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Development and evaluation of a Wikipedia based group assessment to enhance science communication

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This project, conducted in collaboration with Wikimedia Australia, introduced an assessment that aimed to enhance science communication skills among third-year microbiology students. With assistance from Wikimedia Australia, suitable Wikipedia articles on immunology topics were selected. All concepts had been covered in course content. Students worked in groups to evaluate these Wikipedia articles, assessing their accuracy, organization, verifiability, depth, and suitability for a general audience. Each group also generated an AI-created article on the same topic and evaluated it using the same criteria. The final report compared the AI-generated content with the Wikipedia article, focusing on key measures of science communication: accuracy, clarity, relevance, and reliability. The evaluation highlighted strengths and areas for improvement in both types of content, providing recommendations for enhancing Wikipedia articles. Students also submitted a reflection on the importance of information literacy and science communication in the digital age. After submission, a survey on students' perspectives of the assignment was completed by 64% of the class (N = 42). Most students found the assignment to be a novel experience compared to previous tasks. Notably, 60% found it useful, and half indicated that they learned from their peers through the collaborative process. Students rated the readability of both Wikipedia and AI articles and assessed the accuracy and their suitability for a general audience. Additionally, students noted differences in output when generating AI articles, developing their AI literacy skills. The readability of Wikipedia articles compared to other scientific literature (textbooks and journal articles) was also rated, with 45% of students assessing these Wikipedia articles on immunology topics as not pitched for a general audience. By completing this assignment students reported gaining essential

graduate competencies such as critical thinking, analysis, communication, and teamwork, as well as a better understanding of Wikipedia and AI. Students also shared their perspectives on whether they would consider using Wikipedia and AI for future assignments.

KEYWORDS

Wikipedia, AI, science communication, information literacy, critical evaluation

1 Introduction

Communication skills are essential for students in all disciplines including STEM (Karimi and Pina, 2021; Owens and Hite, 2020). Communication skills, in addition to being important for students' academic success, have also been found to enhance students' external engagement (Murphy and Kelp, 2023). For over a decade educators have highlighted the difficulties encountered by students, who are skilled in scientific communication but may struggle to communicate effectively with a lay audience (Baram-Tsabari and Lewenstein, 2013; Baram Tsabari and Lewenstein, 2017). As a result, the importance of supporting students in building communication skills with the lay public has been acknowledged (Brownell et al., 2013).

Educators have been incorporating relevant strategies in the curriculum for many years to enhance students' written and oral skills (Harris, 2016). However, during the COVID-19 pandemic the importance of lay communication skills for those in healthcare was further highlighted, underscoring the importance of incorporating teaching materials and assessments that enhance communication skills into the curriculum (Finset et al., 2020; Kelp and Hubbard, 2021). Simple approaches to enhance communication skills have included the use of Wikipedia-based activities and assessment items in courses (Azer et al., 2015; Azer and Alsharafi, 2023; Evenstein Sigalov and Cohen, 2025; Gareis et al., 2022; Miller, 2014). The recent explosion in the availability and accessibility of user-friendly AI tools has had profound effects on undergraduate education from both the educator and student perspectives (Black and Tomlinson, 2025; Hallquist et al., 2025; Kim et al., 2025). This rapid development has highlighted the requirement for students to understand the usefulness and limitations of such AI tools, in particular, in comparison with other resources that have been commonly used, including textbooks, class resources, and online platforms such as Wikipedia.

In today's digital age, access to information is abundant, but not all sources are equally reliable or accurate. Wikipedia, as one of the largest, most accessible online encyclopedias, is a popular source of information for millions of users worldwide. However, as a platform that relies on crowd-sourced content, Wikipedia articles may vary in quality and accuracy and readability (Candelario et al., 2017; Wang and Li, 2019). Artificial intelligence (AI) is increasingly being used to generate content across various domains, including scientific informational articles. While AI-generated content has the potential to offer efficiency and scalability, it may also pose challenges in terms of accuracy, bias, and comprehensiveness. Therefore developing assessments based upon Wikipedia and generative AI is not only of benefit to students but also helps in the review and updating of Wikipedia content, which can have broader impact on the community. For students, such assessments offer valuable opportunities to critically assess information, engage with reliable sources, and enhance their communication and digital literacy skills–key competencies in both academic and professional contexts.

