

Learning to Learn - Study of Learning Styles at Medical School

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ABSTRACT

Objective: To identify the different learning styles of third year medical students at foundation university medical college, by using VARK questionnaire, so that we can modify our teaching strategies accordingly and help students improve their academic performance.

Study Design: Descriptive / Cross sectional study

Place and Duration of study: This study was conducted at Foundation University Medical College, Islamabad May to July 2018.

Materials and Methods: Data was collected using VARK questionnaire from 90 students of third year MBBS using convenience sampling. They were fully explained the whole process. The modality that got maximum marks was considered to be the preferred learning style of student. Students had the permission of circling more than one option. Selection of one option pointed that the student was unimodal and mainly had one learning style preference whereas the selection of two or more options pointed that the student was multimodal and had two or more learning style preferences.

Results: The majority of the students of third year MBBS are auditory learners. Out of the total 53% were unimodal, 37% were bimodal and 10% were trimodal. Among unimodal 40% were auditory, 29% were kinesthetic, 23% were read/write and only 8% were visual.

Conclusion: Knowledge regarding students' different preferred learning styles helped the medical teachers in developing suitable learning approaches to make the students' educational journey more constructive.

Key Words: medical students, learning styles, VARK, educational strategies

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INTRODUCTION

The term "learning styles" has been derived from the concept that every student is different in the course of gaining and processing information¹. The participation of a student in the learning environment depends upon his learning style, mental capabilities and his strengths and weaknesses². If the teaching learning environment is in accordance with the student's learning style, he will gain in a better way, but if it is not then the student will surely suffer³. An effective teacher has content and pedagogical knowledge and knowledge of his learner⁴. The success of a teacher lies in the fact that he fulfills the educational needs of each student⁵. Having knowledge that students have different preference in

learning; the medical instructors can plan the lessons accordingly⁶. In fact, this should be an important component of faculty development plan in which faculty is trained for different educational strategies, in order to guide their students. Student motivation and academic performance gets better when instruction is tailored to student learning styles⁷.

Our medical schools are unsuccessful in producing problem solvers, deep and lifelong learners, reason being the culture of rote memorization and non-alignment of teaching strategies with students learning preferences⁸. No one has ever tried finding out the preferences of students, perhaps the teachers themselves are unaware of the fact that different students learn differently and if they are not catered for according to their learning styles, their performance is affected. During literature review, it was found that most of the studies on learning styles have been done on students from primary schools, and only few studies have been conducted on medical students and that also in different context. It is the need of the hour to find out the learning styles of our medical students, so that we can modify the teaching strategies according to the learning preferences of students, and help them in becoming deep divers⁹. Carl Jung (1927) was the first person who gave the concept of learning style in his personality theory². Many educational scientists have defined the concept of learning style by using personality theory¹⁰. The most common classification

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that is used is VARK (elaborated in figure 1), proposed by Fleming and Mills in 1992. The VARK questionnaire is based on information processing model. This is very helpful for instructors in selecting the teaching and assessment strategies. VARK preferences can be useful for learners in developing effective learning skills in order to receive and process information and, as a result, do well in examination^{11,12}. As every individual has different capabilities for thinking, comprehending, and problem solving, it's their right to know their best convenient learning styles¹³. There is a need to look in depth of different learning styles of medical students as our aim is to produce professionals who are problem solvers, deep and live long learners. Knowing their learning styles and modifying the educational strategies is the first step to move our students from surface to deep divers. So the objective of the study was to identify the different learning styles of third year medical students at foundation university medical college.

MATERIALS AND METHODS

The study was conducted on undergraduate third year medical students of Foundation University Medical College, Islamabad from May to July 2018. This was a descriptive cross sectional study with convenient sampling. The purpose of the study was explained to them and informed written consent was obtained from those who agreed to participate. The participants were given the choice to either enter their personal identification data or to leave the form anonymous. The students were handed the hard copies of VARK questionnaire version 7.8¹⁴, which consisted of 16 questions, each with 4 options corresponding to the four learning styles. The modality that got maximum marks

was considered to be the preferred learning style of student. Students had the permission of circling more than one option. Selection of one option pointed that the student was unimodal and mainly had one learning style preference whereas the selection of two or more options pointed that the student was multimodal and had two or more learning style preferences. The completed questionnaires were collected after 30 minutes; the answers were plotted according to the validated scoring chart and instructions. The reason for choosing VARK questionnaire was its validity, reliability and it is easy to comprehend and freely available¹⁵. Ethical approval was obtained from the Institutional Review Board (IRB) at the University.

