Assessment of learning style preferences among students

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Abstract

Each individual has a particular preferred sensory modality while gathering information. Four different sensory modalities used are visual (by way of charts, diagrams), aural (listening to spoken words), read write (reading textual matter, taking down notes), kinesthetic (learning practically by physical manipulation or experimentally).The present study was undertaken with a purpose to know the preferred sensory modality when males and females were compared. 95 females and 80 males volunteered for the study making a total of 175 students. VARK questionnaire was provided to these students which were answered by them in a given time. The information obtained was compiled and compared. Multimodal method of learning was preferred in the entire group when compared. This means that various sensory modalities have to be put together for a student to learn faster. Moreover males and females when compared had similar patterns of studying. Both preferred auditory method when compared to other learning methods.

Key words: Visual, Aural, Kinesthetic, Questionnaire

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Introduction

Learning is a manner in which learners effectively perceive process and realize what they are attempting to learn.[1] There is a generalized belief that each student has a specific method of learning. Most of the schools and colleges have a didactic pattern of teaching. If the learning method varies among individuals it is the discretion of the provider to help the individual by varying the styles of teaching. The student as a individual can also learn various ways to develop the pattern of learning which suits him/her in the best possible way. If there is a discrepancy between learning method and teachers style of teaching it often acts as a deterrent for the student as believed by many.[2,3] Others have argued that a learning/teaching style mismatch encourages and challenges students to expand their academic capabilities.

Excellence in education is important for students who are career oriented. There is a need to improve the methods of learning so that students can manage the challenges in their own respective fields.[4]Gender differences are often believed to be existing in learning styles among men and women. Glazer S stated that innate differences do exist between males and female. He further added that women are incapable of rational thinking.[5]

The best way to improve student learning and motivation is to adapt certain teaching methods to meet the different learning style preferences.[6]Studentsoften belong to diverse cultures, various levels of intelligence which leads to differences in individual learning styles. In addition to these psychological as well as environmental factors too play a key role. The role of culture has often been emphasized in order to supplement and equip learning styles. Also in a group of students where different culture groups are involved who are accustomed to a particular pattern of teaching, it may be difficult when they are blindly taught in another part of the world.[2,7]

Learning styles or preferences are modes by which educators become aware of different techniques which could be implemented on students. Studies by Bruner and Piaget led them to a conclusion that all information is integrated via four different sensory modalities. They are visual, auditory, reading /writing and kinesthetic.[8,9]

There are many valid methods for evaluating learning styles. One among them is the VARK questionnaire. It was first designed by Lincoln University of New Zealand in 1998. It was later modified by Fleming.[10] VARK questionnaire is an assessment that helps to find out which sensory modality is best suited for a student to learn.

VARK questionnaire helps to determine different sensory modalities like visual (V), auditory (A), reading – writing(R/W) or kinesthetic (K). An individual may have unimodal learning preference meaning that he prefers one among the sensory modality either visual, auditory, read write or kinesthetic. Visual means the person learns best by way of visual aid, visual observations, visual presentations, diagrams or charts. Auditory means the person best learns via spoken

instructions and listening. Persons who prefer read write method perceive best by jotting down notes in class or reading from books. Kinesthetic persons learn by being dexterous.[11]

Various studies have conflicting opinions about learning styles in different gender.[12,13] This study was undertaken with an aim in mind to find if gender differences exist in pattern of learning among genders. If these differences exist, the same can be applied by the educator and also by the students for perceiving knowledge. In the long run if applied at a proper stage this can definitely pave a way for their career opportunities. This study can also serve the purpose that by knowing different styles of learning methods adapted by student's atleast some of the content put forward in a class can suit every type of learner.

Materials and Methods

200 students volunteered for the study in the age group of 13- 15years. The present age group was chosen so as to enhance the students learning skills and performance. The questionnaire was provided in the form of a hard copy, it is available as a freeware online. The questionnaire was given to them during their lecture hours and were given adequate time to complete the questions. No incentive was given for participation as they were given an opportunity to volunteer. Permission to conduct the study was obtained from the Institutional head. The study was conducted over two schools in students of the same age group and language preference. Written informed consent was taken before the VARK questionnaire was given. 80 males and 95 females were included in the study. The importance of the questionnaire was explained to the students.

