THE EVOLUTION OF THE BEHAVIOUR OF LEARNING APPROACHES OF SECOND YEAR PHYSIOTHERAPY STUDENTS
(3-YEAR FOLLOW-UP)

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Abstract
Introduction. Nowadays, teaching-learning process focus on the student. Consequently, to know how
students face their learning tasks, could be of increased interest to university lecturers and if such
behaviour would change in a short space of time.

Objective. To analyse the evolution (3-year follow-up) of the behaviour on the learning approaches
employed by Year 2 Physiotherapy students at University of Vigo.

Method. Prospective study. The Biggs’ questionnaire on learning approaches was used (Biggs et al.,
2001 – original version; Muñoz-San-Roque and Martínez-Felipe, 2012 – Spanish version). The study
was carried out in the academic courses 2014-2015, 2015-2016 and 2016-2017 and Year 2
Physiotherapy students participated in it. Total sample was composed of 130 students, 47 students of
academic year 2014-2015, 41 of academic year 2015-2016 and 42 of academic year 2016-2017. The
average age was 20.60±2.63 years.

Results. 53,8% of the participants were women and 46,2% were men. To the total sample and in
relation to academic course, there were no statistical differences for “Deep approach” and “Superficial
approach”, neither for any of the sub scales (Deep motive, Deep strategy, Superficial motive and
Superficial strategy). There was a significant difference by gender for “Superficial approach” and its
sub scales (p<0,05), with higher values for male. Also in relation to the gender, 85,71% of the women
and 75% of the men had a “Deep approach” contrasting with 10% with “Balanced approach” and
4,29% with “Superficial approach” among the women and 18,33% with “Balanced approach” and
6,67% with “Superficial approach” among the men.

Conclusions.
A 3-year follow-up on the learning approaches of Year 2 Physiotherapy students assessed by the
Bigg’s questionnaire showed no differences among the different academic courses. For this reason,
we could think that learning approach among those students who study Physiotherapy Degree is
similar. However, there seem to be a difference by gender pointing to higher values for “Superficial
approach” and its sub scales among men.

Keywords: Learning approaches, High Education, Physiotherapy.

1 INTRODUCTION

The processes and strategies used by university students and understanding them by university
lecturers could help teachers readjust the teaching methodology employed at classroom. In the same
line, students are able of readjusting strategies used within a learning approach to adapt to different
teaching and assessment methodologies.

In the last decades, the study of learning on the part of the student has been gaining importance,
because they are who give sense and meaning to the materials processed and they are who decide
what they are going to learn, and the way they are going to do [1],[2]. As commented above, the way
the students learn could be related with the characteristics, quantity and type of work demanded in
each course or subject, based on the educational context and their own motives, such situations
influencing the learning strategies used [1],[3]. Additionally, learning approaches overlap conceptually
and empirically with broad personality traits [4].

Students devise strategies to solve the problems defined by their motives. This combination of motive
and strategy is called an “approach” to learning. The learning approach could also be influenced by
individual characteristics and the teaching context [4],[5],[6].
Two basic ways of learning approaches are well known, superficial approach and deep approach, based on the students’ response to their academic environment and their perception for the academic tasks demanded. Study approaches thus seem to involve different aspects including predisposition to act across situations and the effects of demands (teaching procedures, assessment requirements and course contents) perceived [2],[3],[7]. Students with superficial approach focuses on concrete aspects of the tasks components, rather than on their meaning, and treat each aspect individually and not related to other aspects: while students with deep approach try to understand and to engage in meaningful learning, focussing on the main themes and principles and using strategies that are appropriate for gaining understanding [3]. Additionally, a teacher genuine commitment to the subject and to study learning enhances positive attitudes to study and encourages a deep approach, while a teacher not implied could induce students’ superficial approach [7].

Nowadays, teaching-learning process focus on the student. Consequently, to know how students face their learning tasks could be of increased interest to university lecturers and if such behaviour would change in a short space of time, for example when comparing groups of students from different academic courses within a specific subject. Thus, teachers, with such feedback, could know if there would be necessary adapting the methodology used.

Based on the above mentioned, the objective of the current study was to analyse the evolution (3-year follow-up) of the behaviour on the learning approaches employed by Year 2 Physiotherapy students at University of Vigo.

2 MATERIAL AND METHOD

2.1 Timing and Design

A prospective study was conducted during three consecutive academic courses, 2014-2015, 2015-2016 and 2016-2017, at the Faculty of Physiotherapy, University of Vigo, Spain.

2.2 Participants

Year-2 Physiotherapy students participated in the study. The sample consisted of 130 students, 47 students of academic year 2014-2015, 41 of academic year 2015-2016 and 42 of academic year 2016-2017. The average age was 20,60±2,63 years, and 53,8% of the participants were women and the 46,2% were men. The students participated in this study voluntarily.

2.3 Assessment

The Biggs’ questionnaire on learning approaches was used (Biggs et al. [8] – original version; Muñoz-San-Roque and Martínez-Felipe [9] – Spanish version).

