

Learning Style Preferences Among Medical and Nursing Students in a Medical College in South India

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Abstract

Background : All students have their own learning style, their own learning strength and weakness. A disparity between teaching and learning methods leads to failure and disappointment. It is vital for teachers to understand the learning preferences of their students, and modify their teaching styles to match the learning style.

Aim : To examine preferred learning styles of these undergraduates and compare students

Methods: A cross sectional study of 150 undergraduate medical and nursing students with 75 each, was conducted. The validated VARK questionnaire was used to identify the learning styles of these students. The questionnaire consists of 16 items which identify four different learning styles: visual, aural, reading/writing and kinesthetic. Descriptive statistics were used to identify the learning styles of students.

Results: The response rate was 100%. The results showed that the overall percentage of unimodal learners was 87.33% and multimodal learners 12.67%. Of the unimodal, distribution of single visual was 29.01%, single auditory 21.37%, single read/write 33.6%, and single kinaesthetic 16.03%.

Conclusions: The results of this study can provide useful information for improving the quality of the teaching and learning experiences of students. However, more research on this topic needs to be undertaken before the association

between learning style preferences and teaching and learning strategies is more clearly understood.

Keywords: Learning style, the VARK, medical students, nursing students

Introduction

Learning is done using different learning styles by different group of people that results in acquisition of knowledge, skills and attitudes.

Learning style is defined as "composite of characteristic cognitive, affective and physiological characters that serve as relatively stable indicators of how a learner perceives, interacts with and responds to the learning environment" (Keefe 1987). Keefe also notes that a better understanding of these styles by faculty can help reduce the student's level of frustration and improve instructional delivery methods.

It has also been argued that medical teachers should not only possess knowledge of content but should also be acquainted with their learners attributes. ¹ In Medical colleges which impart training in multiple disciplines like undergraduate medical and nursing courses, it becomes necessary for teachers to understand the learning styles of this diverse group of students in order

to assist learning. A significant number of students have inclinations for different learning styles, however medical faculties teach in a single manner, the lecture, as most of the doctors who become medical teachers have themselves not been formally trained in medical education and hence lack the necessary knowledge and skills. Therefore as facilitators, it becomes our responsibility to understand this and reach out to students with well co-ordinated teaching and learning styles.

Students use different sensory modalities to absorb knowledge and information. Four sensory modalities described by Fleming are; Visual (V), Aural (A), Reading/Writing (R) and Kinesthetic (K), which is called as VARK. ² In brief, visual students prefer to learn visually, aural use listening skills, few use reading and writing and kinesthetic students experience learning by all sensory routes including somatosensory, auditory, olfactory, gustative and visual. ⁽³⁾ Therefore this study

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was done to understand the learning modalities in medical and nursing students of our institution, and to compare and analyze the similarities and differences between the groups to devise effective teaching/learning plans.

Methodology

A cross sectional study was conducted at Bangalore Medical College and Research Institute (BMCRI) and College of Nursing at Bowring and Lady Curzon Hospital which is a tertiary care teaching hospital attached to BMCRI in January 2014. The study was approved by the head of the institution.

Participants

Second and third year medical and nursing students took part in the study. Participation was purely voluntary. 150 students (75 medical and 75 nursing students) took part in it. Consent was obtained from those who volunteered to participate in the study. Self-Response VARK questionnaires were administered to these students.

Instruments

A VARK questionnaire that was used to assess the preferred study mode of the students was downloaded from website of the developers. The questionnaire measures four perceptual preferences (V-visual, A-Auditory, R-Read/Write, K-Kinesthetic). It consists of 16 questions with four options each. The purpose of each question was to categorize the learning style preference of the respondents. Respondents could leave questions blank as well as choose more than one option for identifying preferences for multiple learning styles. Student questionnaires were scored and tabulated to determine the distribution of learning styles.

Statistical Analysis

Data entry and analysis were performed with Microsoft Excel. Mean and standard deviations were obtained for all the VARK scores. Number of observations and percentages were obtained for each study method for both medical and nursing students. Comparison between learning styles in nursing and medical students was determined by Chi-Square Test. Chi-Square values and *P* values were obtained.

