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RESEARCH ARTICLE

LEARNING STYLE PREFERENCES AMONG SECONDARY SCHOOL STUDENTS

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ABSTRACT

The present study is an attempt to find out the relationship between preferred learning style of students to certain demographic variables like gender, place of living, religion and parents' educational level. The study was conducted on the sample of 300 secondary school students of Aligarh District. For the purpose, the researchers used the 'Learning Style Inventory' developed by Jaffery Barsch (1996). Since the data was on nominal scale, Chi-Square test was employed to analyze the data. The findings of the study revealed that the most preferred learning style of secondary school students was Visual (45.7%) followed by Auditory (21%), Tactile (18.3%) and kinesthetic (15%). Moreover, the study revealed that there was no significant impact of certain demographic variables like gender, place of living, religion and educational level of father on the learning style preferences of secondary school students. However, significant impact of mothers' educational level on the learning style preferences of these students was reported in the study. The findings of the study would provide better understanding to the teachers to construct curriculum, planning of lessons and to teach according to students' learning styles. These findings are important not only in shaping teaching practices but also in highlighting issues that help policy makers, administrators, curriculum framers, stakeholders, parents and faculty members to think more deeply about their role in facilitating student learning.

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INTRODUCTION

Learning Style

Every individual has its own natural or habitual pattern of acquiring and processing information in learning situations. The common ways or patterns by which people learn are known as their learning styles. Learning styles are set of cognitive, emotional and psychological factors that serve as relatively stable indicators of how a learner perceives, interacts with and responds to the learning environment. Everyone has a combination of various learning styles. Some people may find that they have a dominant style of learning, with far less use of the other styles while others find that they use different styles in different circumstances. A core concept is that individuals differ in the ways they learn. The idea of individualized learning styles was initiated in 1970s and since then has influenced education remarkably. It was recommended by the proponents of the use of learning styles in education that teachers should identify the learning styles of their students and adapt their teaching methods to best fit learning style of each student. Although there is ample evidence for differences in individual thinking and ways of processing various types of information, few studies have reliably tested the validity of using learning styles in education.

It is important that individuals should identify their learning styles. Being aware of their own pattern of learning, they can

take the responsibility for their own learning. When the learner shows the conscientiousness of his/her own learning he/she attributes meaning to the process of learning, develops understanding of his/her own form of learning and becomes much more satisfied with the environment he/she interacts with. In this way, he/she will acquire constantly changing and increasing amount of information without any need for the assistance of others. Learning how to learn and grasping knowledge in a suitable manner may lessen the need for an overbearing control by teachers.

Generally students acquire and process information in different ways: by seeing and hearing, reflecting and acting, reasoning logically and intuitively, analyzing and visualizing etc. Teachers also vary in their teaching methods, some apply instructions, lecture, or demonstrate while others lead students to self-discovery; some focus on principles and others on applications; some emphasize memory and others understanding. When learning styles of most students mismatch with teaching styles of the teachers, the students may become bored and inattentive in the class, do poorly on tests, get discouraged and lack interest about the courses, curricular activities and themselves too. In some cases students may lead to poor attendance and dropouts. (Nasir, 2006)

Importance of Learning Style

In the process of learning the important issue is that an

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individual should take the responsibility for his/her own learning. The learner should search answers to his/her problems and explore own style of learning. He/she should know what to learn and how to solve the problem. This awareness will change learner's perspectives on learning new things. The knowledge of learning style is important for many reasons. First of all, since everyone is different from others, learning style is liable to vary. Secondly, teachers may use a wide range of methods in an effective way to teach according to the style of learning and thirdly, if teachers really identify patterns of learning of the group, they can manage many things in education and communication. Being aware of their students' learning styles, psychological qualities and motivational differences teachers can regulate the teaching-learning process in desirable direction.

