Original Article

Learning Style Preferences of Dental Students, Karachi

Dental Student's Learning Style

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ABSTRACT

Objective: The prime objective of the study is to determine the learning style preference of dental students in Jinnah Medical and Dental College, Karachi.

Study Design: Cross-sectional Descriptive Study

Place and Duration of Study: The study was conducted in Jinnah Medical and Dental College on students of Dentistry, first year through final year. VARK™ questionnaire version 7.8© was distributed and data was collected between 01 November to 30 November, 2014.

Materials and Methods: Total 200 questionnaires were sent out. 160 students who consented to participate in the study were included and those who refused were excluded. Descriptive statistics was used to identify the learning style preferences of the students. The VARK scores were recorded on Excel sheet. Scoring algorithms especially designed for VARK research, available on its website were used for data management and description.

Results: 51% of the students (n=82) preferred a uni-modal learning style, of which Aural was the most common. 47% of the dental students (n=75) used all four modes for learning while 2% preferred bi-modal (n=3). None of the students were tri-modal.

Conclusion: In conclusion, majority of students preferred uni-modal followed by the group which preferred all modes of presentation.

Key Words: VARK, uni-modal bi-modal, tri-modal, learning style, preference

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INTRODUCTION

Learning is an adaptive function of our nervous system that allows an experience or an influence to be followed by modification in behavioral responses or understanding. Learning can be reinforced or modified by selectively activating the neural pathways with a resultant change in behavioral responses.[1] Learning processes vary for each individual[1] based on their cognitive functioning.[2] Educational researchers agree that it is possible for a student to change his/ her learning style to suit their new learning environment[3] which they experience when enter the professional education system particularly that related to health care.

Learning styles can be expressed/ defined in many ways[4]. One method is to define the sensory modality for communication that a student prefers to use for acquiring knowledge and making a meaning out of it through VARK ™ questionnaire. The reason for using this method of expression of learning style was that most students related their learning difficulties to the mode of information presentation.[5] It should however be reminded that a preference may not necessarily be taken as an ability to perform a task.

VARK questionnaire was designed by an educator from New Zealand, Fleming and his colleague Mills to assess the learning or cognition style preference of a student using a 16 question format with four options each.

Students are requested to select one or more answer options based on their preferences; and are then scored accordingly. VARK is an acronym, where V stands for a preference for a Visual mode of learning and communication (using maps, pictures, graphs, diagrams etc.), A implies Aural (listening to the instructions or learning material), R is for Read/write (learning through reading and writing) and K denotes Kinesthetic (learning by using the tactile sensations and smell).[6] This questionnaire has been validated and its reliability estimates for its subscales are reasonably high.[7]

Several studies[8,9] favor modifying instructional strategies based on students' learning preferences to improve students' understanding and thereby acquiring better grades. In contrast to this, Fleming and Mills are of the opinion that it may not be feasible for the instructors to modify their strategies to adapt to each students' learning preference. Instead, they recommend that the student should be made aware of his/ her learning style and the adaptation they can make to suit the new learning environment. This however, does not imply that instructors should not keep in mind the preferences of their students when designing the

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instructional strategies.[5] Little is known about the learning style preferences of Dental students in Karachi so the objective of the current study was to identify the learning style preferences among dental students in Karachi.

MATERIALS AND METHODS

This is a descriptive cross-sectional study. Data was collected between 01 November to 30 November, 2014 using a VARK™ questionnaire[10], version 7.8. Students were explained about the nature of the survey and were requested to respond the questionnaire at the end of the lecture on a voluntary basis. No attempt was made to follow up with the students who were absent on the days of data collection. The questionnaire comprises 16 questions with 4 answer options each. Students were allowed to choose one or more options based on their preferences and were then scored accordingly. Each student's score was recorded in an Excel sheet. The options helped to categorize students' learning preferences. Scoring algorithms especially designed for VARK research, available on its website were used for data management and description.

200 questionnaires were distributed and160 students agreed to participate in the study. Dental students of Jinnah Medical and Dental College who consented to be part of the study were included in the study. Those who did not consent or belonged to any other discipline were excluded.

