

DEVELOPING PROBLEM-SOLVING SKILLS THROUGH TRAINING PROGRAM AND STUDYING ITS' EFFECTIVENESS

Bhaskar Vishnu Igawe, Ph. D.

*Assistant Professor, Department of Lifelong Learning & Extension, Pune Sub-Centre,
SNDT Women's University*



Scholarly Research Journal's is licensed Based on a work at www.srjis.com

1. Introduction

The nature of human problem solving methods has been studied by psychologists over the past hundred years. There are several methods of studying problem solving, including; introspection, behaviorism, simulation, computer modeling and experiment. Explosion of knowledge, expansion of communication process, technological development and changing philosophy of the individual persons are leading the society to the rapid changes now days. This escalation of change threatens mankind with new problems, demanding immediate recognition and innovative solutions. Hence at present, development of cognitive skills, like problem-solving is an important aspect of human resource development.

Today's students, who are going to be responsible citizens of the future, need to develop various problem-solving skills. Understanding of the problem-solving process and skills need special efforts and trainings. The beginning should be done through deliberate efforts, in the schools in India. In the education field, explosion of knowledge, demands maximum utilization of mental abilities. On the part of the learners, it demands that learners receive, understand, assimilate and use the ever increasing store of knowledge. This is to be done during a limited period of the time in the case of adolescent students. Thus, there is a thrust of changes in the various fields, which leads to different complex problems. These changes in the society have direct bearing of the aims of education.

The aim of education is to help individuals develop their abilities to their fullest potentials and to achieve satisfactory adjustment within the society. In order to bring change in individuals, educational system should cope up with the pace of changes that is taking place in the society.

Alvin Toffler (1980) says, “Change in society needs men who make critical judgments, who can weave their way through novel environment, who are quick to spot new relationships in the rapidly changing reality.”¹ Toffler is also specific in his suggestions for tomorrow’s education, when he advocates the development of new skills in three critical areas, i.e. i. Learning to learn, ii. Relating with others, iii. Choosing, i.e. decision making.

This direction of change in education necessarily focuses on the development of the cognitive skills, rather than imparting store of information. Development of cognitive skills, to help an individual become more adaptable to new and changing circumstances, implies development of problem-solving skills.

Combs (As Isakson quotes 1987) also says, “An educational system unable to predict the knowledge of behaviors demanded by the future, will have to concentrate instead, on producing persons able to solve problems that can not be presently foreseen. Tomorrow’s citizens must be effective problem-solving persons, be able to make good choices and create solutions on the spot.”²

As such the development of problem-solving skills are quite essential at present.

2. Need and Importance of the study

Need of the study

As it is discussed before, that very less research has been undertaken in India. So it has become essential to do more research in this subject.

- This study deals with learning the problems of adolescents.
- This research helps adolescents to become good problem-solving students.
- Very less research has been done focusing on problems of adolescents with regard to the problem-solving skills in adolescents.
- To guide teachers how to use various strategies and techniques to develop the skills of problem-solving in adolescents.
- There are no such studies cited by Buch (1979, 1987 and 1991) regarding training the adolescent students in problem-solving skills in India.

Importance of the study

- This research helps to focus on the problems of adolescents in the present scenario.
- It is significant contribution to the teachers in teaching students how to solve the problems.
- This research helps to reinforce the development of problem-solving skills in the students.
- It is useful to teachers to implement the programme in the school curriculum.

3. Statement of the Problem

Developing problem-solving skills through training program and studying its' effectiveness

4. Objectives of the study

1. To find out the learning problems of students of IX standard.
2. To develop the programme for problem-solving skills in the students of IX standard.
3. To implement the programme for problem-solving skills in the students of IX standard.
4. To find out the effectiveness of the programme for the development of the problem solving skills.
5. To develop a hand-book of the programme for problem-solving skills in the students of IX standard.

5. Hypothesis

Null Hypothesis

There is no significance difference in the achievement level of problem solving skills of the students in the pre-tests and post-tests scores from the experimental and control group after the implementation of the programme of problem-solving skills.

