Medical students’ approaches to learning and study skills

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Abstract

One of the main objectives of education is to help students become effective learners. The aim of this study is to determine the approaches to learning and study skills of medical students and profile the approaches to study based on their school year and gender. According to our results both medical and law students preferred deep and strategic approach more than surface approach. Medical students in the third grade preferred surface approach more than the students in the first and second grades did. The waning interest of medical students in deep approach needs to be assessed by the curriculum developers.

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Keywords: medical students, learning and study skills; deep, strategic and surface

1. Introduction

The learning approaches and study skills of students in medical schools are very substantial (Newble & Gordon, 1985). Thus they should be carefully investigated. Whereas the learning approaches have been given importance in higher education, they have not received enough attention in medical programs (Gow& Kember, 1990). It is quite essential to be aware of the recent findings and materials in the field of medicine (Duban & Kaufman, 1985). Furthermore the importance of retaining basic information and learning from personal experience cannot be neglected (Lucas & Beresford, 2010). In general, students who achieved success had previously found the best study method for themselves. One particular aim of education is to help students become effective learners. The future physicians must learn how to learn and how to eliminate and integrate relevant information to diagnose and work out their patients’ problems in the best possible way (General Medical Council, 1993). It will be worthwhile to improve the self-directed learning potential of undergraduate students (Newble & Entwistle, 1986). As it is indicated in many researches, both approach to learning and study skills are important factors that affect the quality of student learning (Smith & Miller 2005; Byrne, et al., 2009). On the other hand, it is also known that students’ approaches to learning are affected by the quality of teaching-learning environment and assessment procedures (Entwistle, 1991; Newble et al., 1988).

When approaches to studying are the concern, students can be classified into three groups: deep approach, strategic approach and surface apathetic or superficial approach (Ramsden, 1991). Students following the deep approach are inclined to understand the material and they take active part in their studies. They maintain a critical
point of view towards arguments and evidence with the help of former knowledge and other resources. Moreover, they observe the advancement of their understanding and learning is considered as an internal process for them. On the contrary the students who adopt surface approach memorize the material without understanding. They aim to produce different forms of the learning material and make use of various forms of rote learning. Generally, they cannot move beyond the boundaries of specific learning task. The main objective in this approach is to complete the course and the risk of failure is a motivating issue. Those who adopt deep approach become effective learners with a high level of understanding. On the other hand, students who adopt surface approach end up being ineffective learners with a low level of understanding. Another approach to learning is called strategic approach. This approach is generally preferred by the students who are concerned with getting the highest grades. Both the deep and surface approaches are used by these students because they regard both these approaches convenient. Students who prefer this approach have a competitive motivation. In this approach, major objective is to get the highest grades with the help of organized study methods and time management (Ramsden, 1991; Senemoglu, 2011).

The objective of this study is to find out and compare the learning approaches and study skills of medicine and law students. In accordance with this objective, answers are sought for the questions below:

• Which approach and study skills are preferred by the students of medicine and law in their learning?
• Can any statistically significant difference be found between approaches and study skills preferred by medical and law students?
• What is the profile of the learning approaches that medical students use at the beginning of the first, second and third year of medical school?
• Can any statistically significant difference be found between approaches and study skills preferred by medical and law students based on gender?

2. Method

2.1. Subjects

This was a cross sectional study to test the hypothesis that the approaches to studying are different between medical students in Fatih University and law students in Turgut Ozal University. Data were gathered from 287 of 330 medical students of at beginning of first, second and third years (coverage rate %87) and from 147 of 176 law students of at the beginning of second year (coverage rate %83.5) who volunteered to participate in this study. Administering the inventory took approximately 20 minutes.

2.1.1. Instrument

In this study, The Approaches and Study Skills Inventory for Students (ASSIST) was used to determine the approach and study skills of students in medicine and law schools. The inventory contains 67 statements, and respondents indicate their agreement with each statement, using a five point Likert scale (Senemoglu, 2011). ASSIST consists of four sections. The first section is a six-item measurement of the student’s own conception of what the term “learning” means to them. The second section consists of 52 statements related to mainly three dimensions-- deep, strategic, and surface-apathetic. The ASSIST measures student’s approaches to learning on mainly three dimensions referred to as main scales; deep, strategic, and surface-apathetic. Deep approach includes 20 questions (min-max scores 20-80) and four sub-scales; ‘seeking meaning’, ‘relating ideas’, ‘use of evidence’, ‘interest in ideas’. Strategic approach has 25 questions (min-max scores 25-100) and five sub-scales namely ‘organized studying’, ‘time management’, ‘alertness to assessment demands’, ‘achieving’, ‘monitoring effectiveness’. Surface apathetic approach includes 20 questions (min-max scores 20-80) and four sub-scales namely ‘lack of purpose’, ‘unrelated memorizing’, ‘syllabus-boundless’, ‘fear of failure’. 62.5 and above scores for the strategic approach and 50 and higher scores for the deep and surface approaches are considered as the cut off value. ASSIST also contains sections related to student’s definition of concept of learning and preferences for different types of courses and teaching.
2.1.1. Statistical analysis

