A STUDY OF EFFECTIVENESS OF TREATMENT DEVELOPED FOR SOLVING THE DIFFICULTIES FACED IN UNDERSTANDING THE CONCEPT OF ANGLES IN THEOREMS BY STUDENTS OF SECONDARY SECTION

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Introduction

'If a student is unable to reach the school then the school should reach the student', said by Swami Vivekananda. Similarly, when any student is unable to understand any concept then teacher should play a role of guide and should try to use innovative methods to make the concept easy to understand. Sometimes use of repetitive methods make the topic difficult for students to understand. At that moment it is a must to use different techniques for explanation and make it easy to understand. This helps in making process of teaching effective and the students get opportunity to learn the topic with an ease.

Angle is one of the topics from such type of concepts. Angle and its types are being a part of angle theorem study. Angles in theorems are a major part of geometry for secondary section students as per syllabus. I will try to explain this concept by using innovative methods for making it easy to understand. This will give me immense pleasure on success.

Education is a continuous process. Parents send their children to the school for an all-round development of their personalities. All round development of students mean development of knowledge, emotions and activities. For such kind of development angles in theorem is also a part of study.

In today's world right from uneducated person to an educated person, everyone is aware of the need of knowledge of angles in day to day life. Knowledge of drawing angles properly is also necessary to identify types of angles correctly. Angles are used in Textbooks, Notebooks,

windows, doors, hands, leg, watch, etc. Tailor, Carpenter, Engineer, Architect need to know about the angles.

Statement of the Problem

A study of effectiveness of treatment for identifying and solving the difficulties faced in understanding the concept of angles in theorems by students of Secondary section

Operational Definitions of the terms

Each research is independent and different. Researcher takes few words in title as per his/ her assumptions/ meanings. Definitions of those words in compact and small details are necessary for the reference of research. Such definitions are helpful and useful for researcher as well as others.

Operational definition of present topic as follows-

1. Secondary Section School – A place to impart education and all round development of students from classes of std. 9 and 10.
2. Medium – English medium school.
3. Student- A person who attends a school, college or university: a person who studies something.

Objectives of the study

1. To identify the problems caused in the understanding of angle in theorems by the students of secondary section.
2. To develop and implement treatment for the understanding of angle in theorems by the students of secondary section.
3. To study the effectiveness of treatment for the understanding of angles in theorems by the students of secondary section.

Assumptions of the study

Each research is based upon some assumptions. Such assumptions and accepted situations are noted in research proposal. If a researcher notes down imaginary assumptions then he gets direction to the research. It helps in finding solution easily. Researcher needs to study in detail about the problem for this purpose.

Researcher has following assumptions-

1. Use of teaching aids and different methods help in removing difficulties related to any topic.

2. Knowledge and skill of drawing angles and understanding different types helps to make the base of subject strong.

Hypothesis of the study

Research Hypothesis

There is a positive impact after conducting remedial treatment in the school for secondary section.

Null Hypothesis

There is no impact after conducting remedial treatment in the school for secondary section.

Scope and Limitations of the

Scope

1. This research would be conducted in Ram Krishnaa Academy, English Medium Secondary School, Panvel.

2. This research work will be held with 60 students studying in std. 9.

3. This research work will be conducted for the angles of theorems from maths in Academic Year 2019-20 only.

Limitations

1. This research work is limited to Ram Krishnaa Academy, English Medium Secondary School, Panvel.

2. This research work is limited to 60 students studying in std. 9.

3. This research work is limited for the theorems of angles from maths in Academic Year 2019-20 only.

 Significance of the study

1. This study is helpful in identifying problems and using treatment to resolve it. Out of many solutions, best suited solution is possible to apply after an experiment.

2. Secondary section students have to decide their choice of career at this stage. Such difficulties will affect their confidence towards the field they like.

3. This study will enable the students to get a chance to learn without difficulties and will be helpful to learn related concepts with same experience.

4. It will help students to clarify their doubts and to learn with interest.

5. This study is very useful to enhance skills and knowledge of angles in theorem.

6. This study will help students to understand importance of angles in daily life and their applications around us. Fear of unknown will be removed from the student's mind.

7. It will also be helpful for the further research as it's a wide concept.

8. It will help teachers to identify and solve the difficulties raised among their students for the same or other concept.

Research Methodology

Research Method-

Research methods can be called planning and execution undertaken by the researcher to solve the specific research problem. The research problem can be past oriented or present oriented or future oriented. This on the basis of conclusions, the research methods are divided into 3 groups.

  i. Historical method

 ii. Survey method

iii. Experimental method

Research Design-

Here, I will be using single group experimental Pre-Test Post-Test design. A single case will be observed at two time points, one before the treatment and one after the treatment. Changes in the outcome of interest are presumed to be the result of the intervention or treatment. No control or comparison group is employed.

Research Population-

Students studying in SSC board of Maharashtra are the population for this research.