RESULTS

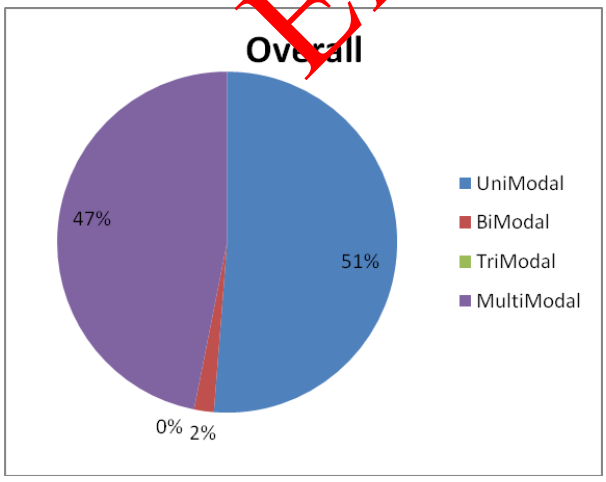
Of the total 160 BDS students who participated in the study 46 belonged to year 1, 30 to year 2, 39 to year 3 and 45 to year 4. Table 01 shows the preferences of learning style year wise with their frequency. Of the uni-modal (51% of the total; n=82), most students preferred Aural mode (n=33; 40.2%) followed by Visual (n=25; 30.4%), Kinesthetic (n=20; 24.3%) and Read/ write (n=4; 4.9%).

The data in Graphs 2, 3 and 4 shows the contribution of each year towards the chosen modalities. Uni-modality is distributed quite closely as 29%, 24%, 20% and 27% while multi-modality is distributed from as low as 12% to as high as 31%. It is surprising to note that none of the students were tri- modal.

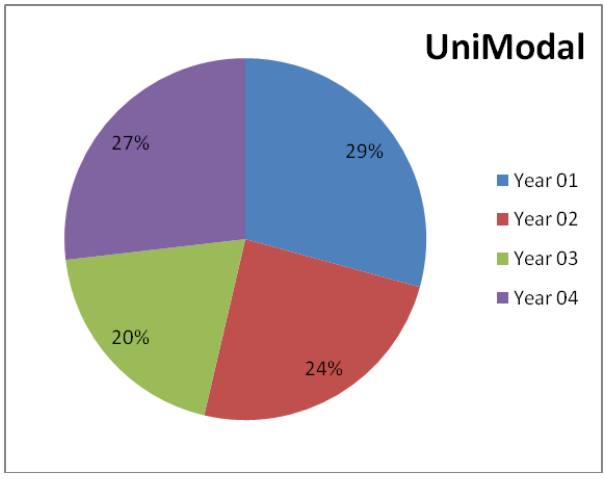
Table 1 shows the year by year observation of modalities for the BDS students with the proportion of each modality for each year shown as percentage for the total of values for that year. 'Overall' is the sum of all the values for each year and thereby displays the percentage of each modality for the aggregate of four years.

Table No.1: VARK Distribution

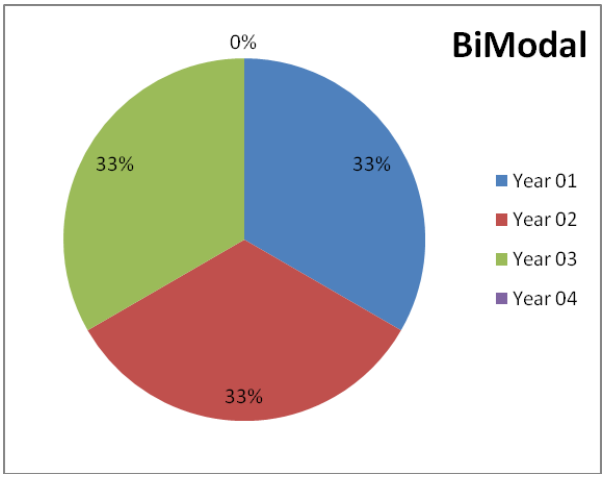
YEAR	Uni-Modal		Bi-Modal		Tri-Modal		Multi-Modal		Total year wise	
	n / frequency	%	n / frequency	%	n / frequency	%	n /frequency	%	n /frequency	%
1	24	52	1	2	0	0	21	46	46	100
2	20	67	1	3	0	0	9	30	30	100
3	16	41	1	3	0	0	22	56	39	100
4	22	49	0	0	0	0	23	51	45	100
Overall/ Total	82	51	3	2	0	0	75	47	160	100



