Learning Styles among the Outstanding Physiotherapy Undergraduates Students

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Abstract

Background: *Teaching the undergraduate physiotherapy students is an important role of physiotherapy educators and it's like investing in future of this profession. Optimal learning environments consider how students learn and utilize various teaching methods to tailor curriculum delivery to match specified student learning preferences.*

Objectives: *The purpose of this study was to find out the preferred learning styles amongst the outstanding students.*

Methods: *A total of 12 outstanding students with rank one to three from I, II, III & IV year undergraduate Physiotherapy classes completed the VARK Questionnaire after their results. The VARK (Visual, Aural, Read/ write, and Kinesthetic) -questionnaire contains 13 multiple-choice- questions with four possibilities to select an answer. Each possibility represents one of the four modes of perception. But, one can select more than one answer for each question, which is necessary for the identification of the poly modal modes of perception and learning. The students' register numbers and names were used in the study and no blinding was practiced. All these participating rank holder students completed and returned back the questionnaire in approximately 10-15 minutes period of time. We analyzed their learning styles by putting the data at http://www.vark-learn.com/english/index*

Results: *Unimodal learning styles were observed in 41.66(5/12) students and multimodal learning style was preferred by 58.34%(7/12) and 33.33(4/12) students showed preference for kinaesthetic learning style indicating a crucial role for kinaesthetic learning along with other multimodal learning preferences like visual, auditory, reading, writing and kinaesthetic learning.*

Conclusion: *The top rank undergraduate physiotherapy students had a higher preference for multimodal learning.*

Keywords: *Physiotherapy education, learning styles, VARK questionnaire and merit.*

Introduction

Natural or habitual pattern of acquiring and processing information in learning situations is known as learning style. The term "learning styles" often refers to the concept that individuals differ in regard to what mode of instruction or study is most effective for them. Learning style is an important core concept that helps us to understand how individuals differ in how they learn. The idea of individualized learning styles originated in the 1970s, and has greatly influenced education and proponents of learning-style assessment contend that optimal instruction requires diagnosing individuals' learning style and tailoring instruction accordingly.[1] The transition from H.S.C.(10+2) to first year Physiotherapy course can be difficult for students because of the dramatic increase in the volume of content. Furthermore, today's Physiotherapy students represent a broad spectrum in terms of age experience, culture, ethnicity and level of preparedness as well as learning preference and styles. This diversity is welcomed; however, it also presents a challenge for instructors to meet the educational need of all students. Specifically, students' motivation and performance improves when instruction is adapted to

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student learning preferences and style.[2] The undergraduate Physiotherapy education, as with any other educational program, needs ongoing improvements to meet the changing demands of the Physiotherapy practice in the 21st century. Although, the complexities of the Physiotherapy care have increased dramatically over the last century, the method of teaching Physiotherapy has hardly changed. Recently, there is a widespread interest in the evaluation of the learning techniques. Students often find discrepancy between learning and delivery of instruction. They usually seek information that is methodically and efficiently presented to them. Teachers should be aware of students learning process, review their mode of instruction and adapt to those learning process, review their mode of instruction and adapt to those learning styles in a conductive environment preferred by students.[3]

Educational researchers have postulated that each individual has unique learning style.[4] As a Physiotherapy teachers; perhaps it is their responsibility to be aware of the learning styles of our students. The knowledge on the learning styles may help the educators in identifying and solving the learning problems among the students, thus helping their students to become more effective learners.[5-7] While doing so, it may be possible to reach out to more students because of the better match between the teacher, students and the learner styles. In recent time, very few studies have focused on the possible relation between the preferred sensory modality used for learning and academic performance of students.

Recently, several studies have investigated the learning styles preferences in students interested in health professions. Despite the fact that there are many different learning style models that focus on aspects such as personality characteristics, information processing style, or instructional preferences, many of the previous studies have focused on the sensory modality used by students to learn and have used the VARK (Visual, Aural, Read/ write, and Kinesthetic) questionnaire to assess it.[8-10] Many methods are available for assessing the learning styles, with each method offering a distinctly different view of the learning style preferences. VARK is a questionnaire which was developed by Neil Fleming,[11] who was a teacher and an educator in New Zealand, who brought about a concept in the evaluation of the learning preferences among the population. The VARK questionnaire is an easy-to-use 16-question survey that provides the users with a profile of their learning preferences.[12] In this questionnaire, V stands for the Visual in which students learn best from pictures, graphs and diagrams. A stand for Aural – the students learn best from spoken words, lectures and discussions. R stands for Reading – the students learn best from reading and writing texts. K stands for Kinesthetic – the students learn best when they move their bodies and manipulate things with their own hands.

Although various studies have investigated the learning styles of different health professional students, gender differences, effects of learning styles of academic performance, study about the learning styles amongst the outstanding Physiotherapy undergraduate students is hardly reported in the Indian context and this inspired us to conduct the present study.

Methodology

Study Design: This was a questionnaire based survey study.

Study Period : Study was conducted during the period of March 2014 to August 2014.

Participants: Participants were 12 (3 male & 9 female) top three rank holders undergraduate Physiotherapy (I to IV B.P.Th.) students with an average age of 20.1±1.51 years studying at College of Physiotherapy (PIMS), Loni, Maharashtra, India at the time of study.