Research Sample-

Sampling ensures convenience, collection of intensive and exhaustive data, suitability in limited resources and better rapport. Typically, convenience sampling tends to be a favored sampling technique among students as it is inexpensive and an easy option compared to other sampling techniques. Convenience sampling often helps to overcome many of the limitations associated with research. For example, using friends or family as part of sample is easier than targeting unknown individuals.

For this research, researcher has used simple random method. In this research, researcher has selected 60 students from English Medium secondary school, Panvel. .

Research tools for Data Collection-

1. Pre-test worksheet to judge previous knowledge

2. Activity sheet for performing task

3. Post-test worksheet

4. Feedback checklist

Statistical tools for Data Analysis-

1. Mean, Median

2. Frequency, percentage and Bar Graph

Research Methodology

This research, investigator has used questionnaire to conduct pre- test and post- test. The main objective of the researcher is to identify the difficulties of secondary section students in solving angle theorems and develop an effective remedial treatment for overcoming such difficulties. Researcher collected response from secondary section students to analyse and interpret the data. In Experimental Method, data is collected from a group and applies the treatment to check its effect.

Questionnaires are commonly used to gather first-hand information from a large audience, in the form of a survey. There are different types of questionnaires in practice and the type of questionnaire to be used usually depends on the purpose of the survey and the type of data that has to be collected.

Questionnaires are highly practical and can be carried out by any number of people, and the results can be quickly quantified as well. Over the years, this form of conducting research has also been proven to be more scientifically accurate, as compared to other quantitative research tools.

Types –

1. Structured

2. Semi structured

3. Unstructured

11. Interpretations of data

Students are unable to apply previous knowledge in angle theorems confidently due to the various causes. An effective and interesting treatment needs to improve the understanding of students. Various activities, E- learning material, etc will help in making treatment effective.

For this research , students questionnaire given to 60 students of English Medium Secondary School for Academic Year 2018-19 to collect the data. After collecting data investigator analyzed it and with the use of percentage tool and bar graph interpret it. Also, researcher used different formulae to find mean, standard deviation and 't'- test.

Mean

The mean of distribution is commonly understood as the arithmetic average.

Mean = <u>sum of xi</u>
                        N

Standard Deviation

This is the most commonly used measure of the spread or dispersion of data around the mean. The standard deviation is defined as the square root of the variance (V). The variance is defined as the sum of the squared deviation from the mean, divided by n-1. Operationally there are several ways of calculation:

$$\sigma = \sqrt{\frac{\sum (x - \overline{x})^2}{n}}$$

σ = lower case sigma
$\sum$ = capital sigma
$\overline{x}$ = x bar

't' test

A 't'- test is any statistical hypothesis test in which the test statistic follows a student's distribution of null hypothesis. It can be used to determine if two sets of data are significantly different from each other, and is most commonly applied when the test static would follow a normal distribution if the value of a scaling term in the test statistic were known. When the scaling term is unknown and is replaced by an estimate based on the data, the test statistics (under certain conditions) follows a student's distribution.

Observation and conclusion of student questionnaire

For evaluating the effectiveness of treatment planned for students of English medium secondary school, investor carefully observed student's way of writing answers in the questionnaire. Investor observed it, analyzed it and put some conclusion on student's responses

in pre- test as well as post- test.

Conclusion:

In Pre –Test 48% of students were able to identify different types of angles, their measurements, angle sum properties in triangles and quadrilaterals. In Post –Test 96% of students were able to identify different types of angles, their measurements, angle sum properties in triangles and quadrilaterals. This improvement is visible through the difference between percentage of Pre- Test and Post- Test.

Finding

After the observation of students in concept of opposite angles, alternate angles, corresponding angles, sum of angles and interior angles various difficulties were identified. With the discussion and questionnaire exact problems were understood. Following findings are listed on the basis of questionnaire and observation.

1. Students were not interested in angles.

2. Students were not able to differentiate between complementary and supplementary.

3. Students were confused in using angle properties in theorems.

4. Parent's involvement was very less in guiding students.

Recommendation

For teachers-

1) Need to create interest for angles among the students from std. I.

2) Revision of angles is necessary.

3) More use of teaching aids will help to make concept easy.

4) Projects and assignments will provide scope for application of knowledge.

5) Continuous evaluation of the concepts should be done.

6) Conduct Parent- Teacher meeting.

For students-

1. Students must attend school regularly.

2. Complete homework regularly.

3. More practice of difficult concept is must.

4. Effective and carefully use of teaching aids.

For Parents –

1. Send your ward regularly to the school.

2. Check if homework is completed or not.

3. Take practice of topics taught at home.

4. Parents should meet teachers and parents to keep a track of their ward's progress.

Suggestion

Further research could be done in application of angle in various fields.

Drawing and architectural fields need ample angle knowledge.

Parallel lines and angles as a application and difficulties in it.

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