

# The Learning Styles and the Preferred Teaching-Learning Strategies of First Year Physiotherapy Students

T. D. Dissanayaka

Department of Physiotherapy, Faculty of Allied health Sciences, University of Peradeniya, Sri Lanka

**Abstract-** Adults have different learning styles. Thus the aim of this study was to determine the preferred learning style and specific teaching-learning methods of physiotherapy students. A cross sectional study was conducted on 36 first year physiotherapy students at the department of physiotherapy, Faculty of Allied Health Sciences, University of Peradeniya, Sri Lanka. The students were asked to rank lectures, tutorials, practical and self-study from the most preferred to the least preferred one. The most preferred teaching-learning method among all the students was lectures (61%), followed by practical (27%), self-study (6%) and tutorials (6%). there was no significant difference among male and female students on the preferred VARK mode. In conclusion, the results of this study showed that the educators' awareness of the various learning styles may create effective learning environment for students.

**Index Terms-** Learning style, Physiotherapy students, Teaching-learning methods, Gender

## I. INTRODUCTION

The trends of education have changed from a teacher-centered to the student-centered learning in recent years. Therefore it is essential to identify different learning styles and the instruction should modify to match up with adults preference [1, 2]. VARK was developed by Flemming and Mills [3] based on sensory modes which are used for taking information. It includes Visual (V), Auditory (A), Read/Write (R) and the Kinesthetic (K) sensory modalities. Visual learners use things that they can see and auditory learners use things which they can hear to process the information. The read and write learners use words that they can see and kinesthetic learners prefer experience and practice to acquire information.

The first year physiotherapy students gain knowledge through various instructional methods including lectures, practical, tutorials, etc. Having an understanding on students learning styles may help to develop learning strategies and this may enhance the performance of students. A study done by Poonam [4] showed that most of medical students preferred practical/dissection as their learning style. However to the best of my knowledge, none of the studies have done this among physiotherapy students. Therefore the aim of the present study was to gain an understanding of the learning style preferences of first year physiotherapy students and to find out the most preferred instructional methods which may helpful on formulating teaching learning strategies to improve performances of the students.

## II. METHOD

### Instrumentation

A survey was implemented in this study. A self-administered questionnaire which contained two parts, (parts A and B) was used for the data collection. Part A consisted of general demographic information (name, age, gender) and part B was the latest version (7.1) of the VARK questionnaire, which was developed by Flemming, to determine the learning style preferences of the students. VARK questionnaire consisted of 13 questions with four options each and the respondents could choose more than one option if they found them suitable.

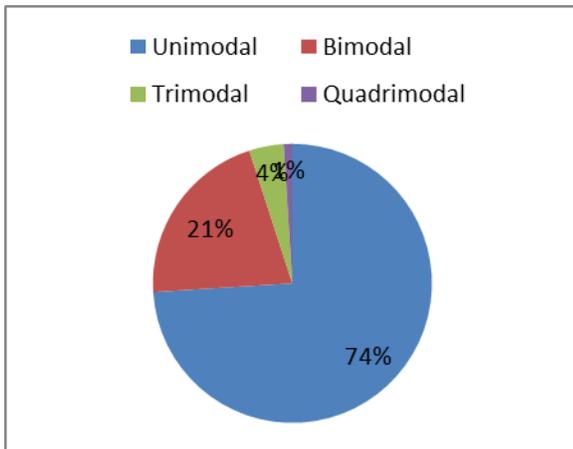
### Participants and procedure

First year physiotherapy students in the Department of Physiotherapy, faculty of allied Health Sciences, University of Peradeniya, Sri Lanka were participated in this study. A total of 36 students voluntarily participated in the study (Male and females). All the data were collected in November 2013. The purpose of the study was explained to the students and the hard copies of the questionnaires were distributed to the students who volunteered to take the analysis. The completed questionnaires were collected after 15-20 minutes and they were evaluated by using previously validated scoring instructions which were available on the VARK website.

Descriptive statistics was used to analyze the students' preferences of the various VARK components, as well as their preferences for the various teaching-learning methods. The Students' t-test was utilized to compare the VARK scores for the male and female students.

## III. RESULTS

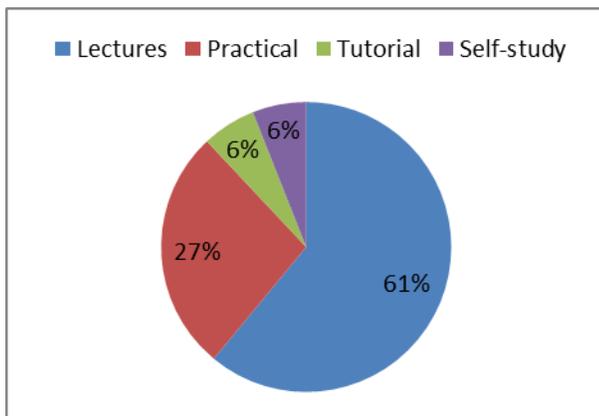
According to the results, students prefer a single mode (unimodal), two modes (bimodal), three modes (trimodal) or all four modes (quadrimodal) of the information presentation. The percentage of unimodal preference was 74% and only 26% students had multimodal preferences. Amongst the multimodal learning style, the most preferred mode was bimodal (Fig 1).



