



A study on learning styles of secondary school students in north coastal Andhra districts

Dr. A Amruthavalli Devi¹, S Satyanarayana Reddi²

¹ Assistant Professor in Education, Department of Education, Andhra Kesari University, Ongole, Andhra Pradesh, India

² Research Scholar Edn (PT), Department of Education, Acharya Nagarjuna University, Guntur, Andhra Pradesh, India

Abstract

Learning skills are important in mathematics because they help develop a positive attitude towards mathematics and develop life skills. Mathematics is a subject that has wide applications in our day-to-day situations. It has a significant impact on various aspects of life. A basic knowledge of basic mathematical concepts is valuable even for a layman. As a result of scientific discoveries, what we enjoy in our lives is only possible with the help of mathematics. If the backbone is lost our physical civilization will inevitably collapse.' As a result, people who understand and are good at math have a lot more choices and options, which leads to increased productivity. Such doors and alternatives are blocked for those without mathematical ability. The paper states that mathematical learning skills help student development.

Keywords: mathematics, learning styles, secondary, students, urban, rural

Introduction

More mathematical understanding is required of more people in today's world, which is more reliant on science and technology. The world of future will place even higher demands on a person's education in today's modern culture, and as a result, he should be mathematically literate. Mathematics is the subject which has extensive applications in our day to day situations. It has an important bearing on various aspects of life. A fundamental knowledge of basic mathematical concepts is valuable even for a lay man. What we enjoy in our lives as a result of scientific inventions has only been possible with the aid of mathematics. As a result, Young stated that "mathematics has been the pioneer in these days of iron, steam, and electricity" carries a lot of weight. Our material civilisation would inevitably collapse if the backbone was gone.' As a result, persons who understand and are skilled in mathematics have much more choices and options, which can lead to increased productivity. Such doors and alternatives will be blocked to those who lack mathematical ability.

Learning styles

Every individuals learn in a unique and unconventional way. There are no two persons on the planet who learn in the same manner. Some people learn by working with their hands, others by seeing and processing what they see, and yet others by hearing. Because all living creatures are unique and exceptional, there is no right or wrong way to learn. As a result, everyone has a different learning style. A learning style is a technique that each of us employs to better comprehend stuff. A preferred learning style is one in which a person learns best, reflecting their own strengths and weaknesses. Two pupils in any classroom do not learn the same thing in the same way at the same time. In the current circumstances, it appears to be critical to emphasise the learning differences among pupils by taking into account different learning styles.

Need of the study

In the lives of individuals, learning styles has an important place. When individuals know their learning styles they will integrate it in the process of learning. Then the students will be successful more easily. Learning style is sometimes defined as cognitive, effective, social, physiological behaviours that serve as stable indicators of how learners perceive interact and respond to the learning environment. One of the factors that impact academic success is the success of a student in a class is their learning styles. Studies show that individuals learn in different ways and that they have personal preferences pertaining to gaining and processing knowledge. These personal preferences as known as learning styles (Kumar and Smart 2005).

Objectives of the study

1. To find out the level of learning styles of secondary school students with reference to the following variables.
 - a. Gender (Boys / Girls)
 - b. Locality (Urban / Rural)
 - c. Management (Government Private)
 - d. Medium of instruction (English / Telugu)
 - e. Mathematics achievement. (High Achievers / Low Achievers)
2. To find out the level of learning styles of secondary school students in Srikakulam, Vizianagaram and Vishakhapatnam districts.

Hypotheses of the study

1. The mean learning styles of secondary school students would not be influenced by their gender
2. The mean Learning Styles of secondary school students would not be influenced by the locality
3. The mean Learning Styles of secondary school students would not be influenced by the type of school.

4. The mean Learning Styles of secondary school students would not be influenced by the Medium of instruction.
5. The mean Learning Styles of secondary school students would not be influenced by the Mathematical achievement
6. There would be no significant mean difference in Learning Styles of Secondary School Students with reference to Srikakulam, Vizianagaram and Visakhapatnam districts.

