CHAPTER 4

LEARNING DESIGN TO EMBED DIGITAL CITIZENSHIP SKILLS IN THE UNDERGRADUATE CLASSROOM: A COLLABORATION AMONG INSTRUCTOR, ACADEMIC LIBRARIAN, AND WIKIPEDIAN

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Abstract

A collaboration among an instructor, librarian, and Wikipedia was initiated to help second-year undergraduate students at University College Dublin, Ireland, increase their digital citizenship skills through publishing in Wikipedia. The collaboration brought together diverse relevant expertise to design and deliver an effective learning experience. Integrating Wikipedia into the classroom experience gave students firsthand involvement with the research and scholarly communication process.

The chapter is divided among three perspectives, reflecting academic, library, and Wikipedia perspectives on the implementation of the collaborative authorship project:

1. Deeper learning through learning design in the classroom using Wikipedia—an academic's perspective.
2. Using Wikipedia to teach critical thinking and academic integrity—a librarian's perspective.
3. Enabling university students to write and publish collaboratively with Wikipedia—a Wikipedian's perspective.

Students engaged enthusiastically with Wikipedia. Challenges included supporting students in implementing new learning, such as academic integrity skills. The partnership among academic staff, the library, and Wikipedia suggests a potential framework for learning design (Boling, 2010), which may help others apply a similar experiential approach to learning.

Developing Students' Digital Citizenship Skills

The development of a range of digital literacies plays a significant role in students' abilities to participate successfully in the workplace and wider society. The European Union (EU) (Carretero Gomez et al., 2017, pp. 8–9) has classified five areas of digital competence as foundational to digital citizenship information and data literacy:

- Information and data literacy
- Communication and collaboration
- Digital content and creation
- Safety
- Problem Solving

While university students may be assumed to possess these critical skills for active and full participation in higher education, researchers (e.g., Head & Eisenberg, 2011; Martzoukou et al., 2020) have observed gaps in students' information skills and a reliance on Internet search engines to find information. A survey based on the EU's five areas of digital competencies revealed that higher education students perceived their

digital skills to be lacking in some areas (Martzoukou et al., 2020). Educators have long expressed concern about levels of digital skills among the "Google Generation." For example, Ercegovac (2008) reported that students possessed technical skills but lacked skills that would define them as information literate, such as approaches to information searching, evaluation, critical thinking, and using information ethically.

Wikipedia in Higher Education

Increasingly, Wikipedia has come to play a role in education as a free encyclopedia providing information with an error rate close to that of *Britannica* (Giles, 2005). Further, Wikipedia has become a household word among the general public as one of the most popular sources of information in multiple subject contexts. However, Wikipedia has another role to play in the development of digital literacies among students, offering a valuable learning environment in which to develop multiple competencies that lead to digital citizenship and social engagement (Fulton, 2019). While the appropriateness of using Wikipedia is often a source of debate in higher education, research has shown that both students and academics refer to the online encyclopedia for information (Knight & Pryke, 2012). Student editors are not commonplace in Wikipedia (Obregón-Sierra & González-Fernández, 2020). However, introducing students to a deeper engagement with the encyclopedia as editors and creators of content has significant potential for digital skills development. The relationship between student editors and Wikipedia also has reciprocal benefits. Student editing of Wikipedia can have a long-lasting impact on the encyclopedia itself with increased page views and editing activity in the Wikipedia community (Zhu et al., 2020). Ross (2020), a champion for the *Wikipedia Education* program, has applauded its *Wikipedia Student Program* for supporting this impact:

> The work students are doing isn't just an "academic exercise;" it has an audience, and it matters enough that people are both reading it and building on it (para 4).
>
> Importantly, understanding this impact can increase the meaning of social participation for students.

A Collaborative Partnership to Embed Digital Competencies

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The focal point for the collaborative initiative was an information literacy course, *DigiComp: Core Competencies for Digital Citizenship*, which has long been taught (under various titles) as part of the second-year undergraduate program in the School of Information and Communication Studies in the College of Social Sciences & Law. The course focuses on students' development as digital citizens and, to this end, has proactively supported students as they developed critical thinking skills essential for full social participation after university.

