

Assessing team skills: How can assessment of reflective writing be carried out effectively and relatively quickly?

K. From, DTU, Denmark, kifr@dtu.dk

ABSTRACT

Keywords – team skills, teamwork, reflection, assessment

Please indicate clearly the type of contribution you are submitting: ___ hands-on, X explore.

Teamwork has become a common way for teachers to ensure active participation in class. There is good evidence that this type of activation improves learning (Prince, 2004). At the same time team skills are important in the workplace. Engineers are expected to be able to work in teams. So in more than one way it makes good sense that students work in teams. But how can we ensure that our students become good team workers? And how can we assess them? These questions will headline this explore session.

Dublin Institute of Technology (DIT) have implemented a very impressive framework for the development of team skills (along with other non-technical skills) (Duffy & Bowe, 2010). The framework is partly based on direct observation of students' *team behaviour*, and frequent formative feedback is offered to each student. This requires a low student-teacher ratio (Duffy & Bowe, 2010). But allocating this many resources to a course is not possible in all universities or programmes. So what can be done instead? Are there other ways of assessing behaviour than direct observation? Or maybe there are other parameters that could be assessed instead of behaviour?

In this project the following approach has been taken: Direct observation of behaviour is not possible, because one teacher cannot observe all students at once. But what *can* be assessed is a student's *knowledge of* teamwork, their *vocabulary* and *metacognition* in a reflective writing assignment to be submitted by each student individually. This is not exactly the same as being able to *do* good teamwork, but it – at least potentially – could motivate a person to actively change their behaviour accordingly.

The challenge, however, with reflective writing is that reading and assessment takes time. And this approach can only be viable if the time spent on assessment is reasonable. So the *first* step will be to test a rubric in order to see if it is possible to complete assessment in a reasonable amount of time.

Another challenge is how to evaluate the overall framework – consisting of the learning objective, course content, and some theory – after each run. It is believed that the reflective writings will provide exactly those insights needed to be able to do that. In order to make it easier and quicker to extract these insights from the relatively large number of writings, the aforementioned rubric has been extended to include some extra questions about each student's personal learning, team experience, and application of theory in the reflective writing.

So the research question at this time is: How can we assess reflective writings *and* evaluate the effectiveness of the framework after each run in an effective and relatively quick way, using an extended rubric?

Elements of this subproject

The overall framework is being developed within a course, '*Design, users, and ethics*' in the 1st semester of a Bachelor of Engineering programme at the Danish Technical University. The students work on a group project throughout the course. The groups are formed by the teacher.

The summative assessment method for the whole course is assessment of a group project report, the aforementioned short piece of individual reflective writing (up to 8000 characters incl. spaces), an oral group presentation (15 mins.), and individual oral exams (10 mins. each). The students are given an individual grade that is based on an overall assessment of all of the above mentioned elements.

One of the learning objectives in the course addresses team skills: The student must be able to: "Reflect on personal learning and contribution in a team process". A small part of the curriculum also addresses team processes in order to provide the students with some theory to apply in their reflective writings. Halfway through the semester the students are required to hand in the first piece of reflective writing for which they will receive general formative feedback. At the end of the semester they hand in the final piece of reflective writing which makes up part of the grade.

Research method

The rubric to be tested is an extended version of a rubric developed by Roseanne Birney (Birney, 2012) for the assessment of reflective writing. The extension that has been added are extra parameters so that the application of theory can also be assessed. Some extra 'boxes' has also been added below the rubric that allows for evaluation of the project: What do the students learn? Which challenges in the teamwork do they address? How do they understand the text they've read? And then some extra space for 'other insights'.

For this first test of the rubric the goal is to see whether it is relatively quick and easy to do the assessment *as well* as the evaluation so that each submission only has to be read once. 46 submissions are expected for this first run. So the method is simply to measure the time spent.

Eight hours for all 46 submissions would be a good time.

Before the ETALEE conference the rubric will have been tested once. The audience will be invited to discuss the results as well as the questions mentioned above.

Expected results

The expected result of this first test is a measure of the time spent on assessment and evaluation. There are many other questions that need to be explored in the overall project, but the results of this test will determine whether the chosen approach is worth pursuing at all.

REFERENCES

Duffy, G. & Bowe, B.: A Strategy for the Development of Lifelong Learning and Personal Skills Throughout an Undergraduate Engineering Programme, IEEE conference Transforming Engineering Education: Creating Interdisciplinary Skills for Complex Global Environments, 2010.

Prince, Michael: Does Active Learning Work? A Review of the Research, p 223-231, Journal of Engineering Education, 2004

Birney, Roseanne: *Reflective Writing: Quantitative Assessment and Identification of Linguistic Features*, Phd Thesis, Waterford Institute of Technology, 2012