CASE STUDY

Collaborative authoring using wiki: An open education case study

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ABSTRACT

This case study describes a collaborative online authoring project in which undergraduate students co-produce open educational resources as a learning and assessment exercise. Over 1,500 chapters and videos about how psychological science can improve people's motivational and emotional lives have been co-created. Wikiversity provides a simple and powerful open editing and hosting platform. The project's key pedagogical principles include students as partners, open education, guided experiential learning, and self-determined learning. Other key ingredients include scaffolding, skill development, and formative feedback. Potential issues are framed as educational opportunities, including privacy and anonymity, intellectual property and copyright, and individual versus collective work. Collaborative online authoring projects offer real-world benefits over disposable essays in higher education. The principles and methods are adaptable to a wide variety of disciplines and educational contexts, offering a scalable approach to collaborative student-staff partnerships.

KEYWORDS

collaborative writing, open education, open educational resources, assessment, wiki

This case study describes a collaborative online learning and assessment project which seeks to address two practical educational problems. First, most writing by higher education students is individual, whereas collaborative writing is common in the professional world (Lunsford & Ede, 1992). Second, most writing by higher education students is private, yet could benefit the author and the world by being shared. These disjunctures lead to the proposition that students are capable of, and can benefit from, learning how to collaboratively create and edit public resources.

Knowledge creation and translation can and should involve all members of a scholarly community, including students and staff. To illustrate this, an example of an ongoing, collaborative authoring exercise in the context of undergraduate psychology is described here. The vision for the project is to engage students in co-creating (Bovill, 2019) or co-producing (McCulloch, 2009) open educational resources which can be re-used and built upon by others. This project serves as an undergraduate learning and assessment exercise and is hosted on Wikiversity (https://en.wikiversity.org/wiki/Motivation_and_emotion/Book).

This case study describes the project's pedagogical principles, methods, issues, and outcomes, including student feedback. The principles underpin a robust, flexible approach that is readily scalable and applicable to a wide variety of disciplines and educational contexts.

In this collaborative project, student-staff partnerships are fostered initially by allowing students autonomy in selecting or negotiating their own topic of interest, and then student-staff and student-student partnerships are fostered by using a collaborative, supportive editing environment. Students develop in-depth discipline knowledge, 21st-century graduate attributes such as digital fluency and global citizenship, and contribute to the knowledge commons (Hess & Ostrom, 2006). Students also emerge with a real-world artifact as evidence of their capacity for professional work and/or post-graduate study.

HOW IT WORKS

The concept is simple: each student creates an open educational resource about a unique topic in a collaborative, online space as part of their assessment for a higher education unit of study.

Building on the disposable essay

Collaborative writing builds on the traditional essay in higher education. Traditional student essays are privately authored and submitted for academic credit but such work rarely see the light of day. This is what Wiley (2013) called a "disposable assignment" and is a waste of potential. Alternatively, there are great opportunities for staff and students to partner in producing open, online resources as a learning and assessment exercise.

Collaborative writing projects need a theme. The focus is likely to be subject specific but could be cross-disciplinary. This case study involves an undergraduate unit called Motivation and Emotion (https://en.wikiversity.org/wiki/Motivation_and_emotion). The project theme, "Understanding and improving our motivational and emotional lives using psychological science," aligns with the unit's learning outcomes which are for students to learn to:

- Identify the major principles of motivation and emotion,
- Integrate theories and current research towards explaining the role of motivation and emotions in human behaviour, and
- Critically apply knowledge of motivation or emotion to an in-depth understanding of a specific topic in this field.

These learning outcomes guide the marking criteria which emphasise critically reviewing, synthesising, and summarising scientific theory and research and communicating with a global audience about how this knowledge can be used to solve everyday human problems. The co-created resources are scientifically informed (e.g., they include citations), but readable by a lay audience.

