor : 0.1870

ISSN No :2231-5063

Monthly Multidiciplinary Research Journal

Golden Research Thoughts

Chief Editor Dr.Tukaram Narayan Shinde

Publisher Mrs.Laxmi Ashok Yakkaldevi Associate Editor Dr.Rajani Dalvi



IMPACT FACTOR : 0.2105

Welcome to ISRJ

RNI MAHMUL/2011/38595

ISSN No.2230-7850

Indian Streams Research Journal is a multidisciplinary research journal, published monthly in English, Hindi & Marathi Language. All research papers submitted to the journal will be double - blind peer reviewed referred by members of the editorial Board readers will include investigator in universities, research institutes government and industry with research interest in the general subjects.

International Advisory Board

Flávio de São Pedro Filho Federal University of Rondonia, Brazil Kamani Perera Regional Centre For Strategic Studies, Sri Lanka Janaki Sinnasamy	Mohammad Hailat Dept. of Mathmatical Sciences, University of South Carolina Aiken, Aiken SC 29801 Abdullah Sabbagh Engineering Studies, Sydney	Hasan Baktir English Language and Literature Department, Kayseri Ghayoor Abbas Chotana Department of Chemistry, Lahore University of Management Sciences [PK]
Librarian, University of Malaya [Malaysia]	Catalina Neculai University of Coventry, UK	Anna Maria Constantinovici AL. I. Cuza University, Romania
Romona Mihaila Spiru Haret University, Romania	Ecaterina Patrascu Spiru Haret University, Bucharest	Horia Patrascu Spiru Haret University, Bucharest, Romania
Spiru Haret University, Bucharest, Romania	Loredana Bosca Spiru Haret University, Romania Fabricio Moraes de Almeida	Ilie Pintea, Spiru Haret University, Romania
Anurag Misra DBS College, Kanpur	Federal University of Rondonia, Brazil	Xiaohua Yang PhD, USA
Titus Pop	Postdoctoral Researcher	College of Business Administration
	Editorial Board	
Pratap Vyamktrao Naikwade ASP College Devrukh,Ratnagiri,MS India	Iresh Swami Ex - VC. Solapur University, Solapur	Rajendra Shendge Director, B.C.U.D. Solapur University, Solapur
R. R. Patil Head Geology Department Solapur University, Solapur	N.S. Dhaygude Ex. Prin. Dayanand College, Solapur	R. R. Yalikar Director Managment Institute, Solapur
Rama Bhosale Prin. and Jt. Director Higher Education, Panvel	Jt. Director Higher Education, Pune K. M. Bhandarkar Praful Patel College of Education, Gondia	Umesh Rajderkar Head Humanities & Social Science YCMOU, Nashik
Salve R. N. Department of Sociology, Shivaji University, Kolhapur	Sonal Singh Vikram University, Ujjain	S. R. Pandya Head Education Dept. Mumbai University, Mumbai
Govind P. Shinde Bharati Vidyapeeth School of Distance Education Center, Navi Mumbai	G. P. Patankar S. D. M. Degree College, Honavar, Karnataka	Alka Darshan Shrivastava Shaskiya Snatkottar Mahavidyalaya, Dhar
	Maj. S. Bakhtiar Choudhary	Rahul Shriram Sudke

Ph.D.-University of Allahabad

Director, Hyderabad AP India.

S.Parvathi Devi

Ph.D , Annamalai University, TN

Devi Ahilya Vishwavidyalaya, Indore

Awadhesh Kumar Shirotriya Secretary, Play India Play (Trust),Meerut Sonal Singh

Chakane Sanjay Dnyaneshwar Arts, Science & Commerce College,

Indapur, Pune

Satish Kumar Kalhotra

S.KANNAN

Address:-Ashok Yakkaldevi 258/34, Raviwar Peth, Solapur - 413 005 Maharashtra, India Cell : 9595 359 435, Ph No: 02172372010 Email: ayisrj@yahoo.in Website: www.isrj.net

