THE SOLO TAXONOMY – A TOOL TO EMPOWER STUDENT LEARNING

Examination group for course 9 and 10
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Background

In the “Learning Society” in which we live, the capacity for “learning to learn” is important. Based on an educational approach we try to design learning environments, which facilitate and support students in their learning to learn and use of tools for meaning making and reality construction as well as making them eager to understand. But how do we assess students’ ability to adopt active strategies and how do we evaluate our programmes on these issues?

In 1982, Biggs & Collis introduced the Structure of the Observed Learning Outcome (SOLO) as a framework for structuring. SOLO provides a way of describing a learner’s performance. As students learn, there are two main changes: quantitative as the amount of details in the student’s response increases, and qualitative as details become integrated into a structural pattern. SOLO is constructed to reflect the fact that the quantitative stages of learning occur first, then learning changes qualitatively.

In the Malmö-model, the last year of the programme (course 9 and 10) consists of two 20-week-courses. Each course is finalized with an examination week comprised of a clinical examination as well as written and oral examinations. Each student’s course evaluation is also a part of the examination. The examinations for each year of the programme are designed by an examination group, which is appointed by the Undergraduate Committee. There are 7 people in the group representing basic biology, behavioral sciences and clinical dentistry. The coordinator of the group is responsible for the final design of the examination and legally authorized to be the examiner. In the examination group for the last year i.e. the 5th year of the program, we decided to develop and implement a written examination which could assess the level of understanding at which individual students are actually operating as well as their ability and desire to deepen their understanding.

Material and Methods

The examination group meets to design 5-6 clinical scenarios with 5-6 essay questions for each scenario, each aligned with the course objectives. The questions are formulated to assess students’ understanding and transfer of knowledge when analyzing new problems. Possible answers are presented and then discussed in the examination group prior to the final decision on the examination. The estimated time for the examination is 5 hours.

Initially, each answer is marked independently by 2-3 people with the aid of the SOLO-taxonomy using three levels (high = explains causes, analyses, relates, applies, compares/contrasts, integrates data, medium = a disorganized collection of items, “knowledge-telling” with masses of detail; low = misses points, incorrect). The level is discussed and agreed first among the 2-3 assessors and then by the whole examination group. Students pass or fail the examination. During course 9, students are allowed to fail 4 out of 5-6 clinical scenarios and still progress to course 10. The most important part of the examination at this stage is the feedback to each student giving the level of each answer. They are told that the examination for course 10 will consist of the same scenarios with questions, where they did not achieve the high level. Thus, they are given the opportunity to improve their answers marked with medium and low levels. A few new scenarios were added to the course 10 examination.

Results

Did they improve their answers?

No, the students of the first cohort presented with this format of examination did not improve their answers to the extent we expected. The second cohort improved somewhat. The frequency of answers with low marks decreased from 6% in the course 9 examination to 1% in the course 10 examination. Answers with high marks increased from 32% to 39%.

Results of cohort 2011 at the improvement examination (course 10)

<table>
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<th>(Number within brackets %) of questions assessed at 3 levels at the examination course 9 for two student cohorts</th>
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<td>207 (18%)</td>
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Conclusion

The use of SOLO-taxonomy made it possible to gain insight into their final-year students’ attitudes and eagerness to improve their performance and understanding. We were disappointed!

What is the students’ perception of the examination?

The first student cohort examined in this way protested a lot prior to the examination. Besides being uncertain about the examination format per se they said that they had never previously experienced assessment of this type. Forty percent of the second cohort also answered that they had previously not been assessed on their understanding. When asked about the objectives of the examination, 80% of the students considered the examination to be judgmental, 75% considered the examination fulfilled its aim to support learning and 65% that it supported quality development of the courses.

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