Everything else is arguably trivial or technical. A collaborative online editing platform is needed. Wikiversity (https://en.wikiversity.org/), a sister project of Wikipedia, is used because it is free; openly licensed; supported by a large non-profit organisation, the Wikimedia Foundation (WMF) (https://wikimediafoundation.org); has an excellent track record of platform stability and

governance; continues to improve its usability; and allows for a wider scope of student contributions than Wikipedia (Neill, 2022).

What students do

Each student is responsible for authoring an online book chapter and creating a multimedia overview. Students also provide feedback and contribute improvements to other book chapters, as do staff. To get started, students create a WMF account, then allocate themselves to, or negotiate, a unique topic. Topics consist of a title and a subtitle. For example:

- Music and study motivation: What effect does music have on motivation to study?
- Public speaking anxiety: Why do we get nervous about public speaking and how can it be managed?

Subtitles are in the form of open-ended questions which help to guide and structure the resource. Authors also develop focus questions which expand on the subtitle. A table of contents which lists topics and usernames is maintained by staff (see, e.g., https://en.wikiversity.org/wiki/Motivation_and_emotion/Book/2023).

Each student plans, authors, and curates (Ungerer, 2016) the content for a single topic. Students also contribute to other chapters as they develop by editing and providing feedback. These student-student "social contributions" are incentivised by allocating 10% of the marking criteria to their quality, quantity, and timeliness. Students log their social contributions on their user page, with bonus marks awarded for exceptional contributions. Everyone's editing history is transparent, and version control allows reviewing and undoing of any unwanted edits.

In addition to writing text, students bring the chapters to life by adding "learning features" which can include hyperlinks, figures, tables, case studies, highlight boxes, quizzes, and/or reflection questions. Students also create and link to a 3-minute multimedia overview of the topic.

Each student cohort contributes a hundred or so chapters, with staff serving as collaborators and managing editors. The co-authored collection has grown to over 1,500 chapters since 2010. Incomplete or unsatisfactory chapters are relisted for the following cohort until a satisfactory chapter is developed. Previous content can be re-used, but new authors usually take a fresh approach. There is no concern about running out of topics because each chapter spawns related chapters, new knowledge is continually developed, and there are plenty of applied problems.

Wiki as a platform

Collaborative online authoring projects can use any server-based content management platform, but wikis offer some unique characteristics that make them particularly suitable. By nature, wikis are collaborative. Wikis (meaning "quick" in Hawaiian) are the simplest webpages that are viewable and editable by anyone on the internet. The most popular wiki ecosystem is provided by the WMF, a non-profit organisation which supports servers, software, and governance of volunteer editing of Wikipedia and its sister projects. The sister projects are multilingual and include Wikiversity for education and research, Wiktionary as a dictionary, Wikinews for open news, Wikispecies as a species directory, and Wikimedia Commons for images and media. WMF

wiki project content is openly editable and openly licensed. This wiki ecosystem offers significant interactive educational potential for student-staff partnerships and co-production in higher education.

Whilst all WMF sister projects are of potential interest to educators, Wikiversity is dedicated to sharing and developing educational materials and learning activities. The WMF also supports the Wiki Education program (https://wikiedu.org/) which provides outreach to educators who conduct class projects which engage students in contributing to Wikipedia. Many of the principles used in Wikipedia classroom projects (e.g., Campbell, 2019; Ingallinella, 2022) can also be applied to learning projects on sister wikis such as Wikiversity.

Assessment and feedback

Collaborative authoring projects provide rich opportunities for formative and summative assessment and feedback. It helps to scaffold the project into stages. For example, the motivation and emotion project involves four components: topic selection, topic development (a chapter plan), book chapter, and multimedia presentation. At each stage, staff edit and provide feedback. In addition, continuous on-wiki modeling and feedback by peers, staff, and the broader online community helps to guide each student's project.

PRINCIPLES

Four main pedagogical principles guide the project: students as partners, open education, guided experiential learning, and self-determined learning (Neill, 2019; Wiley, 2013). This model is likely to work well with "meddler-in-the-middle" teachers (McWilliam, 2008) who position themselves alongside students and undertake collaborator, co-editor, and shared problem-solver roles.

