Anatomy of Assessment

Peer marking on a Group-based Problem Solving

Faculty: Natural Sciences

Department: Physics

Module name: Comprehensives

Module leader: Dr Mitesh Patel

Format: Group work

Level: Undergraduate Year 3

Approximate number of students: Full cohort (About 250 students) split into two terms

Duration: Ten weeks (One term)

Module ECTS: 15

Assessment overview

Group-based problem solving is a continuously assessed component of the core year 3 undergraduate physics third year Comprehensives module – a module designed to augment and consolidate students' problem-solving abilities using material covered in the first two years of the core undergraduate degree. In group-based problem solving students work in teams of 25 to solve a complex problem. The assessment runs over an entire term, in which the students are expected to organise themselves, and, ultimately, present their findings in a half-hour seminar. Unlike most other assessments, their mark is not provided by the module lead, but rather, the entire assessment is peer-based, with the other teams grading each group's seminar. Each individual mark is then determined by peer-to-peer marking within a group, based on the overall grade of the group.

Design decisions

Rationale for the design

There are two components to the marks given: peer assessment during term for individuals, and then a peer-provided mark given to the whole team based on their end-of-module presentation. The individual peer assessment is in two parts, with one part given in early in the module, providing individuals with an opportunity to reflect & improve, and the final part given at the end. Marks and feedback for all components are split into several categories (for example "attitude" and "participation" are two of the components of the individual peer assessment) and all are sent to and collated by the module leads. Module leads use the peer marks to give a final grade following an elaborate (and also robust & transparent) algorithm.

Practicalities

Assessment and provision of feedback

The questions are randomized and personalised for each student but a level of collaboration is encouraged, not to just put the answer in but rather to collaborate on the methodology. Weighting attached to each question is relatively small so if a student wants to, they can skip a problematic question and move on to the next. Assessments are spread out throughout the term so when a topic ends students are given a deadline to complete the quizzes.

If a student is struggling and would appreciate some support, the software has an option of a 'hint' and 'email the teacher button' which notifies the tutor that the student would appreciate help.

Student's perspective

The module component is relatively new, having been introduced as part of Curriculum Review. Students tend to view it as challenging while also having a strong and positive appreciation of the idea and

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philosophy behind the exercise. One of the greatest challenges for students is working in groups of 25, which occasionally leads to a disproportionate amount of time on internal group organisation. Some students became too concerned with the organisational aspects of the project, at the expense of devoting time & energy to contributing to the physics, which was handled by other members of their group. This aspect wasn't as well appreciated as much by students, and was something flagged as an unanticipated problem by the module lead, and there are measures in place to improve this for future years.

Further observations

This assessment really offers the opportunity to make use of each and everyone's individual strengths, whilst also permitting individuals to recognise what aspects of teamwork they thrive in, and which areas they might be able to improve on. The use of 100% peer assessment is something that is unusual for the department, and indeed the College, and while it is difficult to execute well, it is something well worth considering for other courses.

Interviewees: Dr Mitesh Patel and Dr Isabel Rabey