The paper based Data was entered into Microsoft access Database. Students' scores were computed based on the recommended scoring system provided by VARK producers. The highest score in a particular modality was taken as student's preferred learning style. Then percentage of each modality was calculated. Students were then categorized into unimodal, bimodal and trimodal.

RESULTS

Out of the 150 students invited, 90 students participated to answer the VARK questionnaire. 48(53%) out of 90 showed a unimodal learning style preference. In these unimodal 40% were auditory, 29% were kinesthetic, 23% were read/write and only 8% were visual. This is shown in figure 2 and 3. 33(37%) out of 90 showed bimodal. Out of which maximum 36% were kinesthetic and read/write and 27% were kinesthetic and auditory. 9(10%) out of 90 were trimodal.

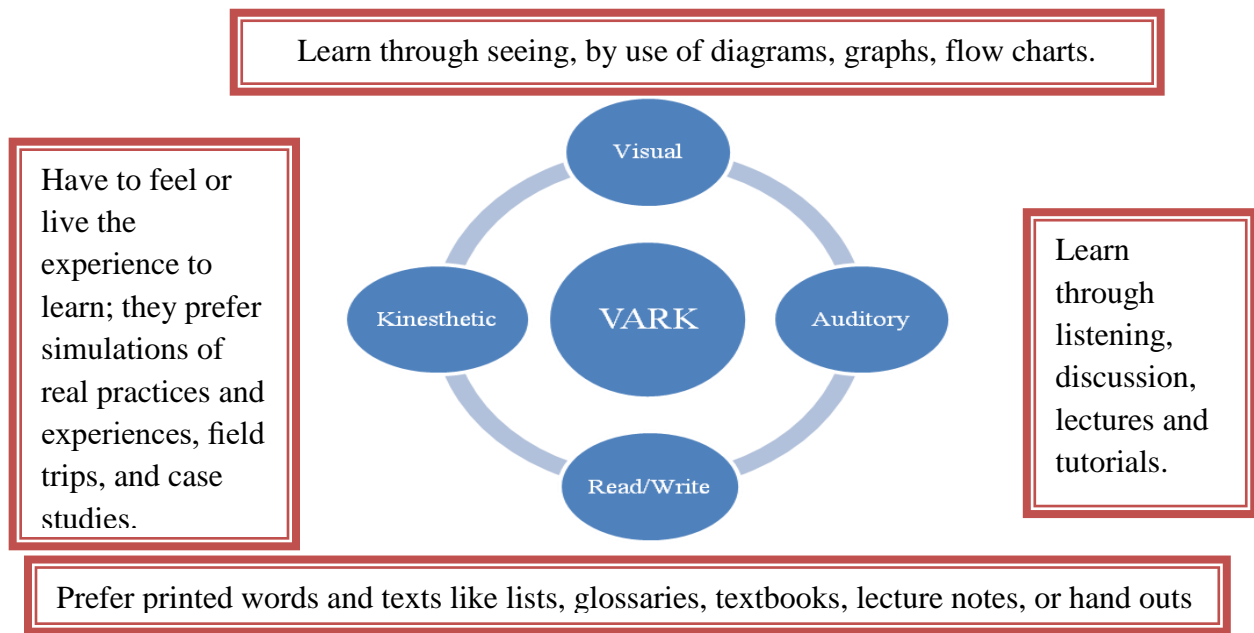


Figure No.1: Students preferred learning style

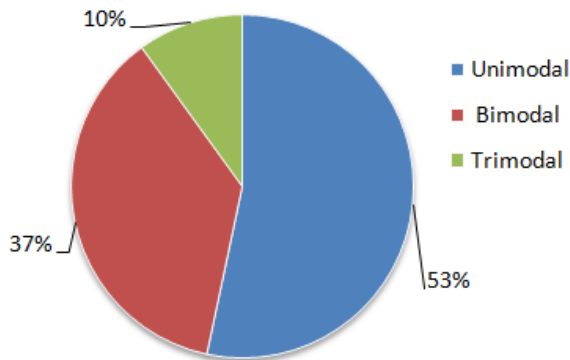


Figure No.2: Unimodal, Bimodal and Trimodal Learning styles

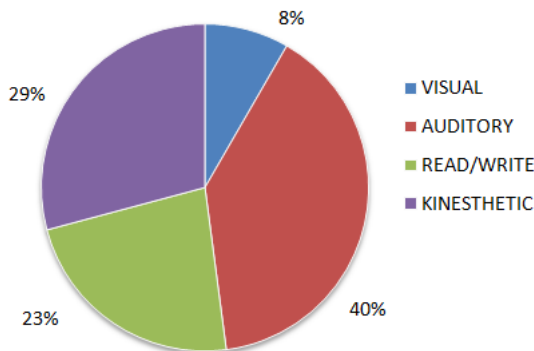


Figure No.3: Distribution Of Unimodal Learning Style

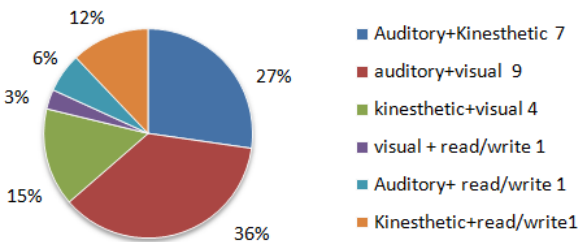


Figure No.4: Distribution of Bimodal learning styles

DISCUSSION

The aim of academic programs is to equip the medical graduate with knowledge, skills and attitude which they will use throughout their professional life¹. Thus creating, effective programs is essential as it support the success of all students who will begin the journey of lifelong learning¹⁰. So the instructional strategies should be planned in such a way that learners gain maximum out of it. This is only possible if the learners learning preferences are incorporated in the instructional techniques. Most of the third year medical students (53%) exhibited unimodal learning style. 40% had auditory, which was the top preference among unimodal. Similar findings were found in a study conducted in turkey on first year medical students and another study in Saudia^{1,16}. Auditory learner's best learn by listening. These learners enjoy studying with background music, group work, lectures, debates,

