

Preferred Learning Mode of Education and Dental Students: A Cross Sectional Study

Rohan Sachdev*, Kriti Garg, Garima Singh

UWA School of Population and Global Health, The University of Western Australia, Western Australia

***Corresponding author:**

Rohan Sachdev

UWA School of Population and Global Health,
The University of Western Australia, Clifton Street,
Nedlands, WA 6009.

Received : October 26, 2019

Published : November 19, 2019

ABSTRACT

Objective: Every student has different learning style to acquire new information. This study was performed to evaluate the learning style likings of undergraduate dental students.

Material and Method: The VARK questionnaire was administered to 40 1st year and 80 Intern dental students to evaluate their liking mode of education. Completed questionnaires were scored and calculated to evaluate the distribution of VARK preferences with student *t*-test.

Results: Among study participants 50% of 1st year students were more with quadmodal whereas 55% of Intern students preferred unimodal in which kinesthetic was main mode. Mean score for V and A mode was significantly more for 1st year students than Intern students.

Conclusion: The dental students of the present study had shown varied learning preferences. The VARK questionnaire is a relatively easy and straightforward method to disclose the education method preferences for any student or a category of students. Dental education providers should adapt their education conveyance procedure to estimate the new teaching preferences for the students. Dental students should be motivated to modify a multimodal method of learning to improve their academic skills.

Keywords: Dental; learning Mode; Students; VARK.

INTRODUCTION

In 1979 Keefe gave definition of learning method as the "composite of characteristic cognitive, affective, and psychological factors that serve as relatively stable indicators of how a learner perceives, interacts with, and responds to the learning environment" [1,2]. Learning style now a day's considers as to adapt various methods of acquiring education in, arranging and refining information. Learning styles involves different educating modes, specifically to an single person that are supposed to permit the person to gain knowledge at their best [3,4]. Quantifiable dissimilarity has been reported in the mode in which students prefer to gain, examine, and remember new information every day [5,6]. Education

methods can be evaluated in various ways, among which Neil Fleming's Visual, Aural, Read Write, Kinesthetic (VARK) model is one of the most commonly used education assessment methods.7 Visual, Aural, Read Write, and Kinesthetic is an acronym for VARK. It worked upon the 4 sensory modalities of students, which are categorized as visual (V), aural (A), read/write (R) and Kinesthetic (K) learners. Visual (V) Students prefer to acquire information, with pictures and use visual aids. Aural (A) learners learn by listening to knowledge. Read/write (R) where students recommend their preferences to draw attention, text based knowledge. Kinesthetic (K) mode students achieve through moving, touching and performing activities.

The gaining knowledge mode of students may be unimodal or multimodal depending on application of single mode or multiple mode of teaching, respectively [7]. To make students to aware their acquiring information mode would make them better beginners. Knowledge of education gaining methods of the undergraduate students can also help education providers to know further about the students, learning methods and also assist them to develop effective instructional skills to adjust with their students, learning requirements, and encourage better teaching [4]. The aim of the study was to evaluate the learning methods among 1st year and Intern dental students.

MATERIAL AND METHOD

The present study was conducted among undergraduate dental students in October 2019. Ethical clearance protocols were followed as provided by the Ethical Institutional Committee and voluntary participation was achieved by participants. Study participants included of 40 1st year undergraduate dental students and 80 Intern dental students. The VARK Study questionnaire was made in English and given to dental students to determine their preferred mode of education. The VARK study questionnaire consists of 16 multiple-choice questions, each with four options. The study participants were instructed to select more than one option if more than one answer was relevant. The answers of the VARK modal was calculated as per the recommendation mentioned in the VARK website [7]. Completely filled questionnaire forms by the students were collected and calculated the distribution of VARK learning modes. Preference data was calculated by adding up all "V" responses (visual), all "A" responses (aural), all "R" responses (read/write), and all "K" responses (kinesthetic). Accordingly, education modes were categorized as unimodal (V, A, R, or K), bimodal (VA, VR, VK, AR, AK, and RK), trimodal (VAR, VAK, VRK, and ARK), or quadmodal (VARK).

All the data calculation was performed using SPSS version 17 (SPSS Inc., Chicago, IL, USA). A $P < 0.05$ was considered statistically significant. Mean scores with standard deviations (SD) were calculated for every VARK modet. Student's *t*-test was applied to compare the mean VARK score between the categories.

RESULTS

In the present study total 120 dental students of both genders were present. The design of Responses collected of learning style among 1st year and Intern dental students category as shown in (Table 1), Majority of 1st year dental students selected multiple mode of learning with almost 50% being

quadmodal. 55% of Intern dental undergraduate selected single mode of learning; kinesthetic learning mode was most common. Comparison of the mean VARK scores among 1st year undergraduate and Intern students manifested that the mean V and A scores were significantly higher for 1st year than Intern students (Table 2).

Table 1: Distribution of dental students with preferred learning styles.

Mode	Dental students n (%)	
	1 st Year (n =40)	Intern (n=80)
Unimodal	12 (30)	44 (55)
Bimodal	2 (5)	18 (22.5)
Trimodal	6 (15)	14 (17.5)
Quadmodal	20 (50)	4 (5)

Table 2: Comparison of VARK mean scores of 1st year and Intern dental students.

