Embedding Equality, Diversity and Inclusion in the Year 1 Chemistry Curriculum

Staff Lead

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Name of course and module case study took place within.

Module – CHEM180 Key Skills for Chemists 1

Please briefly describe the activity undertaken for the case study

This curriculum activity was created to coincide with the University applying for the Race Equality Charter Award. Professor Gita Sedghi wanted to challenge race equality and enhance inclusivity in the Chemistry curriculum. This module offered a unique opportunity to do this on a large scale as CHEM180 is a compulsory module for all first-year students. In collaboration with the Faculty of Science and Engineering Careers Team, it was agreed that a focus on employability would be the perfect vehicle for this message, drawing upon the Royal Society for Chemistry's (RSC) Strategy. Three key learning aims aligned with the module outcomes were agreed to develop the transferable skills needed for chemists:

- To develop student awareness and understanding of equality, diversity and inclusion, aligning to the RSC's Strategy 2025.
- To develop key transferable skills such as collaboration, digital fluency, creativity, and commercial awareness.
- To enhance students' understanding of how to articulate transferable skills developed through group work, to support applications for opportunities such as internships and year in industry.

Students worked in groups to answer the question:

- Why is equality, diversity and inclusion important in chemical sciences? Support your answer with reference to how a key employer in the chemical sciences is committed to equality, diversity and inclusion in the workplace.

Students were asked to work through this question carefully and produce a 'Digital Story' covering their thoughts, ideas and experiences on this topic. Digital Storytelling is an innovative way for students to communicate a message digitally, in a manner designed to be engaging, organised and accessible. It follows a process that requires the students to agree on editorial-style decisions about the key messages they wish to convey, develop a script, and use a variety of digital, visual and audio features. On top of the technical skills they develop, students use self-reflection to consider and practice how they sell their skills and experience to employers during future graduate recruitment processes.

How was the activity implemented?

Firstly, a significant proportion (10%) of the overall module was allocated to the equality, diversity and inclusion (EDI) task, emphasising the importance of this topic. Secondly, substantial contact time was allocated to the task (15 hours). Thirdly, as this activity was developed during the Covid-19 pandemic, Teams spaces were created for the students to collaborate. The impact of Covid-19 on the learning experience has been profound; this was an opportunity to help prepare students to utilise digital tools in a way that would replicate the workplace.

The task is student-led and undirected as much as possible to allow students to have the freedom to explore the topics and decide the best way to present their thoughts and conclusions. Therefore, the 159 students were split into groups of 4-5 students. Each group was mixed at random to replicate the kind of diversity you see in the workplace and bring different perspectives to the discussion.

The activity was released to the students in Week 7 of Semester 1 through a live online lecture delivered in collaboration with Careers & Employability. During this session, students were guided to their Teams space, where they engaged in a fun quiz based on EDI, which helped to begin the discussions on the task. Following this, groups were given guidance on how to produce digital stories using Canva and prompted to make additional arrangements to meet their groups and decide how to tackle answering the question. In addition, students were given a lecture about teamwork and working cooperatively in diverse groups to increase their knowledge acquisition and diversity skills.

The students were given three weeks to work on the task, with the option to attend a drop-in support session from Careers & Employability. Other resources were provided, such as short asynchronous videos on overcoming the challenges of teamwork, how to create

digital stories, and recorded content from employers on why diversity is important to them and how they encourage openness in their organisations.

Has this activity improved programme provision and student experience, if so, how?

Evaluation of the activity showed that students became more socially conscious graduates prepared to question, critique, and challenge their future employer or colleagues on EDI issues. Students appreciated a credit-bearing EDI activity to equip them with the skills to contribute to and work in a diverse environment positively.

Engagement with the task has been strong, and the students have reacted in an overwhelmingly positive manner to everything that has been asked of them. Student responses included: 'This is a very useful activity because we don't necessarily think about EDI and the related issues with people from protected characteristics unless something like this task brings them to our attention'.

