Dipping our toes into the Open Seas: Introducing a renewable assignment to improve authenticity and student learning

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Adopting Open Education Practice is one example of innovation in online and blended learning. This paper describes how combining a desire to improve student experience and learning, with educational technology use and Open Education Practice led to development of a renewable assignment for a fully online course. The collaborative process is explained, outlining the impetus for the change, the context of the course and the steps taken to design and develop a new assignment utilising Open Education Resources. The assignment, a video presentation, is one component of a major course redevelopment that has been occurring iteratively over a number of sessions. The impetus for the course redesign was a need to improve student retention, results and experience and the process was supported by a DOER Fellowship. Both the Educational Designer and academic involved in the development gained new skills and knowledge of Open Education Practice and early anecdotal evidence is that students appreciated the new assessment and believe this had deepened their learning in the course. Lessons learned include the importance of collaboration across a diverse team and that there are likely to be some minor issues that need to be rectified following initial offerings.

Keywords: authentic assessment, digital literacy, Open Education Practice, renewable assignment

Impetus for the change

This paper outlines the motivations and processes involved in a collaborative project which combined a desire to improve student experience and learning, with educational technology use and Open Education Practice, to develop a renewable assignment for a Science Fundamentals course which is offered in a fully online modality. The course described in this development is a first year Science Fundamentals course designed for students aiming to become science teachers, primary school teachers of science, or science communicators, which is offered in a fully online mode. Through the course, students need to demonstrate a working knowledge of core scientific principles and how to apply these to real world situations, as well as how to communicate these to an audience of a particular age group. Prior to this project the course had low levels of retention, student engagement and satisfaction and poor results and hence was identified as needing to undergo a major course redesign. The original assignment did not explicitly address the course objectives and was only marginally related to the content and as such there was little evidence of constructive alignment in the course (Biggs, 1996). In addition, the textbook being used for the course was expensive (approximately $150) and only partially relevant to the course. Thus started an ongoing collaboration between the Course Examiner and Educational Designer to iteratively improve the course over a period of several semesters. This paper concentrates on one specific improvement; changing the initial assessment from a traditional scientific report format, using data provided by the examiner, to an authentic, education focused video presentation.

A further impetus was an invitation to apply for a Designing with Open Education Resources (DOER) Fellowship that offered support and recognition for developing three related assessment tasks, utilising Open Educational Resources (OER). OER are defined as “educational materials which are licensed in ways that provide permissions for individuals and institutions to reuse, adapt and modify the materials for their own use. OERs can, and do include full courses, textbooks, streaming videos, exams, software, and any other materials or techniques supporting learning” (OER Foundation, 2011). Along the way other professional support staff have been included in the project providing advice and support as needed on areas including ICT issues, the affordances of the LMS (in this case Moodle), innovative implementation of educational technologies and effective adoption of Open Education Practice.

Authentic and renewable assignments

Whilst authentic learning and authentic assessment have been researched in higher education for quite some time now (eg Herrington & Herrington, 2006), fostering authentic learning still features as one of the six meta-categories of themes driving learning and teaching and creative inquiry in the 2017 New Horizon Report (Adams Becker, Cummins, Davis, Freeman, Glesinger Hall & Ananthanarayanan, 2017.) The idea of renewable assessment is a more recent notion, defined by Wiley (2016) as assignments in which "student's work won't be discarded at the end of the process, but will instead add value to the world in some way". Combining these two ideas was the framework for the design of this assessment and involvement in the Fellowship project.
The assignment presented to students in this course was a revision of the one included in our deliverables for the Fellowship. This is an example of embracing the Revise element of the 5Rs of OEP (Retain, Reuse, Revise, Remix and Redistribute) (Wiley, 2014). Making the completed assignments openly and freely available exemplifies the redistribute element.