In this study, conducted in collaboration with Wikimedia Australia, third-year microbiology students undertook a group assignment to evaluate Wikipedia articles, as well as AI-generated content, based on specific topics covered in the immunology block of the subject. The assignment was graded, and student perceptions on completing this activity were evaluated.

2 Pedagogical frameworks principles and immunology content

Constructivism is a learning theory that positions learners to construct their own understanding and knowledge of the world through experiences and reflecting on those experiences. This approach emphasizes that learning is an active, constructive process where students build on their prior knowledge and engage in meaningful activities (Duffy and Cunningham, 1996). Constructivism highlights the importance of social interactions and contextual learning, making education more relevant and effective (Vygotskiĭ, 1978). Rooted in the principles of constructivism, active learning involves students actively participating in the learning process through discussions, problem-solving, and hands-on activities, rather than passively receiving information (Prince, 2004). This method encourages critical thinking and helps students retain knowledge more effectively by constructing their own understanding based on experiences and interactions (Hattie and Donoghue, 2018, Smith et al., 2009).

Building on prior knowledge is an important aspect of constructivism. In this assessment, students bring their existing knowledge of immunology and related subjects to the assignment, using this prior knowledge to understand and critique the articles, integrating new information with what they already know (Hattie and Donoghue, 2018). Social interaction is another effective contributor to learning (Scager et al., 2016), and this assignment is designed to be completed as part of a team. This encourages collaboration, peer to peer learning, discussion, and the sharing of diverse perspectives, allowing students to challenge each other's ideas, building a deeper understanding of the subject matter. Working together in this way enhances active learning by enabling

students to collectively explore different viewpoints, questioning each other's assumptions, thereby expanding their knowledge (Prince, 2004). By analyzing and discussing Wikipedia and AI-generated articles in group settings, learners engage in meaningful peer interaction and communication, which aligns with established principles of active learning (Chickering and Gamson, 1987) and learner-learner interaction (Moore, 1989).

Contextual learning is emphasized through the task of evaluating and critiquing articles, which requires students to apply their knowledge in a real-world context. This makes the learning experience more relevant and meaningful, as students see the practical application of their skills (Churchill et al., 2013, Gleason and Daws, 2012). Using the knowledge from the weekly content activity that students covered, and peer discussion may also help students to understand the concepts and increase student learning (Hattie and Donoghue, 2018; Smith et al., 2009).

During this assessment, students develop important enterprise skills such as problem-solving, teamwork, and communication (Hattie and Donoghue, 2018), as well as skills identified by Trilling and Fadel (2009) as those needed by graduates: learning and innovation, digital literacy skills, and career and life skills. By designing activities that promote interactivity and integrating technology, student learning can be significantly enhanced (Churchill et al., 2013; Gleason and Daws, 2012).

2.1 Source of immunology content

The Wikimedia movement, and by association Wikimedia Australia, are dedicated to promoting the development and distribution of content that is accurate and accessible to the general population (Wikimedia Foundation, 2025). In order to improve content, Wikimedia affiliates and projects will often collaborate with other like-minded organizations and offer training and talks at institutions like universities to teach people entering this field the importance of information literacy and Wikipedia as a source of open access science-related information (Masukume, 2020). This was the approach taken at La Trobe University for this assessment.

Articles to be evaluated as a part of this assessment were located by browsing through Wikipedia articles and subcategories under the category: Immunology, https://en.wikipedia.org/wiki/Category:Immunology, with the final selection made in consultation with the project team. The articles chosen covered fundamental topics in immunology taught in this subject, including specific immune cell types, innate immune activation and function, activation of adaptive immunity, as well as key immunological techniques (Appendix Table 1).

Students were shown how articles on Wikipedia are rated based on their content, references, the extent to which they cover the topic, have a defined structure, are well-written and present content in an appropriately understandable way. The rating also reflects the factual completeness of the article. This guidance was provided to help students understand what to look for in their own articles. While various stages of article development were used in this assessment, stub class articles were excluded as they were viewed as not complete enough to be useful, as they contain only a very basic description of the topic. Students were also directed to an "on-Wiki" resource for identifying reliable sources in medicine.

Of the 21 Wikipedia articles selected as best matching the 11 unit topics, only one article (Phagocyte) was rated at the time as a featured article. Wikipedia's featured articles are model articles, extensively reviewed for accuracy, neutrality, completeness, and style according to strict criteria. Of the remaining articles, 38% (8) were B class articles, 24% (5) were C class articles, and 33% (7) were rated as start class articles. A start class article is one which has a usable amount of good content but is weak in many areas (Appendix Table 1).

