Original Article

Learning Style Preferences of Second-year Medical Students in Oman

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Abstract

Introduction: Students have different learning styles. Knowledge of learning style preferences helps in implementing appropriate teaching and learning strategies.

Objective: The objective of this study is to explore the learning style preferences of second-year medical students of Oman Medical College, Sohar.

Methods: In this descriptive, cross-sectional study, we administered the index of learning styles questionnaire to 230 students to assess their preferences over four bipolar learning style dimensions: perception (sensing/intuitive), input (visual/verbal), processing (active/reflective), and understanding (sequential/global). We identified students as having either no preference or preference to any one learning style on each of four dimensions.

Results: The frequencies of students who had no preference were 53% on perception, 45% on input, 63% on processing and 61% on understanding dimensions. Varying number of students had preferences for sensing (38%), intuitive (09%), visual (47%), verbal (08%), active (16%), reflective (21%), sequential (34%), and global (05%) learning styles.

Conclusion: The nature of second-year medical training is conducive to intuitive and sequential learners, who can be advised to make the best use of their learning preferences; but not promising for sensing and global learners, who can be encouraged to develop learning style skills suitable to the learning situation. Lectures can be reformed by incorporating changes to address the requirements of visual, verbal, active and reflective learners. Thus, the knowledge of students' learning preferences can provide background to construct effective teaching and learning interventions.

Key words: Index of learning styles, Instructional techniques, Learning preferences, Learning strategies, Learning style preferences

INTRODUCTION

Medical training is extremely challenging because of the enormous volume and complex nature of the knowledge which students are expected to master within a limited timeframe. This increases the responsibility of teachers to assist and guide students in their learning.[1,2]

The first 2 years of medical school provide foundation for clinical learning and, especially in the second year, much of the teaching takes place in a classroom setting. As the educators search for better pedagogical strategies, one concept that is gaining focus is learning style.[3] It is widely accepted that a classroom may consist of students carrying diverse learning styles, i.e., characteristic strengths and preferences in the ways they take in and process information.[3] Teachers can make learning more interesting and rewarding if they consider these diversities while designing and delivering course material.[4] For this, teachers should first learn their students' learning style preferences. There exist several tools to measure the learning style preferences, and one among them is the index of learning styles (ILS).[3]

We conducted a study to explore the learning style preferences of second-year medical students using the ILS. The ILS,[5] a 44 question instrument developed by Felder and Solomon[6] measures individual's learning

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preferences over four bipolar learning style dimensions: Sensing/intuitive type of information perception, visual/verbal channel for input of information, active/reflective method for processing the information and sequential/global way of understanding the information. A student's preference on a given scale may be strong, moderate, or almost nonexistent.[4] Primarily designed to assess the learning style preferences of engineering students, the ILS has been validated for its use in undergraduate medical education.[7] This questionnaire is easy to administer and available free of cost.

METHODS

This descriptive, cross-sectional study was approved by the Institutional Research Review Board and conducted on students undergoing second year of medical training at Oman Medical College, Sohar. Student participation was voluntary and anonymous. A total of 230 students completed the paper copy of the ILS questionnaire. Individual student's scores on each of the dimensions were calculated as per the instructions provided in the ILS scoring sheet[5] and plotted on the ILS report form[5] to identify the learning preferences, which then were mailed to students along with addendum on learning strategies. Data were presented as percentage of students with no preference and those having preferences (moderate/strong) to each learning style on each of four dimensions.

RESULTS

Percentages of students without preference were higher than that with preferences on perception (53%), processing (63%), and understanding (61%) dimensions. More number of students had preference for sensing (38%) over intuitive (09%), visual (47%) over no preference (45%) and verbal (08%), reflective (21%) over active (16%), and sequential (34%) over global (05%) learning styles (Table 1).

DISCUSSION

In this study, we tried to understand as to what type of information students preferred to perceive and how they preferred to take in, process, and understand information pertaining to second-year medical courses.

