THE PROBLEM SOLVING STRATEGY AND LEARNERS' LEARNING OUTCOMES

Noor Muhammad Jamali, Tayyaba Zarif

Shaheed Benazir Bhutto University, Shaheed Benazir Abad, PAKISTAN.

my20281@gmail.com

ABSTRACT

The primary objective of the study was to explore the impact of usage of Problem Solving Strategy on the academic achievement or learning outcomes of the learners especially in rural context. for the purpose experiment study was conducted with the learners of elementary School level of public sector, for the measurement of learning outcomes English as a subject was selected & after the usage Problem Solving Strategy during teaching English as an international language the impact on achievement & learning outcomes was analyzed by pre-post model. This research brings broader understanding of strategy for English learning of students whose learning second or third language. Results reflect analysis of test result mainly & classroom observation field notes of learning ability of students on before learning and after that learning of thirty elementary level learners. The experimental study draws and design from researcher on Conceptual Model, Acquiring a Language, explain the complex interacting factors students experience outlining effective literacy instruction. Emerging from the data were pre-test and post-test individual tables and graphs with SPSS software in findings, discussion, conclusion and recommendations on effective teaching learning of problem solving strategy from teacher of teaching in rural context learners can add to their learning range.

Keywords: Problem Solving Strategy, rural context, International language, learning ability, academic achievement level

INTRODUCTION

There is a saying in English that necessity is the mother of invention. So man is the crown of creature. This credit is due thinking ability and he can think, analysis, create and decide in any situation. Thinking is the essence of the cognition and one of the great wonders of or species. Thinking ability includes mental attributes like judging, abstracting, reasoning, imagining and problem solving teaching strategy (KYL Ku, 2017).

The current scenario reflects that or lives are very much complex and difficult. The main reason is that man is facing problems and most of the time these problems may be unexpected and difficult to solve. In fact, life is combination of luxuries and problems. Man wants to enjoy luxuries and solve the problems through problem solving teaching strategy to live a contented of life. Everybody in this world is facing problems right from child hood to old age as in the words of (M Singh, 2017) that," we face problems of one type or another every day of our lives." So the parents solve their children's problem is in the early childhood and he (child) be able to solve the problems through problem solving teaching strategy in future life. "The central aim of education to make the learners this much able to face the difficulties of future life, for the unknown, for work and for work real life problems (Mainert, 2017). For this purpose, human set definite goals and get the real solution of the problem through the

problem solving teaching strategy. In the words of (Walker, 2014), that problem solving behavior input is made up of circumstance, which constitute obstacles to need gratification and requires the organism to engage in complex cognitive processing in order to solve the problem through problem solving teaching strategy efficiently. There are many problems face the students in the schools or their in daily life. How the solve problem? They solve their problem through the quality of education and use problem solving teaching strategy in the schools as well as in their daily life. As according to government of Pakistan vision 2025. "The development of problem solving teaching strategy (ability) is a key factor in creating independent learner". "As learning means to enable children to gain full knowledge of the subject that builds their capacity to use that knowledge in novel setting to their lives." (Government of Pakistan 2007). Problem solving teaching strategy ability is needed not only for learners of the day but also to solve everyday life problems (AR Gomes, 2013). Mostly students in education system of Pakistan are indulged in vote learning which do not enhance the problem solving teaching strategy and higher order thinking. In Pakistan for the same, new national curriculum of English 6, 8 (2006) included ample opportunities for the students to enrich the modern teaching strategies. According to (Mahmood, 2017) in his white paper "Education in Pakistan" suggests that "Education should help improve skills, raise aspiration and enable individuals to make informed choices in life. The education system raises highly knowledge able, skillful productive, creative and confident individuals who have reasoning and perception of problem solving teaching strategy." The same is reflected in the vision 2025 of ministry of education, government of Pakistan (2007). "Our education system may have well trend and highly motivated teachers, an academic well versed in the subjects he/she teaches, who is also a professional educationist skilled in a number of modern pedagogical techniques that faster enquiry, inter action and problem solving teaching strategy". The above discussion reflects the direct need of using innovative and effective instructional strategies to enhance the quality of education among the students. Considering this view, current researchers support problem solving teaching strategy needs to be tested to find out its effectiveness in Pakistan educational institutions. For this purpose, the level of 8th grade is selected because students of this age group may have the capability of formal/ higher order thinking process and they may be able to solve problems, if they are taught and guided through problem solving teaching strategy.

