

Learning Style Preferences and their Correlates among Physiotherapy Undergraduates

AH Wettasinghe¹, IM Karunathilake², A de Abrew³

¹Allied Health Sciences Unit, Faculty of Medicine, University of Colombo, Sri Lanka

^{2,3}MEDARC, Faculty of Medicine, University of Colombo, Sri Lanka

¹hansikawettasinghe@gmail.com, ²karunathilake@hotmail.com, ³ashwinie@yahoo.com

Abstract - Degree courses for Allied Health Sciences commenced in Sri Lanka in 2005. The BSc Physiotherapy Degree programme was established in Allied Health Sciences Unit (AHSU), Faculty of Medicine, University of Colombo in 2006. The course is in its dynamic stage with continuing curriculum development, review and evaluation. The student population is diverse with regards to language, religion, experience, culture, level of preparedness and learning styles. In the background of this diversity it would be beneficial to both students and academics to identify student learning preferences in order to enhance student centered learning.

The aim of this was to determine learning styles among BSc. Physiotherapy undergraduates using a constitutionally based method and to determine the difference according to the gender academic year and academic performance.

All undergraduates (n= 114) studying at AHSU, Faculty of Medicine, University of Colombo were recruited. Data were collected via a self-administrated VARK Questionnaire. Data was analyzed using standard statistical tests.

Of 114 respondents there were 51 males and 63 females. Among Physiotherapy undergraduates 23.7% multimodal learners, 22.4% predominantly kinesthetic learners, 16.2% predominantly aural learners, 17.5% predominantly reading learners and 20.2% predominantly visual learners. There was no significant relationship between learning style and gender ($p > 0.05$), learning style and academic year ($p > 0.05$) and learning style and academic performance ($p > 0.05$). Majority of final year undergraduates were kinesthetic learners whereas the majority of first year undergraduates were reading learners.

According to the results most of the physiotherapy undergraduates were multimodal learners 23.7% and kinesthetic learners 22.4%. First year students were predominantly reading learners whereas final year learners were predominantly kinesthetic learners which might be because during the course students have adopted to the course requirements. However follow-up study needed to confirm. There was no significant relationship between learning style and gender, learning style and batch and learning style and course performance.

Keywords: learning styles, physiotherapy undergraduates

I. INTRODUCTION

The University student population is diverse and varied as Sri Lanka is a multi religious and multi language country. The student population may vary in their age, gender, language, religion, experience, culture, level of preparedness and learning styles. This diversity challenges academics to motivate and promote student understanding.

A learning style is defined as “the manner in which and the conditions under which learners most efficiently and effectively perceive, process, store, and recall what they are attempting to learn” (Slater *et al.*, 2007).

Learning styles are classified in many ways including Kolb's Learning Style, Honey and Mumford's model, The Herrmann 'whole brain' model, Herrmann Brain Dominance Instrument, Allinson and Hayes' Cognitive Style and Fleming's VAK/VARK model (Coffield *et al.*, 2004; Fleming, 2006). Of them the Fleming's VAK/VARK model is one of the most common and widely-used learning styles.

According to the Fleming's VARK model there are four major learning styles which are classified according to the sensory modality that individual most prefers to internalize information. The four major sensory modalities are visual, aural or auditory, read/write and kinesthetic (VARK). Many students have a single, strong preferences ("unimodal"), whereas others have multiple ("multimodal") learning preferences. Fleming has developed an online questionnaire that categorizes learning styles on the basis of one's VARK modality preferences. Although most students can use all four of the VARK sensory modalities when internalizing information, many prefer two or three particular modalities, and some have one dominant preference. Students with visual preferences learn best using pictures, graphs, diagrams, etc. Auditory or aural learners prefer to listen to and discuss material. Those with read/write preferences learn best with textual materials. Finally, kinesthetic learners internalize information best when they are involved can learn with touching and manipulating materials (Fleming, 2011). Majority of Physiotherapy, Occupational therapy, Speech pathology, Nursing and Midwifery students prefer the kinesthetic learning style. (Brown *et al.*, 2008; French *et al.*, 2007; James *et al.*, 2011).

Among health science students converger learning style was most frequently preferred and the diverger and accommodator learning styles were the least preferred according to the Kolb Learning Style Inventory (Maryam *et al.*, 2010). Another study using the Kolb Learning Style Inventory for Occupational therapy and Physician assistant groups has found that the students preferred abstract conceptualization mostly (Patrick *et al.*, 2005). Several studies report that the majority of Physiotherapy students preferred converger learning style (Patrick *et al.*, 2005; Wessel *et al.*, 1999).

Identifying our own learning preferences and weaker preferences is beneficial. It would help the students to explore their weaker preferences and enhance them by applying strategies associated with them.

Learning styles may change over time and with different levels of education. Also there may be a gender basis preferred learning styles. There is a controversy regarding the relationship between preferred learning style and the gender. Some

research has shown that the effect of gender on learning style is not significant (Slateret *et al.*, 2007; Baykan and Nacar, 2007; Breckler *et al.*, 2009). However some other research has found that females and males have significantly different learning style preferences (Dobson, 2009; Wehrwein *et al.*, 2007).