2.2 Key competencies

The essential competencies expected of students at many Australian higher education institutions include communication, inquiry and analysis, personal and professional development, and discipline-specific knowledge and skills. This broad set of capabilities encompasses many general competencies expected in higher education degrees. These include the ability to effectively communicate with others, digital literacy, research and evidence-based inquiry, critical thinking, problem-solving, and teamwork.

3 Learning environment

The assessment was carried out in a third-year microbiology subject, with a total of 65 students. The learning objective of this activity was to "evaluate and critique immunology-related articles as part of a team for their suitability in communicating complex topics to a general audience." This was one of five assessments in the subject, representing 15% of the students' load.

3.1 Pedagogical format

The learning activity took place in online workshop classes. Some students preferred to come to face-to-face sessions where this activity was facilitated. The classes were also recorded for students to review later. For the assignment activity, students worked in groups of 3–4. Students chose their own groups, and those who did not self-select were assigned by the teacher.

3.1.1 Introductory session

The Wikimedia Australia team presented an online workshop about how Wikipedia works, with a focus on who contributes, the navigation of a Wikipedia article as a reader, and an introduction targeted at new editors. The workshop stressed the importance of quality, verifiable, independent sources for content cited in Wikipedia, how to assess readability, and raised awareness of knowledge gaps and diversity.

3.1.2 Wikipedia article evaluation

In their groups, students selected topics from a list of previously decided concepts in consultation with Wikimedia Australia (Appendix Table 1). All topics had previously been covered in the subject content so were familiar concepts to the students. They selected a topic from a list integrated in the Moodle LMS and assigned the members of their groups. This made sure that

each group had a different topic to analyze. Students were asked to assess the article's readability for a lay audience using a rubric that was provided to them (Supplementary materials). The criteria for analysis included: general content, language understandability, value of images, organization of the article, gaps in information, relevance and currency of references, and, if applicable to their article, cultural inclusivity and representation. As part of the process of analysis, students were prompted to copy their article into a Word document (or similar) and annotate the key areas for improvement using comments and highlighting. This allowed them to suggest enhancements collaboratively. Individual contributions were identifiable, as each annotation was tagged with their name or initials. This feature enabled the assessor to clearly track each student's input within the group activity.

3.1.3 Generate an AI article on the same topic and evaluate

With the progress and integration of generative AI technologies at the time of planning this project, a distinct opportunity arose to incorporate AI into this assessment. Each student used generative AI to create an output on the same topic. They had the choice of which platform to choose, but mostly used ChatGPT, Microsoft Copilot, or Google Gemini. They then came together as a group and decided which articles they would choose to evaluate using the same rubric provided for the Wikipedia analysis. Here students were not asked to make suggestions or improvements, but concentrate on the analysis.

3.1.4 Report

After analyzing both the Wikipedia and AI articles, students were prompted to collaboratively write a short report summarizing the main findings. The report included their analysis and recommendations for the Wikipedia article, the evaluation of the AI-generated article, and then a comparison of the two articles, indicating the key differences they found. This concluded with student reflections on the importance of information literacy and science communication in the digital age.

4 Findings to date

To evaluate student perception of the assessment, students were invited to participate in an online survey. This was delivered in an in-person class and was optional. Of the total number of students, 64% participated in the survey (N = 42). Students were asked direct questions on the assessment and the informational sources, as well as questions with open text responses in relation to the usefulness, understanding of AI, and skills learned while completing the assignment.

4.1 Students' experience of Wikipedia assignment

To gain an understanding of the student experience in completing the assignment and thoughts on Wikipedia, a number of closed-ended questions were asked (Figure 1). A considerable number of students reported that Wikipedia articles on immunology were as difficult to read as scientific journal articles, likely due to the complexity of the subject matter and the presence of jargon. Despite this, many students found the assignment useful and felt they learned from their peers, highlighting the effectiveness of peer learning (Johnson and Johnson, 2018). Students also felt that this assignment was unique, and such novelty can lead to higher engagement.