The review of the related literature reveals that student's learning style plays a vital role in his academic success. [Agrawal and Chawla \(2005\)](#) revealed that the Co-operative Learning Strategy Based Material was significantly effective in improving the level of academic achievement. Another study by [Nasir, \(2006\)](#) examined the learning styles of multi-ethnic students in four universities of Malaysia. The students were compared on gender, program of studies and academic achievement levels, using a modified Honey and Mumford Learning Style Questionnaire. The results showed that both male and female students' most preferred learning style was reflector style, while the activist style was the least preferred. Similar pattern of learning styles was exhibited by the Arts and Science students. It was also concluded that there was no significant difference between male and female, science and arts students so far as their learning styles were concerned. Moreover, there was no significant relationship between learning style and academic achievements. [Erton \(2010\)](#) explored the relations between personality traits, language learning styles and success in foreign language achievement. Maudsley's Personality and BLSI instruments were used in the study. The findings revealed that there was no significant relationship between the personality traits (introversion-extroversion) of the learners in their foreign language achievement. It was also concluded that students with visual leaning style were the most successful as compared to the students with other learning styles. [Abidin, et al. \(2011\)](#) studied learning styles and overall academic achievement in a specific educational system. It was concluded that the high, moderate and low achievers have a similar preference pattern of learning. Moreover, the learning styles framework does not change with subjects. [Liang \(2012\)](#) studied the effects of learning styles and perceptions on application of interactive learning guides for web based courses. The results revealed no significant statistical differences in learning styles and learning performance between the two groups. However significant main effects for both gender and learning style, and gender and the perception of utility were reported.

A careful perusal of the above studies reveal that learning style contribute significantly in academic achievement, however only few studies found relationship between academic achievement and learning style ([Nasir, 2006](#) [Abidin, et al, 2011](#)). In the present study the researchers attempted to explore the learning style preferences of secondary school students and

to investigate the demographic determinants (gender, place of living, religion and parents' educational level) of learning styles specifically visual, auditory, kinesthetic and tactile among these students.

Models of Learning Style

David Kolb's Experiential Learning Model, (1984) (Elm)

According to this model the ideal learning process consists of experience-grasping approach and experience-transforming approach. It includes accommodation, converge, diverge and assimilation modes of learning styles. Individual may exhibit preference to any one of the learning style.

Peter Honey and Alan Mumford's Model, (1992)

It is a self development tool, which assumes preferences of learning style by inviting managers to complete a checklist of work related behaviors rather than directly asking managers about their learning style. The four modes of learning styles given in this model are activist, reflector, theorist and pragmatist.

Neil Fleming's Vark Model, (2005)

It is one of the most popular models used for categorization of learning styles. This model describes four styles of learning-visual, auditory, reading-writing preferences and kinesthetic or tactile.

Barsch's Model, (1996)

This model was devised by [Jeffrey Barsch in 1996](#). He developed a learning style inventory to informally evaluate each individual's preferred learning style through different sensory channels namely auditory, visual, tactile and kinesthetic.

In the present study the researchers have used the model developed by [J. Barsch \(1996\)](#) because these are the common preferred ways of learning in traditional classroom settings.

OBJECTIVES OF THE STUDY

The objectives of this study are as follows

1. To investigate the most preferable learning style of Secondary school students.
2. To find out the effect of the prominent demographic determinants i.e. gender, place of living, religion and educational level of parents of learning style preferences of secondary school students.

METHODOLOGY

Population and Sample

In the present investigation, all secondary school students comprise the population of the study. It is not possible to collect the data on whole population therefore a representative

sample was selected. A sample of 300 secondary school students belonging to Aligarh district was selected from the population.

Table I Descriptive statistics related to the preferred Learning Style of Secondary school students

No. of Students	Types of Learning Style	Frequency	Percentage	Cumulative Percentage
300	Visual	137	45.7	45.7
	Auditory	63	21.0	66.7
	Tactile	55	18.3	85.0
	Kinesthetic	45	15.0	100.0
	Total	300	100.0	

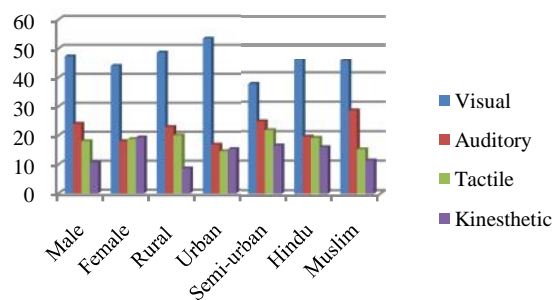


Figure II Percentage of preferred Learning Style among Secondary school students in relation to Gender, Place of living and Religion

Tools: Learning Style Inventory

To test the most preferable learning style of secondary school

Table II Descriptive statistics related to the preferred Learning Style of Secondary school students in terms of gender, place of living and religion