The statistical software SPSS 15.0 for Windows was used for statistical analysis. According to Kolmogorov Smirnov test, the deep, strategic and surface scores were not normally distributed. For this reason nonparametric tests; Mann Whitney U test, Kruskal Wallis test, Wilcoxon test and Friedman test were used for analysis. Statistical significance level accepted as p<0.05. For paired comparison Bonferroni test was used, statistical significance level accepted as p<0.017.

3. Results

The questionnaire return rate was 87% for medical students and 83.5% for law students. The scores of each group for each approach are shown in Table 1. According to our results, medical students mostly preferred deep approach, then strategic and then surface approach (medical students: chi square=55.874, p<0.001). Law students preferred deep and strategic approach equally and more than surface approach (law students: chi square=72.991, p<0.001) (Table 1).

<table>
<thead>
<tr>
<th>Schools</th>
<th>Learning App.</th>
<th>n</th>
<th>Mean± SD</th>
<th>Chi-square</th>
<th>p*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medicine</td>
<td>Deep app</td>
<td>287</td>
<td>69.05±12.54</td>
<td>55.874</td>
<td>&lt;0.001**</td>
</tr>
<tr>
<td></td>
<td>Strategic app</td>
<td>287</td>
<td>65.29±12.82</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Surface app</td>
<td>287</td>
<td>59.19±12.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Law</td>
<td>Deep app</td>
<td>147</td>
<td>72.13±11.74</td>
<td>72.991</td>
<td>&lt;0.001***</td>
</tr>
<tr>
<td></td>
<td>Strategic app</td>
<td>147</td>
<td>72.01±12.02</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Surface app</td>
<td>147</td>
<td>57.26±11.72</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Mann Whitney U test
**paired comparison: deep-strategic (z=-5.359, p<0.001), deep-surface (z=-7.852, p<0.001), strategic-surface (z=-5.086, p<0.001) (Wilcoxon test)
***paired comparison: deep-strategic (z=-0.199, p=0.842), deep-surface (z=-8.280, p<0.001), strategic-surface (z=-8.161, p<0.001) (Wilcoxon test)

Mann Whitney U test was performed to investigate faculty differences of students’ approaches to learning. Although both medical and law students preferred deep and strategic approach more than surface approach an investigation of the mean scores indicated that law students reported higher level of deep and strategic approach than medical students and this difference was statistically significant (p=0.013, p<0.001). There was no significant difference between their surface approaches (p=0.093) (Table 2). For the comparison of second year of medical and law students’ learning approach, the statistics were similar to the whole medical school group statistics.

Table 2. Comparison of mean scores of each approach for each school

<table>
<thead>
<tr>
<th>Learning App.</th>
<th>n</th>
<th>Mean± SD</th>
<th>U</th>
<th>p*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deep app</td>
<td>Medicine</td>
<td>287</td>
<td>55.24±10.03</td>
<td>18032.50</td>
</tr>
<tr>
<td></td>
<td>Law</td>
<td>147</td>
<td>57.71±9.39</td>
<td></td>
</tr>
<tr>
<td>Strategic app.</td>
<td>Medicine</td>
<td>287</td>
<td>65.29±12.82</td>
<td>14782.50</td>
</tr>
<tr>
<td></td>
<td>Law</td>
<td>147</td>
<td>72.01±12.01</td>
<td></td>
</tr>
<tr>
<td>Surface app.</td>
<td>Medicine</td>
<td>287</td>
<td>47.35±9.80</td>
<td>19018.50</td>
</tr>
<tr>
<td></td>
<td>Law</td>
<td>147</td>
<td>45.81±9.38</td>
<td></td>
</tr>
</tbody>
</table>

*Mann Whitney U test

Mann Whitney U test was performed to investigate school year differences in medical students’ learning approaches and study skills. There was a statistically significant difference in strategic and surface approach (p=0.012, p<0.001). There were no statistically significant differences in deep approach (p=0.670). First year students preferred strategic approach more than third year students did. On the other hand third year students preferred surface approach more than first and second year students did (Table 3).
Table 3. Comparison of the mean scores of each school year of medical students for each approach

