EFFECT OF AWARENESS OF LEARNING STYLES AND MODIFICATIONS IN STUDY MODALITIES ON ACADEMIC PERFORMANCE IN FIRST MBBS STUDENTS

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ABSTRACT

Background: Different students have different learning styles. If students are made aware of their learning styles, their performance may improve. Understanding students’ learning style preference is therefore an important consideration for an effective teaching and learning process.

Aim and Objective: To find out preferred learning styles of preclinical medical students and to find out if there is any change in the learning outcome after counseling them regarding their preferred learning styles and ways to realign their study modalities.

Materials and Methods: VARK questionnaire (version 7.8 with 16 items) was administered to 88 first MBBS students to know their learning styles. Pre-test in the form of multiple choice questions was carried out in all students. Students were made aware of their learning style by the facilitators and ways to realign their study modalities to their preferred learning style were discussed. Reinforcement sessions were conducted every two weeks such three sessions were conducted. Post-test was carried out after eight weeks. Pre-test and post-test results were compared using Student's paired ‘t’ test.

Results: Number of students according to their preferred learning style are as follows: Multimodal (using more than one learning styles =38, unimodal: visual=18, auditory=22, Read/Write=17, Kinesthetic=05. After students realigned their study strategies, post test scores improved in 51% students.

Conclusion: Multimodal learning style was preferred by more students than any of the unimodal styles. Improvement in post test scores suggests that awareness of own learning style and relevant changes in study modalities leads to improvement in learning experience and performance of the students.

Keywords: Learning style, VARK, Unimodal, Multimodal.

INTRODUCTION:

Students' learning styles have received increasing attention in higher education. Learning styles and approaches of individual undergraduate medical students vary considerably and as a consequence, their learning needs also differ from one student to another.¹ Teachers at medical school are often faced with challenges of improving the learning environment. On the other hand, education in the medical field is very competitive and medical students are exposed to diverse methods of teaching. Students adapt specific learning styles to cope up with the vast information delivered to them.² Many models and tools for assessing learning styles have been described in the literature.³ Fleming and Miles have designed a questionnaire, the Visual, Aural, Read/Write, and Kinesthetic questionnaire (VARK), to determine a preferred method of learning.⁴ The VARK questionnaire provides greater understanding about information processing preferences, including a learner's ability to simultaneously use more than one learning mode. The VARK learning styles inventory measures four sensory modalities used for learning (unimodal or multimodal).⁵

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AIMS AND OBJECTIVES

1. To find out preferred learning styles of preclinical medical students.
2. To counsel the students regarding their preferred learning styles and ways to realign their study modalities.
3. To find out if there is any change in the learning outcome after above intervention.

MATERIALS AND METHODS:

VARK assessment questionnaire is a recognized, well tested, and validated tool used to assess students' learning styles. Institution ethical committee clearance and informed consent from the students were obtained. VARK questionnaire (version 7.8 with 16 items) was administered to 88 first MBBS students to know their learning styles. During administration of the test, care was taken that students were called in small groups and they did not have access to each other's results. This was done to prevent influence of the peer opinion. Pre-test in the form of multiple choice questions was carried out in all students. The maximum score for the test was 20. Students were made aware of their learning style by the facilitators and ways to realign their study modalities to their preferred learning style were discussed and students were instructed to make necessary changes in their study modalities. Reinforcement sessions were conducted every two weeks such three sessions were conducted.

During the reinforcement sessions, it was ensured that students were following the advice given by the facilitators. Any problems regarding readjustment of learning styles reported by the students were sorted out during interaction with the facilitators. Post-test was carried out after eight weeks.

STATISTICAL ANALYSIS

Pre-test and post-test results were compared using Student's paired t test. P value of < 0.05 is considered significant.

RESULTS:

As shown in Table 1, maximum number of students reported their preferred learning style as multimodal (using more than one learning styles). Table 2 depicts change in scores after students realigned their study strategies. This change was not statistically significant. However, in 51% of students improvement in post test score was observed (figure 1).

<table>
<thead>
<tr>
<th>Group</th>
<th>Number of students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multimodal group</td>
<td>34</td>
</tr>
<tr>
<td>Visual group</td>
<td>15</td>
</tr>
<tr>
<td>Auditory group</td>
<td>19</td>
</tr>
<tr>
<td>Read/Write</td>
<td>15</td>
</tr>
<tr>
<td>Kinaesthetic group</td>
<td>05</td>
</tr>
</tbody>
</table>

Table 1: Number of students according to preferred learning styles

<table>
<thead>
<tr>
<th></th>
<th>N=88</th>
<th>Pre-test</th>
<th>Post-test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>13.272</td>
<td>13.713</td>
<td></td>
</tr>
<tr>
<td>Standard deviation</td>
<td>2.879</td>
<td>2.793</td>
<td></td>
</tr>
</tbody>
</table>

Student’s paired t test

<table>
<thead>
<tr>
<th>t value</th>
<th>0.00173</th>
</tr>
</thead>
<tbody>
<tr>
<td>p value</td>
<td>0.134</td>
</tr>
</tbody>
</table>

Table 2: Scores of pretest and post-test
DISCUSSION:
When we learn something, a mental process occurs and that is not observable. The closest we can get to a measure of learning is to give a test. Studies have shown that each student typically adapts his or her learning preferences to their learning environment.[7] Keefe defined a learning style as 'the composite of cognitive, affective and physiological characteristics that serve as relatively stable indicators of how a learner perceives, interacts and responds to a learning environment.'[8]

The challenge of imparting a large amount of knowledge within a limited time period in a way it is clearly understood and retained by a student is a formidable one.[9] In the present study, multimodal learning style was preferred by more students than any of the unimodal styles. A study carried out by Fleming, found that 40% of participants who completed the questionnaire online preferred to learn using all VARK modes, which is comparable with our findings. However, he found that the second most prominent style after all VARK modalities was the read/write method (14.7%).[10]

This observation suggests that a teacher should include more than one sensory input like visual, auditory and kinesthetic while teaching. This is likely to benefit majority of students with varied learning styles.

In the present study, after students were advised on realigning their study strategies, post-test scores improved in 45 students. This suggests that awareness of own learning style and relevant changes in study modalities leads to improvement in learning experience and performance of the students. Our findings can be used to improve the quality of teaching in first MBBS students. The teachers would be at an advantage as well if they could understand the factors that can be related to students' learning styles.[11] It has been observed by other academicians that when students' learning styles and instructors' teaching styles are aligned, it results in students improving their understanding of the course content.[12] Hence, to become effective teachers, teaching staff should understand a learner's characteristics and their learning style.[13]

CONCLUSION
Different students have different learning styles. If students are made aware of their learning styles, their performance may improve. Understanding students' learning style preference is therefore an important consideration for an effective teaching and learning process. Short duration of study and limited number of reinforcement sessions were limitations of the study. Further studies can throw more light on the utility of learning styles on academic performance of the students as well as its utility to improve the quality of teaching.

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2. Nuzhat A, Salem RO, Al Hamdan N, Ashour N. Gender differences in learning styles and academic performance of medical students