DOER Fellowship

The DOER Fellows Program is funded by The William and Flora Hewlett Foundation and administered by the Open Education Group with the express goal of increasing instructional designers' capacities to design effective and engaging learning experiences with OER. Educational, Learning and Instructional Designers were invited to partner with subject matter experts to apply for small grants, supporting the creation of renewable assignments based on the principles of OER-Enabled Pedagogy and designed to be used with specific open educational resources. OER-Enabled Pedagogy is the set of teaching and learning practices only practical in the context of the 5R permissions characteristic of open educational resources. (Open Education Group, n.d,). The authors were fortunate to be awarded one of 26 fellowships for 2017-2018 and were the only recipients outside North America. All details of the Fellowship (http://openedgroup.org/doer-fellowship) as well as our completed submission, and those of 14 other Fellows (http://openedgroup.org/doer-fellows-renewable-assignments) are openly available at the Open Education Group website.

This paper focusses on the first assignment created as an output for the Fellowship as this has been implemented in the course. The second and third assignments are being considered for implementation in future offerings. The second assignment requires students to create multiple choice questions based on application of scientific concepts studied in the course and rate questions created by their peers. The third assignment asks students to design and complete an experiment or activity based on one of the concepts discussed in The Physical Sciences and Space Sciences Modules, and complete a written report on the experiment/activity and guidelines for others in conducting a similar experiment. The experiment/activity must be simple and safe and utilise readily available resources and equipment.

The new assignment

The assignment was introduced in Semester 1, 2018 and was an adaptation of the original assessment submitted for the Fellowship. It required students to create a 5-10 minute audio/visual recording of a PowerPoint presentation that included slides, audio and video (of the student) on "What happens to the rest of the Food Web when one of the Primary Consumers becomes extinct from an Ecosystem?". By addressing a specific scientific question, the assignment was designed to develop students' skills in scientific research, and required them to display an ability to apply a scientific concept to a real-world example and skills in scientific communication of that knowledge to a selected audience using both audio and visual means. This assignment was considered authentic and relevant for this particular cohort as they are aiming to become science teachers or science communicators who will need to be able to explain scientific concepts to their students or audiences. The assignment thus meets the characteristics of an authentic assignment. Whilst this specific assignment is relevant only to similar courses, being able to apply a theoretical concept to a real-world situation and present this to a specified audience are skills that are important across a range of disciplines.

OpenStax (https://openstax.org/), was chosen as the OER for the Fellowship outputs and OpenStax Biology in particular for this assignment for a number of reasons including:

- Site has already developed a strong reputation as a reliable and authoritative source
- Materials are relevant for the course
- Materials are aimed at an appropriate level

To encourage students to engage deeply with the assessment task, and in keeping with the requirements of the Fellowship, they were advised that after assessment, all presentations with a grade of Distinction (A) or higher

would, with the student's permission and full attribution, be uploaded to a USQ Open Education Practice website and linked to the Open Educational Resources (OER) Commons where they can be accessed under Creative Commons licence. This collection will in future provide a 'package' of resources that will grow over repeated semesters of offering and will have uses beyond the immediate course:

- Students can use these videos as the basis of teaching plans whilst in the workplace, or whilst undertaking practicum teaching placements;
- Students will have access to videos of their own and other cohorts; as such they can access a range of videos which will have different focus and perspectives, which they can use for planning and teaching;
- Students in future cohorts can access the videos as examples of completed assignment. This will contribute to more transparent assessment practices, and potentially reduce student anxiety and confusion (especially relevant given that this cohort is first year, and transitioning into university culture);
- Students in future cohorts (or other courses) may be given assignments that provide opportunities for remixing, reusing, and re-purposing the work of other students (with appropriate reference to the original material of course!); and
- Teachers around the world will be able to access and use these resources.