2.4 Statistical analysis

Scores by gender and academic course on The Biggs’ questionnaire on learning approaches were analysed using SPSS version 24. The level of statistical significance was set at p<0,05 and data are presented as mean±standard deviation (SD).

3 RESULTS

For the total sample (130), 105 (80,77%) of them presented a deep learning approach, 18 (13,85%) presented a balanced learning approach and seven (5,38%) presented a superficial learning approach (Table 1). In relation to the gender, 85,71% of the women and 75% of the men had a “Deep approach” contrasting with 10% with “Balanced approach” and 4,29% with “Superficial approach” among the women and 18,33% with “Balanced approach” and 6,67% with “Superficial approach” among the men. Table 1 show values by gender.
Table 1. Results on types of learning approaches for the total sample and by gender.

<table>
<thead>
<tr>
<th></th>
<th>Deep Approach (%)</th>
<th>Balanced Approach (%)</th>
<th>Superficial Approach (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total sample (N=130)</td>
<td>105 (80,77%)</td>
<td>18 (13,85%)</td>
<td>7 (5,38%)</td>
</tr>
<tr>
<td>Female (N=70)</td>
<td>60 (85,71%)</td>
<td>7 (10%)</td>
<td>3 (4,29%)</td>
</tr>
<tr>
<td>Male (N=60)</td>
<td>45 (75%)</td>
<td>11 (18,33%)</td>
<td>4 (6,67%)</td>
</tr>
</tbody>
</table>

There was a significant difference by gender for “Superficial approach” and its sub scales (p<0,05), with higher values for male (Table 2).

Table 2. Results by gender on the sub-scales of the Biggs’ questionnaire.

<table>
<thead>
<tr>
<th>Sub-scales of the Biggs’ questionnaire</th>
<th>Total sample (mean ± SD)</th>
<th>Female (mean ± SD)</th>
<th>Male (mean ± SD)</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deep approach</td>
<td>30,62±6,01</td>
<td>31,49±5,85</td>
<td>29,60±6,08</td>
<td>NS</td>
</tr>
<tr>
<td>Deep motive</td>
<td>15,89±3,29</td>
<td>16,34±3,07</td>
<td>15,37±3,48</td>
<td>NS</td>
</tr>
<tr>
<td>Deep strategy</td>
<td>14,72±3,28</td>
<td>15,14±3,17</td>
<td>14,23±3,35</td>
<td>NS</td>
</tr>
<tr>
<td>Superficial approach</td>
<td>19,84±5,33</td>
<td>18,47±4,84</td>
<td>21,43±5,47</td>
<td>p&lt;0,05</td>
</tr>
<tr>
<td>Superficial motive</td>
<td>8,21±2,45</td>
<td>7,40±1,88</td>
<td>9,15±2,70</td>
<td>p&lt;0,05</td>
</tr>
<tr>
<td>Superficial strategy</td>
<td>11,63±3,48</td>
<td>11,07±3,54</td>
<td>12,28±3,32</td>
<td>p&lt;0,05</td>
</tr>
</tbody>
</table>

NS: not significant. Statistical differences calculated by gender.

In relation to academic course, 82,98% of the Year-2 students in the academic course 2014-2015, 73,17% in the academic year 2015-2016 and 85,71% in the academic year 2016-2017 had a “Deep approach” contrasting with 10,64% in 2014-2015, 17,07% in the 2015-2016 and 14,29% in the 2016-2017 with “Balanced approach” and 6,38% in the 2014-2015, 9,76% in the 2015-2016 and 0% in the 2016-2017 with “Superficial approach”. Table 3 shows values by academic course.

Table 3. Results on types of learning approaches by academic course.

<table>
<thead>
<tr>
<th></th>
<th>Deep Approach (%)</th>
<th>Balanced Approach (%)</th>
<th>Superficial Approach (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014-2015 (N=47)</td>
<td>39 (82,98%)</td>
<td>5 (10,64%)</td>
<td>3 (6,38%)</td>
</tr>
<tr>
<td>2015-2016 (N=41)</td>
<td>30 (73,17%)</td>
<td>7 (17,07%)</td>
<td>4 (9,76%)</td>
</tr>
<tr>
<td>2016-2017 (N=42)</td>
<td>36 (85,71%)</td>
<td>6 (14,29%)</td>
<td>0 (0%)</td>
</tr>
</tbody>
</table>

To the total sample and in relation to academic course, there were no statistical differences for “Deep approach” and “Superficial approach” scores, neither for any of the sub scales (Deep motive, Deep strategy, Superficial motive and Superficial strategy) accordingly to the instrument used (Table 4).
Table 4. Results by academic course on the sub-scales of the Biggs’ questionnaire.

