Students’ Learning Styles Require Modified Teaching Strategies

Sabiha M. Haq,* Shahina Yasmeen**, Shabana Ali*, Feroze Inayat Gallam*
*Department of Anatomy, Islamic International Medical College, Rawalpindi;
**Department of Pathology, Islamic International Dental College, Islamabad

Abstract

Background: To study the learning styles of medical and dental students.

Methods: On the basis of VARK proforma, learning styles of first to third year medical and dental students, were analyzed.

Results: Majority of the medical students prefer single learning style. Only 12% preferred multiple learning styles whereas one third of the dental students preferred multiple learning styles. Kinesthetic learning style was the most preferred mode by both medical and dental students.

Conclusion: Majority of the medical and dental students have single learning style. Since only one sixth of medical and one third of dental students have multiple learning styles, multiple teaching strategies should be used to address the needs of all the students in one session.

Key Words: Learning style, teaching strategies.

Introduction

Students have their own preferred styles for receiving and assimilating information. There are four basic ways used by students, visual, auditory, reading/writing and kinesthetic (VARK). All students fall in one or more of these four styles. They learn best if the instructor/teacher uses a matching style. Unfortunately didactic lectures are the only style most of the present day teachers are familiar with. Little or no effort is made to find the student’s preferred learning style. Fleming developed a questionnaire which identifies students’ preference for a particular learning style or a combination of more than one styles. This information is helpful in guiding the teachers to provide information in a manner best suited to individual student. It also helps the student to compare his or her own style with that of high achievers. Teachers can help the students in various disciplines, to bring a change in their style for better retention and assimilation of knowledge.

Learners can use all of these sensory modes, but one is often preferred and dominant. Visual learners (V) learn through seeing pictures, drawings, and other images or videos. Auditory learners (A) learn by carefully listening to lectures, participating in discussions, and discussing ideas. Reading/writing learners (R) learn by reading the text and making their own notes. Kinesthetic learners (K) learn through physical experiences and handling models/simulators/patients.

Multisensory mode of teaching which incorporates all teaching styles is the most beneficial way of information delivery. Visual learners are approached by teaching on models and demonstrations. Auditory learners can be reached through discussions, question answers, games and debates. Handling models and role playing works best for kinesthetic and tactile learners. It is not easy to devise strategies which incorporate all of these modalities, though it is not impossible.

When traditional lectures and active learning strategies are compared the latter rank higher. They promote active thinking, concept formation, reasoning, problem solving and decision making. Knowing students’ preferred learning styles is not only predictive of their learning attitudes, but it also predicts their future career path.

Methods

In this cross sectional descriptive study a predesigned standard questionnaire called VARK was used, which was introduced by Fleming. VARK is a standard tool used worldwide to learn about the learning styles of students. VARK questionnaire was administered to first to third year medical and dental students at Islamic International Medical and Dental College. A total of 500 questionnaire forms were administered, 300 to first three years of MBBS students and 200 to first three years of BDS students.

Results

Out of 300 students in MBBS, 219 returned completed proformas, 99 from first year, 65 from
second year and 50 from third year. 5 students did not mention their class. Out of 200 proformas given to BDS students 153 returned completed proformas, 54 from first year, 63 from second year and 36 from third year. Over all response rate was 74.4%. Both disciplines collectively showed that 53 (14.2%) students had Visual (V), 84 (22.6%) had Auditory (A), 72 (19.4%) had Reading and writing (R ), 89 ( 30.1 %) had Kinesthetic (K) and 74 (19.9%) had multiple style of learning. Out of 219 students in MBBS only 27 (14.9%) had multiple style Statistically it was not significant (p value = 0.055). Among BDS students 47 (30.7%) had multiple style of learning(Table 1-3).

Table 1: Learning styles of Medical and Dental students

<table>
<thead>
<tr>
<th>Class</th>
<th>Total students responding</th>
<th>No and % of Single learning style</th>
<th>No. and % of Multiple learning style</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MBB</td>
<td>BDS</td>
<td>MBB</td>
</tr>
<tr>
<td>1st yr</td>
<td>99</td>
<td>54</td>
<td>84 (84.7%)</td>
</tr>
<tr>
<td>2nd yr</td>
<td>65</td>
<td>63</td>
<td>59 (91.5%)</td>
</tr>
<tr>
<td>3rd yr</td>
<td>50</td>
<td>36</td>
<td>45 (90%)</td>
</tr>
<tr>
<td>No class</td>
<td>5</td>
<td>-</td>
<td>4 (80 %)</td>
</tr>
<tr>
<td>Total</td>
<td>219</td>
<td>153</td>
<td>192 (85.1%)</td>
</tr>
</tbody>
</table>