Individuals prefer to perceive either intuitive or sensing type of information. Intuitive learners prefer information that arises internally through memory, reflection, and imagination and are good at grasping new concepts. Sensing learners prefer to perceive information that is presented as facts, experiments.[6] The second-year medical courses essentially deal with conceptual information, explicitly putting 38% sensing learners of this study into a disadvantage.

Visual and verbal are the two sensory modes through which the external information is taken in. Visual learners remember the best what they see: Pictures, diagrams, and flow charts. Verbal learners remember best the spoken and written explanations.[6] Lecturing, that best suits the verbal learners, assisted by PowerPoint slides enriched with suitable accessories,[6] can still foster the needs of 47% visual learners of this study.

The complex mental process by which perceived information is converted into knowledge can be grouped into two categories: Active experimentation and reflective observation. Active learners process information by experimenting, discussing, and explaining. Reflective learners process information introspectively.[6] The fact that some of the students showed preferences in active/reflective dimensions calls for incorporating techniques[6] in the passive lecture sessions to address the needs of both the categories.

Students understand information either sequentially or globally. Sequential learners understand information in logically ordered linear reasoning process whereas global learners make intuitive leaps in understanding the information.[6] Medical learning is largely in favor of sequential than global learners.

Learning style tool will serve students to identify the preferences and deficiencies in one's learning style. This knowledge will empower the students to implement appropriate learning strategies that most suit their preferences and to develop skills in their less preferred

Table 1: Frequency of students having preferences (strong/moderate) and no preference on each of four learning style dimensions (n=230)

Perception			Input			Processing			Understanding		
Sensing/intuitive			Visual/verbal			Active/reflective			Sequential/global		
Sensing	No preference	Intuitive	Visual	No preference	Verbal	Active	No preference	Reflective	Sequential	No preference	Global
87	122	21	108	103	19	37	144	49	77	141	12
38%	53%	09%	47%	45%	08%	16%	63%	21%	34%	61%	05%

styles which will enable them to choose the learning approach that best befits the learning task in hand.[3,8] Sensing and global learners of this study clearly needed recommendations to widen their repertoire of styles because the second-year teaching and learning setting are not very conducive to them.

Knowledge of their students' learning preferences provides framework for teachers to design suitable instructional techniques that satisfy the needs of entire class. This can be achieved by trying to address each side of each learning style dimension at least some of the time in a class.[4] When a large number of students in a class has a specific preference but their needs are not being addressed, teaching should be modified in their favor.[8] This is applicable to the visual learners of this study who formed 47% of the sample in the input dimension.

Some of the strategies that appeal to a range of learning styles and applicable to present information in the preclinical lecture classes are: Make extensive use of diagrams, graphs, flow charts, photographs, videos to cater to the needs of visual learners; lecture with written explanations and provide reading material to satisfy verbal learners; occasionally pause during a lecture to allow time for thinking and formulating questions to encourage reflective learners; assign brief group problem-solving exercises in class followed by question-answer session to motivate active learners; provide big picture or overview of the lesson perhaps by briefing about the disease before starting lecture for reaching the global and sensing learners.[6]

Students having no preference would be expected to shift between categories readily.[8] Fairly large number of our students had no learning preferences and this finding especially over sequential/global, and sensing/intuitive dimensions are quite encouraging because students who had no preferences would also be as comfortable as sequential and intuitive learners with the existing teaching and learning situation. We noticed our students' learning style preferences to be different from that of other studies.[7,9,10]

The findings of this study need not be applicable to students of other years of medical training or students of other medical schools in the country. However, the study findings served a motive to further explore the association of students' learning style preferences with their academic performance, the effectiveness of modifying the instructional methods congruent with students' learning style preferences on their academic progress, and to learn the longitudinal variations in the learning style preferences of students.

CONCLUSION

This study helped students to gain insight into one's own learning style strengths and areas of improvement in relation to the prevailing learning environment. The study findings encouraged teachers to introspect into one's own teaching style and be mindful about variabilities in the learning styles within the classroom. The information provided by the study can potentially be utilized by students and teachers to enhance their educational experiences.

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