Research Hypothesis

There is significant difference in the achievement level of problem solving skills of the students in pre-test and post-test scores from the experimental and control group after the implementation of the programme of problem solving skills.

6. Methodology

Mixed Method will be used for research study.

- Survey Research Method
- Experimental Research Method
- Product Development Research Method

7. Sample

a. For Survey

10% of number of students from Pune district from Marathi, English, Urdu and Hindi Medium Schools studying in IX standard is the sample.

Sampling Method

Simple random sampling method used for the sampling for the survey research method in the research.

b. For Experimental

80 students of IX standard

Experimental Group (40 students)

Control Group (40 students)

Sampling Method

Purposive sampling method used for the sampling for the survey research method in the research.

8. Variables

➤ **Independent Variable:**

The programme is independent variable. It arranged by using various strategies and techniques of problem solving.

➤ **Dependant Variable:**

The scores of the students are dependant variable in this research.

➤ **External or Extraneous Variable will controlled by the researcher:**

- Number of students - It is equal in both groups
- Gender - Male and female is included in both groups
- Age - Approximately 14 - 16 in both group of students
- Creativity and Intelligence - On the basis of the scores from test of creativity and intelligence (IQ) the students will be selected.

9. Delimitation

1. This research is delimited to Pune division.
2. The research is delimited for the students of IX standard.
3. The research focus on the learning problems of students of IX standard.
4. The research focus on development of problem-solving skills of the students of IX standard.

10. Tools

1. **Observation sheet:** To observe the activities of the students during sessions
2. **Intelligence test:** To make the group equivalent
3. **Creativity test:** To make the group equivalent
4. **Pre-Test:** Pre-test will be taken before the implementation of the programme
5. **Post-Test:** To study the effectiveness of the programme of development of the problem-solving skills

11. Statistical Techniques

For Survey

Percentage: To analyze data from survey of students of IX standard

For Experiment

‘t’ test: To study the difference between the mean scores of pre-tests and post-tests of control and experimental group of students of IX standard

12. Contribution of the study

A number of studies have been undertaken since 1960 onwards regarding the problem-solving in USA and Westerns countries. Various researchers such as Parnes (1958-1960), Torrance (1959), Cavington, Krutchfield and Devis (1966) proved that cognitive skills like problem-solving and creative thinking can be developed through special training programs.

Studies by Torrance (1960), Joyce Juntune (1979), Shaw & Cliatt (1986) have proved the proved the possibility of developing problem-solving skills through deliberate efforts. Hence a need is strongly felt in the educational field to develop a training program and study its effectiveness on the development of the problem-solving in the adolescent students in the Indian context.

As the research carried out in western countries which are as for their needs not be suitable in Indian circumstances, because we need research, based on the needs of our Indian context. Our students have their own learning problems and these problems need to be addressed based on their own cultural and psychological background. The problems which our students are facing are having a great impact of our family system, values, social and educational systems, our philosophy of life.

13. Conclusion

This research is an attempt to develop a training program, incorporating various techniques and principles useful in problem-solving, proposed by various psychologists.

The training program test will be developed on the basis of open-end problems related to educational (learning) situations.

The study experimentally evaluates the effectiveness of the training program on the development of problem-solving skills in the students of IX standard.

14. Training Program

Standard: IX

Number of students: 40

Duration of training program: 25 sessions (45 minutes each)




Objectives of the training program

1. To explore the problems.
2. To identify and define the problems.


3. To generate probable solutions.
4. To evaluate and elaborate solutions by implications.

The Framework of the training program (Flow-Chart)

PART A: THEORY

- Introduction and concept of problems

- Introduction of problem-solving process

- Introduction of skills of problem-solving and its importance

- Creating positive attitude about problem-solving

PART B: PRACTICAL

- Practice of each sub-skill of problem-solving
(Identification, exploration, setting goals, looking at alternatives, selection of solutions, implementation and evaluation)

- Use of various techniques and strategies to develop the skills of problem-solving.