STATEMENT OF THE PROBLEM

The rapid development in the field of English' it is necessary to prepare the students right from the childhood to manage the real life problems resulting from new emerging changes. There are need of specific teaching strategy to enhance the problem solving teaching strategy among the students (EG Cohen, 2014). The problem solving teaching strategy may improve the students' performance on problem solving teaching strategy. In this context' it is opted to find out the impact of usage of problem solving teaching strategy as a teaching strategy in the subject of English on the students' problem solving teaching strategy and its relationship with academic achievements at elementary level.

REVIEW OF LITERATURE

Problem solving teaching strategy based learning

Problem solving teaching strategy Based learning and English (Yahaya, 2017) stated that English is the science of things that have a pattern of regularity and logical order and finding and exploring the regularity. English is the foundation of the functional role is assorted, that enterprise escapes its application. Besides its importance it is observed that is one of the most poorly taught, widely hated and abysmally understood subject in elementary schools.

Students particularly run away from this subject. He further stated attributed students' poor performance to factors such as the society view that is difficult, shortage of qualified teachers, lack of attractiveness and novelty in teaching method.

Problem based learning is a model which centered on students, develops active and motivated learning, problem solving skills and broad field knowledge, and based on the deep understanding and problem solving (A Roehl, 2013). In those classrooms in which problem based learning method is used for instructional process, the students take much more responsibility of their own learning. They have become independent and long life learners, and can continue to learn in their whole life.

Problem solving strategy based on learning outcomes

In the problem based learning model the students' turn from passive listeners of information receivers to active, free self-learner and problem solvers.

It also shifts the emphasis of educational programs from teaching to learning. It enables the students to learn new knowledge by facing the problems to be solved instead of feeling boredom. Problem based learning affect positively certain other attributes such as problem solving, information acquisition, and information sharing with others, group works, and communication etc. Again problems solving is a deliberate and serious act, involves the use of some novel method, higher thinking and systematic planned steps for the acquisition set goals. The basic and foremost aim of this learning model is acquisition of such information which based on facts (IJAH, 2016).

According to (MH Wang, 2015) in problem based learning environment, students act as professionals and are confronted with problems that require clearly defining and well-structured problems, developing hypothesis, assessing, analyzing, utilizing data from different sources, revising initial hypothesis as the data collected developing and justifying solutions based on evidence and reasoning. The practice of problem based learning is richly diverse as educators around the world and in a wide range of disciplined have discovered it as a route to innovating education. The educators used problem solving method as an educational tool to enhance learning as a relevant and practical experience, to have students' problem solving skills and to promote students' independent learning According to (Oyelana, 2016) opined problem based learning as a philosophy aims to design and deliver a total learning environment that is holistic to student-centered and student empowerment.

Students' understanding in Problem solving strategy Based in Learning Environment

Presenting the students with a problem, give them opportunity to take risks, to adopt new understandings, to apply knowledge, to work in context and to enjoy the thrill of being discoverers. According to (P Haber-Curran, 2015) stated that in the student-centered learning environment that is desirable for problem based learning, the central figure of the learning-teaching process is the student. The learning objective is not the reproduction, recall and learning of passively received learning material but the active and creative engagement of students in group work and in individual study thus transferring the skills and knowledge. The individual, autonomous self-directed learning gives the freedom to the learner to decide individually and consciously on the learning strategy and on the time scale, s/he wants to follow.

Teachers' Role in Problem solving strategy Based of Learning Environment

The most important achievement of a teacher is to help his/her students along the road to independent learning. In problem based learning, teacher acts just as facilitator, rather than a

primary source of information or distributer of knowledge. According to (Eshetu, 2015) argued that within problem based learning environments, teachers' instructional abilities are more critical than in the traditional teacher-centered classrooms. Beyond presenting English language knowledge to the students, teachers in problem based learning environments must engage students in arranging information and using their knowledge in applied sand real settings.

Evidence of poor performance in English by elementary school students highlight the facts that the most desired in application for English cannot be sustained. This makes it paramount to seek for a strategy for teaching English that aims at improving its understanding and performance by students practically (A Ardani, 2015).

Problem solving as a method of teaching may be used to accomplish the instructional roles of learning basic facts, concepts, and procedure, as well as goals for problem solving. Problem solving is a major part of English has many applications and often those important problems in, English. We include problem solving in school on teaching English because it can stimulate the interest and intelligence of the students (Eisner, 2017).

