Student Generated Teaching Resources as a Tool to Enhance Inclusion and Diversity

Dr Giorgio Chianello, Lecturer in Chemistry, Queen Mary University of London (QMUL), g.chianello@qmul.ac.uk

Introduction

The project is based on the improvement of inclusion and diversity via the active involvement in module design of students from underrepresented minorities, low-income background, and with no previous working experience. The aim is to provide opportunities for growth to those students who might lack them, and to create novel underrepresented role models within the scientific community. Further aims are to increase student engagement, knowledge retention and student voice. Specifically, the selected students produced videos to be used as teaching resources for first year and foundation Organic Chemistry modules plus an additional video to promote chemistry among year 12 students (not yet shared and evaluated). The work has been inspired by work conducted by Prof. M. T. Gallardo-Williams from NC State University (US) and work of Prof. S. McClean from Ulster University (UK)1-4,5. The Chemistry Department of QMUL offers fertile ground for the work here presented due to its high diversity: 95.7% students from state schools, 72.1% Black, Asian or of Mixed Ethnicity (BAME), 56.7% female, 49.9% from household income of less than £20,000 and 57% first in their family to enrol to University6. Moreover, this project well fit within the flip classroom approach that due to COVID pandemic has gained significant momentum as seen by the adoption of the blended learning environment in many institutions worldwide.

Evaluation

The project is evaluated using a combination of quantitative and qualitative methods listed below:

- Video evaluation survey filled by receiving students
- Student survey filled by video producers
- Academic field notes
- Follow up to verify improvement of inclusion, diversity and employability

Results

This project is still at an early stage therefore the evaluation process is not yet fully completed. Here the focus is placed on the video evaluation survey filled by the receiving students and the student evaluation survey completed by video producers. Below is a selection of the responses from the two surveys.

Video Evaluation

Statements are evaluated on a scale 1-5 where 5 indicates total agreement and 1 total disagreement with the statement. Number of participants is 23.

I enjoyed the video produced by the QMUL student

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<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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<tbody>
<tr>
<td></td>
<td>0</td>
<td>1 (4%)</td>
<td>3 (13%)</td>
<td>10 (43%)</td>
<td>9 (39%)</td>
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I would like students to have higher involvement on the delivery of modules

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<tr>
<td></td>
<td>0</td>
<td>4 (17%)</td>
<td>9 (39%)</td>
<td>4 (17%)</td>
<td>6 (26%)</td>
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I would like to see more chemistry role models from minorities and disadvantaged background

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<tbody>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>6 (26%)</td>
<td>5 (22%)</td>
<td>12 (52%)</td>
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I would like to see more material like this included in other modules

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<td>1 (4%)</td>
<td>6 (26%)</td>
<td>6 (26%)</td>
<td>9 (39%)</td>
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I would like to participate/be involved in this project (production of videos)

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<td>3 (13%)</td>
</tr>
</tbody>
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Student Evaluation

This is a combination of statements evaluated on a scale 1-5 where 5 indicates total agreement and 1 total disagreement with the statement and open answer questions. Four students were so far involved as video producers.

I have enjoyed the project

5

Project lead gave clear guidance/feedbacks

4.8

I would recommend others to participate in this project

5

Conclusion & Future Work

What skills do you think you have learned or improved during this project?

Team work, communication, leadership, presentation, video editing, make communication more inclusive and time management.

Additional comments

“I have become much more confident. I developed so many skills that are transferable in any space”

“It was an amazing team building experience. I got to learn and develop my communication and presentation skills. It also gave me the confidence to talk in front of the camera and articulate my responses accordingly”

“Maybe more emphasis on setting up your own projects. Expanding the range of science communication on offer. Perhaps a system in which there’s a group project that is student led teaching resource and then an individual project in which they develop a science communication project”

“Fantastic project to work on with excellent support from both the lecturer and the students involved”

Data show that students (both receiving and video producers) overall appreciated the work made. Receiving students seem to be overall a bit reluctant to take part in the project maybe due to shyness/insecurity which would be in line with what was observed during the first academic year under pandemic restrictions across all chemistry modules at QMUL. Going forward we are planning to:

• Share Year 12 video and collect more data
• Involve more students in video production
• Produce more videos to incorporate in more modules

Acknowledgment

Thanks to the Royal Society of Chemistry (Inclusion and Diversity Fund) for providing funding for student salaries and Queen Mary University of London for supporting the project. Thanks also to the students involved in this work.

References

5. C. Bray, M. Reisner. NSS narrative for the Chemistry department of Queen Mary University of London 2019.