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Project Works In Improving Mathematics Skills among 8th Class Students

Dr. M. Nageswara Rao
M.Sc., M.Sc., M.Ed., M.Phil., Ph.D, SET, NET

Abstract

This paper emphasizes the Mathmatics skills in 8th class students in Ramachandrapuram Mandal, sangareddy dist, Telangana State. Finally, positive results has come under this study.

***Keywords**: Mathematics, Project work*

Introduction

It is a student-centered pedagogy that involves a dynamic classroom approach in which students acquire a deeper knowledge through active exploration of real-world challenges and problems. Students learn about a subject by working for an extended period of time to investigate and respond to a complex question, challenge, or problem it is a style of active learning and inquiry based learning. PBL contrasts with paper based, rote memorization, or teacher-led instruction that simply presents established facts or portrays a smooth path to knowledge by instead posing questions, problems or scenarios.

Project based learning (PBL) thus: "PBL integrates knowing and doing. Students learn knowledge and elements of the core curriculum, but also apply what they know to solve authentic problems and produce results that matter. PBL students take advantage of digital tools to produce high quality, collaborative products. PBL refocuses education on the student, not the curriculum--a shift mandated by the global world, which rewards intangible assets such as drive, passion, creativity, empathy, and resiliency "Project based learning is a comprehensive perspective focused on teaching by engaging students in investigation. Within this framework, students pursue solutions to nontrivial problems by, asking and refining questions, debating ideas, making predictions.

Designing plans and/or experiments, collecting and analyzing data, drawing conclusions. Communicating their ideas and to others, asking new questions, and creating artifacts."The basis of PBL lies in the authenticity or real ”life application or the research, Students working as a team are given a "driving question" to respond to or answer, then directed to create an artifact (or artifacts) to present their gained knowledge. Artifacts may include a Variety of media such as writings, art, drawings three - dimensional representations, videos, photography, or technology based presentations while most commonly known as a part of adult education, project based learning in school-age children is not new. Project-based learning can be described as student centered instruction that occurs over an extended time period, during which students select. Plan, investigate and produce a product, presentation or performance that answers a real-world question or responds to an authentic challenge. Teachers generally serve as facilitators, providing scaffolding, guidance and strategic instruction as the process unfolds. According to an historical survey of project and problem-based learning undertaken by Michael Knoll at the University of Bayreuth in Germany (Knoll, 2005), project methodology in American education can be traced to an early 20th century description offered by William H. Kilpatrick (1918), which referred to the Project Method as a hearty, purposeful act, generally a project or pursuit. Undertaken by the chili. Which has four distinct? Student centered phases: purposing, planning, executing and judging ideas such as these, combined with the model for scientific inquiry, have contributed to a variety of student-centered methods such as problem-based, case based discovery learning, and expeditionary learning.

Project Based Learning

Project learning, also known as- project-based learning, is a dynamic approach to teaching in which students explore real-world problems and challenges, simultaneously developing cross-curriculum skills while working in small collaborative groups. Because project based learning is filled with active and engaged learning, it inspires students to obtain a deeper knowledge of the subjects they're studying. Research also indicates that students are more likely to retain the knowledge gained through this approach far more readily than through traditional textbook-centered learning, in addition, students develop confidence and self-direction as they move through both team-based and independent work. In the process of completing their projects. Students also hone their organizational and research skills, develop better communication with their peers and adults, and often work within their community while seeing the positive effect of their work.

Because students are evaluated on the basis of their projects. rather than on the comparatively narrow rubrics defined by exams, essays, and written reports, assessment of project based work is often more meaningful to them. They quickly see how academic work can connect to real life issues and may even be inspired to be a career or engage in activism that relates to the project they developed, in students also thrive on the greater flexibility of project learning. In addition to participating in traditional assessment, they might be evaluated on presentations to a community audience they have assiduously prepared for, informative tours of a local historical site based on their recently acquired expertise, or screening of a scripted film they have painstakingly produced.

Project learning is also an effective way to integrate technology into the curriculum. Atypical project can easily accommodate computers and the Internet, as well as interactive Whiteboards, global positioning system (GPS) devices, digital still cameras, Video cameras, and associated editing equipment.

How Well Is It Working?

Studies suggest that the more time teachers spend on professional development, the more significantly they change their practices and that participating in professional learning communities optimizes the time spent on professional development. Therefore, if is striking that one national survey found that in nine of 10 content areas, most teachers said that they spent one day or less on professional development during the previous year.

While adequate time for professional development is essential, studies also show that by it, more time does not guarantee success. If the sessions do not focus on the subject matter content that research has shown to be effective. Then the duration will as little to change teacher's practices and improve student learning.

Most states and school districts do not know how much money they are spending on professional development for teachers or what benefit they are actually getting from their outlays because they do not systematically evaluate how well the additional training works.