Table 2: Single learning styles of Medical (MBBS) students

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of students</th>
<th>Visual</th>
<th>Auditory</th>
<th>Reading/ Writing</th>
<th>Kinesthetic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st year</td>
<td>84</td>
<td>17(20.2%)</td>
<td>22 (26.2%)</td>
<td>19 (22.6%)</td>
<td>26 (31%)</td>
</tr>
<tr>
<td>2nd year</td>
<td>59</td>
<td>10 (17%)</td>
<td>18 (30.5%)</td>
<td>15 (25.4%)</td>
<td>16 (27.1%)</td>
</tr>
<tr>
<td>3rd year</td>
<td>45</td>
<td>7 (15.5%)</td>
<td>13 (28.9%)</td>
<td>12 (26.7%)</td>
<td>13 (28.9%)</td>
</tr>
<tr>
<td>Class not mentioned</td>
<td>4</td>
<td>1 (25%)</td>
<td>2 (50%)</td>
<td>0 (0 %)</td>
<td>1 (25 %)</td>
</tr>
<tr>
<td>Total</td>
<td>192</td>
<td>35(18.2%)</td>
<td>55 (28.6%)</td>
<td>46 (24%)</td>
<td>56 (29.2%)</td>
</tr>
</tbody>
</table>

Table 3: Single learning styles of Dental (BDS) students

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of student</th>
<th>Visual</th>
<th>Auditory</th>
<th>Reading/ Writing</th>
<th>Kinesthetic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st year</td>
<td>34</td>
<td>5 (14.7%)</td>
<td>10 (29.4%)</td>
<td>8 (23.5%)</td>
<td>11 (32.4%)</td>
</tr>
<tr>
<td>2nd year</td>
<td>49</td>
<td>10 (20.4%)</td>
<td>13 (26.6%)</td>
<td>11 (22.4%)</td>
<td>15 (30.6%)</td>
</tr>
<tr>
<td>3rd year</td>
<td>23</td>
<td>3 (13.1%)</td>
<td>6 (26.1%)</td>
<td>7 (30.4%)</td>
<td>7 (30.4%)</td>
</tr>
<tr>
<td>Total</td>
<td>106</td>
<td>18 (17%)</td>
<td>29 (27.4%)</td>
<td>26 (24.5%)</td>
<td>33 (31.1%)</td>
</tr>
</tbody>
</table>

Discussion

Due to diversity of basic education system at school level, students who enter any medical school have already adopted different learning styles. Some of them are better prepared and motivated for a medical school curriculum as compared to the rest. Those who are less well prepared and less motivated need an improvement in their learning style in order to achieve a better level of comprehension which is absolutely essential for developing interest and self-motivation. Learners use their sensory perceptions to build or construct knowledge on the foundations of their previous exposures and experiences during their formative years.8,9

Surprisingly only 18.2 % (MBBS) and 17 % (BDS) preferences were for Visual style, in spite of the fact that most of the teachers use multimedia to deliver the contents. The other three learning styles gained almost equal preference. The traditional lecture format assumes that all students can easily receive and retain information presented to them in that format. Students are required to read and memorize that information from their books or other reading material. This is not only time consuming for students but it also leads them to forget most of the information soon after the exams are over. Knowing the student’s preferred style especially in a small group can help the instructor deliver the contents according to each student’s requirement.10,11 Only a small minority of students (14.9% from MBBS and 30.7% from BDS) preferred multimodal styles. Our findings are in contrast with a regional study conducted in Turkey by Zeynep Bayken and Melis Nacar which reports the multimodal learning style of first year medical student as being 64%.12 These styles are adapted during their premedical training and a marked difference between Turkish study and our findings signifies a difference in teaching methodology at premedical level. Only those students who have multiple styles can benefit from
single style teaching strategies. Rest of the students will benefit most, if information is presented to them in their preferred style. Our results show that none of the learning styles is statistically significant (all have p value > 0.05). This is in support of our hypothesis that no single learning style is predominantly significant among medical and dental students in our institutions. Another regional study by Ayesha Nuzhat and Raneem O Salem et al.\textsuperscript{13} conducted in KSA shows the multiple learning styles of medical students to be 73%. This is also in sharp contrast to the present study possibly indicating a different teaching methodology during premedical years. For a medical college where majority of the students have a single learning style knowledge of the preferred learning style of each student will enable teachers in matching their teaching strategy. This will remove barriers to effective learning. Treating all students in a similar way and expecting a good outcome only causes frustration among students and teachers alike.\textsuperscript{14,15}

In present study kinesthetic mode of information transfer was ranked highest by the students. In our system of teaching preclinical subjects, there is very little stress on teaching the students by kinesthetic style. Due to scarcity of cadavers and advent of modular system of teaching in our set up, students are no more required to perform dissection themselves. Similarly number of physiology and biochemistry practicals have also been reduced to bare minimum. For first three years, problem based learning (PBL) is also paper case based. Students do not see actual cases during PBL sessions.

It is a time consuming and effort demanding task to know each student’s preferred style and then match the teaching strategy accordingly, especially in a large class format. A more practical approach to solve this problem would be, use of multimodal teaching strategies like small group skill labs on specific models for Anatomy and examination on actual patients for PBL sessions.\textsuperscript{16,17}

**Conclusions**

1. Students who are at risk in the achievement of their academic targets can benefit by developing an insight into their own learning style (metacognition).
2. Learning style diversity and understanding of student learning style by the faculty would support faculty members in expanding their learning and teaching experience.
3. Students who experience academic challenge can benefit from multimodal teaching methodology incorporating small group discussions on models and actual patient, access to recorded lectures or web based materials.

**References**

11. Hilliard, R. LMedical student learning styles and factors that affect these learning styles. Teaching and Learning in Medicine,1995;7(4):201-10.