Techniques:

1. SEAM technique
2. Torrance's paragraph test
3. 6E Technique (Excite, Explore, Exchange, Explain, Expand, Examine)

Strategies:

1. Try and check
2. Find a pattern
3. Equation
4. Table
5. Graph
6. Use of formula
7. Diagram
8. Cause and effect diagram
9. Check Sheet

References

Alvin, Toffler. (1980), *The Third Wave*, London Pan Books, Pg. 403
Scott, Isakson. (1987), *Frontiers of Creativity Research*, New York; Bearly limited, Pg. 05.

Bibliography

- Ausubel, David P. (1968), *Educational Psychology : A Cognitive View*, Holt, Rinehart and Winston, New York
- Best, J. W. and Kahn, J. V. (2004). *Research in Education. (VII and IX Edition)*. New Delhi: Prentice Hall.
- Bruner, Jerome. Goodnow, J., and Austin, G. (1956), *A Study of Thinking*, Wiley, New York.
- Buyer, Linda. (1988), *Creative Problem Solving: A Comparison of Performance under Different Instructions*, *The Journal of Creative Behaviour*, Volume 22, No.1, First Quarter, 1988.
- Clinton, Barbara. And Torrance, Paul. (1981), *S.E.A.M. : A Training Program for Developing Problem Identification Skills*, *The Journal of Creative Behaviour*, Volume 20, No.02, Second Quarter, 1986.
- Covington, Crutchfield, Davies and Olton (1972), *The Productive Thinking Programme*, Charles, E., Merrill Publishing Company, Columbus, Ohio.
- Das, R.C. and Jangira, N.K., *Teacher Education*, Buch, M.B. (Ed.) (1987), *Third Survey of Research in Education (1979-82)*, N.C.E.R.T., New Delhi, India.
- Deshmukh, M.N.(1979), *An Analytical Study of Some Scholastic Conditions and Practices as Contributory Factors to Creative Ability*, Buch, M.B. (Ed.) (1987), *Third Survey of Research in Education (1979-82)*, N.C.E.R.T., New Delhi, India.
- Dewey, John. (1910), *How We Think?* D. C. Health and Co. Publishers, New York
- Gage, N.L.(Ed.), (1963), *Handbook of Research on Teaching*, Rand McNally, Chicago
- Osborn, Alex. (1953), *Applied Imagination*, Charles Scribner's and sons, New York
- Rai, S., *Problem Solving in Science of Creative and Non Creative Students*, Buch, M.B. (Ed.) (1987), *Third Survey of Research in Education (1979-82)*, N.C.E.R.T., New Delhi, India.
- Schwal, Lynne. and D'zamko Mary, *Group Imaging for Action: Creative Thinking and Problem Solving*, *The Journal of Creative Behaviour*, Volume 22, No.2, Second Quarter, 1988.
- Isaksen, Scott. (Ed.) (1987), *Frontiers of Creativity Research*, Bearly Limited, New York
- Vaidya, Narendra. (1968), *Problem Solving in Science*, S. Chand and Company, Delhi
- Witrock, Merlin. (Ed.) (1986), *Handbook of Research on Teaching*, McMillan Publishing Company, New York

Websites

en.wikipedia.org/wiki/Problem_solving
<http://www.businessdictionary.com/definition/training-program.html>
<http://www.mediafrontier.comArticlePSPS.htm>
[www://mindtools.com/pages/main/newMN_TMC.htm](http://www.mindtools.com/pages/main/newMN_TMC.htm)
<http://www.studygs.netproblemindex.htm.doc>
www.increasebrainpower.com/problemsolvingtechniques
<http://www.exforsys.com/career-center/problem-solving.html>
<http://www.iqualityprocess.comdocsDavid-CowburnProblem-Solving3.1-Problem-Solving-Tools.pdf>
www2.smumn.edu/deptpages/...of.../ResearchProposal.htm
<http://www.handbook%20on%20Problem%20Solving%20Skills.pdf>