OBJECTIVES OF THE STUDY

- 1. To analyze the impact of using problem solving as a teaching strategy on learners' learning outcomes during teaching of English at elementary level.
- 2. To enquire the impact of using problem solving as a teaching strategy on learners' learning outcomes during teaching of English at elementary level.
- 3. To compare the impact of using problem solving as teaching strategy on learners' learning outcomes during teaching of English at elementary level.
- 4. To find out the impact of using problem solving as a teaching strategy on learners' learning outcomes during teaching of English at elementary level.
- 5. To evaluate the impact of using problem solving as a teaching strategy on learners' learning outcomes during teaching of English at elementary level.

RESEARCH QUESTIONS

- 1. What is the impact of using problem solving as a teaching strategy on learners' learning outcomes during teaching of English at elementary level?
- 2. How impact of using problem solving as a teaching strategy on learners' learning outcomes during teaching of English at elementary level?
- 3. What is the impact of using problem solving as teaching strategy on learners' learning outcomes during teaching of English at elementary level?
- 4. How impact of using problem solving as a teaching strategy on learners' learning outcomes during teaching of English at elementary level?
- 5. What is the impact of using problem solving as a teaching strategy on learners' learning outcomes during teaching of English at elementary level?

THE BASIC ASSUMPTIONS / HYPOTHESIS

There is no significant difference between traditional teaching method and problem solving teaching strategy and learners learning outcomes during teaching of English.

METHODOLOGY OF THE STUDY

The study of titled "The problem solving teaching strategy and learners' learning outcomes during teaching of English in the rural context at elementary level District Shaheed Benazir Abad" was an experimental in nature.

Research Design

The status of Lally, (2010) defined a research design as "the researcher's overall for answering the research question or testing the research hypothesis".

In this study, the impact of two independent variables that is teaching methodology and pervious class achievement was be studied on problem solving teaching strategy and academic achievement. Further the dependent variable that is academic achievement was be categorized into three levels: high, average and low, in the subject of English. Other intervening variables such as socio-economic status, age, gender, extra coaching etc were equated to find out the real impact of problem solving teaching strategy. Mortality was not a problem as no students left the school or remained absent for long time due to any reason.

Keeping in view the nature of variables in this study ,a 2X3 factorial design was used to analyze the impact of problem solving teaching strategy (ability) and academic achievement of high, average and low achievers of experimental and control groups in the subject of English at elementary level.

Population

District Shaheed Benazir Abad was selected for this study and experiment on the basis of Principal's cooperation and it also represents all other schools of Sindh because students of different sectors having equivalent socioeconomic and residential status get admission in this school. The results obtained from the students of this school can be generalized over the students of other schools of Sindh. Further detail of the population for this study is given as under. All the male and female learners of 8th grade studying in working under the administrative control of Directorate of Education Sindh, was the target population for this study.

Sample and Sampling

In the status of (Aboagye, 2015) that define a sample as "a proportion of a population". The sample was chosen from Elementary School of Shaheed Benazir Abad District. A carefully selected sample can provide data representative of the population from which it is drawn. Students included in population were at 8th grade level of academic achievement. Due to this diverse nature of the population, random sampling was used in selection of representative sample according to the following steps:

- 1. Students of 8th grade were enlisted in descending order on the basis of their marks obtained in annul exams of 7th class.
- 2. Students were divided in three categories i.e. high, average and low according to set criteria. This was adapted from the grading criteria of Sindh Text Book Board of intermediate and Secondary Education Maher Ali Jamali e.g. "students obtaining above 80% marks are placed in grade A+1, 70% to 79% in grade A, 60% to 69% in grade B, 50% to59% in grade C,40% to 49% in grade D and 33% to 39% in grade E while students obtaining less than 33% are declared fail".

For this study students achieving A+1 and A grades were taken as high achievers, B &C graders were taken as average achievers, D & E graders were taken as low achievers. Percentage wise detail for high, average and low achievers is as under.

DATA ANALYSIS AND INTERPRETATION

Section One: Data Analysis

This comparative study of "The problem solving teaching strategy and learners learning outcomes teaching of English and traditional teaching method. In this study was the findings of the data of the both approaches that is problem solving teaching strategy and traditional teaching method" were compared and analyzed. This consists of two sections, one is included of analyzing the results and other is included testing of hypothesis and also analyzing the pie graphs.