Instrument: A 16 point scoring system of VARK questionnaire was used to identify the learning styles of the participants. The VARK questionnaire version that was available at http://www.vark-learn.com/english/ index.asp.[13] Every question had four option out which participant can select any one or more than one of the options, each option represented each sensory modality. Based on their responses students were classified as unimodal or multimodal (bimodal, trimodal, quadmodal).

Procedure: Participation in this study was voluntary and an informed consent was obtained. The study was approved by the institutional ethical committee of Physiotherapy. The participating students were explained about the aim of the study and were asked to fill the questionnaire. They were assured that their confidentiality will be maintained. The questionnaire was distributed among the students by the researcher and the participants were asked to fill and return it on the very day they were collected back for the analysis. The analysis was done by clicking the responses by participants on the official VARK website (http://www.vark-learn.com/english/

index.asp or http://www.varklearn.com/english/page.asp?p=questionnaire).

Results

A total of twelve undergraduate physiotherapy students (I-IV B.P.Th.) who scored maximum marks in their university examinations and obtained higher ranks like 1, 2 & 3 participated in this study. Out of this, 3 males (25%) and 9 females (75%) completed and returned the questionnaires voluntarily. Their responses were checked and assessed for their learning style preferences, the gender difference in relation to learning style preferences and the correlation between the learning styles and their performances in the university examinations. (Table 1)

Table 1: VARK Score & Gender Preference

Preferred modality	Male	Female	Total
Unimodal			
Visual	0	1	1
Kinaesthetic	1	3	4
Bimodal			
Auditory kinaesthetic	0	1	1
Trimodal			
Visual reading kinaesthetic	0	2	2
Auditory reading kinaesthetic	1	0	1
Quad modal			
Visual auditory reading kinaesthetic	1	2	3
Total	**3**	**9**	**12**

Out of 12 participants, 41.66% (5/12) preferred the unimodal learning, 8.33% were bimodal, 25% (3/12) were trimodal and 25% (3/12) were quad modal learner (figure 1). Among the unimodal learners, 20% (1/5) preferred the visual, 80% (4/5) preferred the kinesthetic mode of learning. So if we consider bimodal, trimodal and quad modal learners as multimodal then the multimodal learning style trend was observed in 58.34% (7/12). Although, we didn't find any gender related differences in learning style preferred, 11 students (3 male & 8 female) preferred kinaesthetic learning style as part of their preferred learning style or styles. Comparing their scores according to their learning preference it was seen that the unimodal learners had mean score of 67.6% (±4.18% SD) while on the other hand it was seen that the multimodal learners had a mean score of 69.4% (±4.49% SD). No significant correlation were found in their performance in previous exams and marks obtained in the study and their learning styles however it was seen that most of the participant had a kinesathatic common modality as a part of their learning style.

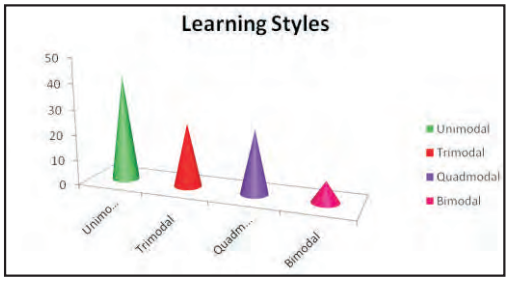

Figure 1: Learning styles amongst Physiotherapy rank holders

Discussion

Benjamin Franklin said that "Tell me and I forget. Teach me and I remember. Involve me and I learn" hence it is important for the effectiveness of teaching environments to take account of group or individual learners' characteristics, competence and experiences (pre-learning) throughout the process of planning learning environments.[14] In the present study, we found that top ranker physiotherapy students had multimodal learning styles. This could be due to immediate environment (sound, light, temperature, and design); (2) own emotionality (motivation, persistence, responsibility, and need for structure or flexibility); (3) sociological needs (self, pair, peers, team, adult, or varied); and (4) physical needs (perceptual strengths, intake, time, andmobility)"[15-19] and the pressure perceived by some of them like defending champions.

In a study done by El Tantawi described that multimodal students in one course (from one cohort) performed significantly better than unimodal students, our study also showed that the multimodal 69.4% (±4.49%) students performed better than the unimodal 67.6% (±4.18%) students. As it is said that the every individual has its own learning style however in a study it is said that even individuals with strong learning style preferences preferred a variety of teaching approaches to avoid boredom.[20] A study also showed that students with "low levels of learning activity" actually learned more when presented first with their least preferred material and resources.[21]

Looking on their motivation source these student were mostly motivated externally than internally. While in a study conducted by Fritz S et al to find out relationship between college students learning style and motivation and found out that a positive but a small correlation exist between in students.[22]

In our current study number of female population is three times that of male population however there was no significant difference in results however female population used broader range of sensory modality than the male participants. This can be due to the fact that the female population is thrice the times of male population. However a study conducted upon a difference in the learning style of male and female it showed that female student population is more diverse than the male population.[23]

We understand the basic fact that VARK is a self reported questionnaire and statistically it's not yet validated. Further, the number of participants or sample size was too small and the study involved the participants from only one constituent unit of the university and hence we believe that in future top rank students of various colleges and universities from different states and union territories may be considered.

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