An effective evaluation includes an examination of actual classroom practices, the training impact on teacher behavior, and its effect on student learning. Evaluation should be an ongoing process that starts in the earliest stages of program planning and continues beyond the end of the program.

Mathematics education it is seen that issues related to related to gender and mathematics are complex. During the years between 1970 and 1990, there were probably more research studies published concerned with gender and mathematics than in any other area (Leader, 1996) Gender differences in learning mathematics cannot be explained in a simplified manner because there is the multiplicity of forces and environments that operate apart from gender which influences a child's learning of mathematics Gender differences in mathematics may vary due to socioeconomic status and ethnicity, school environment, the mindset of the teacher among other things.

According to Albert Bandera's (1977) persistence theory self efficacy is positively related to persistence. In other words persistence on a mathematics problem in spite of frustrations is more likely to lead to a solution/success (Brown, Lent & Larkin, 1989 Stunk, 1985). Low self efficacy in females has been attributed to low parental expectancies and sexual stereotyping in the attitudes of teachers and male students in school.

Gender differences remain a prime area of research in mathematics education with studies being carried on all over the world. Turner, R. (1994) investigates sea differences of first year secondary school students in mathematical performance in Wuhan, a central city of China. The study focuses on three mathematical areas: logic space and numeracy.

Whatever the case maybe, the importance of a mathematical basis for all students lies in the fact that today the society is becoming more and more technological. This impact has be seen not only in engineering and science but also in diverse areas like, information technology, biology, healthcare, advertising and manufacturing. Without learning mathematics, one cannot chose to pursue graduate study in many fields, change careers, or do many other things. Not all people will chose to take up areas where the knowledge of mathematics is essential, but they should have the option to make that choice.

The importance of language in mathematics education is crucial for it covers aspects of reaching. Learning-understanding and communication of mathematics. Through the use of language. Mathematics becomes meaningful and students are able to communicate JV; language of mathematics adequately. The objectives of mathematics education are for the students to understand mathematical concepts and possess ability to express their understanding of these concepts. Furthermore, mathematics learners are required to be competent in both communication and mathematics specific language. Nevertheless. Competency in the mathematics specific language does not necessarily contribute to competency in the natural language. The teaching and learning process in Emma is bilingual using both Regional language and English languages from preschool in University. Competency in the first language is an important factor in students' capability to reason in mathematics in English as a second language.

Need of the Study:

It is observed in schools that students do not understand basic concepts in project works in mathematics. Due to this low score are attained in regular school exams, this creating a problem in to the minds of students that mathematics is a hard subject and trying to attempt exams with rotten memory. This is causing students divert from science to arts subjects as their higher studies Students who are problem towards mathematics is ultimately effecting analytical skills, problem solving skills are mitigated and ultimately unable get good results in State level as well as National level exams. This is a dangerous situation where students are coming out of the class room without basic skills in mathematics Hence, to suggest at least a few suggestions on how to overcome this problem in developing countries like India.

Significance of the Study:

The present study is aimed at signifying scientific knowledge particularly mathematics to secondary school children where to initiate scientific temper among them. It is imperative without scientific knowledge; one cannot move a step in this technology age. From last two centuries. all nations are given much priority to science education in school level. Countries which are giving less priority to science in their budget are under developed in science & technology. Mathematics is providing basic principles of all technological activities. So this branch of science providing problem solving as well as analytical skills in order to understand other branches. So appreciation of mathematics will be strengthening economical development. Day to day developments in research activities in science made necessary to know the students. To this, mathematics teacher plays a vital role and need to update his/her knowledge. He needs to create interest to students on

experiments in physical science. To overcome problems on mathematics. Need to create scientific attitude to the budding scientists in the school level.

Objective of this Study

The following objectives are selected for the study. To study

- the learning level of mathematics using project works of the 8th Class students.
- the significance of the difference the male and female students in respect of their learning math's using project works.
- the significance of the difference in the medium of learning in math's using project works.

Hypothesis: Null Hypothesis was formulated.

Methodology:

Methodology is the sysematic, theoretical analysis of the methods applied to a field of study. It comprises the theoretical analysis of the body of methods and principles associated with a branch of knowledge. Typically it encompasses concepts such as paradigm, theoretical model, phases and quantitative or qualitative techniques. A methodology does not set out to provide solutions it is, therefore, not the same as a method. Instead a methodology offers the theoretical underpinning for understanding which method set of methods called best practices can be applied to specific case for example to calculate a specific result.

It has been defined also as follows:

1. The analysis of the principles of methods, rules, and postulates employed by a discipline.
2. The systematic study of methods that are can be or have been applied within a discipline.
3. The study or description of methods.