The course challenges students to engage with an array of digital skills noted in the EU's classification of essential digital competencies for digital citizenship (Carretero Gomez et al., 2017). In particular, students learn a variety of skills to help them locate, organize, manage, use, and create information for not only the academic setting but also for their future careers and workplaces. The course is organized around the university's twelve-week trimester, with topics covered as follows:

- Super Searchers: The Characteristics of Effective Searchers and Users of Information
- Discerning Factual Information from Fake News, Disinformation, & Misinformation
- Engaging with Information and Academic Integrity
- Acknowledging the Work of Others Appropriately
- Digital Bibliographic Skills
- Developing Successful Digital Search and Evaluation Strategies
- Effective Collaborative Authoring in Wikipedia
- Organizing Information
- Bibliographic Control vs. Miscellany
- Expanding Citizenship: Information Published by Government
- Selecting and Utilizing Channels of Communication Effectively

Students examine a range of pathways to information through formally structured literature channels, as well as informal channels, including user-generated content, learning how to select pathways to

information and apply appropriately to problem-solving. Evaluating information is emphasized, enabling students to identify fake news, misinformation, and disinformation. Learning is mapped to various areas of these information literacies with deeper engagement weekly in particular topics to scaffold overall learning over the twelve-week course.

At the end of the course, students reflect on their learning journey. They submit a reflection in which they critically analyze their learning. Importantly, they must identify what they have learned, report emotions attending this learning, relate their new knowledge to previous knowledge, validate and integrate these perspectives such that they challenge their previously held assumptions and approaches to their studies, and plan for future use of their newly acquired skills. The reflection helps to embed skills acquisition further, by encouraging students to review their learning holistically and to understand what it is they have learned and why.

The Collaboration

A collaboration among Wikipedia, academic staff, and the library to help second-year undergraduate students at University College Dublin become digital creators through publishing in Wikipedia began with the common objective to help students develop core digital competencies for digital citizenship. The course instructor had long liaised with the library to deepen student learning of information skills, with the college liaison librarian visiting the classroom to help teach particular information skills, such as referencing. The instructor and the Wikipedian met as the Wikipedian began working with the encyclopedia in Ireland and the Wikipedian gave a guest lecture to the class, and from there the librarian's involvement in the course continued to grow. Alongside the involvement of Wikipedia in the classroom, the assessment for the course evolved to provide students not only the experience of locating and evaluating information but also to apply their developing information skills experientially in the "real-world" setting of the encyclopedia. The course combines classroom instruction, guest instruction, problem-solving exercises and activities, e-tutorials to help reinforce concepts and various information skills, a wide array of literature and resources to support information-seeking skills, visits to

libraries, and other online and offline institutions that house information along with working in teams to write and publish collaboratively with Wikipedia. This opportunity to apply learning directly further supports students' involvement with the research and scholarly communication process.

As common goals for information literacy became evident, a more formal collaborative partnership among the instructor, librarian, and Wikipedian was established. The collaboration brings together diverse, relevant expertise to design and deliver an effective learning experience. From guest visits, we have moved to a deeper engagement with student learning so that partners work collaboratively in considering course content and scaffolding learning across the course. As a result, students find they are introduced to key concepts and practical application systematically. Their work then culminates in an edit-a-thon, in which the collaborators work with the students to finalize details of historical portraits and publish this work to Wikipedia.

Perspectives on Learning Design and Outcomes

The expertise each partner brings to the course is significant, both overlapping and complementary to the overarching goal of information literacy. This section explores the roles of the instructor, librarian, and Wikipedia collaborators in developing and engaging with learning design for increased achievement of competencies among students as follows:

1. Deeper learning through learning design in the classroom using Wikipedia—an academic's perspective.
2. Using Wikipedia to teach critical thinking and academic integrity—a librarian's perspective.
3. Enabling university students to write and publish collaboratively with Wikipedia—a Wikipedian's perspective.

This approach provides a unique examination of our collaboration and input into helping students develop their literacy skills, creating

what Boling (2010, p. 2) refers to as a learning design case, that is, "a description of a real artifact or experience that has been intentionally designed." Our learning design is rooted in our collaborative perspectives on digital competencies and the process of acquiring this learning. Our partnership is also reflective, in which we are constantly "observing and mentally storing episodic memories" to improve on our application of collaborative teaching and to create "precedent," that is, a proactive, continuous gathering of knowledge to apply now or in future learning and our practice (Boling, 2010, p. 4).