Students as partners

Students as partners refers to processes that involve students as collaborators in learning, rather than treating students as recipients or customers (Matthews, 2018). Key to this is minimising hierarchical power relations between students and staff (Matthews, 2017). A students-as-partners approach includes using emancipatory language, values, and intentions (Matthews, 2017). To help create a collaborative learning environment, the hierarchical relationship implied by terms such as "teacher" and "student" should be reconsidered. Students can be participants, emerging scholars, or creators. Their role is to author, edit, curate, discuss, and provide feedback. Teachers can be facilitators, editors, or collaborators. Their role is to contribute ideas, co-edit, provide feedback, and help troubleshoot. Such subtle shifts in language help to foster a collegial and collaborative culture which encourages students to adopt dual roles as authors and collaborators.

Open education

A key role of universities is to share knowledge with the broader community, yet much scholarly content (such as teaching materials and student work) is held within walled gardens. Nevertheless, this material could fruitfully be made open (Australian Productivity Commission, 2023) through student-staff partnerships.

Higher education typically uses closed learning management systems that students are unlikely to encounter in their working lives. Students can be better prepared for professional work if they are supported to learn how to use real-world platforms to contribute to the knowledge commons.

Guided experiential learning

Experiential learning can be powerful (Healey et al., 2014), but it needs scaffolding and guidance, especially when it involves new skills in unfamiliar environments. Staff serve as role models who encourage and facilitate students to develop online editing and communication skills. Initially, students are hesitant as they learn how to navigate and contribute to a collaborative editing environment.

It is important for staff to cultivate a culture which encourages and supports students to take risks and experiment. For example, the "be bold" guideline (https://en.wikipedia.org/wiki/Wikipedia:Be_bold) on WMF sister projects helps to communicate that nothing can be broken or lost, mistakes can be easily changed or undone through version control, and resources move forward through iterative attempts at editing.

Staff provide positive feedback about students' early editing efforts. Once a critical mass of students breaks through the initial editing barriers, it paves the way for others to follow. Peer learning is powerful. If the social dynamics are successfully facilitated, a self-sustaining, supportive, collaborative, solution-focused learning atmosphere evolves.

Self-determined learning

Student motivation is enhanced by applying self-determined learning principles (Kaur & Norman, 2020). This approach seeks to engage students' three basic psychological needs:

- Autonomy is activated by explaining the rationale for the project and empowering students to choose or negotiate a topic of interest and then giving each student the responsibility of stewarding the curation of content about that topic.
- Competence is developed by providing a complex, challenging task with step-by-step explanation, demonstration, and guided experiential learning. For example, students submit a plan to get staff feedback. Peer feedback is also powerful for knowledge and skill development and is worth incentivising.
- Relatedness grows through on-wiki micro-interactions (e.g., editing and commenting) between students and staff as they build trust in one another and the process of collaboratively editing and discussing one another's work. Unwanted edits or interactions are rare, usually unintended, and easily fixed.

Students are initially daunted by the prospect of authoring an online synthesis of psychological science about a specific topic. Yet, it becomes an achievable and rewarding challenge as self-efficacy and a community of practice develops.

ISSUES AND OPPORTUNITIES

A solution-focused approach is modelled whereby issues are reframed as teachable moments and opportunities for collaborative problem solving. The most common points of tension and subsequent learning are negotiating privacy and anonymity, intellectual property and copyright, and individual versus collective work.

Privacy and anonymity

Students often experience trepidation in contributing to a public wiki space due in part to perceived threats to their privacy and anonymity. This is reframed as an opportunity to wrestle with their emerging professional identity. Students are encouraged to choose their desired level of privacy and anonymity by either revealing their real identity (via username and bio) or using a pseudonym. It is not uncommon for students who start with a pseudonym to subsequently develop trust in the process, pride in their work, and then wish to attach their real name to evidence of their capability (e.g., the work can be linked from a resumé or curriculum vitae). In these cases, usernames can be changed.