Golden Research Thoughts Volume 2, Issue. 4, Oct 2012 ISSN:-2231-5063

Available on all social networks



ORIGINAL ARTICLE



A Study Of Problem Solving Ability In Relation To Sex And Academic Achievement

Shalika Gupta

Govt. College for Women, Parade, Ground, Jammu. (J&K)

Abstract:

Problem solving refers to a state of desire for reaching a definite goal from a present condition that either is not directly moving toward the goal, is far from it, or needs more complex logic for finding a missing description of conditions or steps toward the goal It is the concluding part of a larger process that also includes problem finding and problem shaping. Considered the most complex of all intellectual functions, problem solving has been defined as a higher-order cognitive process that requires the modulation and control of more routine or fundamental skills. Problem solving has two major domains: mathematical problem solving and personal problem solving where, in the second, some difficulty or barrier is encountered. While problem solving accompanies the very beginning of human evolution and especially the history of mathematics, the nature of human problem solving processes and methods has been studied by psychologists over the past hundred years. Methods of studying problem solving include introspection, behaviourism, simulation, computer modeling and experiment. The investigator selected this topic in order to assess whether the problem solving ability depends on the academic achievement and sex. Further the variables of sex and academic achievement are dependent of each other, when problem solving ability is taken as the dependent variable is also measured.

With the advancement in socio-economic and technological fields, the life of an individual is becoming more and more complex, with a number of problems which the individual and society have to face in near future. The responsibility of school becomes increasingly important to develop scientific attitude in students so that they may solve their problems independently for better adjustment. The procedure of overcoming difficulties or problems which interfere with the satisfaction of wants is called problem solving. The nature and the procedure of problem solving vary with the difficulty of the problem and its relation to the ability of the learners. The animals solve their problems by habitual behaviour or by following trial and error method. At the higher level of evolution, the animals also solve their problems by insight. At the human level, reasoning is the most important method of problem solving.

CONCEPT OF PROBLEM SOLVING

Problem solving is a mental process which is the concluding part of the larger problem process that includes problem finding and problem shaping where problem is defined as a state of desire for the reaching of a definite goal from a present condition that either is not directly moving toward the goal, is far from it or needs more complex logic for finding a missing description of conditions or steps toward the goal. Considered the most complex of all intellectual functions, problem solving has been defined as a higher-order cognitive process that requires the modulation and control of more routine or fundamental skills. Problem solving has two major domains: mathematical problem solving and personal problem solving where, in the second, some difficulty or barrier is encountered. Further problem solving occurs when moving from a given state to a desired goal state is needed for either living organisms or an artificial intelligence system. Problem solving may include mathematical or systematic operations and can be a

Please cite this Article as :Shalika Gupta , A Study Of Problem Solving Ability In Relation To Sex And Academic Achievement : Golden Research Thoughts (Oct. ; 2012)



gauge of an individual's critical thinking skills. Problem solving is the highest level of learning in the hierarchy proposed by GAGNE which depends upon the mastery of next lower type of learning. It involves the application of principles and facts to explain the phenomena or predict consequences from known conditions. The task of problem solving requires predictions, analysis of facts and principles to develop cause and effect relationship in physical phenomena .Generally our daily life activities are followed in routine and we don't face any problem to perform our routine duties but this is not always so, sometimes we are confronted with a problem situation where we have to think and find out solution to reach the goal. Problem situation occurs where there is an obstacle to reach the goal, the obstacles may be physical, social, economic, which may hinder the progress of individual towards the goal.

According to Woodworth and Marquis, "problem solving behavior occur in novel or difficult situations in which a solution is not obtainable by the habitual method of applying concepts and principles derived from past experience in very similar situations".

To quote Skinner, "problem solving is the process of over coming difficulties that appear to interfere with attainment of goal. It is a process of making adjustment in spite of interference".

OPERATIONAL TERMS

(a) Problem solving: Problem solving is a frame work for pattern within which creative thinking and reasoning takes place in any performance test as measured by Roop Rekha Garg.