Selection of Sample:

Sample is a small portion of a population selected for observation and analyses. It is a collection consisting of a part of subject of objects or individuals of population, which is selected for the purpose of representing the population. By observing the characteristics of the sample, one can make certain inferences about the characteristics of the population from which is drawn. Population are in Ramachandrapuram, Sangareddy District There are Three (3) High school but, I have taken Two (2) School, for the Sample of The Present Study.

Sampling comes to the researcher assistance by enabling him/ her to study, a position of the population rather than the entire population. Sampling is indispensible to the researcher, as the time, money and effort involved do not permit a researcher to study the possible members of a population.

The sample chosen for the study is students learning in High Schools of to investigate learning levels to mass media with the variables like gender and medium of study.

The study is restricted to Govt. High School and Model School children of Ramachandrapuram, Sangareddy District, and Telangana State only due to the time factor.

As investigator, I distributed 100 questionnaires to the students studying 8th class in 2 Secondary Schools. I obtained 100 samples for the present study is 100 students learning 8th class and these Schools of Bommalaramaram (Vill).

Showing The Distribution of Sample

S.No.	Name of the School	8th Class				Total
		Boys		Girls		
		TM	EM	TM	EM	
01	Govt. High School	25	13	10	02	100
02	Model School	0	38	0	12	
TOTAL		76		24		100

Variable

The phobia towards physical science to the secondary school students assumed to depend on certain independent variables. They are:

1. Gender.
2. Medium of instruction

Dependant Variables

1. Usage of Project works in mathematics learning

Variable Terms Defined

The academic need of using Project works in mathematics learning to students assumed to be depending certain variables like Gender. Medium of instruction and performance in corn [are to other subjects.

Gender: The state of being male or female (typically used with reference to social and cultural differences rather than biological ones.

Methodology and Tools Used:

Being investigator of this, survey method is adopted for this research work, Survey are basic any research procedures such as questionnaires. Interviews, content analysis. Rating methods and observation. After wide reading, the selected the areas of research problem need to be identified, the component of research area to identity is called as tools of research. It has been discussed with the guide and the other mathematics teachers in secondary schools. Proper care has been taken about the inclusion of the terms in the questionnaire. The Principles are followed and the characteristics of the questionnaire have kept in mind while preparing the tool. It has decided to the students initially the tool was consisted 50 items. The tool was checked and rechecked and standardized by the guide and follow science teachers. Later a tool of 30 items was finalized.

The questionnaires are administered with sufficient care and time. Being researcher of this study, I personally visited the Two (2) Secondary Schools included in the sample and made an appeal to the head of the School and Mathematics Teachers handling Secondary level games co-operate for the study undertaken.

Though the terms in the questionnaire are simple, instructions are clear, explained the scope of the items once again to High School students and handed over them most of the items in the questionnaire can be answered instantaneously. The questionnaires completed in all aspects are collected by me.

Data Collection

The students are told the purpose of data collection and they are asked to arrange the information truthful and purposeful. For doing this, help taken from Math's Teacher of concerned School. Each student is asked to read the statement once or twice and round up the number allotted to the one option of five

alternative answers given along with each statement. The data, thus collected has statistically treated in such a way that would be draw interpretation and generalization.

Limitations of the Study

The following are the limitations under the study:

1. This study is limited to academic performance in 8th class only.
2. This study restricted to students of Ramachandrapuram municipality, Sangareddy Dist. Telangana state only.
3. This study is limited to only Telangana state Syllabus only.
4. This study is limited to two schools Govt. and Model School.

The statistical analysis employed is: Percentage technique for item wise analysis and the statistical interpretation like Mean, Standard Deviation and Standard Error of item wise data. and Chi- Square test.

Result of Data Analysis and Interpretation

The procedure serves the purpose of the present investigation and test the Null Hypothesis (Ho). The following norms have been adopted for analysis of the responses:

1. Item wise analysis has been done.
2. Items for which responses are 25% and above are only taken for analysis and interpretation purposes.
3. Items with less than 25% responses are however omitted from discussion

The analysis and interpretation of data for all 30 items is discussed as item wise analysis.

Findings

Based on the results obtained and it's interpretations arrived at following findings. Findings of the study are presented according to the order of analysis made in the earlier chapters.