All the students were able to complete the questionnaire in the stipulated time. They were asked to reveal their gender on the paper but names were not asked in order to maintain anonymity. The questionnaire included sixteen questions, each of the questions consisting of four choices. They were told to tick more than one answer if need be. In case the student felt that the question was not applicable to them they were free to leave the question blank.

These four choices were a representation of the four sensory modalities: visual, auditory, read – write, kinesthetic. All the students were solving most of the questions with ease. They were free to clarify the questions in case of doubt. They were also told that they were free to withdraw from the study at any point of time. Once the students completed the questionnaire it was collected back from them. Each leaflet was completed online thereafter and compiled. The values obtained for each sensory modality was noted and the mode of preference of learning of each student was noted down. Students took approximately 25 minutes to complete the questionnaire over which gender and ethnic status was noted.

Results

Table 1: Frequency – percentage distribution among all students included in the study

VARK	Frequency (number)	Percentage (%)
Unimodal	78	44.6
Bimodal	36	20.6
Trimodal	23	13.1
Quadramodal	38	21.7
Total	175	100

Table 1 shows that among combinations of different sensory mode quadramodal was preferred followed by bimodal and trimodal. But when bimodal, trimodal and quadramodal modes were put together it showed that multimodal was more preferred when compared to unimodal style of learning.

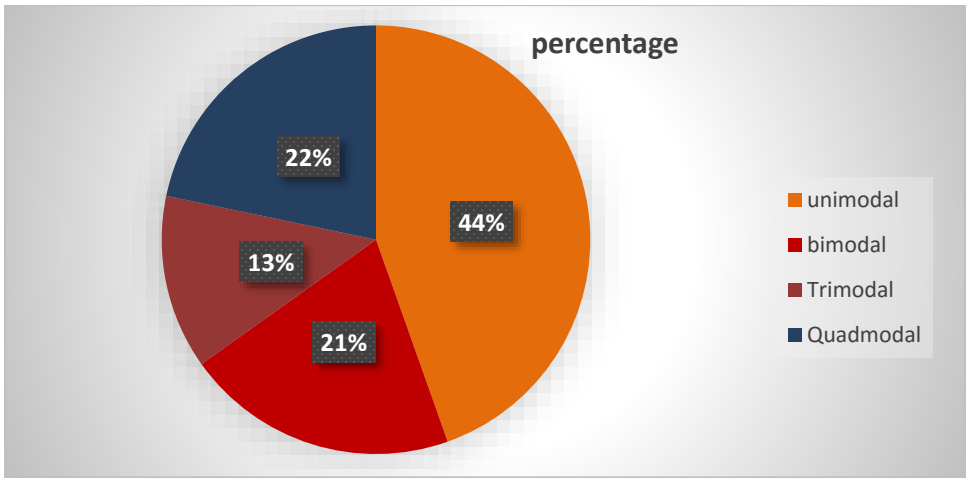


Fig. 1: Pie- chart showing percentage of students preferring one, two, three, four modes of information presentation.

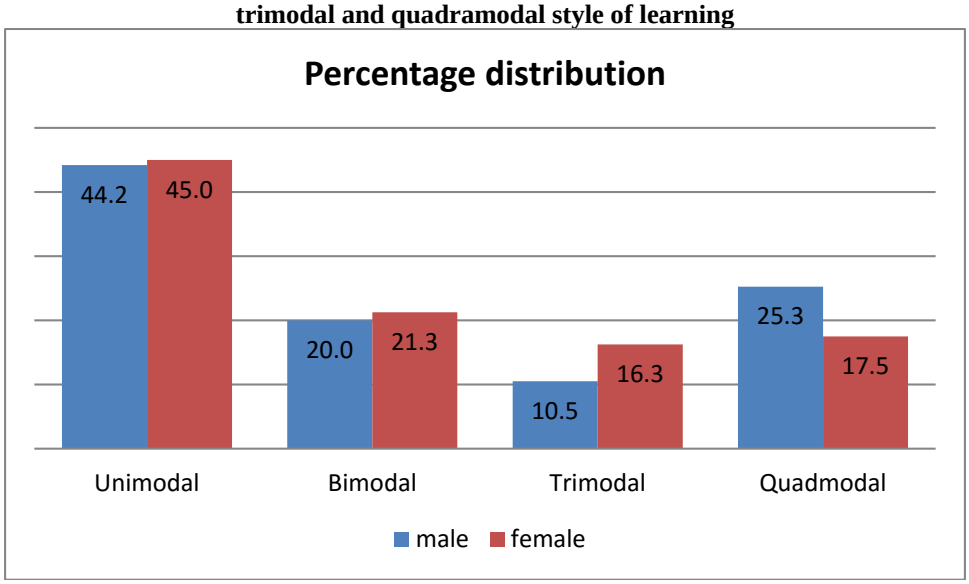
Out of 175 students 44% of all students preferred four modes by which information can be presented.22% preferred two modes by which information is presented.13% preferred three and 21% preferred information to be presented via four modes.