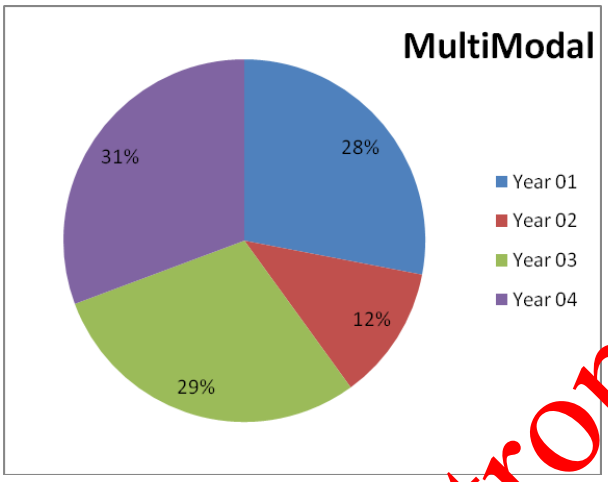
Graph No.1; Distribution of students based on number of modalities of preference n=160



Graph No.2; Distribution of students preferring uni-modal learning style (year-wise) n=82



Graph No.3: n=3- Distribution of students preferring bi-modal learning style(year-wise)



Graph No.4: Distribution of students preferring multi-modal learning style (year-wise) n=75

DISCUSSION

Health care students are encountered with a challenge of ever expanding knowledge when they enter their professional educational environment. How each individual handles, processes and assimilates this information varies from one person to another[11]. Likewise, their preferences for the sensory modalities for learning are also different.

Instructors on the other hand are also faced with a challenge of accommodating diverse student population with different preferences. It has been identified by educational researches that there exists a mismatch between students' and teachers' styles[12]. For efficient teaching and learning it is imperative for the students to know the learning preferences so that these can be modified as per the requirements of the new learning environment; and also for the teachers so that they can plan the instructional strategies whenever feasible[13]. Linking the preference to the mode of instruction may enhance learning.[14,15]

The current study determined the different learning style preferences of dental students year wise.

The response rate of the study was 80%.In the current study most students were either uni-modal (51%) or multi-modal (47%). Only a few were bi-modal (2%) and amazingly, none were tri-modal. Almigbal[16] found out that most students (43.5%) from King Saud Medical University preferred to use all the four modalities of VARK followed by 21.2% for Aural modality. Zerrati[17] also observed that multi-modality was the preferred style for 35.5% of medical and midwifery students. Mukherjee[18] and other researchers found out that Indian students from Bankura, mostly preferred using more than one modality (84.21%) and of these bi-modal were most common (32.63%). Another study from India[19], stated that 75.8% of the dental students had a preference for multimodal learning style. When they related the learning styles to gender no statistical significant difference was found ($P > 0.05$). When Prabha studied dental students using VAK questionnaire he observed that most of the participants of the study 57.96 % preferred a single mode of information presentation. 61 out of 98 pre-clinical medical students from Malaysia preferred multimodal learning style.[20] They did not find any gender related differences in preferences.

A study from Rawalpindi, Pakistan used a different questionnaire (LSQ), and compared undergraduate and post graduate medical students. They observed that preferences for all learning styles as defined by LSQ were seen in both groups.[21] However, the data cannot be compared statistically to our results as they have used a different tool.

Another Pakistani study from Islamabad, using the VARK questionnaire revealed that most students (52%) were uni-modal, which is in agreement with our study.[22]

CONCLUSION

It could be concluded that dental students from this institution preferred either uni-modality or using all the VARK modalities for learning style preferences. This information can be utilized to design the teaching strategies and guide the students better.

Recommendation: Use of a combination of instructional strategies may be required to increase the efficiency in teaching and learning.

As a way forward more studies need to be done to determine the relationship of difference in preferences to gender, marital status, age of the students and also to students' achievements in terms of grades. Multi-institutional studies will give more reliable results. A longitudinal study may be done to follow students through years to determine any changes in their preferences for learning style during the course of the study.

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Conflict of Interest: The study has no conflict of interest to declare by any author.

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