<table>
<thead>
<tr>
<th>School year</th>
<th>n</th>
<th>Deep Mean± sd</th>
<th>Strategic Mean± SD</th>
<th>Surface Mean± sd</th>
<th>p*</th>
<th>p*</th>
<th>p*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medicine</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First year</td>
<td>130</td>
<td>56.01±9.39</td>
<td>68.07±11.29</td>
<td>46.25±9.28</td>
<td>0.670</td>
<td>0.012**</td>
<td>&lt;0.001***</td>
</tr>
<tr>
<td>Second year</td>
<td>80</td>
<td>53.94±11.43</td>
<td>63.11±15.14</td>
<td>44.89±10.01</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Third year</td>
<td>77</td>
<td>55.29±9.50</td>
<td>62.86±11.84</td>
<td>51.77±9.12</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Kruskal Wallis test
**paired comparison: 1st -2nd years (U=4399.00 p=0.061), 1st -3rd years (U=3794.00, p=0.004), 2nd -3rd years (U=2898.00 p=0.523) (Mann Whitney U test)
***paired comparison: 1st -2nd years (U=4568.50 p=0.139), 1st -3rd years (U=3251.00, p<0.001), 2nd -3rd years (U=1863.50 p<0.001) (Mann Whitney U test)

There were no statistically significant differences seen between male and female students’ learning approaches of each school (p>0.05).

4. Discussion

In accordance with the gathered results, the deep and strategic scores of the medical school students and the law students were higher than surface scores, so it can be understood that medicine and law students in our university generally preferred deep approach rather than surface approach. This finding indicates that medical and law students are motivated for achievement, organizing their studies and managing their time. Law students reported higher level of deep and strategic approach than medical students and this difference was statistically significant. There was no significant difference between their surface approaches. These results were considered with a recent study in faculty of humanities preferred deep approach than the students in math and science faculties (Senemoglu, 2011). In other study the researchers have also found that the art students were inclined to adopt deep approach to learning more than the science students (Watkins & Hattie 1981).

There was a statistically significant difference between first, second and third year students. Third year students preferred surface approach more than first and second year students did. Our study indicated that when the students get more experienced (in terms of years spend in the school), they become less meaning oriented. This finding does not support the research results that mature students preferred deep approach more than non-mature students did (Richardson, 1995; Peters et al., 2008; Ward, 2011). It is believed that the excessive workload of the undergraduate curriculum leads the students to choose a superficial, approach which requires assessments (Reid et al., 2007). Surface approaches are used when the learning is seen as something outside of the learner and are often undertaken when students feel overwhelmed by class demands. The rise in the superficial approach with the advancement of the undergraduate course has been described previously in Australia but not seen in studies carried out in Indonesia and Colombia (Emilia & Mulholland, 1991; Stiernborg & Bandaranayake, 1996; Wickramasinghe & Samarasekera, 2011). Ramsden demonstrated that students can be pushed to adopt a surface approach by course design, with perceptions of excessive workload and poor feedback leading to surface approaches (Ramsden, 1991). That is to say, students may prefer surface approach when they feel the necessity. Thus, learning approaches may have a variety as regards students’ perceptions of the learning environment. In particular, the way assessment is perceived by the students has a deep impact on their learning approaches. Approaches can be switched depending on the assessment demands (Peter, 2011; Newble & Clarke, 1986). But, still there is a necessity to carry out more researches before deliberately applying such an approach to medical school curriculum. Lecture driven format is still the dominant mode of basic science teaching in medical schools, although there are some recommendations made by considered experts like problem based learning (Duban & Kaufman, 1985; Newble & Clarke, 1986).

In higher education, female students were observed as more motivated for achievement, more disciplined to prepare themselves for exams, more responsible in their work (May et al., 2012; Richardson, 1993; Severiens & Dam, 1997). According to our study there were no statistically significant differences seen between male and female
students of each group and the mean scores of the approaches to learning approaches. This result is compatible with the results of Wickramasinghe and Samarasekera (2011).

Results indicate that more effort should be given to encourage students to gain deep learner traits. The volume of material is excessive and the time allocated is relatively short. Moreover looming board examinations and high stakes all stand as a barrier in front of students that limit their ability to adopt deep approach and lead them toward a lower-yield surface approach. Perhaps a change in the format of the assessments would be beneficial. The decline in deep approach of medical students needs to be assessed and addressed by the curriculum developers.

References