Limitations of the study

The present study specifically focuses on assessing Learning Styles of secondary school students. The main intention of the study is to make a survey of Learning styles of 9th class students of secondary schools in urban and rural areas of Srikakulam, Vizianagaram and Visakhapatnam districts of Andhra Pradesh with reference to the variables gender, management of school, medium of instruction and Mathematical achievement. The researcher is fully aware of the broad scope of the subject area as well as various constraints. So the study is limited in terms of the following: The study is limited to 6360 different management secondary school students from the selected three districts.

Methodology

Sample

Altogether (9th class) 6360 students from 212 schools in three north coastal districts of Andhra Pradesh state are selected randomly for the study.

Research tool

The researchers used a well prepared Learning Styles scale for the present investigation. After selecting the items for the tool, the researchers verified whether the tool prepared for the present investigation is in conformity with the

conditions required by a standard measuring instrument. The tool was administered to 6360 secondary school students from 212 schools in Sirkakulam, Vizianagaram and Visakhapatnam districts.

Administration of the tool

In the present study Learning Style Inventory developed by Mishra (2012) was used. Keefe (1979) defined learning styles as the “composite of characteristic cognitive, affective, and physiological factors that serve as relatively stable indicators of how a learner perceives, interacts with and responds to the learning environment This inventory has 42 items on a five point Likert scale. It measures six main learning styles namely—Enactive Reproducing, Enactive Constructive, Figural Reproducing, Figural Constructive, Verbal Reproducing and Verbal Constructive. After selection and finalization of the tools to measure Learning styles of secondary school students the researcher took the prior permission from head masters of the schools. Prior to the administrative of the tool, the researcher explained the importance of the study to selected sample of students. Instructions are given very clearly too all students about how to fill the questionnaire. The selected tools are distributed to selected sample of students in each school. The filled questionnaires are gathered after a stipulated time. Scoring is done to the filled questionnaires; data is tabulated and considered for further statistical analysis.

Statistical interpretation of data

The data collected has been analysed using different statistical techniques such as Mean score values, Standard Deviations, Analysis of Variance (ANOVA) and t-ratios and is presented in the following tables.

The mean learning styles of secondary school students would not be influenced by their gender.

Table:1 Mean, SD and ‘t’ values for learning styles of secondary school students with reference to gender.

S.no	Gender	N	Mean (Group Mean)	SD	‘t’ value	Df (Group)	Level of significance
1	Boys	3362 (212 Groups)	148.85	8.60	3.78**	422	0.01
2	Girls	2997 (212 Groups)	152.32	9.19			

** Significant at 0.01 level

It is clearly observed from table 4.78 that the calculated value of ‘t’ (3.78) is significant at 0.01 level of significance. Hence there is a significant mean difference between Boys and Girls in their learning styles. The greater the value of

mean (152.32) for Girls clearly shows that mathematical attitude of Girls is better than that of Boys.

1. The mean learning styles of secondary school students would not be influenced by the locality.

Table:2 Mean, SD and ‘t’ values for learning styles of secondary school students with reference to locality.

S.no	Medium	N	Mean (Group Mean)	SD	‘t’ value	Df (Group)	Level of significance
1	Urban	3019 (112 Groups)	151.82	7.43	3.16**	210	0.01
2	Rural	3341 (100 Groups)	148.59	10.07			

** Significant at 0.01 level

It can be seen from the table 4.79 that the calculated ‘t’ value (3.16) is greater than the table value at 0.01 level of significance. Hence the mean scores of urban students for their learning styles scores is significantly greater than the mean scores of rural students. From the data it is observed

that the greater the mean (151.82) of urban students is significantly better than the mean (148.59) value of rural students.

2. The mean learning styles of secondary school students would not be influenced by the type of school.

Table: 3 Mean, SD and ‘t’ values for learning styles of secondary school student’s with reference to type of school.

