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USING SEMINARS FOR COMPARING ATTITUDES AND PERFORMANCE IN TRANSVERSAL SKILLS IN STUDENTS ACROSS EDUCATIVE LEVELS: SECONDARY AND HIGHER EDUCATION

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Abstract

We describe a collaborative activity between the High School "Los Sauces" and the Faculty of Biology of the University of León in Spain. We apply the "seminar" activity in several courses of the Biology Degree at the University, not only to consolidate specific skills but also because it allows working on transversal skills such as teamwork, information search, scientific writing, presentation, discussion, and critical thinking. We split this activity into several tasks, so the students (organized in small groups) work on a topic, fetch relevant scientific information, discuss it with the teacher, produce a report, present it to the class and defend it. These tasks are interleaved with formative assessment such as producing individual and collective summaries, tests, polls, self-evaluations, and a final survey. Given the good results for eliciting work on transversal skills, we carried out a joint project with the Biology Department of "Los Sauces" (Benavente). In the first phase, we adapted the activity for the pre-university course, Secondary Education level. In the second phase, the High School teachers carried out the activity following a similar timeframe, with support from the University teachers (being present at presentations and dissertation). We assessed the attitudes of the students by observation through the experience, analyzing evaluations and scores and especially by the final survey. The data showed that the "seminar" activity was a challenge for the students in both degrees, precisely because of their lack of experience on many of the transversal skills they needed to use. Despite adapting the activity to the High School level, these students found it a bigger challenge, realizing a difference in skill development and adaptation between educative levels noticed by other authors. However, evaluation results and attitudes were similar between levels. When inquired, most students found the activity and the different tasks as positive for attaining the educational objectives, being slightly more critical at the University level (4 vs. 3.7, in a 0–5 score). There was a large dispersion on the preferences about the different tasks, reflecting a great between-subject variability, possibly due to personal preferences and goals. Written comments provided a wealth of comparative data, both because of content and style. University students produced more elaborate and critical comments, reflecting experience, which might have helped to a better understanding of the activity and to apprehend better the skills involved. Notably, we noticed that teamwork was a challenging skill for students at both levels, but also an important one for them to achieve. The students at the High School level found working in groups more problematic, mainly on communicating and coordinating effectively. Students at the University level used their previous experience to solve minor problems as they presented, and getting more output from the teamwork. In conclusion, we could perceive cognitive and emotional differences between these two educative levels when students were challenged to develop transversal skills, especially teamwork. The adaptation of the "seminar" activity from the University to the High School level was very promising. The information we have learned about the students in this pre-university level will allow us to adjust the activity to their educational needs better.

Keywords: Secondary, Higher Education, Biology, Seminars, Survey, Transversal Skills.