Results :

150 students of which 75 were medical and 75 were nursing completed the questionnaire. All the students who participated in the study were females as the students enrolled in the nursing college were only females. The responses were tallied and assessed for learning style preference, and correlation between learning styles.

The overall percentage of unimodal learners was 87.33% in both the groups. Unimodal learning was more

prevalent in medical students (93.3%) as compared to nursing (81.33%).

The overall representation of multimodal learners was 12.67%, of these bimodal were 89.5%, trimodal 5.26% and quadrimodal 5.26%.

The nursing group (18.67%) had more multimodal styles compared to medical (6.67%). 16% nursing students showed bimodal preference when compared to medical students who showed bimodal preference in 6.67%. The nursing students also had trimodal 1.33% and quadrimodal 1.33% style, which was not observed in the other group.

Of the unimodal learners, the percentage distribution of single visual was 29.01%, single auditory 21.37%, single read/write 33.6%, and single kinaesthetic 16.03%.

Among nursing students unimodal learner's distribution was as follows: single visual 19.7%, single auditory 9.8%, single read/write 54.1%, single kinesthetic 16.4%. Medical students' unimodal learners' distribution was as follows: single visual 37.1%, single auditory 31.4%, single read/write 15.7%, single kinesthetic 15.7%. (Table 1).

The results also indicate that there is a significant difference in study practice between nursing and medical students, especially in relation to the read/write method ($p=0.000$). While nursing students favored this method above all others, visual learning was the method of choice amongst medical students.

Discussion

The study was carried out to gain an understanding of the learning inclinations of medical and nursing students in our college in order to formulate teaching learning styles for these different groups of students.

The findings of this study provide information about the ways that our medical and nursing students learn in relation to the subject of study. This study shall help the faculties to formulate novel and suitable teaching learning aids to facilitate students according to their learning styles.

We found that there was a marked difference in the learning preferences between medical and nursing students and a single mode of using lecture to disseminate knowledge is therefore inappropriate.

It was also clear that the students preferred to learn by more than one mode of information presentation. The VARK questionnaire is widely used by researchers to identify the learning preference of students.^{3,4,6} Learning style varies from one group to another based on culture, the nature of the studies, characteristics of students and the gender¹. In our study we analyzed the difference based on the nature of study. Of the 150 respondents,

unimodal learners were 87.33% in both the groups but more in medical students (93.3%) as compared to nursing (81.33%). This is similar to a study done by Latha et al where 51.5% of the respondents had unimodal preference.⁵, but in contrast to the study done on Saudi and American students⁽⁴⁾ who showed predominant multimodal learning styles. This is also in contrast to the study done among nursing students in Jordan who showed predominance of multimodal styles.

Of the unimodal learners, the percentage distribution of single visual was 29.01%, single auditory 21.37%, single read/write 33.6%, and single kinaesthetic 16.03%. This clearly shows that major group of our students prefer read/write style. These students preferred to obtain information through printed words.

This was a surprising finding as Tierney and Brunton (2005) reported that science and engineering students were kinesthetic learners while business students were predominantly read/write learners when cognitive modalities were examined. Baykan and Naçar (2007) have reported that 23.3% of 155 first year medical students were kinesthetic learners. However, our study clearly indicates that kinesthetic learning was least preferred in both the groups. Thus the knowledge of students' preferred learning styles is vital if educators are to provide tailored strategies for individual students (Armstrong & Parsa-Parsi, 2005)⁵ It also helps to overcome the predisposition of many educators to treat all students in a similar way as well as to motivate teachers to move from their preferred mode(s) to using others. thus, they can reach more students because of the better match between teacher and learner styles (Bergman & Fors, 2005).⁵

There were 12.67% multimodal learners in this study of which of these bimodal were 89.5%, trimodal 5.26% and quadrimodal 5.26%. The nursing group (18.67%) had more multimodal styles compared to medical (6.67%). The nursing students also had trimodal 1.33% and quadrimodal 1.33% style, which was not observed in the other group.

