Chemistry of Molecular Systems Group Poster Presentation

Faculty: Natural Sciences
Department: Chemistry
Module name: Chemistry of Molecular Systems
Degree: BSc and MSci Chemistry with Medicinal Chemistry, MSci Chemistry with Molecular Physics
Level: Y2
Academic Years: 2021-2022
Format: Group poster presentation, coursework
Approximate number of students: whole year group, ca. 200 students
Delivery mode: Group coursework, presented on one day across 3 South Kensington campus lecture theatres
Duration: set over the 8 weeks of Summer Term, 14 hours of work from students + one 1-hour workshop
Weighting and credit: 30% of module, module is 8.3% of Yr 2, Yr 2 is 20/35% of BSc/ MSci degree respectively
Module ECTS: 5
Module Type: Core

Insights colour key

Educational Developer

Inclusivity

Learning Designer

Registry

Careers

Educational Technologist

Assessment overview

This assessment involves students working in groups of four, to create a poster on what they deem to be the 'Most Interesting Molecular System'. They then present this poster in a 10-minute presentation (plus 5 minutes scheduled for Q&A) to about 40 of their peers. The topic is purposefully left very open, without any restriction to inorganic or organic chemistry despite the module being largely inorganic; this is to make it as engaging as possible and to reflect how different parts of chemistry are interconnected across most research areas.

Design decisions

Rationale and design

The poster presentation format was chosen because the course didn't include any such presentation, apart from in an optional year 3 module, before the heavily weighted BSc project poster presentation. To keep students engaged in other groups' presentations, a 'question roulette' is used. This involves each group being allocated another group to which they must ask a question, with the allocated group being announced by staff just before the relevant presentation. This was found to work well, with students not only asking the one required question, but having more than enough questions to fill the allocated Q&A time even without the staff questions. There was no replacement of this for those who missed the presentation.

Alignment with Learning Outcomes

This assessment focuses on students working with unfamiliar molecules and applying concepts they have learnt throughout the course to unfamiliar molecules. As well as this, it also develops and assesses students' literature searching skills, which is evident in the impressive selection of molecules from students, and their understanding of the literature is shown by their presentation, in areas such as a molecular system's mechanism of action or evidence it exists.

Practicalities

Feedback and Marking

Two-thirds of the final grade came from staff grading the presentation and viva, and one-third came from a peer-assessment mark. In 2021-22, final marks were released to students 3 weeks after the presentation day. The first time this assessment ran, the final mark had an additional peer-assessment component, as students were also asked to grade all the presentations that they watched. However, this was abandoned as not only did it create extra work chasing students, but it also diluted the quality of the marking, as students tended to just mark their friends highly instead of basing grades on the quality of the presentation. This extra peer assessment had been trialled to encourage students to remain engaged in watching their peers' presentations, but this has been replaced by the 'question roulette' initiative.

Interviewees: Dr Silvia Díez-González; Dr Laura Patel
Roles: Module Lead; Module Lecturer and Assessment Coordinator

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Advice for implementation

For assessment design more generally, it can pay off to think through alternatives at the same time as the standard assessment, to build in inclusivity from the design phase. In this case, this could have helped to standardise the vivas offered as a presentation alternative. It is good inclusive practice to provide access to a digital version of a poster even if the presentations take place face-to-face. This is to allow access for people who might struggle with the printed design. Having an online version extends participation to all who want to be included. Using accessibility tools to check the posters for any inclusivity issues to ensure it is readable to people with a visual impairment. This would include ensuring that the posters can be accessed via a screen reader and that visual images have appropriate tags.

Advantages of assessment type

- Assessments that link to and build up the skills that are then further in other years presents a more connected assessment strategy.
- Giving students an element of choice in assessment is always good practice as it allows them to develop their interests
- Learning how to deal with conflict within groups and understanding the different mechanisms for collaboration is important.
- Students are going to have to work in a group no matter what they do. There are hardly any job descriptions that do not equivalent a group working collaborative element. Being able to work in a group helps students develop related transferable skills;
- A poster creation in itself is a useful skill to develop for those moving into research-based, purely academic or science communication types of roles. However, the idea of creating concise content which goes on a poster is a highly transferable skill for almost any discipline.
- Microsoft PowerPoint is usually used for poster design and works well for printed or electronic presentation.
- Engaging students in the assessment process of the group work gives important insight into the extent of individual contributions.

Limitations of the assessment type

- A common pitfall for students included getting 'lost' in the literature surrounding their molecule. Encouraging students to focus on a few core aspects that make their molecule interesting helped them to filter through the results of their literature searches more effectively, and this approach usually led to a clearer presentation telling the 'story' of the relevant molecule.
- Student also needed reminding that the example poster they were given is just an example, not a structure that they must stick to if it does not apply to their molecule.
- As with any group presentation, it was clear where groups divided the work and stuck their individual sections together, without researching other sections and smoothing over the links. Where groups had teamwork problems, it was much easier to resolve when students spoke up early, so this should be emphasised to students when the project information is released.
- While group work helps develop a lot of useful transferable skills, the danger with group work around an artefact such as poster is that students will distribute work in such a way that each party works on a different part of the poster. This means that they are essentially working separately and missing out on developing important transferable skills such as negotiation and potentially conflict resolution.

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- It is good inclusive practice to provide access to a digital version of a poster even if the presentations take place face-to-face. This is to allow access for people who might struggle with the printed design. Having an online version extends participation to all who want to be included.
- Using accessibility tools to check the posters for any inclusivity issues to ensure it is readable to people with a visual impairment. This would include ensuring that the posters can be accessed via a screen reader and that visual images have appropriate tags.
- Some considerations should also be given to how the poster presentation questions are organised.

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Anatomy of Assessment

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For example, one strategy could be pausing after a presentation and ask other to write down the questions to the presenters so that they have some time to prepare. This helps with the auditory processing side of things, i.e. not being able to recognise what needs to be done quickly by impeded understanding of what is being said – this is something that frequently presents in disabilities.

- Ensure that preparing students to work in groups effectively is part of your preparation for the assessment. This video outlines some strategies that can help you with that. Also this case study contains some examples of activities that you could use to help students work together better;
- When introducing group work some consideration needs to be given to how students with specific learning needs can be successfully participating in group interactions. All students involved should benefit from inclusive practice: this means that inclusivity considerations can be embedded within standard practice around preparing students for group work. This can be done through discussion around the allocation of roles and better understanding how others, including those with specific learning needs, (such as dyslexia, autism and dyspraxia) learn and communicate. Individuals should be mindful of that and think about the delegation of individual tasks that are appropriate to what individuals can do. Therefore part of preparation for group work is considering how others can be mindful and empathetic towards other group members.
- Ensure there are opportunities for alternative approaches to demonstrating assessment criteria for students with disabilities;
- When deciding on whether or not to offer alternative methods for presentation, such as a pre-recorded video, it is important to ensure that the ILOs allow this flexibility.
- Some believe that students take peer assessment more seriously if they are required to give a mark, so if you choose to adopt that approach, like staff, students need preparation for peer assessment. As well as being introduced to assessment criteria and rubrics / mark schemes ahead of time, it is beneficial to allow students to use these tools to assess exemplars of students' work with different strengths and aspects for development. You should seek permission to use anonymised exemplars from the originator or create examples based on typical student work.
- Peer review / assessment of exemplars could be an effective means of formative assessment and / or preparation / helping to manage students' anxieties relating to approaching assessments. In cases where using examples of past student work is inappropriate, developing some 'sample' exemplars which could be used as a review exercise so that the students get a better idea of what 'good' performance looks like.

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