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Influence of Learning Styles on the Academic Achievement of Prospective Student Teachers in Mathematics.

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ABSTRACT: This study was aimed to evaluate the learning styles of Student Teachers and to determine the effect of their success and relationship between their learning styles on Teaching and Learning Mathematics. The population of this study is comprised the Mathematic Graduate students studying B.Ed. course in education colleges affiliated by TNTEU, Chennai, Tamilnadu, India. Depending on the results obtained from this study, there was a significant difference between pre-test and post-test scores. There was a significant relationship between pre-test and post-test, and the student success revealed that they learned how to study effectively. The study has found statistically significant differences between the results of the first and final applications of the subtests on learning styles and academic success, those subtests covered the items as learning, planed study, effective reading, listening, writing, note taking, using the library, getting prepared for and taking exams, class participation and motivation.

Key Words: Learning Style, Academic Achievement, Prospective Student Teachers.

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I. INTRODUCTION

It is commonly believed that learning styles are not really concerned with "what" learners learn, but rather "how" they prefer to learn and it is also important factor for students' academic achievements and attitudes. Student has different strength and preference in the way how they take in and process information which is to say, they have different learning styles. Some prefer to work concrete information (experimental data, facts) while others are more comfortable with abstraction (symbolic information, theories mathematical models). It is common to describe and classify unique style in many domains. For example, there are various architectural styles.

Mathematics had made a tremendous impact upon society by its products. Mathematics is the subject where ideas can be experimental upon and verified. There are facts, theories, concepts and also a way of working, which together constitute the subject mathematics. Thus mathematics is not just content. Mathematics is content plus processes. Teaching mathematics implies involving the students in investigation, so that they become "Good mathematician for the day". Aims and goals of teaching mathematics is a changing role for mathematics teachers with respect to the organization of teaching content, coordination of learning activities and their participation with students in learning process. There are many debates within the higher education community on how teaching or teaching effectiveness may be defined for instance defining effective teaching as "that which produces beneficial and purposeful student learning through the use of appropriate procedures including both teaching and learning in their definition", and defining effective teaching as the "creation of situation is what successful teachers have learned to do effectively". Learning styles are generally considered in characteristic, cognitive, affective, and psychological behaviors that serve as relatively stable indicators of how learners perceive, interact with, respond to the learning environment.

II. NEED FOR THE STUDY

Learning style refers to the ability of learners to perceive and process information in learning situations. Effective instruction reaches out to all students, not just those with one particular learning style. Students taught entirely with method antithetical to their learning style may be made too uncomfortable to learn effectively, but they should have at least some exposures to those methods to develop a full range of learning skills and strategies. "Necessity is the mother of inventions". Now emerging needs of learning styles that influences students how to learn and facilitate learning for an individual in a given situation and makes clear, that a preferred way of learning and understanding mathematics can also be distinguished in the way of

proceeding. This means a task can be solved in a dissecting or in a scholastic way in combination to several modes of representation for example analytically or visually. Based on these points an attempt has been made by the investigator to develop learning styles and use them as support system to demonstrate the Mathematical concepts and to study their effectiveness and achievements.

Statement of the Problem

The Study taken by the Investigator stated as, "**Influence of Learning Styles on the Academic Achievement of Prospective Student Teachers in Mathematics".**

Objectives of the study

- To design and develop, mathematical learning styles for teaching certain mathematical concepts.
- To implement the mathematical learning styles in teaching learning process.
- To study the effect of the learning styles on mathematical achievements
- To find out the correlation between experimental and control groups.

Hypothesis of the study

- Significant difference exists between pre-test and post-test scores of achievement for experimental group Visual, Auditory, and kinesthetic Styles of Learning.
- At the post-test level the Mean value of achievement differs significantly between control and experimental group vs. Visual, Auditory, and kinesthetic Styles of Learning.
- No significant difference exists between post-test 1 and post-test 2 of Experimental group and Control group Visual, Auditory, and kinesthetic Styles of Learning.

Sample for the study

This study was conducted on the sample of 300 Mathematics Graduate Student Teachers those who are studying B.Ed. course in Education Colleges of Erode District in Tamilnadu, India.