Section Two: Testing of Hypothesis

There is no significant difference between the mean gain scores of learners learning outcomes in the subject of English taught through problem solving teaching strategy and taught through traditional teaching methods. The hypothesis was rejected based on analysis given in the Table

Type of Method	Ν	Mean	Std. Deviation	Std. Error Mean
Traditional Method	30	6.7000	2.57508	.47014
Problem Solving Strategy	30	19.4000	1.19193	.21762

Table 1. One-Sample Statistics

One-Sample Test							
	Test Value = 0						
Type of Method	Т	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference		
					Lower	Upper	
Traditional Method Problem Solving Strategy	14.251	29	.000	6.70000	5.7384	7.6616	
	89.148	29	.000	19.40000	18.9549	19.8451	

An independent t-test was run to compare the mean scores of the control and experimental groups on the post-test. As displayed in Table 1, the mean score for the control group is 6.7000, with a standard deviation of 2.57508. The mean score and the standard deviation for the experimental group are 19.4000 and 1.19193, respectively. The results show differences between the control and experimental groups' mean scores on the post-test.

Table 1.1: Differences between the control and experimental groups' mean scores onthe post-test

Type of Method	Mean
Traditional Method	6.7
Problem Solving Strategy	19.4



Figure 1: Comparision of Tradition Method and Problem Solving Strategy

The Pie chart shows that the mean of traditional teaching method is 6.7000 and the mean of problem solving strategy is 19.40000. So, the pie chart shows that marks of problem solving teaching strategy was better than traditional teaching method.

Decision

Hence the tabulated value of t-test is 6.7 which is less than calculated value 19.4 which showed that null hypothesis was rejected i.e. both tests were not same. Further we interpret that traditional teaching method with problem solving teaching strategy is better than traditional teaching method without problem solving teaching strategy.

FINDINGS & DISCUSSION

Findings drawn from the analysis of data were:

There was significant difference between the mean gain scores of academic achievements of average achiever students in the subject of English taught through problem solving teaching strategy and taught through traditional teaching method as the t value was 14.251 with df 29 and at .000 level, and the mean gain score (6.70000) of average achiever students taught through problem solving teaching strategy was better than the mean gain scores (19.40000) of the average achievers' students taught through traditional teaching method.

CONCLUSIONS

Conclusion drawn from the findings and analysis of data were problem solving teaching strategy is more effective for academic achievement in the subject of English at elementary level as the experimental group taught through problem solving teaching strategy performed better in achievement test than the control group taught through traditional teaching methods. High achievers' students of experimental group taught through problem solving teaching strategy performed better in achievement test than the high achiever students of control group taught through traditional teaching methods, likewise, average and low achievers students of experimental group also performed better than the average and low achievers' students of control group. It was also concluded that high and average achievers' students of experimental group performed better than the low achievers' students in achievement test. Whereas the performance of high and average achievers' students was equal. In domain, specific problem solving teaching strategy test, the students of experimental group taught through problem solving teaching strategy performed better than the students of control group taught through traditional teaching methods. High achievers' students of experimental group, taught through problem solving teaching strategy performed better in domain specific problem solving teaching strategy test than the high achievers' students of control group taught through traditional teaching methods, likewise, average and low achievers students of experimental group also performed better than the average and low achievers' students of control group.

It was also concluded that high achievers' students of experimental group performed better than the average and low achiever students in domain specific problem solving teaching strategy test. Whereas the performance of average achievers' students was also better than low achiever students. In the subject of English, the reasoning ability of the students taught through problem solving teaching strategy was better than the students of control group taught through traditional teaching methods. High achiever students of experimental group, taught through problem solving teaching strategy showed better reasoning ability than the high achievers students of control group. Similarly, the average and low achievers' students of experimental group also showed better reasoning ability than that of the average and low achiever students of control group.

It was also concluded that high achiever students of experimental group showed better reasoning ability than that of the average and low achiever students. Whereas the average achiever students also showed better reasoning ability than that low achiever student's .In the subject of English, a strong positive relationship was found between the academic achievement and domain specific problem solving teaching strategy. Similarly, there was also strong positive relationship between reasoning ability and academic achievement.