(1) Deeper learning through learning design in the classroom using Wikipedia—an academic's perspective

After many years of working with students to develop their information skills, the instructor adopted an experiential learning approach using Wikipedia to embed fundamental information skills and theoretical principles into the course, DigiComp. Incorporating Wikipedia into the classroom was a first in higher education in Ireland—considered bold, if not controversial in 2011. Our collaboration supported students' development of these essential citizenship skills from different perspectives. The course coordinator/academic instructor provided the course framework and grounded the work in the academic context; the librarian brought practical tools and digital skills training, which augmented course content; and the Wikipedian provided context for writing for Wikipedia and offered essential skills training.

In class, instruction was provided by each team member. For example, students learned about formal and informal channels to information during the course, and importantly the role of factual information and tools, such as encyclopedias, in solving problems. The Wikipedian reinforced this by explaining standards for content development in the online encyclopedia. Similarly, students learned about evaluating and attributing information sources appropriately. The librarian reinforced this learning with instruction around critical thinking and academic integrity. Students then put their learning into action, setting up Wikipedia accounts, locating and verifying information appropriate for an encyclopedia, and referencing their work in an article. Students ran

individual plagiarism checks using a tool called Earwig, which assesses Wikipedia articles for copyright violations, as well as the plagiarism tool, Urkund, in the learning management system (LMS) Brightspace. Throughout this process, students had exemplars, in the form of full articles, which were published in Wikipedia, as well as support from people in the Wikipedia community who could answer questions and note points that required further editing attention.

Learning culminated in an end-of-course Wikipedia Edit-a-thon, an editing workshop during class, bringing all instructors and students together. The Wikipedian also ran mini advanced lessons, such as adding visual content to articles, during the edit-a-thon. The edit-a-thon provided students an opportunity to ask residual questions, offer peers feedback, and to wrap up their work. Having experienced collaborative authorship firsthand, students then wrote a reflection about their learning over the course, detailing their application of learning in Wikipedia and relating this learning to plans for future learning and the workplace. This reflective piece was significant for helping students review and deepen their learning around literacy skills further.

(2) Using Wikipedia to teach critical thinking and academic integrity—a librarian's perspective

Critical thinking and academic integrity are foundational skills undergraduate students must develop in order to succeed at university and later in their working careers (Shavelson et al., 2019; Tremblay et al., 2012). Yet librarians often find themselves teaching these skills in a vacuum: a lecturer calls them into their classroom to "do the library session" without explicitly integrating the session's learning outcomes into the wider module. Such one-shot sessions often fail to provide students with the information and digital literacy skills they require for academic success and responsible citizenship (Mays, 2016). In contrast, by introducing critical thinking and academic integrity in the context of collaborative authorship for a Wikipedia entry, students are no longer expected to develop these skills in the abstract: they become active researchers involved in a scholarly conversation with their peers, develop critical thinking skills while evaluating the quality of

the sources selected for their projects to prepare biographies for individuals who were significant in Irish History, and adhere to academic integrity principles in order to have their Wikipedia entries accepted. Collaborating with the instructor and the Wikipedia representative gives the librarian greater influence over the introduction of critical thinking and academic integrity skills.

The library component for this learning experience involved three interventions: an academic integrity session, a critical thinking session, and a short introductory session on finding relevant library resources for the specific Wikipedia biographical articles the students were editing. The academic integrity session was developed as part of a university-wide plagiarism prevention effort with contribution from UCD Library (University College Dublin Library, 2019). The session was designed by members of the library and included a class discussion about the nature of plagiarism; giving students a set of specific scenarios and asking them to decide whether they constituted plagiarism (University College Dublin Library, 2013); and providing practical strategies to avoid plagiarism such as paraphrasing exercises and citation exercises using the APA referencing style (Collery, 2014).