In evaluating the usefulness of the assignment, 60% of students found it beneficial. When asked to elaborate in open text responses, students generally appreciated the opportunity to fact-check, understand biases, and enhance their research skills. One student remarked, "It was a good way to assess sources to be used for academic writing." Another noted, "The assignment was good for gaining an understanding of scientific language and its barriers."

A smaller group of students highlighted the value of the collaborative aspect of the assessment, appreciating the diverse opinions within the group. One student shared, "It was a good experience to observe how other people work together and to try and improve on that and give constructive criticism as a group." Another commented, "The structure of it made it really collaborative and it was a more enjoyable assignment." However, while some students enjoyed the group work, there were challenges. One student mentioned, "It was a difficult task to do by yourself if teammates were not helping," while another felt it "would have been better individually."

Despite the positive feedback, 17% of students did not find the assignment useful, primarily due to its perceived lack of relevance to the subject. One student stated, "I didn't think it assessed anything to do with the subject itself," and another said, "It didn't feel relevant to course material." Some students perceived redundancy, with one noting, "I think it highlighted the importance of Wikipedia and critical thinking about writing, but I don't think it helped much beyond that." While some students found it "interesting to look at the communication aspect of science and how sometimes what we study the normal person would not understand," others felt it "didn't assess anything to do with the subject itself. It felt like it was assessing literacy skills which by third year we should already have."

Student evaluations using the provided rubric revealed distinct strengths and weaknesses between Wikipedia and AI-generated articles. Wikipedia was rated higher for content quality, completeness, referencing, and cultural inclusivity, reflecting its reliability and depth. In contrast, AI-generated articles were preferred for language clarity and organizational structure, suggesting a more polished and readable style. However, AI content consistently underperformed in areas such as image use, citation accuracy, and inclusivity, highlighting limitations in current generative models. Overall, the findings suggest that while AI can enhance readability, Wikipedia remains more robust in informational accuracy and comprehensiveness.

4.2 Students' use of Wikipedia and generative AI in assessment

Students were asked a set of closed questions on the use of Wikipedia and Generative AI (Figure 2). Overall, they thought using Wikipedia could increase their understanding of future subjects and planned to use it in the future. Surprisingly, students

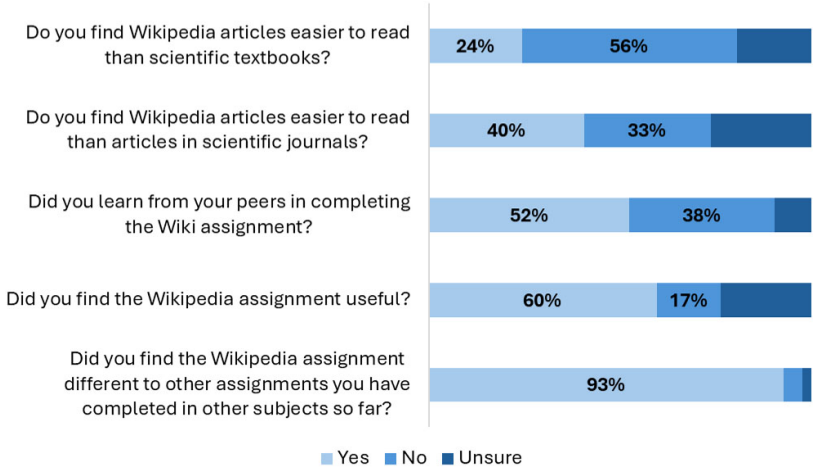

FIGURE 1
Students' experience of Wikipedia assignment. Participants were asked their opinions of this exercise in a survey. Each question had three options: Yes, No, Unsure. Percentages are rounded to the nearest whole number. Actual counts for each response are as follows from top to bottom: Q1 – Yes: 10, No: 23), Unsure: 8, Q2 - Yes: 17, No: 14, Unsure: 11; Q3 - Yes: 22, No: 16, Unsure: 4; Q4 – Yes: 25, No: 7, Unsure: 10; Q5 – Yes: 39, No: 2, Unsure: 1.

did not think that AI was that useful to their learning. However, students rated the accuracy of the AI responses to be about the same as Wikipedia (Figure 3).

Comparing the AI responses following a change of prompt (Figure 2), three students reported in their comments that the AI "came up with the same answers, only paraphrased a little"; "the information sections were much the same," and "the information mostly stayed the same just tended to be reworded." Other students reported that it "depends on the question you ask," specifically "the more detail we included in the prompt, the more detailed the information to a degree," and "the information that the AI gave me was different based on different prompts I gave it for example when I asked it to please explain something in simpler terms."