Table 2: Frequency percentage distribution- comparison among males and females showing unimodal, bimodal, trimodal, quadramodal preference.

	Female		Male	
	Frequency (number)	**Percentage (%)**	**Frequency (number)**	**Percentage (%)**
Unimodal	42	44.2	36	45
Bimodal	19	20	17	21.3
Trimodal	10	10.5	13	16.3
Quadramodal	24	25.3	14	17.5

Out of 175 students 95 were females who have 44.2%preference to unimodal, 20%, 10.5% and 25.3% preferences for bimodal, trimodal and quadramodal methods of learning respectively. 80 were males who have 45%, 21.3%, 16.3% and 17.5% preference for unimodal, bimodal, trimodal and quadramodal methods of learning respectively.

Fig. 2: Percentage distribution comparison among males and females showing unimodal, bimodal, trimodal and quadramodal style of learning



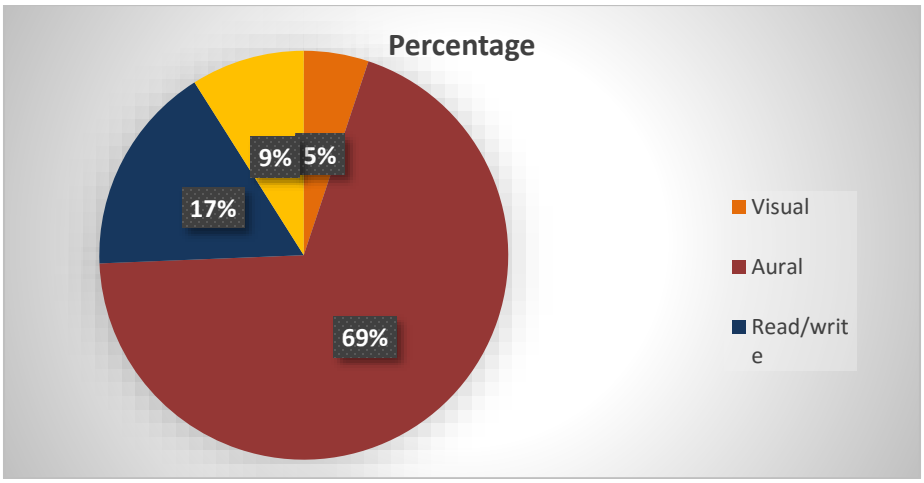


Fig. 3: Sensory modality preference among students who preferred information to be presented in one single way (values expressed in percentage)

Out of 78 students who preferred unimodal style of learning 69% of students preferred aural method, 17% preferred read write, 9% preferred kinesthetic and 5% preferred visual method of learning.

Table 3: Group comparison: table depicting comparison of learning styles expressed in frequency and percent between males and females when unimodal style of learning is compared

	Female		Male	
	Frequency (number)	**Percentage (%)**	**Frequency (number)**	**Percentage (%)**
Visual	3	7.1	1	2.8
Aural	33	78.6	21	58.3
Read/write	5	11.9	8	22.2
Kinesthetic	1	2.4	6	16.7
Total	42	100	36	100

When males and females were compared who preferred unimodal style of learning both males and females preferred aural, read write, visual, kinesthetic in order of preference

Fig. 4: Bar diagram showing comparison of learning styles among males and females where frequency in the form of mean values are compared.