As Biando Edwards (2018) identified, students often lack the ability to approach information in a critical manner and librarians are particularly well placed to impart this knowledge in the classroom (pp. 288–93). The critical thinking workshop was designed to provide students with the necessary tools to evaluate the academic quality of the sources they found for their Wikipedia entries and apply critical reading and writing skills to their collaborative work. The workshop used elements from both the Society of College, National and University Libraries (SCONUL)'s *Seven Pillars of Information Literacy Core Model* (SCONUL Working Group on Information Literacy, 2011) and the Association of College & Research Libraries *Framework for Information Literacy for Higher Education* (ACRL, 2016) to focus on the evaluative aspect of information literacy. It also introduced John McManus' *SMELL* test for analyzing the validity of news media reports (McManus, 2013). SMELL stands for Source, Motive, Evidence, Logic, and "Left Out," prompting students to search beyond the surface of

news reports to uncover potential manipulations of facts or evidence. The short introduction to library resources was an opportunity to highlight specific materials of relevance to the various Wikipedia entries and to reinforce the use of techniques such as paraphrasing and correct referencing in plagiarism prevention.

Overall, the three library interventions constituted a much more effective contribution to the learning outcomes of the module than is usually provided by a catch-all, one-shot library session. The collaboration with the course instructor and the Wikipedia representative provided the librarian with a greater understanding of the specific aims of the module and the learning needs of the students, particularly given the challenges in developing students' academic integrity skills that were uncovered during the implementation of the Wikipedia component of the module. It was also an exciting opportunity to position academic integrity and critical thinking skills in the broader context of digital competencies for successful citizenship in the real world. However, the three interventions also posed questions about the scalability of this approach to other modules and student groups, given the workload involved and the existing constraints on the librarian's time.

(3) Enabling university students to write and publish collaboratively with Wikipedia—a Wikipedian's perspective

The first introductory Wikipedia lecture gave students an overview of Wikipedia and the wider ecosystem of Wikimedia projects, with a focus on the media repository, Wikimedia Commons. The session ranged from the origins of Wikipedia to the basics of setting up an account, finding the user sandbox in which students can make some initial test edits, and making those first few edits to a Wikipedia article. Suitable and unsuitable sources for citations were also covered, as well as the basics regarding copyright in relation to adding photographs or other media to Wikipedia articles. This was followed up later with the second session, in which students raised questions that were answered, usually with live demonstration, for the benefit of the whole class. Queries ranged from simple technical questions regarding editing articles

to more nuanced discussions about appraising sources or conflicting historical narratives.

The longest-lasting impact that writing Wikipedia articles has for any student is the knowledge that their work has life beyond the traditional essay. The information they gathered has been added to the largest encyclopedia ever written, instead of languishing in an essay that only themselves and their lecturer will read. This has been one of the main rallying calls for many Wikipedia-based education programs across the world (Wikimedia Education, 2019).

By editing Wikipedia, students are enabled to use their access to university library resources in order to free information from paywalled and specialized information repositories. They are taking this information, to which most people outside of educational institutions do not have free access, and adding it to "the sum of all human knowledge." In their research, they access a wide and varied corpus of information, from newspapers to dictionaries of national biography, many of which they are using for the first time. In exploring what it means to be able to draw on resources, such as paywalled journals, expensive academic publications, and specialized materials, the students are experiencing their library collections in a new and pragmatic way.

In recruiting student editors to contribute to Wikipedia internationally, we come closer to bridging gaps in representation regarding gender, geography, language, sexuality, or nationality on Wikipedia. In this case, working with students in Ireland, they are confronted with a platform that has a number of recognized gaps in knowledge and that is making a concerted effort to map all of these gaps as part of a wider movement strategy (Zia et al., 2019). One nuance of editing content relating to Ireland on English-language Wikipedia is the issue of being a nondominant culture within the Anglophone world. Many of the histories of Ireland have been historically dominated by the narratives from the United Kingdom and the United States.

From the simple problem of historic figures being misidentified as British, rather than Irish, to misconceptions about the impact of historic moments within a specific Irish context, Wikipedia can act as a clearing house for these issues. This is best illustrated with an example.

In 2019, the students focused on famous Irish sportspeople. As a number of these people competed in the Olympic Games of the early twentieth century, the students were confronted with periods in history where Irish people competed first under the British flag, followed by a period in which Irish athletes were forced to participate as part of the British team with some bringing their own Irish flags to fly in protest, and finally a period after Irish independence during which some Irish nationalistic athletic associations refused to allow their members to participate in the Olympic Games at all. This engagement with the historical record provides a new and more nuanced way for students to engage with issues of identity, nationhood, and representation through the individual experiences of those from a tumultuous period in Irish history.