A key impact is clearly that awareness of EDI has been raised in students' first year at university. Another impact is the contribution to the inclusive curriculum in line with the University's strategies. The updated Liverpool Curriculum Framework has been developed to embed the core value of inclusivity and ensure all students can access their curriculum.

From an employability perspective, by sitting within the curriculum, every single student can participate regardless of their personal circumstances, some of which will prevent access to alternative employability-enhancing opportunities. The self-reflection and peer-to-peer group work approach ensures that students learn from each other, as do the staff delivering the task. In addition, digital storytelling was used to enhance students' competency with technology, critical thinking, creativity and collaboration skills.

Additional benefits recognised by students included:

- 'I liked that the University is focusing on the importance of EDI and ensuring students have to do research into these issues'.
- 'I have more of an understanding about it now so I can be more proactive in EDI since this task and make sure everyone is included and help anyway I can in making things more inclusive for everyone'.
- 'My knowledge of what companies like Unilever, GSK and the RSC are doing to increase diversity has improved'.
- 'Gave a chance to work with new people who I hadn't spoken to before'.
- 'It was a good way of experiencing the meaning of EDI by working with a group of diverse people'.
- 'Learnt how to use new software, such as Canva'.

Did you experience any challenges in implementation, if so, how did you overcome these?

This was the first credit-bearing EDI task in the Department of Chemistry. One challenge was finding a suitable place in the Chemistry curriculum to embed an EDI activity. It was impossible to embed an EDI module into Chemistry programmes unless it was optional. A credit-bearing EDI activity within a mandatory module was fit for purpose as it exposed every Year 1 Chemistry student to this important topic. Therefore, one of the several assignments in CHEM180, Key Skills for Chemists 1, a whole year module, was replaced by the EDI task.

By embedding one credit-bearing activity in a mandatory module, we overcame the challenges. We successfully enhanced student awareness of EDI and key transferable skills such as collaboration, digital fluency, creativity, and commercial awareness.

How does this case study relate to the Hallmarks and Attributes you have selected?

Research Connected Teaching

Students develop their research skills through investigating industry-specific employers and initiatives that are undertaken to tackle the issues around diversity and inclusion in the workplace. This provides students with valuable experiences of research.

Active Learning

Students work in randomised groups and schedule meetings to work on the task. The task is student-led, with the freedom and flexibility to choose their own focus within the digital story. The self-reflection and peer-to-peer group work approach ensures that students learn from each other.

Authentic Assessment

The task is specific, so students develop a knowledge of authentic problems relating to equality, diversity and inclusion in industry. Students also hear from employers directly who reinforce the initiatives they are undertaking within their organisations.

Digital Fluency

Students develop their digital skills through the innovative digital storytelling assessment. Students are introduced to a variety of software platforms to record their stories and are supported through this process.

Global Citizenship

Students are guided through a task which is focused on equality and diversity. This task fosters a greater connection between students to develop intercultural awareness by

becoming more aware of the issues faced by underrepresented groups in the chemical industry.

Confidence

Students develop confidence when working with others in a group setting. They are also more confident in knowing what type of employer they would like to work for in the future and their associated recruitment process. This helps to break down barriers due to increased commercial awareness.

How could this case study be transferred to other disciplines?

This activity is highly transferable and is perfect for sharing - all that needs to change is the context for the EDI task. By swapping The Royal Society for Chemistry to another professional body or module-related employer, you can adapt the task for any student group.

If someone else were to implement the activity within your case study, what advice would you give to them?

- Situating this activity in a mandatory module within the curriculum removes any barriers to student participation and ensures all students gain EDI awareness and skills. The activity itself is scalable and equitable.
- Integrating EDI into the chemistry discipline was key to engaging students with this assignment. In our introduction session, we highlighted that for chemists, embracing EDI means creating an inclusive environment that values different backgrounds and experiences, leading to more innovative research and equitable practices. This made the EDI assignment relevant and compelling for staff and students. Sometimes staff can be resistant to an EDI assignment, but this was not the case here because we linked this to the Royal Society of Chemistry's EDI strategy.
- Incorporating digital tools such as Canva into the curriculum enhances students' learning experiences and engages them with technologies.

References

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