<table>
<thead>
<tr>
<th>Sub-scales of the Biggs’ questionnaire</th>
<th>2014-2015 (mean ± SD)</th>
<th>2015-2016 (mean ± SD)</th>
<th>2016-2017 (mean ± SD)</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deep approach</td>
<td>30,94±5,47</td>
<td>29,39±6,92</td>
<td>31,45±5,58</td>
<td>NS</td>
</tr>
<tr>
<td>Deep motive</td>
<td>15,98±2,91</td>
<td>15,29±3,78</td>
<td>16,38±3,16</td>
<td>NS</td>
</tr>
<tr>
<td>Deep strategy</td>
<td>14,96±3,15</td>
<td>14,10±3,71</td>
<td>15,07±2,93</td>
<td>NS</td>
</tr>
<tr>
<td>Superficial approach</td>
<td>19,21±5,39</td>
<td>20,76±5,54</td>
<td>19,64±5,06</td>
<td>NS</td>
</tr>
<tr>
<td>Superficial motive</td>
<td>8,06±2,17</td>
<td>8,54±2,66</td>
<td>8,05±2,56</td>
<td>NS</td>
</tr>
<tr>
<td>Superficial strategy</td>
<td>11,15±3,72</td>
<td>12,22±3,58</td>
<td>11,60±3,08</td>
<td>NS</td>
</tr>
</tbody>
</table>

NS: not significant. Statistical differences calculated by academic course.

4 DISCUSSION

We observed no statistical differences among students from different academic courses, however differences were observed by gender for superficial approach and superficial motive and strategies (higher for male). There was a prevalence for deep approach among students, with 80.77% of the total sample with such learning approach. According to Spencer [7], the use of a deep approach directly influences the learning outcomes and could be related to a high qualitative level of learning because it leads students to a comprehensive understanding, to encourage development of reasoning and problem-solving skills, and to increase mastery of content and motivation.

Hernández-Pina et al. [1] also observed in their study with physical activity and sports science students a higher use of deep learning approach, followed by superficial approach, and, a small proportion of balanced approach. Our results are in accordance with those authors regarding the majority of deep learning approach. However, our results show a small proportion for both balanced and superficial learning approaches, even in the analysis by gender.

Vanthournout et al. [3] support the idea that students who could be categorized as ‘typically deep learners’ at the start of a course consistently normally keep using this approach throughout the course, while ‘typically surface learners’, could adapt their approach to a greater use of deep approaches when prompted in doing so by the learning environment. It is something to take into account, because our students could vary on learning approaches, and especially those who present a balanced approach, accordingly to which methodological assessment are employed in the different subjects.

Stumm and Furnham [4] in their study with 707 undergraduate psychology and computer science students from seven UK universities support “Typical Intellectual Engagement”, a trait that describes intellectual curiosity, as a close relative of learning approaches, suggesting that associations of the Big Five (Neuroticism, Extraversion, Openness to Experience, Agreeableness and Conscientiousness) with learning approaches are attenuated by “Typical Intellectual Engagement”, at least for deep and surface learning. This line of research could be of interest in the future with our students in order of characterizing our sample and not only in determining the prevalence of any type of approach or whereas there would be gender differences.

Salamonson et al. [2] in their study analysed the learning approach of students from five different degrees (nursing, engineering, medicine, health sciences and medicinal chemistry) from a large university in Sidney. Those authors observed no overall statistically significant difference in the use of a surface learning approach among the five student groups. In relation to the use of a deep learning approach, the students in the Health Sciences reported the lowest score (27.2±6.0) and students in Medicinal Chemistry reported the highest score (29.9±6.2). Values observed in the current study were even higher within physiotherapy students in the academic course 2014-2015 and 2016-2017, but not in the academic course 2015-2015 with similar value. Salamonson et al. [2] highlight the diversity among students in higher education; however, student diversity did not negate the importance of fostering deep learning and lessening the reliance on surface learning to improve students’ academic performance in higher education.
Rosander and Bäckström [6] studied gender differences on learning approaches among a total of 476 upper secondary school students from schools in southern Sweden participated in this study. Authors revealed some interesting and potentially useful findings on gender differences. Girls rated themselves higher than boys did on the sub-scale Superficial motive, while boys rated themselves higher than girls did on the sub-scale Deep strategy. It is important to point out that the sample on Rosander and Bäckström [6] were from high school students, a sample slightly different from ours, because even being 2-3 years different maybe motivation in a different academic situation, university vs. secondary school, could influence the results observed. In our case, male presented higher values for superficial learning approach and its sub-scales (superficial motive and superficial strategy).

We believe that learning to learn involves the student acquiring skills and strategies that allow them to learn effectively throughout their lives. Thus, students experience a shift from knowledge based educational approaches to process based educational approaches, fostering independent enquiry and intellectual independence, something important for their continue training along their professional lives.

5 CONCLUSION

A 3-year follow-up on the learning approaches of Year 2 Physiotherapy students assessed by the Bigg’s questionnaire showed no differences among the different academic courses. For this reason, we could think that learning approach among those students who study Physiotherapy Degree is similar. However, there seem to be a difference by gender pointing to higher values for “Superficial approach” and its sub scales among men.

REFERENCES