Groups	Gender				Place of living				Religion					
	Male(N=150)		Female(N=150)		Rural(N=35)		Urban(N=131)		Semi-Urba (N=134)		Hindu(N=247)		Muslim(N=53)	
Type of Learning Style	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Visual	71	47.3	66	44.0	17	48.5	70	53.4	50	37.3	113	45.7	24	45.3
Auditory	36	24.0	27	18.0	8	22.9	22	16.8	33	24.7	48	19.5	15	28.3
Tactile	27	18.0	28	18.7	7	20.0	19	14.5	29	21.6	47	19.0	8	15.1
Kinesthetic	16	10.7	29	19.3	3	8.6	20	15.3	22	16.4	39	15.8	6	11.3

Table III Descriptive statistics related to the preferred Learning Style of Secondary school students in relation to Parents' Education

Groups	Parents' Education											
	Father's Educational Level			Mother's Educational Level								
Type of Learning Style	No Education (N=12)		Sec. Level Education (N=57)		Higher Education (N=231)		No Education (N=80)		Sec. Level Education (N=122)		Higher Education (N=98)	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Visual	6	50.0	24	42.1	107	46.5	30	37.5	47	38.5	60	61.2
Auditory	4	33.3	12	21.1	47	20.3	22	27.5	29	23.8	12	12.2
Tactile	2	16.7	12	21.1	41	17.7	16	20.0	25	20.5	18	18.3
Kinesthetic	0	0	9	15.7	36	15.5	12	15.0	21	17.2	8	8.3

students, the investigator used standardized scale 'Learning Style Inventory' developed by Jaffery Barsch (1996) which is a 3point scale consisting of 32 statements.

The inventory is classified into four categories visual, auditory, tactile and kinesthetic. For each statement there are three options Often(5 points), sometimes (3points), seldom (1point).Every student has to tick only one option from them according his/her opinion. The reliability of the inventory was 0.96.

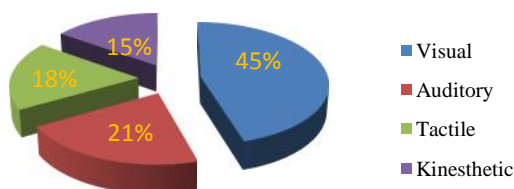


Figure I Percentage of preferred Learning Style among Secondary school students

Personal Data Sheet

For other information i.e. gender, place of living, religion, parents' education separately for father and mother indicating their level of educational qualification, a personal data sheet had been developed and required entries were filled up by the respondents.

Data Processing

After collecting the data, the results were drawn with the help of SPSS. The analysis was conducted at two levels.

At the first level, basic statistics like measures of central tendencies were Computed. At the second level, significance of difference between means was computed. Since, data was on nominal scale Chi-square Test was used to calculate the difference between means. The following tables and subsequent interpretation presents a detailed description of the analysis.

RESULTS AND DISCUSSION

The table I and its corresponding figure (I) depicts that the most preferred learning style among secondary school students is

Visual (45.7%) followed by Auditory (21.0%), Tactile (18.3%) and Kinesthetic (15%). It indicates that most of the secondary school students preferred to learn through visual format i.e. majority of students learns through written material than auditory, tactile or body movements. This finding of the study is also in coordination with the results of the study conducted by [Maya and Rao \(2004\)](#) who reported that major fraction of the students appear to be visual learners while small fraction was predominately tactile learners.

It is clear by the table II that when pattern of learning styles was observed in secondary school students in relation to their gender, place of living and religion it was found in coordination with the results obtained in table I i.e. the most preferred learning style among male and female students was visual followed by other styles of learning. However, percentage of male students (47.3%) was higher than female students (44%) in favor of visual style of learning. Moreover The similar results were obtained for rural (48.5%), urban (53.4%) and semi-urban students (37.3%). This trend was also followed by students when they were observed by religion, 45.7% Hindu and 45.3% Muslim student preferred visual style of learning. This is also presented by the bar diagram in figure II.

As shown in the above tables the secondary school students most preferred learning style is visual learning. It is depicted by the figure III that 50% secondary students whose fathers have no education, 42.1% students whose fathers' education is upto secondary level and 46.5% whose fathers' education is upto higher level also preferred the visual style of learning. Similarly 37.5% students whose mothers have no education, 38.5% students whose mothers' education is upto secondary level and 61.2% whose mothers' education is upto higher level also preferred the visual style of learning. Other learning styles as auditory, tactile and kinesthetic styles of learning were less preferred by secondary school students.