(b) Sex: It is a word used for making distinction between male and female. Any psychologist who is trying out a new test can easily compare the importance of males and females. In the present study the investigator was concerned with 100 boys and 100 girls of 7th class. Sex difference has been studied to see its influence on problem solving.

(c) Academic Achievement: Academic achievement in the present study means the total marks obtained by the students in the annual exams. In the present study the effect of academic achievement was studied in order to know which group whether high and low of academic achievers to show problem solving ability behaviour.

• High academic achievement: In the present study, the boys and girls whose scores would fall at and above the value of Q3 were considered as belonging to high academic achievement group.

 \cdot Low academic achievement: In the present study the boys and girls whose scores would fall at and below the value of Q1 were considered as belonging to low academic achievement group.

OBJECTIVES OF THE STUDY

(a) To study sex differences in problem solving ability among high school students.
(b) To find whether significant differences exists in problem solving ability among high and low achievers
(c) To find whether significant interaction exist between achievement and sex with problem solving ability as the dependent variable.

HYPOTHESES

(a)There will be no significant differences in problem solving ability among high and low achievers(b)There will be no significant sex differences in problem solving ability among high school students.(c)There will be no significant interaction between academic achievement and sex problem solving as a dependent variable.

DELIMITATIONS OF THE STUDY

- 1. The present study was limited to 7th class students only.
- 2. The present study was limited to government schools only.
- 3. The sample was limited to 200 students [boys and girls].
- 4. The study was limited to different schools of Jammu district.
- 5. The study was limited to high and low achievers only.

REVIEW OF THE RELATED LITERATURE

Carter V. Good, "The competent physician must keep constantly abreast of the latest discoveries in the field of medicine. The successful lauver must be able to readily locate information of patient to the

in the field of medicine. The successful lawyer must be able to readily locate information of patient to the case at hand, obviously, the careful students, the research worker and investigator should become familiar

Golden Research Thoughts • Volume 2 Issue 4 • Oct 2012



with location and the use of sources of educational information."

Scott and Wertaimer (1932) "Review of related literature may sense to avoid unnecessary duplication and may help to make progress towards the solution of new problems."

Sabar (2006) conducted a study on problem solving ability in relation to family stress & sex of higher secondary school students revealed that: There is no significant difference between boys and girls in problem solving ability. There is no significant difference among the students having high and low stress their problem solving ability. There is no interactional difference on the basis of sex and family stress in problem solving ability.

Devi Narita (2008) conducted a study on problem solving ability of secondary school students in relation to mental health concluded that:

1. F-ratio for the main factor sex is found not significant in problem solving as a criterion. The boys and girls do not differ significantly from each other.

2. There is no interactional effect of sex and mental health on problem solving ability as criterion when the joint influence of the two is seen.

Kousar Perveen (2010) revealed that "When the subjects were taught by the problem solving approach, their achievement in mathematics improved, as compared to the subjects who were taught by the expository strategy".

Ramani Perara and Kathriarachchi (2011) studied that problem solving ability among the subjects in the experimental group had improved after four counseling sessions and suicidal behaviour has been reduced. The results are statistically significant. This Study confirms that problem solving counseling is an effective therapeutic tool in management of youth suicidal behaviour in hospital setting in a developing country.

Bandana & Sharma (2012) conducted a study on emotional intelligence, home environment & problem solving ability of adolescents concluded that Emotional intelligence & home environment has been observed to have significant impact on the problem solving ability of adolescents. Particularly high reward, high conformity, high maintenance, high protectiveness high permissiveness have found to be significantly & positively related to problem solving behaviour, decision making. UNESCO'S historic report of the "International commission on education in the 21st century" has stressed on four pillars of learning- "learning to know, learning to do, learning to be and learning to live together".