Tools Used

For the present study the researcher utilized the Index of Learning Style Questionnaire Prepared by Barbara A.Soloman and Richard M. Felder. For the academic achievement, Pre-test and Post Test Scores were conducted in the unit Measurement, Trigonometry and Geometry was considered to find out the academic achievement of student teachers in mathematics subject.

Statistical Analysis

From the achievement scores Mean, S.D., and't' values were calculated and the significance of the hypothesis was established.

Table – 1 Comparison of Mean Values of Pre and Post Test Achievement scores of the Experimental Group on different learning styles

Learning Style	Test	N	M	S.D	't' Value	Level of Significance
Visual	Pre-Test	150	11.94	2.11	8.48	0.01
	Post-Test	150	15.89	1.99		
Auditory	Pre-Test	150	12.18	1.88	10.57	0.01
	Post-Test	150	14.10	1.52		
Kinesthetic	Pre-Test	150	11.58	2.60	8.23	0.01
	Post-Test	150	15.26	1.80		

The result in Table – 1 show that the t-value is significant. So, it is concluded that incorporating different types of learning styles in the teaching learning process improves student teachers achievement in Mathematics.

Table – 2 Comparison of Mean Values of Pre –test and post-test Scores of Control groups in Student Teachers achievements in Mathematics.

Test	N	M	S.D	't' Value	Level of Significance
Pre-Test	150	14.10	2.63	2.96	Not Significant
Post-Test	150	13.20	2.25		
Pre-Test	150	15.61	2.26	2.37	Not Significant
Post-Test	150	14.62	2.13		

Pre-Test	150	14.10	2.60	1.84	Not Significant
Post-Test	150	13.18	1.80		

The result in Table – 2 shows that the t-value is Not significant. So, it is concluded that the traditional way of teaching learning process does not show any improvement among student teachers achievement in Mathematics.

Table – 3 Comparison of Mean Values of Pre –test and post-test Scores of Experimental groups in Student Teachers achievements in Mathematics.

Test	N	M	S.D	't' Value	Level of Significance
Pre-Test	150	11.10	2.63	9.25	0.01
Post-Test	150	13.20	1.26		
Pre-Test	150	11.26	2.26	8.92	0.01
Post-Test	150	14.62	1.21		
Pre-Test	150	11.59	2.60	8.86	0.01
Post-Test	150	13.18	1.15		

The result in Table – 3 the scores of pre-test and post-test of experimental group shows that the t-value is significant. So, it is concluded that incorporating different types of learning styles in the teaching learning process improves student teachers achievement in Mathematics.

III. CONCLUSION

- Findings of the present study indicate that the different types of learning styles have to be contributed to enhance Student's achievement.
- By seeing the familiar objectives of learning styles that are used in the indigenous teaching learning process,
- By developing indigenous teaching learning styles, the teachers can be adopting better methods in teaching mathematics.
- Teaching of mathematics is a better achievement through the innovative methods of teaching learning styles than traditional teaching.

IV. EDUCATIONAL IMPLICATIONS

- Mathematic learning styles are about how person likes to understand and learn mathematics and not about how good this person understands mathematics.
- Visual learners may draw a map of event in scientific process, watch videos, use highlights, circle words, underline, note taking with symbols and pictures, makes visual mnemonic devices, navigational activities, recognizes that visual representation stand for spatial information (maps, graphs, etc.).
- Auditory learners may use word association, record lectures, listen videos, group discussion, taking notes mnemonics' mock trial, impromptu speaking, riddles/puns, literary interpretation/analysis etc
- .kinesthetic learners may study in short blocks, imagines in body movement, imagines how body feels as it moves in certain ways. Plays with bodily movement especially how they feel. Actively seeks bodily information design and construct a product, make a game/timeline/bulletin board/mural,
- Teacher may find out own preferred learning style which often becomes predominant learning style. Teacher may find out students learning style for better learning. Parents should be made aware about different kin of approaches help their child learn best.
- Teachers in pre-service training program help them to improve their teaching strategies and it would help the achievement of students.

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