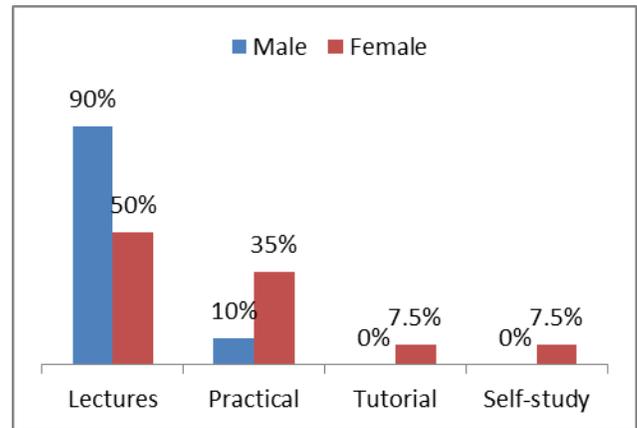
**Fig 1: Percentage of students with unimodal, bimodal, trimodal and quadrimodal preferences**

Of the 26% of unimodal learning style, kinesthetic (8%) was the most preferred mode and the visual (5%) was the least preferred mode of information presentation.

Various teaching-learning methods such as a. direct instruction methods (lectures and demonstrations), b. interactive instruction methods (tutorials), c. experimental learning methods (practical and dissections) and d. independent study methods (self-study) are used to impart and acquire knowledge of the basic sciences during first year of the physiotherapy curriculum. The most preferred teaching-learning method among all the students was lectures (61%), followed by practical (27%), self-study (6%) and tutorials (6%) (Fig 2). Even the female students preferred self-study and tutorial, male students preferred lectures and practical only as their teaching-learning method (Fig 3).



**Fig 2: Preferences about teaching learning methods among first year physiotherapy students**



**Fig 3: Comparison of preference of teaching-learning methods among male and female students**

Table 1 shows the comparison of the preferences for the four VARK modalities of the female and male students. It was observed that there was no significant difference among male and female students on the preferred VARK mode.

**Table 1: Comparison of VARK scores of male and female students**

VARK mode	Male/Female student	Mean+_ SD	P value
Visual	Female	3.12±1.92	0.48
	Male	3.6±1.58	
Auditory	Female	4.31±2.69	0.74
	Male	4.60±1.50	
Read-Write	Female	3.73±1.56	0.56
	Male	4.10±2.07	
Kinesthetic	Female	5.15±1.57	0.29
	Male	5.80±1.81	

#### IV. DISCUSSION

In the field of education, understanding on students' different learning styles and their preferences on that styles are helpful to in developing academic curriculum. Thus the present study administered the VARK questionnaire to the first year physiotherapy students to determine their learning style preferences. A majority of the students (74%) preferred unimodal learning style which indicated that they preferred single mode of information presentation. The results of previous studies which were conducted among first year medical students from various other countries reported dissimilar results as their most preferred learning style is multimodal varied from 59-85% [5, 6-8]. Furthermore, in the unimodal learning style category, most preferred mode was the kinesthetic one, followed by the visual, auditory and the read-write ones. The findings of this study were dissimilar to the results of the studies conducted by Baykan and Nacar [9], Poonam [4], Lujan and DiCarlo [10] and Nuzhat et al., [5] among medical students. The variations in the learning preferences of physiotherapy students could be due to the differences in the teaching methodologies.

The results of this study revealed that lectures were the most preferred teaching methodology of both male and female students. However this finding was not associated with the finding that the most favored learning style of the students of the present study was the kinesthetic one. Further, it was observed that there was no significant difference on learning style among male and female students. This finding was dissimilar with the study done by Poonam [3] and this study indicated that the choice of the teaching methodologies was not affected by the learning styles of the students.

The findings of this study cannot be generalized due to the small sample size. In future, further studies need to be conducted find the whether the learning style change when the students' progress from first year to fourth year in physiotherapy curriculum.

## V. CONCLUSION

The proper understanding on learning styles may not only helpful for teachers, but also it provides opportunity to students to identify their blunders and maximize their performances.

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## AUTHORS

**First Author** – T. D. Dissanayaka, Department of Physiotherapy, faculty of Allied Health Sciences, University of Peradeniya, Sri Lanka, thushfhs@yahoo.com

**Correspondence Author** – T. D. Dissanayaka, Department of Physiotherapy, Faculty of Allied health Sciences, University of Peradeniya, Sri Lanka, Email: thushfhs@yahoo.com, Tel no: 094716305852