In their review of the AI-generated results, students demonstrated critical literacy skills related to audience ("depending on which audience you specified, the amount of detail and terms used changed" and through their AI re-prompt "changed it from basic learning to in depth learning"); currency ("the database for most ChatGPT based AI used outdated dataset up to November 2021 but mostly outdated data which may become inaccurate for modern practice"); relevance ("using certain prompts gave more relevant information compared to other prompts"); and verifiability ("AI generated articles had no references in them so needed a lot of clarifications from other sources"). Replicability was an issue raised in three responses: "other team members used their own prompts and got different information," "just different headings with regards to prompt," and "we each got different results from our own prompts."

Two students also considered the style of the output they wanted when testing their prompts. One student specified they wanted an article written in Wikipedia style, "otherwise it just generated a normal essay-like article." Another student specified the types of information they required in the response.

> "If I said "write me a short paragraph about Hypersensitivity," it would provide general information with different and maybe not educated sources. However, if I wrote "write me a short paragraph about Hypersensitivity that includes treatment, pharmacological, and biological aspects," they will generate differently" (Student).

4.3 Student identification of Subject Intended Learning Outcome (SILO) achieved

When asked whether the assessment contributed to achieving the subject learning outcomes, several students responded that it did not (31%). For those students that responded that it did help them achieve the learning outcomes (69%) almost all correctly identified SILO 5 as being met (Figure 4), while (13%) did not. Many students also noted that the assignment met SILO 1 to 4, even though it was not specifically designed to address these outcomes (Figure 4). This may indicate that students need more training to develop the self-awareness required to correctly identify or assess learning outcomes.

4.4 Perceived skills gained

Although only 60% of the students indicated that they found the assignment useful, almost all students (90%) mentioned at least one skill they perceived to have obtained by completing this assessment. Many of these were the types of skills related to graduate capabilities. Seven students mentioned critical thinking/analysis in their responses such as "critical thinking about sources of information." There were five students that mentioned

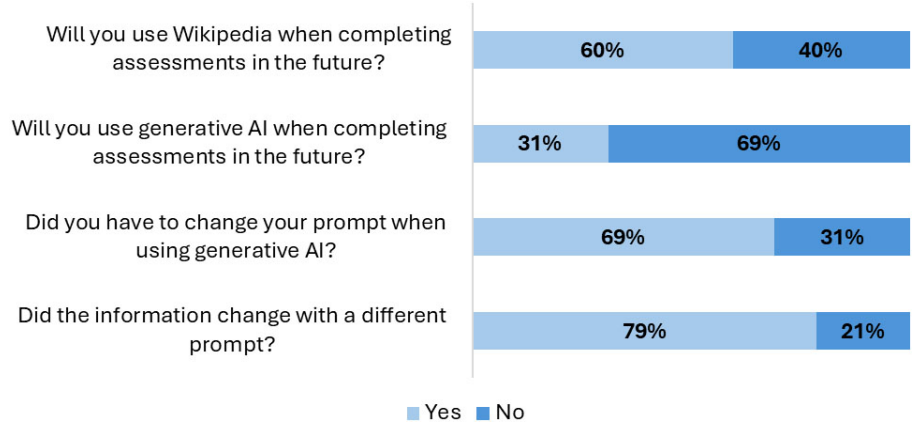

FIGURE 2
Students' use of Wikipedia and generative artificial intelligence (AI) in assessment. Students were asked closed questions to gain their thoughts on the use of Wikipedia and artificial intelligence in their assignments. Percentages are rounded to the nearest whole number. Actual counts for each response are as follows from top to bottom: Q1 - Yes: 25, No: 17; Q2 – Yes: 13, No: 29; Q3 - Yes: 29, No: 13; Q4 – Yes: 33, No: 9.