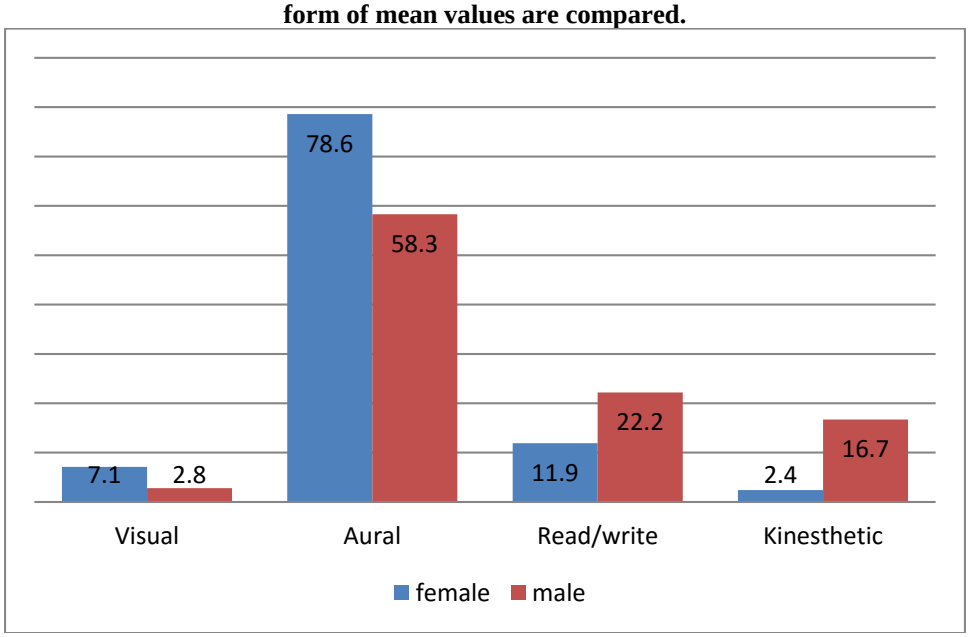


Figure 4 shows that comparison of learning preferences is made among males and females. Both males and females preferred aural method of learning among all other methods. 78.6% females and 58.3% males preferred aural method of learning... 11.9% females, 22.2% males preferred read write method. 16.7% males and 2.4% females preferred kinesthetic method of learning. 7.1% female and 2.8%females preferred visual methods of learning.

Discussion

This study reveals that most of the students had a multimodal way of learning when attempting to learn a topic. Most of the studies have shown that students often prefer multi modal way of assimilating information.[4,10,12]

Our study also revealed that students also benefitted from single sensory mode of learning. Additionally among all sensory modes aural mode was most preferred followed by read /write, kinesthetic and lastly visual. This is quite alarming considering the fact that most of the teachers prefer to use visual method of teaching by using power point presentations, charts, diagrams, maps. However another fact stands true that the power point presentation provides only the gist and teacher is the one who extrapolates from the power point. This means that students rely on the explanation provided by the teacher. In addition as the teacher explains, notes are taken down by students. Auditory methods were preferred more when compared to others owing to the fact that the age group involved was between 13-15 years. School going children understand ideas and concepts best when there is constant repetition along with queries being answered. However these facts seem ironical in this modern day when most of the information is through electronic media, amid speculations that learning through traditional methods is getting obsolete.

This shows that compassion in teaching can be brought in only by teachers. Additionally when learning methods were compared among males and females not much of a difference was found among the study methods adopted. Both males and females preferred auditory method of learning. Males are more dexterous when compared to females. This was proved by the fact that males preferred kinesthetic mode when compared to females. This knowledge definitely helps the student in learning faster if he tries to learn using the same method which works best on him/her. This study was taken up in the present age group so that they can modulate themselves to their preferred method of learning which will help them in integrating information in order to learn effectively. This will definitely help the students in shaping their career and may definitely help the students to master lifelong professional skills easily.

Conclusion

Once the teacher understands the students preferred mode of learning the teacher can also implement the same method in order to make the teaching effective. However the specified time for covering a particular topic by a teacher is limited. This is where the student can play a role by knowing his preferred method, developing it and using it to the best possible extent. Multi modal method is the best preferred among all students and hence should be utilized by students as well teachers keeping a common goal in mind.

Conflict of Interest: None
Source of Support: Nil

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