Degree courses for Allied Health Sciences were started in Sri Lanka since 2005. The BSc Physiotherapy Degree programme was established in Allied Health Sciences Unit, Faculty of Medicine, University of Colombo in 2006 with 28 students. The course is in its initial stage and various efforts are continuing to develop the curriculum. Students as well as the lecturers will be benefited if they have a better understanding of students learning preferences and variations with the academic year and gender.

The aim of the study was to develop knowledge of different learning styles among BSc. Physiotherapy undergraduates of Allied Health Science Unit and determine the changes of learning preferences according to the gender and academic year.

This information would enable the teaching faculty to obtain a better understanding of the learning needs of the students. In addition, the students will be informed of the results and of strategies to optimize their personal learning styles. Therefore the purpose of this study is to investigate the relationship between preferred learning style, gender, course performance and academic year of the student.

II. METHODOLOGY

All consented Physiotherapy undergraduates who were studying at AHSU, Faculty of Medicine, University of Colombo (n=114) were recruited. Self administered VARK online Questionnaire was used to identify the preferred learning style of Physiotherapy undergraduates.

Permission for data collection was obtained from the Coordinator, Allied Health Sciences Unit, Faculty of Medicine, University of Colombo.

Prior to recruitment, details of the study were given to the participants through an information sheet. Participation in the study was interpreted as consent. Initially the printed VARK online Questionnaire was given to all undergraduates in English. As the BSc. Physiotherapy course is

conducted in English it was assumed that the students of the Allied Health Sciences Unit will be able to answer the questionnaire in English. This printed questionnaire was also included their registration number and academic year. Registration number was essential for data analysis and to obtain marks of each student. The questionnaire was administrated by participants and collected within one week. Then data were fed to the VARK online Questionnaire by the investigator in order to gain participants' learning preferences. This was done to enhance the response rate of the participants. Academic marks will be collected from the Allied Health Sciences office.

III. RESULTS

Out of 134 students 114 responded. Of 114 respondents there were 51 males and 63 females. Among Physiotherapy undergraduates 23.7% multimodal learners, 22.4% predominantly kinesthetic learners, 16.2% predominantly aural learners, 17.5% predominantly reading learners and 20.2% predominantly visual learners.

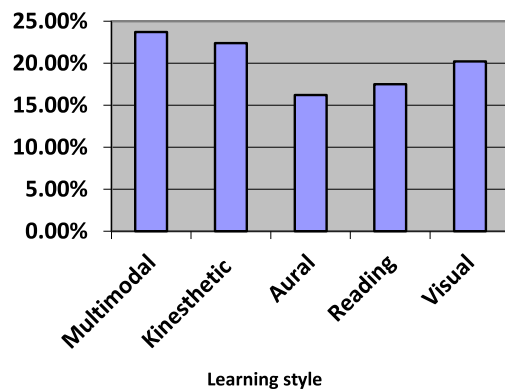


Figure 1. Learning styles distribution among Physiotherapy undergraduates

There was no significant relationship between learning style and gender ($p > 0.05$), learning style and academic year ($p > 0.05$) and learning style and academic performance ($p > 0.05$). The majority of final year undergraduates were kinesthetic learners whereas the majority of first year undergraduates were reading learners.

IV. DISCUSSION

Although most students can use all four of the VARK sensory modalities when internalizing information, many prefer two or three particular modalities, and some have one dominant preference. Students with visual preferences learn best using pictures, graphs, diagrams, etc. Auditory or aural learners prefer to listen to and discuss material. Those with read/write preferences learn best with textual materials. Finally, kinesthetic learners internalize information best when they are involved with touching and manipulating materials (Fleming, 2011).

According to the results of this study most of the physiotherapy undergraduates are multimodal learners 23.7% and kinesthetic learners 22.4%. This was also confirmed by the existing literature as the majority of Physiotherapy, Occupational therapy, Speech pathology, Nursing and Midwifery students prefer the kinesthetic learning style. (Brown *et al.*, 2008; French *et al.*, 2007; James *et al.*, 2011).

The effect of gender on learning style is not significant (Slater *et al.*, 2007; Baykan and Nacar, 2007; Breckler *et al.*, 2009) is also confirmed by this study as well.

V. CONCLUSIONS

Most of the physiotherapy undergraduates in Colombo University were multimodal learners and kinesthetic learners. First year students were predominantly reading learners whereas final year learners were predominantly kinesthetic learners which may be due to the nature of the course students have adapted to the course requirements. However follow-up study needed to confirm. There was no significant relationship between learning style and gender, learning style and batch and learning style and course performance.

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BIOGRAPHY OF AUTHORS



¹Author is a lecturer of Physiotherapy of University of Colombo, Sri Lanka. Her research interests include Medical education and Musculoskeletal physiotherapy.



²Author is the Director of Medical Education Development and Research Centre and a Senior Lecturer in Medical Education University of Colombo, Sri Lanka.



³Author is a lecturer of Medical Education of University of Colombo, Sri Lanka.