Benefits of implementing Open Education Practices

McGill, Falconer, Dempster, Littlejohn and Beetham (2013, p5) noted 5 broad areas of motivations, or perceived benefits, of adopting OEP:

- "building reputation of individuals or institutions or communities
- improving efficiency
- cost and quality of production
- opening access to knowledge
- enhancing pedagogy and the students' learning experience
- building technological momentum"

This project has seen benefits across several of these areas:

- participation in the Fellowship program has enhanced the reputation of both individuals as well as the institution, especially as we were the only recipients outside North America
- utilising OpenStax as the main resource has provided access to additional knowledge for the students and openly sharing our resources as well as high quality student outputs has added to the knowledge base for other academics and teachers
- inclusion of the new assignment has improved the pedagogy of the course and students learning experiences. Early indications from student feedback is that they found the assignment relevant and contributed to their learning in the course. This assignment also serves to improve digital literacy skills which have been identified as essential for success in the workplace (Adams Becker et al., 2017; van Laar, Van Deursen, Van Dijk, & De Haan, 2017). Skills that need to be demonstrated in this assignment include having to work with a software package (Powerpoint); write a script and then record utilising Zoom video conferencing, (or similar video recording software), uploading and sharing the video and moving forward compressing the video.

In addition, both the Educational Designer and academic involved in the development gained new skills and knowledge of Open Education Practice. The support and knowledge sharing from the fellowship providers through webinars and discussion forums was invaluable in developing some of the finer points of the assignment

Hitting a few waves along the way: Lessons learned

A multidisciplinary team approach proved to be beneficial for us. No one person can develop all the necessary skills and knowledge. With the academic having the content knowledge, the Educational Designer having ideas for assessment design we drew on the expertise of:

- Manager, Open Education Practice: for advice on the intricacies of ensuring all resources meet Creative Commons licencing requirements and resources as well as student assignments are stored in an appropriate location
- ICT support staff: for advice on compressing and uploading videos and support in creating guidelines for students
- Liaison librarians: for support in sourcing Creative Commons images and appropriate OER.
- Manager, Educational Futures: for advice and support in selecting appropriate educational technologies

Feedback on the assignments from the fellowship providers was both constructive and positive, gently pointing out that some of the images we had used in the exemplar assignment were copyright and hence the video could not be considered an OER. As students had already completed the assignment when we received this feedback some of their videos could also not be granted a Creative Commons licence (National Copyright Unit, n.d.). Students who met the qualification of receiving a high grade were instead offered the opportunity of having their assignment shared on the StudyDesk (LMS) site for future offerings. Students were also advised that they could upload their assignments directly to the LMS, which caused problems, particularly for those in areas with low bandwidth and when most students were trying to upload at the same time. The solution for this in future is to provide students with guidelines on how to compress their video files and to upload to their U Drive (university) account then provide a link. These issues highlight the need to provide clear, explicit and accurate guidelines to students for creating and uploading videos.

Most students embraced the assignment and received generally high results, with 29 of 31 students who submitted an assignment receiving a grade which met the requirement for publication. This suggests that the advantages of an authentic and renewable assignment were an incentive for students. Comments provided in the Course Evaluation survey also suggest that the assignment contributed to student learning and increased satisfaction levels. The academic discovered some minor issues with the rubric during marking of the initial iteration of the assignment, and these are being rectified for the next offering. A flow-on effect was also noted in that students' performance in exam questions related to this assignment showed deeper levels of knowledge than in previous years.

The future – diving in deeper

The authors wish to acknowledge the support of the Open Education Group through provision of the DOER Fellowship which allowed this project to proceed. As we move forward and dive deeper into the world of OEP we will submit an ethics application to allow us to research the impact of this approach and the renewable assignment on student outcomes and learning experiences. A range of data will be used for this ongoing research including student feedback and course evaluations, student results in this assignment and the course, and usage reports from the LMS. Further renewable assignments, as developed as part of the Fellowship will be incorporated into the course and the academic is considering how to incorporate OEP into other courses, particularly the use of OpenStax as the text for those courses. It is hoped that showcasing the course and the renewable assignment as well as sharing our experience both within our institution and more widely will encourage others to follow this pathway to OEP and help others avoid some of the waves as they head for the smooth OPEN waters.

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