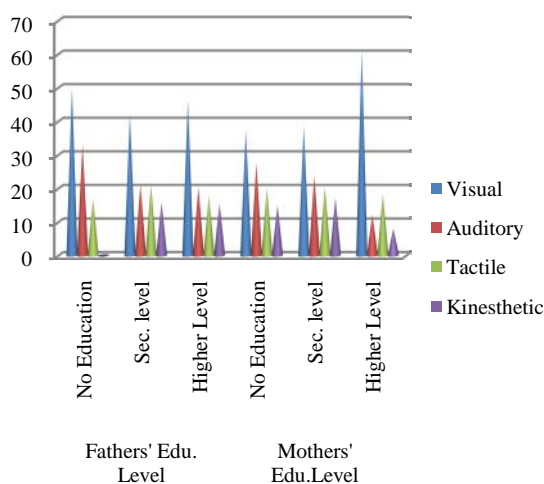


Figure III Percentage of preferred Learning Style among Secondary school students in relation to Parents' Educational Level

The preferences of learning style among secondary school students were in favor of visual style of learning but percentages vary for each group and other styles of learning.

Therefore to know about the significance of difference among these percentages the investigator employed some advance statistics i.e. non-parametric test of Chi-square. The Table IV Presents the results given by Chi-square test.

Table IV Significance of difference in Learning Styles of Secondary school students in relation to Gender, Place of living, Religion and Parents' Education

N	Group	Chi-Square Value	D.F.	Level of Significance
300	Gender	5.242	3	0.15
	Place of Living	8.895	6	0.18
	Religion	2.586	3	0.46
	Fathers' Education	7.503	9	0.58
	Mothers' Education	19.896	9	0.01

The above table depicts that there exists no significant difference among male and female secondary school students so far as there learning style is concerned. This result is connection with those of previous studies conducted by [Thambusamy \(2002\)](#) who concluded that the gender was not a significant variable in Engineering students' learning style preferences and [Nasir \(2006\)](#) who also found that the learning styles were not significantly different between male and female students. However, this result differs somewhat from that of [Sizemore & Schultz \(2005\)](#) where the male students had a significantly greater frequency of the Visual style than female students. Similarly, rural, urban and semi-urban students show no significant difference in their learning styles. Hindu secondary school students were not found to be different from their Muslim counterparts in their learning styles. Students whose father has no education were not different from their counterparts whose fathers were educated up to secondary level or higher level. However the learning styles were significantly different among students in regard to their mothers' educational level. The students whose mothers were highly educated preferred visual style of learning which was significantly different from others whose mothers were not educated or educated up to secondary level. The result once again proved the important role of mother in the education and learning of their wards.

CONCLUSION

The findings of the present study reveal that the most preferred learning style among secondary school students is Visual style of learning (45.7%) followed by auditory(21%), tactile (18.3%)and Kinesthetic (15%) learning styles. This result is contradictory to the traditional belief that students mostly learn by activity or 'Learning by Doing'. The findings of the study revealed that at secondary level, students preferred to learn through visuals. They crave to learn by notes, charts, maps, graphs, films, videos etc. as they have strong sense of visualization, color, pictures, diagrams etc.

Further, among all the demographic variables mother's educational level plays a significant impact on child's learning style. The study also reveals that those children whose mothers are highly educated preferred to learn through visual learning style followed by tactile, auditory and kinesthetic styles of learning. Without knowing their children's learning styles, parents may choose a curriculum that doesn't meet children's

need. It might do a decent enough job of educating them, but it won't give them an optimal education. Once parents know their children's learning styles, they can choose a homeschooling curriculum that meets their children's need and they can be confident about their decision.

With the shift from an instructional to a learning paradigm, there is growing acceptance that knowledge of the way students learn is the key to educational improvement. Teachers can formulate appropriate teaching strategies and develop curriculum content by understanding students' preferred learning styles. This will lead to learners' ability to improve their own learning and perform better in the subject previously deemed difficult. To achieve a desired learning outcome, parents and teachers should provide teaching and counseling interventions that are compatible with the students' learning styles. Thus, findings of the present study are important not only in shaping teaching practices but also in highlighting issues that help policy makers, administrators, curriculum framers, stakeholders, parents and faculty members to think more deeply about their role in facilitating student learning.

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