METHODOLOGY

SAMPLING

In the present study, a sample of 200 (100 boys and 100 girls) students of Class VII studying in various government high schools of Jammu district were selected randomly. The details of the sample of boys and girls selected is shown in Table 1

Table 1: Showing the details of the sample of boys and girls studying in various Government Schools:

S.No	Name of the School	S		
		Boys	Girls	Total
1	Govt. High school, Said Garh (zone Arnia)	35	14	49
2	Govt. Middle School Khour Salarian, Jammu	22	13	35
3	Govt. Middle School Dug Barmala, (zone Ramgarh)	43	27	70
4	Govt. School for Girls, Alla, (Zone Arnia)	_	46	46
	Total	100	100	200





The investigator visited various schools for the administration of tool. The students were supposed to tick mark any one of four alternatives against each item number after going through the booklets.

SCORING OF TOOLS USED

Scoring of this test was done according to the scoring key prescribed by the author.

A categorization on the basis of academic achievement was done. Since objective of the study was to identify the students with high and low achievement and its effect on their problem solving ability. Hence it was necessary to locate two levels of achievement high and low i.e. boys and girls by calculating Q1 and Q3.

Table 2: Showing the details of Q1 and Q3 for academic achievement for different categories.

Categorization of students	Q1	Q ₃
Boys	200	385.29
Girls	250	395.8

Categorization of students into high and low academic achievement

1. The boys whose score is 386 and above were regarded as high academic achievers.

2. The boys whose score is 200 and below were regarded as low academic achievers.

3. The girls whose scores is 396 and above were regarded as high academic achievers.4. The girls whose score is 250 and low were regarded as low academic achievers.

Golden Research Thoughts • Volume 2 Issue 4 • Oct 2012

4



STATISTICAL TECHNIQUES

In the present investigation, first of all raw scores were framed into class intervals and frequencies found for each group separately.

1. Quartile 2. ANOVA

ANALYSIS AND INTERPRETATION

The investigator had to see the independent variable viz, sex and academic achievement with this aim in view, the investigator selected the technique of two-way analysis of variance with 2x2 factorial design for the analysis of data. The investigator was interested to study the influence of factors i.e. sex and academic achievement on the problem solving scores of students. .60 students was the total number of sets. Under this, the influence of main factors viz, sex and academic achievement on problem solving ability was studied by applying "ANOVA" technique.

Sex Academic Achievement High (A₁) Low (A₂) 04 10 11 03 10 04 09 05 08 06 07 05 (B₁) Boys 08 03 11 03 04 10 09 06 $\Sigma A_1 B_1 = 93$ $\Sigma A_2 B_1 = 43$ $\Sigma B_1 = 136$ $N_1 = 10$ $N_3 = 10$ $NB_1 = 20$ 11 04 10 05 (B₂) Girls 11 06 11 05 10 06 11 04 08 06 11 05 08 06 12 04 $\Sigma A_1 B_2 = 103$ $\Sigma A_2 B_2 = 51$ $\Sigma B_2 = 154$ $N_2 = 10$ $N_4 = 10$ $NB_2 = 20$ $\Sigma X_T = 290$

COMPUTATION OF TWO WAY ANOVA [2*2 FACTORIAL EXPERIMENT]

			$2A_{1} - 290$		
			$N_T = 40$		
Golden Research Thought	s • Volume 2 Iss	sue 4 • Oct 2012		5	



Table No. 3: Summary of Two Way ANOVA (2*2 Factorial Experiments) for Problem Solving **Ability Scores**

S.N	Sources of	SS	Df	Mean	F Ratio	Significanc
0	variance			Square		e
				MS		
1	SS _A (Academic	2102.5	1	2102.5	8.1	Significant
	Achievement)					
2	SS _B (Sex)	7522.1	1	7522.1	28.9	Significant
3	SS _{A*B}	7513.9	1	75139	28.9	Significant
4	Within	9340.2	36	259.45		

Table No. 4: Showing the mean difference in the high and low academic achievement for Problem Solving:

Categories	High Academic		Low	Academic
	Achievement		Achievement of	
Mean	196		96	

INTREPRETATION:

Table No. 4 reveals that the value of F-ratio for the main effect of academic achievement (A) is 8.1 which is significant at both levels. It can therefore be said that there are significant differences in academic achievement for the problem solving ability. The mean difference of the High achievers is (196), greater to the mean of low achievers (96) as per the table No 4. It clearly reveals that the High achievers have better problem solving abilities than the low achievers. F-ratio against another main effect of sex (B) came out to be 28.9 which is significant at both level. Thus it can be inferred that there is significant impact of sex on the problem solving ability of high school student.