S.no	Type of School	N	Mean (Group Mean)	SD	‘t’ value	Df (Group)	Level of significance
1	Govt	3414 (106Groups)	147.12	9.62	6.31**	210	0.01
2	Private	2946 (106 Groups)	153.28	7.10			

** Significant at 0.01 level

It is clearly evident from above table that the obtained ‘t’ value (6.31) is significant at 0.01 level of significance. Since it is greater than the ‘t’ table value. The greater the mean (153.28) of private school students reveals that the learning

styles of private school students is significantly better than that the learning styles of government school students.

3. The mean learning styles would not be influenced by the medium of instruction of students.

Table: 4 Mean, SD and ‘t’ values for learning styles of secondary school student’s with reference to medium of instruction.

S.no	Medium	N	Mean (Group Mean)	SD	‘t’ value	Df (Group)	Level of significance
1	English	3950 (124 groups)	152.06	7.17	3.64**	210	0.01
2	Telugu	2410 (88 Groups)	148.35	10.18			

** Significant at 0.01 level

The above table shows the mean, SD and ‘t’ values for learning styles of secondary school English and Telugu medium students. The calculated ‘t’ value (3.64) is significant at 0.01 level of significance. Hence it is concluded that there is a significant mean difference between English and Telugu medium secondary school

students for their learning styles. The greater the mean scores (152.06) of English medium students for their learning styles reveals that English medium students are better than Telugu medium students in their learning styles.

4. The mean learning styles of secondary school students would not be influenced by their mathematics achievement.

Table:5 Mean, SD and ‘t’ values for learning styles of secondary school students with reference to mathematical achievement.

S.no	Mathematical Achievement	N	Mean (Group Mean)	SD	‘t’ value	Df (Group)	Level of significance
1	High Achievers	3393 (212 groups)	162.49	11.31	3.67**	422	0.01
2	Low Achievers	2967 (212 Groups)	156.56	10.27			

** Significant at 0.01 level

It is clearly evident from the above table that the ‘t’ value (3.67) significant at 0.01 level of significance. The mean learning styles of High achievers (162.49) is greater than the mean mathematical attitude of Low achievers (156.56)

hence it can be concluded that the learning styles of High achievers is significantly better than that of learning styles of Low achievers.