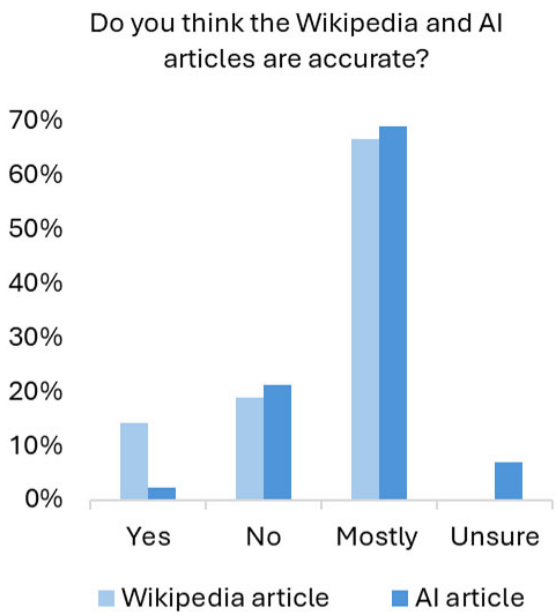

FIGURE 3
Students rate accuracy of Wikipedia and artificial intelligence (AI) generated material. Students were asked whether they thought Wikipedia and AI articles were accurate. The majority of students rated Wikipedia and AI content the same. Percentages are rounded to the nearest whole number. Actual counts for each response are as follows: Wikipedia – Yes: 6, No: 8, Mostly: 28, Unsure: 0; AI generated – Yes: 1, No: 9, Mostly: 29, Unsure: 3.

communication, either "communication with my group" or in general ". . .. how science communication should be and how things should be worded for anybody to be able to understand." There were also seven students that mentioned either group or teamwork as skills they learned "I learnt some new teamwork skills and tools. Learnt how to be more critical of online sources," "communication with my group," "Verifying information sources. Organization skills. Teamwork." Some students found they developed all of these skills by completing the assignment. As one student said, "Critical thinking skills, attention-to-detail, and most importantly communication skills as we need to discuss about the articles as a group and be able to write out our thoughts and suggestions."

Along with these types of skills, there was mention of understanding of Wikipedia and AI. Eight students mentioned Wikipedia, whether it was "how to critically analyze Wikipedia articles" or a "deeper understanding of how Wikipedia works." Another student mentioned "learning about Wikipedia in general and how to evaluate it and edit it, how to evaluate sources, and also just general knowledge about our article topic, also collaborative skills."

There were 11 students who identified new skills in the use of AI, "understanding how AI can be used as a basis of information," or "deeper understanding of AI." Some mentioned more practical application of knowledge, with one student mentioning they learned "to look out for older resources used as references in recent articles. To use multiple articles to confirm statements that are made in relation to a topic. To check the validity of the info presented by AI-generated text."

Other skills mentioned by students included "how to annotate effectively," "skills in presenting information about science-related topics that are often complex" and "the ability to find correct information."

5 Practical implications and lessons learned

5.1 Practical implications

The partnership with Wikimedia Australia required several establishment meetings to understand the objectives of the learning activity, the constraints of the assessment, and how Wikipedia was best applied in this context. The selection of specific immunology topics that were relevant to the students and to this assessment was a joint effort from the authors, and could be challenging for non-content experts on the Wikimedia side.

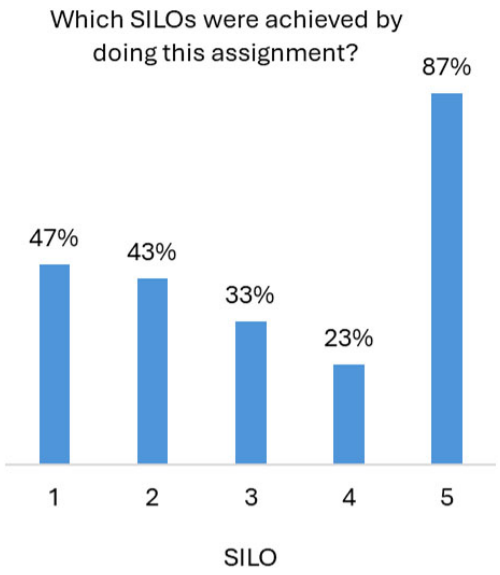

FIGURE 4
Student identification of f Subject Intended Learning Outcomes (SILOs) achieved. There were five SILOs associated with this subject. Of the 69% of students that stated the assignment helped them to achieve SILOs the majority also correctly identified SILO five being directly associated with the assessment. However, students also identified SILOs 1–4 that were not directly related to the assignment. Percentages are rounded to the nearest whole number. Actual counts for each response and SILOs were as follows:

1. Examine and apply examples of the mechanisms that enable the immune system to be generated and respond to pathogens and how an ineffective immune response can result in disease and chronic infections (n = 14).