Table No 5 showing the mean difference in the Boys and Girls for Problem Solving

Categories	Boys	Girls
Mean	93	103

INTREPRETATION:

As per the table No 5, there is greater mean value of the Girls (103) in comparison to the mean value of the Boys (93) for the problem solving, which indicates that the girls have the better problem solving abilities than the Boys

The F value for the interaction between Academic achievement and the Sex (AXB) comes out 28.9 which is significant. It clearly indicates that problem solving achievement is under the combined effect of

Golden Research Thoughts • Volume 2 Issue 4 • Oct 2012

6

A Study Of Problem Solving Ability In Relation To Sex And Academic Achievement
Definition
Definitio

EDUCATIONAL IMPLICATION

In the present study, problem solving ability among boys and girls studying in different Government schools were found similar. The problem solving ability were influenced by one's sex and academic achievement. Hence there arises a need to probe deep into those factors which influence the problem solving ability of students. These factors probably can be intelligence, socio-economic status, achievement motivation social maturity emotional maturity. As it is fact that a person who has poor problem solving ability he/she is unable to achieve his/her goal. Problem solving ability is a boost for tackling any novel problem or working out a solution to the problem. The findings of the present study did find influence of sex and academic achievement. Hence identification of the variables other than studied one's become the job of the researcher so that it is known which variables are influencing the problem solving ability of students.

REFERENCES:

Chauhan, S.S. (1980): "Advanced Educational Psychology", New Delhi: Vikas Publishing Pvt. Ltd.
Donald, J.C. (1963): "Scientific Principles of Psychology", New Jersey: Prentice Hall.
Duncker, K. (1935). Zur Psychologie des produktiven Denkens [The psychology of productive thinking].
Berlin: Julius Springer.
Garret, H.E (1973): "Statistics in Psychology and Education", Bombay: Vakils, Fraffer and Simon Pvt. Ltd.
Goldstein F. C., & Levin H. S. (1987). Disorders of reasoning and problem-solving ability. In M. Meier, A.
Benton, & L. Diller (Eds.), Neuropsychological rehabilitation. London: Taylor & Francis Group.
Koul, R.K. (1991): A Study of Problem Solving Ability in relation to academic achievement".
Skinner, C.E. (1980): "Educational Psychology", 3rd Edition. London: Stagles Press
Verma, L.K. & Sharma N.R (2008): "Advance Statistics in Education and Psychology" Revised Edition, Narendra Publishing House, Jammu.

7

www.isrj.net

http://www.usabilityviews.com/uv007206.html.

Golden Research Thoughts • Volume 2 Issue 4 • Oct 2012

Publish Research Article International Level Multidisciplinary Research Journal For All Subjects

Dear Sir/Mam,

We invite unpublished research paper.Summary of Research Project,Theses,Books and Books Review of publication,you will be pleased to know that our journals are

Associated and Indexed, India

- ★ International Scientific Journal Consortium Scientific
- * OPEN J-GATE

Associated and Indexed, USA

- EBSCO
- Index Copernicus
- Publication Index
- Academic Journal Database
- Contemporary Research Index
- Academic Paper Databse
- Digital Journals Database
- Current Index to Scholarly Journals
- Elite Scientific Journal Archive
- Directory Of Academic Resources
- Scholar Journal Index
- Recent Science Index
- Scientific Resources Database

Golden Research Thoughts

258/34 Raviwar Peth Solapur-413005,Maharashtra Contact-9595359435 E-Mail-ayisrj@yahoo.in/ayisrj2011@gmail.com Website : www.isrj.net