audiotapes and discussions. 37% of the students had bimodal learning preference, among which most (36%) were auditory and visual. They learn best when they can observe pictures, diagrams, films and displays¹⁷. Flashcards, cartoons and the use of highlighted material or different computer fonts is appealing to them. Teachers should consider the use of maps, flowcharts or webs to help these students learn concepts. There are 5 factors which effect student's performance in learning. These are environmental, emotional, sociological, physiological and psychological¹³. Some students will prefer a quiet and cool place; others would want a bright place with people around. Some students may need motivational support; others might take the task as individual responsibility. The VARK learning styles come under the physiological factors¹³. By sociological it means that some students would like to work in groups others might like studying in isolation.

Many studies conducted on learning styles state that if teaching strategies match with student's learning style preferences, students scored higher than those with whom the teaching strategies did not match¹⁸. But then there is another opinion which states that deliberate mismatch between teaching strategies and learning style helps student learn more, and this is supported by the fact that students get bored and disengage with static teaching strategies, so deliberate change is necessary to keep them motivated¹⁵. This is a simple study to identify the learning styles of third year medical students, the role of gender, and academic performance was not taken into account. A better study would be comparison of learning styles of preclinical years with clinical years and keeping in mind the context. The second study could be a longitudinal study to find any change in learning style over a period of time when medical students starts the medical journey and when he completes.

CONCLUSION

The students should be conscious of the strengths and weaknesses of their learning practices. They should be aware of their learning preferences, which they should use to overcome their weaknesses. This will develop in them self confidence, self respect and self regulation. By overcoming the weaknesses the students will be more motivated towards achieving goal. Pedagogically, it is useful for the teachers as well, by knowing the learning styles of their students they can modify their teaching strategies according to their class. This will help them fulfill their student needs.

