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Practices

Podcasting the findings of a Physics experiment

Cite as;

Pearson, J, Philippaki, E. 2019. Podcasting the findings of a Physics experiment (Study 284)
IN: Queen's Assessment Hub.

Available from:

<https://go.qub.ac.uk/assesshub>

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Assessment for Learning at King's

Description

Module: Physics Skills and Techniques Level 4.

Students work in groups to create a podcast as part of a larger research project and present it in class to a panel of teachers and their peers for feedback and grading.

Motivation and Aims

Physics Skills and Techniques is a core first year module, with about 150 students, covering the basic skills required to begin the study of Physics. One of the learning outcomes is specifically oriented towards enhancing effective oral communication skills, and therefore one of the assessments was originally a PowerPoint Presentation.

However, I felt that the PPT format was not very engaging for either the students or the teachers who had to watch them! Podcasting is a popular method nowadays of communicating scientific research and most students would be familiar with this genre. The basic information and content remains the same, so students still have to achieve the knowledge learning outcomes, but the experience of reading about research or an experiment is quite different from communication such as a podcast or video and it is good for students to be able to present research findings in a number of formats.

Therefore, I felt replacing a PPT with a podcast would be more engaging, an authentic means of communicating with an audience and might facilitate other skills that can enhance their university experience, such as creativity and basic video editing software techniques.

Methodology

The podcast is part of a larger research project where students are put into groups to develop a project in the lab. Students do weekly labs throughout the module (which takes place over two semesters) and then are given 4 weeks to do the project at the end of semester 2. They are allocated to groups to develop a small guided research project. Groups are given a list of experiments and they choose which one to do. Experiments are usually allocated on a first come first served basis depending on their preferences, i.e. if there is no more space for their 1st preference then the second will be given and so on.

The project involves performing an experiment and the podcast should be a 3-minute summary of the project (purpose, methods, outcomes). The rest of the project assessment is an individual written report (see '**how did you design the assessment criteria**' below).

Students are given a free session to experiment with recordings in the lab. I give them an exercise to make sure they understand what to do and then they come to record their project. They upload the podcast file to KEATS, but because they are large files, in case they can't do this, they are required to also email the file to their lecturer. Students are given time in dedicated lab sessions, although a lot of work will take place outside of class.

During the final weeks of semester two, during a class session, students present their podcasts and are given both tutor and peer grades and feedback (see '**how do you give feedback?**' below).

How did you design the assessment criteria and weighting?

The project is worth 35% of the total summative module grade, with the split being:

- podcast -15% group
- written report – 15% individual;
- student performance/process – 5% individual

Everyone gets the SAME grade for the podcast as it is *the product* being assessed. This is balanced with the 5% for *process* i.e. whether students were attending their project lab sessions, showed interest, in other words they contributed in their group work.

The marking scheme is based on the generic criteria for Physics which covers practical work/orals and reports/essays. The skills and standards required for a podcast are similar as that for a presentation in many ways. However, for the podcast, we use adapted criteria, using subheadings of CONTENT, CLARITY, and CHARISMA. This was given on advice from the English Language Centre, whom we work with for a Physics module on their Foundation programme.

Although this is group work, everyone is required to speak in the podcast. As part of the task, students have to negotiate their roles and responsibilities within the group.

How do you give feedback?

Students present their podcast in one session all together. This allows them the opportunity to get feedback from their peers as well as from their teacher.

At the beginning of the session, we go through the criteria with the students. Then we listen to the podcast from each group and after each one they vote on **PollEverywhere** (this allows for anonymity). They give only a grade band not the number (B, B+, A etc.). The average of these grades on PollEverywhere makes up the final peer grade.

There is a panel of two lectures and Graduate Teaching Assistants who also give feedback. Once the students leave the room, we confer and come to a consensus on the grades we will give for each podcast group.

- The teacher grade is worth 70% of the total grade
- The peer grade is worth 30%

We do this to motivate students to come to the session and pay attention by giving them a reason to listen. We also feel that peers are more interested and invested in each other's work by doing this, fostering an ethos of collaboration rather than competition. We find that there is a large amount of accuracy in the grades that students give and the grades that lectures and TAs give.

Another benefit of this is that students can get immediate feedback rather than waiting for weeks for their feedback to be returned. This also has a 'delay the grade' effect, whereby students receive feedback but not the grade until after the whole project is marked. This encourages evaluate judgment of their own performance.

Students might complain about a lack of written recorded feedback, but you can make this part of their responsibility to record the feedback on their phones and type up if they want to.