VARK Mode	1 st year students (n=40)		Intern (n=80)		p
	Mean	SD	Mean	SD	
V	6.11	3.21	4.29	3.12	0.05
A	7.55	3.18	4.70	2.55	0.002
R	5.30	2.92	5.30	2.56	0.871
K	7.43	2.99	6.75	3.20	0.35

SD: Standard deviation ,V: Visual,A: Audio, R: Read-write, K: Kinesthetic

DISCUSSION

Learning education methods may vary among every student in modern era. According to Dunn et al., "Learning style is a biologically and developmentally implemented mode of personal characteristics that build the same teaching method effective for few and ineffective for other individuals [8]. Present day educational system gives importance the way students are being educated. VARK questionnaire is most commonly used by observer to examine the education preferred learning methods. Visual learners mainly prefer graphs, brochures, art charts, graph design, 3D pictures, etc., Auditory learners like discussions, seminars, lectures, debates, conversations as part of education method. Visual and auditory learners have liking for information that is heard by someone or spoken by famous personalities. Reading writing students prefer textbooks, essay, making notes, bibliography reading, web pages articles, reading newspapers, and printed handouts. Reading mode students like Knowledge in form of words. Kinesthetic learners like examples at working field, clinical laboratories, and hands-on workshops.

They give emphasis in gaining education through self-practice and experience. Individuals who do not have any particular preference for any of above mentioned modes are called multimodal. They have blend of all education

methods [7]. In 1998, Miller stated that when students were educated in their most likely mode of learning, their learning skills were increased [9]. The present study also stated that many of the intern dental students chose a single sensory modality with high kinesthetic most like mode which was found similar to study done by Narayana MC et al [10]. Some of the students might be at education drawback due to customary and conventional instructive lectures. However, with the application of new learning methods that include the kinesthetic teaching mode, usually help in enhancing the learning for all type of students. Most of 1st year dental undergraduate students in present study were multimodal beginners. Teaching multimodal students could be a difficult task to the education providers. Multimodal students include bimodal, trimodal and quadmodal. Such students may have education preference combinations of VA, VR, VK, AR, AK, RK, VAR, VAK, VRK, ARK, and VARK [7]. Hence, it would be difficult for the instructor to do justice all the 4 modes of education methods to make the students comfortably understand the topics although these beginners can easily alter to 1 mode of information presentation [4].

A slight increase in visual (V) and aural (A) mean scores for 1st year dental students was also found in the present study which was in accordance to the study done by Saran R et al [4]. This would suggest that lectures with PowerPoint presentations containing flow charts, illustrations, pictures and audio-visual demonstrations of different subjects would match the requirements of most 1st year dental undergraduate beginners and increase their understanding. The present study would help the education provider in accepting education dissimilarity that present between the professional dental students and to help in removing some of these differences by implying multiple modes of education approaches in order to reach out to most of the students and increase their learning skills. Small sample size was limitation of the study and two opposite group of the dental curriculum were included. Hence, further study should be performed with large sample size including all year dental curriculum students.

CONCLUSION

Education is a process which helps individual to acquire knowledge. In the present study, students came with different learning modals but with Kinesthetic as a preference. Education provider should communicate with the students about education preferences in lectures; this would help in evolving and comprehending the requirements of the dental students and make them grow with better skills to perform

excellent in the academics and helps them to enhance their teaching skills and personality. If education provider gets informed about undergraduates learning preferences at the initial stages of the professional course; go with the teaching style, learning can be much easier and interesting for students. Similarly, if the dental student gets accepted with their own learning style, adaption to the new environment of professional course will be easier and academic performance will be improved.

Acknowledgments

Authors would like to acknowledge all the participants for their help throughout the study.

Conflict of Interest

No conflict of interest.

REFERENCES

1. Shenoy N, Shenoy KA, Ratnakar UP (2013) The perceptual preferences in learning among dental students in clinical subjects. *J Clin Diagn Res* 7(8): 1683-1685.
2. Kazi S, Sivashankari R, Ganesh R (2016) Which mode of learning do dental students prefer? A cross-sectional study in Chennai, Tamil Nadu. *SRM J Res Dent Sci* 7(4): 222-225.
3. Davidson GV (1990) Matching learning styles with teaching styles: Is it a useful concept in instruction? *Perform Instr* 29(4): 36-38.
4. Saran R, Kumar S, Pentapati KC (2015) Assessment of learning preferences among dental students using Visual, Aural, Read-Write, Kinesthetic questionnaire: An institutional experience. *J Dent Res Rev* 2(1): 10-12.
5. Mirghani H, Ezimokhai M, Shaban S, van Berkel H (2014) Superficial and deep learning approaches among medical students in an interdisciplinary integrated curriculum. *Educ Health* 27(1): 10-14.
6. Aldosari Md A, Aljabaa AH, Al-Sehaibany FS, Albarakati SF (2018). Learning style preferences of dental students at a single institution in Riyadh, Saudi Arabia, evaluated using the VARK questionnaire. *Adv Med Educ Pract* 9: 179-186.
7. Fleming N.VARK: a guide to learning styles. Accessed October 15, 2019.

8. Dunn R, Beaudry JS, Klavas A (1989) Survey of research on learning styles. *Educ Leadersh* 46: 50-58
9. Miller JA (1998) Enhancement of achievement and attitudes through individualized learning-style presentations of two allied health courses. *J Allied Health* 27(3): 150-156.
10. Narayana MC, Ramesh VL, Gowramma R (2014) A study on VARK learning Style of SJM Dental College and Hospital Students, Chitradurga. *J Educ Res Med Teach* 2: 33-36.