The results also indicate that there is a significant difference in study practice between nursing and medical students, especially in relation to the read/write method ($p=0.000$). While nursing students favored this method (54.1%) above all others, visual (37.1%) learning was the method of choice amongst medical students.

In our passive lecture format, it is usually assumed that all of our students are aural learners, which is not the case as we have seen in this study.

Medical teachers can therefore develop their pedagogical strategies after they know the preferred

modes of learning of their students.³ This allows them to shift from their own preferred mode of teaching towards the learning preferences of medical and allied science students which may help to develop their knowledge, skills and attitudes and that may enable them to become a competent student.⁷⁻¹⁰

Among the nursing students the Mean VARK scores for reading /writing learners (6.04) followed by visual learners (4.37), aural (4.17) and kinesthetic (4.09).

Among the medical students the Mean VARK scores for visual learners (5.68) followed by aural learners (5.42), reading /writing (4.96) and kinesthetic (3.93).

Since our students had the preference for visual learning they could be Visual learners and should be stimulated with depictions of information in charts, graphs, flow charts, and all the symbolic arrows, circles and other devices that instructors use to represent what could have been presented in words.¹¹

In Saudi students the Mean VARK scores for aural (6.6) and kinesthetic learners (6.4) were more than that for visual (5.3) and reading /writing learners (4.7). This could be due to the fact that Saudi Arabian students are heavily involved in new technology.⁽¹⁾ A study in Malaysia showed that the mean VARK scores of kinesthetic (5.0) and read/write students (4.9) were more than auditory (4.7) and visual learners (3.1).⁵

The VARK philosophy encourages a belief that everyone can learn if their preferences are addressed. In addition, VARK encourages teachers to respect differences and reject negative judgments about learners.¹² VARK promotes the idea that students are able to learn in different ways, providing that the methods of teaching are appropriate to the students' preferences. The approach encourages learners and teachers to believe that it does not matter how people learn as long as they do learn.¹³

Limitations of the study

Limited sample size from the same institution is a major limitation, and further multi-centric studies are required to arrive at conclusions so that it helps individuals as well as policy makers to plan effective teaching learning methods that can ultimately benefit the students and VARK questionnaire has not been validated for analysis.

Conclusion

It is evident from this study that a variety of learning styles are seen between different students in the same institutions and adapting a single standard lecture format may not benefit these students. It was also seen that though other studies have shown multimodal styles, our students preferred unimodal styles, and they were also

more inclined to read/write and visual styles rather than the usually preferred kinaesthetic styles.

Therefore it is important that medical faculty realize their responsibilities, become aware of their student learning styles and assist them in recognizing their preferences and facilitate learning.

Table 1 : Comparison between the learning style and study course

	Only Visual - yes	Only visual -no	
Medical	26	49	75
Nursing	12	63	75
			Chi-6.9079, p- 0.008
	Only auditory - yes	Only auditory - no	
Medical	22	53	75
Nursing	6	69	75
			Chi-11.3412, p- 0.0008
	Only reading - yes	Only reading - no	
Medical	11	64	75
Nursing	33	42	75
			Chi -15.566, p- 0.000
	Only kinaesthetic -yes	Only kinaesthetic -no	
Medical	11	64	75
Nursing	10	65	75
			Chi - 0.0554, p- 0.813
	Unimodal- yes	Unimodal - no	
Medical	70	5	75
Nursing	61	14	75
			Chi - 4.885, p value-0.027

Table 2 : The mean and standard deviation are represented in the following table:

NURSING STUDENTS

Learning Style	Mean	Standard Deviation
VISUAL	4.3733	2.1484
AUDITORY	4.1733	2.0093
READ/WRITE	6.04	1.8559
KINESTHETIC	4.0933	2.0347

Table 3 Medical Students

Learning Style	Mean	Standard Deviation
VISUAL	5.68	2.5793
AUDITORY	5.4267	2.7122
READ/WRITE	4.96	2.1209
KINESTHETIC	3.9333	2.3899

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