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Author's Contribution:

Concept & Design of Tayyeba Iftikhar Mirza Study:

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 Final Approval of version: Tayyeba Iftikhar Mirza

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REFERENCES

- Khan AK, Khan KR, Bashir Z, Hanif A. Learning style preferences among students of medical and dental colleges. *Adv Heal Prof Educ* [Internet]. 2015;1(1):13–7. Available from: <http://ahpe.kmu.edu.pk/article/view/13>
- Günes MH. Learning Styles of the Students of Biology Department and Prospective Biology Teachers in Turkey and Their Relationship with Some Demographic Variables. *Univers J Educ Res* [Internet]. 2018;6(3):366–77. Available from: <http://ezproxy.lib.uconn.edu/login?url=https://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=EJ1171316&site=ehost-live>
- Dorça FA, Araújo RD, de Carvalho VC, Resende DT, Cattelan RG. An automatic and dynamic approach for personalized recommendation of learning objects considering students learning styles: An experimental analysis. *Informatics Educ* 2016;15(3):45–62.
- Slater JA, Lujan HL, DiCarlo SE. Does gender influence learning style preferences of first-year medical students? *AJP Adv Physiol Educ* [Internet]. 2007;31(4):336–42. Available from: <http://ajpadvan.physiology.org/cgi/doi/10.1152/advan.00010.2007>
- Şener S, Çokçalışkan A. An Investigation between Multiple Intelligences and Learning Styles. *J Educ Train Stud* [Internet]. 2018;6(2):125. Available from: <http://redfame.com/journal/index.php/jets/article/view/2643>
- Li Y, Medwell J, Wray D, Wang L, Xiaojing L. Learning Styles: A Review of Validity and Usefulness. *J Educ Train Stud* [Internet]. 2016;4(10):90–4. Available from: <http://redfame.com/journal/index.php/jets/article/view/1680>
- Baykan Z, Nacar M. Learning styles of first-year medical students attending Erciyes University in Kayseri, Turkey. *AJP Adv Physiol Educ* [Internet]. 2007;31(2):158–60. Available from: <http://ajpadvan.physiology.org/cgi/doi/10.1152/advan.00043.2006>
- Irfan S, Roop Z, Mowadat h. R. Learning Styles of Postgraduate and Undergraduate Medical Students. *J Coll Physicians Surg Pak* 2013;23(1):25–30.
- Hernández-Torrano D, Ali S, Chan CK. First year medical students' learning style preferences and their correlation with performance in different subjects within the medical course. *BMC Med Educ* 2017;17(1):1–7.
- Johnson M. Evaluation of learning style for first year medical students. *Int J Scholarsh Teach Learn Artic* [Internet]. 2009;3(1). Available from: <http://digitalcommons.georgiasouthern.edu/cgi/viewcontent.cgi?article=1149&context=ij-sotl>
- Buşan A-M. Learning styles of medical students - implications in education. *Curr Heal Sci J* [Internet]. 40(2):104–10. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/25729590> <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=PMC4340450>
- Lindquist NC, Nagpal P, Mcpeak KM. Plasmon – emitter interaction using integrated ring grating – nanoantenna structures 2017;5(4):185–94.
- Ozdemir A, Alaybeyoglu A, Mulayim N, Uysal M. An Intelligent System for Determining Learning Style. *Int J Res Educ Sci* [Internet]. 2018;208–14. Available from: <http://dergipark.gov.tr/doi/10.21890/ijres.383140>
- Do H, Best IL. The VARK Questionnaire (Version 7.8):7–9.
- Urval RP, Kamath A, Ullal S, Shenoy AK, Shenoy N, Udupa LA. Assessment of learning styles of undergraduate medical students using the VARK questionnaire and the influence of sex and academic performance. *AJP Adv Physiol Educ* [Internet]. 2014;38(3):216–20. Available from: <http://ajpadvan.physiology.org/cgi/doi/10.1152/advan.00024.2014>
- Nuzhat A, Salem RO, Quadri MSA, Al-Hamdan N. Learning style preferences of medical students: a single-institute experience from Saudi Arabia. *Int J Med Educ* [Internet]. 2011;2:70–3. Available from: <http://www.ijme.net/archive/2/students-learning-style-preferences/>
- Zhu H, Zeng H, Zhang H, Zhang H, Wan F, Guo H, et al. Original Article 30 YEARS 2018; 31(2):162–9.
- Bagus I, Sudria N. Effect of Kolb ' s Learning Styles under Inductive Guided-Inquiry Learning on Learning Outcomes 2018;11(1):89–102.