Intellectual property and copyright

Staff should educate students about copyright and what it means if they choose to contribute their work to a public platform under an open license. Students own the intellectual property for their work on university assignments and therefore should voluntarily consent to making their work publicly available. Although there are many benefits from contributing to the knowledge commons (Campbell, 2019), if a student is unwilling, an alternative assessment format should be available.

Individual versus collective work

Collaborative online book authoring projects foster collaborative individualism (Limerick & Cunnington, 1993). Each student is primarily responsible for creating a single resource but also rewarded for contributing to the work of others. This approach combines individual and collective learning and avoids the awkward tensions often associated with graded group work.

PROJECT OUTCOMES

Student-staff collaborative online authoring projects offer a novel, feedback-rich, scalable alternative to the disposable essay and can serve as a transformational undergraduate capstone project. Online collaboration skills are increasingly important for professional work, yet surprisingly few higher education learning and assessment tasks use real-world online environments. The co-created open educational resources provide tangible evidence of students' professional knowledge and skills. The project principles and methods are adaptable to a wide range of disciplines and educational levels. The exercise also develops generic skills such as metaliteracy (Mackey & Jacobson, 2011), digital fluency, using and evaluating new technologies, and being able to work together in a global environment.

Anonymous student feedback about the motivation and emotion unit (https://en.wikiversity.org/wiki/Motivation_and_emotion/Evaluation) indicates very high (i.e.,

96% strongly agree or agree) satisfaction. Many student comments are about the collaborative online project. Positive themes include that the exercise is enjoyable (challenging but rewarding), motivating (due to creative freedom), well structured (i.e., scaffolded), with appreciation of detailed feedback. Critical themes relate to difficulty learning how to use Wikiversity, being uncomfortable with the public nature of student work, and being unable to see career relevance.

The critical student feedback highlights the need to support the development of student skills in unfamiliar online environments. Scaffolding the project into stages allows students to focus on one step at a time. In addition, a 1-hour lecture explains the rationale for the project and how it works, and a 1-hour tutorial guides students through the basics of how to edit. Hands-on drop-in sessions are provided throughout the teaching period, and an active discussion forum is facilitated. For most students, this multi-pronged support is sufficient. However, there is always scope for improving just-in-time learning to help meet the needs of all students.

The critical feedback also highlights the importance of educating about privacy, intellectual property and copyright, and providing alternative assessment options. It is understandable that students schooled in a disposable assignment culture may take a while to re-orient to the benefits of public editing. Explaining the purpose of the project, the knowledge commons, and why and how to contribute helps students to feel empowered. Several videos are used to illustrate these possibilities. For example, "Wikipedia - An Investment for Your Future; Your Children's Future" (https://www.youtube.com/watch?v=WghdsOz9KwA) explains the diverse, global nature of an editing community who are united by the common purpose of making the sum of human knowledge freely available to all.

The career relevance of a collaborative online authoring project is more obvious to some students than others. It can help to reframe the exercise as less about learning how to contribute to a specific platform and more about developing confidence and skills in editing, communicating, discussing, giving and receiving feedback, and resolving problems in a collaborative online environment.

CONCLUSION

This case study demonstrates a novel open-learning collaborative authoring assessment exercise in the context of higher education. The pedagogical principles (i.e., students as partners, open education, guided experiential learning, and self-determined learning) and wiki-based methods are robust, scalable, and adaptable to a wide variety of disciplines and educational levels. The pedagogical principles empower students and may also be useful in other students-as-partners projects. Scaffolding, skill development, and social dynamic facilitation are important staff roles when guiding students through challenging tasks in unfamiliar environments. Collaborative authoring projects can develop students' discipline knowledge, 21st-century generic skills, and contribute to the knowledge commons.

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NOTE ON CONTRIBUTOR

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