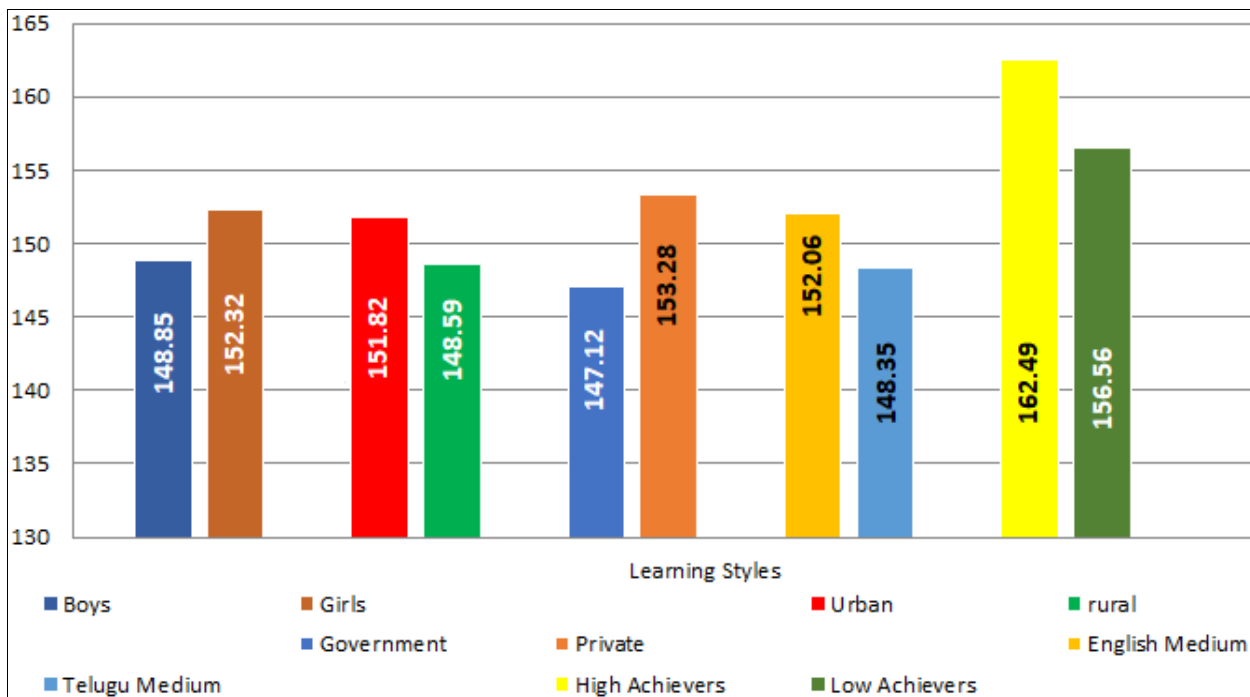


Fig 1: Mean difference in Learning Styles of secondary school students with reference to the variables i.e. Gender, Locality, Type of School, Medium of instruction and Mathematical Achievement.

5. There would be no significant mean difference in Learning Styles of Secondary School Students with

reference to Srikakulam, Vizianagaram and Visakhapatnam districts.

Table:6 Mean, SD and ‘F’ values of Learning Styles in Srikakulam, Vizianagaram and Visakhapatnam districts.

S. No	Districts	N	Mean	SD	‘F’-Value	Level of Significance
1.	Srikakulam	76	149.30	8.73	4.61**	0.01 Significant
2.	Vizianagaram	52	152.40	8.34		
3	Visakhapatnam	84	148.91	9.53		

Table 7: Analysis of variance (ANOVA) for the scores of Learning styles of Srikakulam, Vizianagaram and Visakhapatnam districts

Source of Variance	Sum of Squares	df	Mean Square	F-Value	Level of Significance
Between Groups	728.076	2	364.038	4.61**	0.01 Significant
Within Groups	23426.393	209	78.877		
Total	24154.469	211			

** Significant at 0.01 level

Table 6 reveals that the obtained 'F' value 4.61 with 'df' (209) is greater than the table value at 0.01 level of significance. Hence it can be inferred from the ANOVA table that there is a significant mean difference in learning styles of secondary school students from Srikakulam, Vizianagaram and Visakhapatnam districts. This shows that the mean scores of students from three districts were differing significantly with regard to their learning styles.

Findings of the study

1. The mean Learning Styles of Secondary school students are significantly influenced by their Gender.
2. The mean Learning Styles of secondary school students are significantly influenced by the locality
3. The mean Learning Styles of secondary school students are significantly influenced by the type of school.
4. The mean Learning Styles of secondary school students are significantly influenced by the Medium of instruction.
5. The mean Learning Styles of secondary school students are significantly influenced by the Mathematical achievement.
6. There is a significant mean difference in Learning Styles of Secondary School Students with reference to Srikakulam, Vizianagaram and Visakhapatnam districts.

Conclusions

The main objective of this investigation is to study the Learning Styles of secondary school students. In the light of the research findings, it is felt that the present research work may contribute in developing, better learning styles through their teacher's teaching effectiveness. It can be expected that well planned activities helps to develop student's, Learning styles in a favourable direction. The findings of the study may be taken into consideration for a better framework to enhance the improving Learning styles of students.. So the researcher felt the need to improve and inculcate better learning styles among students.

Educational implications

On the basis of the findings of the present study the following educational implications are made. In the present study Learning styles of students are differing significantly with reference to Gender, Locality, Type of school, Medium of instructions and achievement.

Hence facilities and training to the students should be provided to improve the learning styles of students studying in Government schools, students studying in Telugu medium, Students studying in rural areas and Low achievers in Mathematics.

In the present study Learning styles of students significantly influenced by medium and Gender. For this necessary measures can be taken to improve learning styles.

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