1. Being it is easy to can explain the reason behind an idea irrespective medium their study, above 80% is gave some and a lot with it.
2. Being it is easy to represent and analyze relationships using tables, charts, or graphs irrespective medium of their study, above 90% are some and a lot with it.
3. Being it is hard to Work on problems for which there is no immediately obvious method of solution irrespective medium of their study, above 90% are little and some with it.
4. Being It is easy to use computers to solve exercises or problems irrespective medium of their study. Above 90% are little and some with it.
5. Being it is easy to Write explanations about what was observed and why it happened irrespective medium of their study, above 90% are some and a lot with it,
6. Being it is easy to out events or objects in order and give a reason for the organization irrespective medium of their study, above 94% are little and some with it.
7. Being it is easy to put events or objects in order and give a reason for the organization irrespective medium of their study, above 81% are little and some with it,
8. Being it is easy to run project work individually with assistance from the teacher irrespective medium of their study, above 80% are a lot with it
9. Being it is hard to work together as a class with students responding to one another irrespective medium of their study, nearly 70% are some with it,
10. Being it is hard to work in pairs or small groups without assistance from the teacher irrespective medium of their study, nearly 66% are some with it.

11. Being it is easy to method of showing rational numbers on directed line segment irrespective medium of their study, nearly 97% are some and a lot with It
12. Being it is hard to finding the square root of the number by using factor method division method irrespective medium of their study; nearly 55% are some with it.
13. Being it is easy to simplify the equation by using BODMAS rule irrespective medium of their study, nearly 55% are some with it.
14. Being it is very easy to solve the general equations with the operations of multiplication and division irrespective medium of their study, 100% are some and a lot with it.
15. Being it is very easy to writing the geometrical proof for the Identities irrespective medium of their study, 99% are little and some with it.
16. Being it is very easy to explain the difference between simple interest and Compound Interest irrespective medium of their study, 86% are some with it.
17. Being it is. Very hardy to finding the similar diagrams in Geometric diagrams irrespective medium of their study, 100% are little and some with it.
18. Being it is very easy to preparing the frequency distribution table irrespective medium of their study, 67% are some with it.
19. Being it is very easy to use web for finding ways for projects in mathematics irrespective medium of their study, 85% are some and a lot with it.
20. Being it is very easy to having scientific methods and inquiry skills irrespective medium of their study, 87% are some and a lot with it.
21. Being it is very easy to understand as mathematics is primarily a practical and structured guide for addressing real situations irrespective medium of their study 99% are some and a lot with it,
22. Being it is not fact that some students have a natural talent for mathematics and others do not irrespective medium of their study, 71% are little with it
23. Being it is need that it is important for teachers to give students prescriptive and sequential directions for doing mathematical calculations irrespective medium of their study, 74% are some with it.
24. Being it has truth in that focusing on rules is a bad idea and it gives students the impression that the mathematics are a set of procedures to be memorized, irrespective medium of their study, 97% are little and some with it.
25. Being it is motivating that be able to think creatively irrespective medium of their study, 82% are some with it,
26. Being it is fact that understands how mathematics is used in the real world, irrespective medium of their study, 87% are some and a lot with it.
27. Being it is fact that be able to provide reasons to support their conclusions, irrespective medium of their study, 87% are some and a lot with it.
28. Being it is need that to remember formulas and procedures. Irrespective medium or" their study. 77% are a lot with it.
29. Being it is need to think in a sequential and calculation manner, irrespective medium of their study, 97% are say some and a lot with it.
30. Being it is need to able to understanding mathematics concepts. Principles and strategies, irrespective medium of their study, 91% are say some and a lot with it
31. There is a considerable variation in learning levels due to projects in Mathematics among gender of the students.
32. There is no association between the medium of learning and project works in Mathematics,

So on the bases of findings, the following academic problems like project based earring to improve mathematics skills among Vlll class students.

1. Students facing some academic problems who are learning mathematics using project methods in high schools.
2. The present mathematics syllabus is over loaded and creating difficulty ' in understanding it.
3. Students are learning whole. Syllabus in the academic year.
4. Students are facing difficulty in mathematics while writing exam.
5. Students are facing difficulty in mathematics in concept formation.
6. Students are facing some problems while writing proper answer to mathematics questions.
7. Students are facing difficult in developing scientific skills among mathematics topics.
8. Mathematics Laboratory is ill equipped particularly in doing mathematics experiments
9. Students are facing some problems from mathematics Teacher.
10. There is no opportunity for improvement of scientific temper for students in high schools.
11. Other subjects apart from mathematics are extra burden for students in high schools.
12. Transfer of regular mathematics teacher and deputing other from nearest school is causing problems to the students in high schools,
13. Low socio-economic statuses of children are affecting learning of mathematics in high schools.

Conclusion

The educational process depends to a great extent on the character and ability of the students who are corner stone of the research of education. The same implies to Mathematics students learning it. The student is the pivot of the education system. He is a national builder shaping the destiny of our country in the class rooms. The quality of Mathematics education can be improved by providing better facilities in learning, better library and laboratory. The short comings need to be looked into with a view to be remedied. Otherwise the danger is that no educational programs can be successful in this country. Further a student should occupy a key position in any programmers that is suggested. There is a considerable variation in learning levels due to projects in Mathematics among gender of the students. There is no association between the medium of learning and project works in Mathematics.

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