RECOMMENDATIONS

- 1. This conclusion of the study was supported by the evidence that problem solving teaching strategy are more effective in developing domain specific problem solving teaching strategy as compared to traditional teaching methods. It is therefore, recommended that curriculum developers may incorporate the problem solving teaching strategy in the subject of English and to other subjects at elementary level.
- 2. Problem solving teaching strategy proved effective not only in the development of problem solving teaching strategy but also for the academic achievement. Using this strategy, learners can obtain better scores. So, to make it the part of teaching learning practices, in-service teachers training may be conducted especially for English teachers.
- 3. Pre-service teacher training institutions may incorporate problem solving teaching strategy as part of the curriculum/training. So, they should train the teachers in using problem solving teaching strategy emphasizing development of problem solving teaching strategy and reasoning ability among the students.
- 4. English teachers must develop lesson plans according to problem solving teaching strategy in emphasizing on the development of problem solving teaching strategy and reasoning ability among the students.
- 5. Textbook writers may incorporate problem solving teaching strategy activities in textbooks to facilitate the teaching learning process and helpful in problem solving teaching strategy.
- 6. The assessment agencies e.g. Boards of intermediate and Secondary Education may prepare the team test developers who would be able to incorporate the problem solving teaching strategy items in the tests of different subjects especially in subject of English.

REFERENCES

- [1] Ardani, B. B. (2015). Eksperimentasi model pembelajaran problem based learning, group investigation dan think pair share dengan pendekatan. Retrieved from jurnal.fkip.uns.ac.id.
- [2] Roehl, S. R. (2013). The flipped classroom: An opportunity to engage millennial students through active learning. *Journal of Family*.
- [3] Aboagye, E. (2015). A study of the dimensions of organizational justice. Retrieved from ugspace.ug.edu.gh/.../EMMANUEL%20SEFA%20ABOAGYE_%20A%20STUDY% 2.
- [4] Al, L. E. (2010). *Habit formation is modelled as an increase in automaticity with management*. Retrieved from https://www.coursehero.com.
- [5] Gomes, B. M. (2013). Life skills in educational contexts: testing the effects of an intervention programme. *Educational Studies*.
- [6] Cohen, R. L. (2014). *Designing groupwork: Strategies for the heterogeneous classroom*. USA: Teachers College Press.
- [7] Eisner, E. (2017). *The enlightened eye: Qualitative inquiry and the enhancement of educational practice*. USA: Teachers College Press.
- [8] Eshetu, G. (2015). *Factors affecting instructional leaders perception towards educational media utilization in classroom teaching*. USA: Teachers College Press.
- [9] Ijah, I. J.A. (2016). Effects of cooperative and problem-solving learning strategies on students' achievement in senior secondary school history in Oyo State, Nigeria. *International Journal of Arts*.
- [10] Kylku, V. L. (2017). Using artwork as problem context in generic critical thinking instruction: A strategy for thoughts. *Thinking Skills and Creativity*, 25, 53-59.
- [11] Singh, M. J. (2017). Children's voices: Conflict affected orphans in residential care in Jammu and Kashmir. *Children & Society*, *7*, 12-19.
- [12] Mahmood, S. (2017). *Testing the effectiveness of a critical thinking skills intervention for initial teacher education students in Pakistan*. Retrieved from *eprints.soton.ac.uk*.
- [13] Mainert, J. (2017). *Testing 21st century skills in a changing nature of work: the construct validity of complex problem solving and organizational*. Retrieved from *orbilu.uni.lu*.
- [14] Wang, T. Y. (2015). *Explaining team creativity through team cognition theory and problem solving based on input-mediator-output approach*. Retrieved from *airitilibrary.com*.
- [15] Oyelana, O. (2016). Student-centered teaching in a non-student-centered world: Clinical nurse educators' lived experience. Retrieved from *mspace.lib.umanitoba.ca*.

- [16] Haber-Curran, D. T. (2015). Student-centered transformative learning in leadership education: An examination of the teaching and learning process. *Journal of Transformative*, *1*, 20.
- [17] Walker, Y. (2014). Emancipated leadership of a first-generation free African American: How did Bryant manage'crucibles' of structural inequality within four systems to achieve effective. Retrieved from *search.proquest.com*.
- [18] Yahaya, A. (2017). Effect of problem based learning (pbl) strategy on senior secondary shool students'achievement in mathematics in malumfashi. Retrieved from *dspace.fudutsinma.edu.ng*.
- [19] Yahaya, A. (2017). Effect of problem based learning (pbl) strategy on senior secondary shool students'achievement in mathematics in malumfashi. Retrieved from *dspace.fudutsinma.edu.ng*.