How do you explain the assessment to the students?

In the first few weeks, we give the students an introduction to the assessment and go through all the considerations they need to make including audience structure and narrative. This is the PPT we use: [week 21 – Podcasts \(ELC\)](#)

Successes | Challenges | Lessons Learned

What benefits did you see?

- **Student Engagement with the task and each other:**

Students seem more engaged than when the assessment was a PPT. This was particularly noticeable in their interaction and interest with peers' podcasts. Previously, students only turned up for their own presentation slot but now they want to see what their peers have produced. A PPT format leaves little room for creativity but when students have more freedom with formats, they are more interested in their own work and that of others. One student commented about the project as a whole:

“Even though I am interested in the theoretical part of the subject, I feel like my knowledge about it would not be 100% complete without these experiments”

- **Technical Skills:**

As mentioned above, we feel that students are gaining another transferable skill in having the experience of using freely available editing software. This is not assessed as part of the criteria in itself however.

- **Staff Workload:**

We have quite a few assessments for this large core module. Previously, we had to watch individual presentation over a few days and had to give feedback on each presentation after it had been uploaded to KEATS, but changing the format has allowed us to give immediate feedback as part of collaborative communicative 'event' over a few hours. We enjoy this much more and therefore are more engaged with the task we have set our students.

Because there are a number of lecturers in the room, there is no need for post-hoc moderation, as everyone confers on the grading decisions on the day. As the podcast is already a recorded product, there is no need for complex procedures and equipment as with recording oral presentations.

What challenges did you encounter and how did you address them?

- **Peer grading:**

I think it is inevitable when you give students the responsibility that some will feel obliged to give good marks to peers, and some will not engage fully. We did have some students who didn't turn up to the final session. This could have been due to the timing of the session (right before the end of term exams), or it could have been that they felt exposed in front of their peers, although we hoped that the group work aspect diluted this somewhat. When giving feedback, we make an effort not to be overly critical as this is a public way of giving feedback that can be difficult for level 4 students.

There is a possibility that students didn't fully understand the criteria and as this was the first year, we didn't have examples for them to analyse beforehand as part of marking training. This year we will have some podcasts available from the previous cohort for this. In addition, we are making attendance for the final session compulsory in order to provide that peer support and sense of module completion.

- **Technical issues:**

Students were given the choice of the freely available open license video editing software (iMovies, Microsoft VLC, Grover etc). However, because some software licenses on a trial a basis, some of the finished podcasts had unsightly watermarks for copyright! KEATS also supports AUDACITY for podcasts. **There is a help page for staff and students on KEATS about how to use this software.** However, I do hope that King's does more to support software training for students, as many lecturers may feel reluctant to introduce assessment such as this because it isn't their job to train students to use the software.

The sound files are often too big to load to KEATS so one member of the group must also email this to the lecturer and cc the other group member. This can create a sight issue of showing samples to the external examiners if required, but we can load them onto a secure OneDrive account for this purpose.

- **Group Work:**

We have all the usual issues with group work and some complaints about students who don't pull their weight. We do take attendance in the labs, but a lot of work takes place outside of class. It might be good to introduce a social contract at the start of the terms as part of the assignment brief, where students allocate roles and responsibilities. Some students are already stating at the end of their podcast who did what, and this could be a formal part of the assignment brief to ensure responsibility is acknowledged.

- **Timing:**

We found that 3 minutes was not long enough for the students to really be able to talk about their project in depth so we will increase this to 4/5 minutes this year. This will make the feedback session slightly longer, however.

Scalability and Transferability

What advice would you give to colleagues who are thinking of trying this type of assessment?

- I think it is an excellent way for level 4 students to practice the different ways of communicating science to different audiences because science communication is a key skill these days. There are already examples outside the College where this is being done, so you can find good examples from across the sector on university websites. **(see this resource)**.
- If you are thinking about using a podcast assessment, you can also do it in a freer and more flexible way. Ours was based on lab work and so was quite rigid in what we wanted them to communicate, but podcasts leave room for a really creative way of expressing information on a given topic.
- Expect the usual issues around group work and have answers ready to address them. In particular, keep the groups small so that all can participate in both the actual podcast and the group work. Around 4-5 is best.
- Consider technical support for your students and you can contact your TEL team or **CTEL** for help if you need support setting this up.

Further Information

This case study was sourced from- Assessment for Learning at King's, King's College London. Available at:

<https://blogs.kcl.ac.uk/aflkings/2019/10/01/podcasting-the-findings-of-a-physics-experiment/>

[Accessed 30 Jan. 2020].