2. Analyze and provide illustrative examples of molecular mechanisms used by pathogenic bacteria to successfully infect their hosts, avoid immune clearance, induce pathology and cause chronic infection(n = 13).

3. Apply the principles of bacterial pathogenesis to analyze and solve real world scenarios (n = 10).

4. Demonstrate proficiency in the application of key microbiological and immunological techniques, both in theory and in practical laboratory settings (n = 7).

5. Evaluate and critique immunology related articles as part of a team for their suitability in communicating complex topics to a general audience (n = 26).

5.2 Lessons learned

The Wikipedia assessment provided several valuable lessons that can inform future iterations of the activity. One of the standout features was using annotation on the articles, which worked exceptionally well by allowing clear visibility of individual student contributions. This transparency not only facilitated fair assessment but also encouraged active participation from all group members. Given its success, using the Wiki feature in Moodle platforms could further enhance collaborative learning and streamline the evaluation process (Palomo-Duarte et al., 2014).

A small number of students found the assignment irrelevant or not directly related to the course content. This feedback highlights the need to better communicate the purpose of the assignment. Emphasizing that the task is centered on science communication, rather than strictly adhering to lecture content, is crucial. Ensuring that students understand the learning outcomes and the broader skills they are developing, such as critical thinking and information literacy, will help them see the value in the assignment.

The online format of the activity was largely successful, providing flexibility and accessibility for students. Nevertheless, there is potential to enhance the learning experience by incorporating in-person workshops. These face-to-face sessions could foster deeper engagement and provide more immediate support and feedback from instructors.

6 Discussion

Somewhat surprisingly, students did not find the Wikipedia articles easier to read than most textbooks. This may be because of the complexity of the immunology subject matter. Even when writing for a lay audience, it is difficult to remove immunology jargon, and the overlapping nature of the immune system, where many parts work together to control an infection, requires an explanation of each part, thus complicating any explanation. It is therefore not surprising that a significant number of students thought the Wikipedia articles on immunology were as difficult to read as scientific journal articles. It may be worthwhile for the editors and authors of these articles to attempt to make the writing more approachable.

The findings of this study show that most students found using Wikipedia and AI-generated content in an assessment useful to support their learning. Interestingly, students appeared more inclined to rely on Wikipedia for future assignments, likely due to its familiarity, perceived credibility, and the presence of clearly cited sources. In contrast, there was noticeably more hesitation around the use of generative AI, which may reflect uncertainty about its academic legitimacy or appropriate use. However, this reluctance may not fully capture the ways students are already engaging with AI tools–particularly for tasks such as brainstorming, organizing ideas, or refining structure. Future research could build on this study by incorporating more targeted survey questions to capture the nuanced ways students may be using generative AI. The activity was also designed to promote active learning in the classroom, promote interactions with their peers, and enhance overall student engagement with the course. The high number of students who felt they learned from their peers is encouraging. Having students learn together and from each other has been demonstrated to be a powerful strategy (Johnson and Johnson, 2018). To have them be able to take on the complexity of immunology and learn from each other demonstrates the effectiveness of examining Wikipedia articles.

However, it was also clear that some students did not fully appreciate how the activity related to course learning outcomes, particularly the learning outcome on communication. This is not a surprising finding, as previous research has shown that not all students engage well with course learning outcomes and may not be able to effectively relate these back to their learning and specific assessments in a course (Brooks et al., 2014). Students not being able to link activities and assessments to a course learning outcome is potentially problematic, as learning outcomes underpin course

design and are designed to support student learning (Biggs and Tang, 2011). In addition, research shows that students do not consider communication to be an important learning outcome in a course (Mercer-Mapstone and Kuchel, 2015; Mercer-Mapstone and Matthews, 2017). For this reason, highlighting the importance of communication skills in this course, and more importantly, in the context of the program, is crucial to ensure better student engagement in the future. This suggests that for future course offerings, highlighting course learning outcomes to students and linking to specific assessment tasks, early in the course, may be appropriate. It may also be useful to review the existing course learning outcomes to enhance student understanding of how they relate to course assessments.