Students also encountered the often-frustrating lack of source material regarding the history of women in many walks of life, from politics to science. They discovered that women's biographic entries in works like the Dictionary of Irish Biography (DIB) are subentries in articles about their fathers, brothers, or husbands rather than entries in their own right. One example was the Olympic fencer Shirley Armstrong, whose husband's entry in the DIB barely makes mention of her, despite her being only one of two Irish women selected to take part in the 1960 Rome Olympics and her long and storied career as a fencer and trainer. Encountering these issues themselves, rather than having them explained as an abstract idea through a lecture, makes the challenges around representation more tangible for students.

By teaching the next generation the importance of verifiable and reliable information sources, we are not only fostering good digital citizenship but we are also equipping students with the critical tools to find, assess, and analyze sources and facts. While these skills can be fostered through lectures and information seeking and evaluation exercises, Wikipedia offers a unique peer-review environment in which the students have their additions to articles quickly accepted or rejected by the community. By experiencing the sometimes highly exacting demands of fellow editors to adhere to Wikipedia editing guidelines and policies, students are exposed to an assessment of their work unlike anything

within traditional academia. In some cases, when students have not adhered to Wikipedia guidelines and conventions, they have had all of their edits removed or reverted, and in an extreme example, a group of students were blocked from editing Wikipedia owing to persistent copyright infringement. In this case, the students continued to add the same content to an article and, despite repeated warnings, attempted to add the same content again and were blocked from any further editing. The real-world consequence of being blocked from editing had an impact on the students, which felt far more immediate than a low-grade or critical feedback from a lecturer. It was also something from which I or their lecturer could not shield them or afford them any special dispensation.

Outcomes and Learning Design

Students engaged enthusiastically with Wikipedia and valued the opportunity to participate in an activity they could list on their curricula vitae (CVs). While students embraced collaborative authoring in Wikipedia, their participation was not without challenges. For instance, some students found academic integrity, considered a highly important area of learning for students in the university, complex and sometimes difficult to put into practice, even with training. While students received instruction about plagiarism and how to avoid it, there have been occasions where students found their work deleted by editors because it was not properly cited; in these cases, the sandbox in Wikipedia can help students manage their work while they make necessary modifications. Ongoing iterations of the course have involved increasing learning support to help students avoid plagiarism. The collaboration among Wikipedia, the library, and the instructor has facilitated a coordinated approach to topics, such as academic integrity, which utilizes in class instruction, problem-solving around scenarios, and use of Wikipedia's plagiarism detector. Additionally, student tutors from other program levels in the school meet with the second-year students outside class instruction hours to help embed team collaboration and literacy skills.

The collaboration has provided new insights into the needs of students regarding the development of digital literacy skills. From an

academic perspective, the collaboration has highlighted the different facets of instruction and learning, which can be brought together to support student learning. Academic libraries have also long offered instruction and assistance to students as part of their development of core literacy skills and competences. Higher education instruction continues to help students acquire learning and critical thinking skills that will serve them in the workplace. Bringing together these often parallel efforts provides students with an opportunity to excel in their development holistically. Currently, University College Dublin's Library is developing a programmatic approach to teaching academic integrity to students across the university, and the experience of this collaboration among Wikipedia, the librarian, and the instructor will feed into the planning for that project. Collaborating with a partner external to the university, such as Wikipedia, has enabled the bringing together of parallel efforts toward digital citizenship development. The Wikipedia Education Program has a history of working with students and instructors, providing guidance for becoming and teaching others to become an editor of the encyclopedia (Wikipedia Education, 2020). Having a Wikipedia champion present during learning provided our students with direct access to expert knowledge about the workings of the online encyclopedia and deeper sense of involvement with Wikipedia.

The collaboration offers a potential framework for incorporating learning design that utilizes partnership and collaboration to help others apply a similar approach to learning. Collaborating does not necessarily mean developing teaching and learning materials from scratch. Existing courses may already involve excellent learning opportunities for students. Adding Wikipedia to the mix enhances the desired learning acquisition among students, critically through provision of experiential learning. Students can access assistance and advice from a professional in the field, apply learning immediately through Wikipedia, and reflect immediately throughout the process of learning, in keeping with Kolb's (2014) experiential learning process.

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