This study revealed that while students worked well together in completing the assessment, there were some issues regarding workloads of individuals in the groups. This was possibly due to varying levels of engagement with the task by individual students, although this is a feature common to many undergraduate group activities. Collaborative learning was a key part of the activity design, and was included in this course to encourage peer- to-peer learning. The challenges of implementing an activity requiring students to work in groups are well-known (Isohätälä et al., 2018). While this study aimed to capture students' perceptions of the assessment, the reliance on self-reported data limits the ability to evaluate actual learning outcomes. Future research should adopt more rigorous methods, including direct assessment of student work and pre- and post-intervention measures, to objectively determine the assignment's impact.

In conclusion, there are several elements to consider in future offerings of this course. Firstly, it would be useful to include strategies to support students in developing their collaborative learning skills (Pervaz Iqbal et al., 2020). Given the dynamic nature of the content on Wikipedia it will be necessary to review and update the list of specific Wikipedia articles each year to provide appropriate content for the students to evaluate. Finally, despite time constraints, a goal of the project remains to encourage students to go beyond the assessment and add their recommended edits to Wikipedia, thus applying their science communication skills for the benefit of a real-world audience.

Data availability statement

The original contributions presented in this study are included in this article/Supplementary material, further inquiries can be directed to the corresponding author.

Ethics statement

The studies involving humans were approved by Human Research Ethics Committee (HREC) La Trobe University (HEC24011). The studies were conducted in accordance with the local legislation and institutional requirements. Written informed consent for participation was not required from the participants or the participants' legal guardians/next of kin because students were given an online anonymous survey in which the information of the study was given. Students clicked "I agree" before being able to answer the survey questions.

Author contributions

KM: Resources, Investigation, Formal analysis, Writing – original draft, Writing – review & editing. PM: Methodology, Formal analysis, Writing – original draft, Writing – review & editing. BM: Conceptualization, Writing – review & editing. AW: Writing – original draft, Writing – review & editing. BS: Methodology, Writing – review & editing. TP: Formal analysis, Writing – original draft, Writing – review & editing. TV: Conceptualization, Writing – original draft, Writing – review & editing.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Supplementary material

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/feduc.2025.1620804/full#supplementary-material

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Appendix

Appendix 1 **Rating of Wikipedia articles for 2024 La Trobe immunology topics.**

La Trobe immunology topic	Wikipedia article	Article class rating*	Article link
1. Cells and organs of the immune system	Phagocyte	Featured article	https://en.wikipedia.org/wiki/Phagocyte
	Humoral immunity	Start	https://en.wikipedia.org/wiki/Humoral_immunity
	Cell mediated immunity	Start	https://en.wikipedia.org/wiki/Cell-mediated_immunity
2. Mechanisms of innate immunity	Toll like receptor	B	https://en.wikipedia.org/wiki/Toll-like_receptor
	Inflammasome	C	https://en.wikipedia.org/wiki/Inflammasome
	Innate immune system	Start	https://en.wikipedia.org/wiki/Innate_immune_system
	Pattern recognition receptor	Start	https://en.wikipedia.org/wiki/Pattern_recognition_receptor
	Pathogen associated molecular pattern	Start	https://en.wikipedia.org/wiki/Pathogen-associated_molecular_pattern
3. Antigens, antibodies, B cells	Antibody	B	https://en.wikipedia.org/wiki/Antibody
	Antigen	B	https://en.wikipedia.org/wiki/Antigen
	Antigen presenting cell	C	https://en.wikipedia.org/wiki/Antigen-presenting_cell
4. B cell activation and differentiation	B cell	C	https://en.wikipedia.org/wiki/B_cell
5. Major histocompatibility complex	Major histocompatibility complex	B	https://en.wikipedia.org/wiki/Major_histocompatibility_complex
6. T cell activation, differentiation	T cell	B	https://en.wikipedia.org/wiki/T_cell
7. Cytokines	Cytokine	C	https://en.wikipedia.org/wiki/Cytokine
8. The Complement system	Complement system	B	https://en.wikipedia.org/wiki/Complement_system
9. Cell mediated effector responses	Adaptive immune system	B	https://en.wikipedia.org/wiki/Adaptive_immune_system
10. Immune system disorders	Autoimmunity	B	https://en.wikipedia.org/wiki/Autoimmunity
	Hypersensitivity	Start	https://en.wikipedia.org/wiki/Hypersensitivity
11. Practical applications	ELISA	C	https://en.wikipedia.org/wiki/ELISA
	Immunohistochemistry	Start	https://en.wikipedia.org/wiki/Immunohistochemistry