

## **Engineering Students as Knowledge Producers and Ethical Practitioners: Learning Outcomes of Wikipedia Writing in the Engineering Classroom**

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## Engineering Students as Knowledge Producers and Ethical Practitioners: Learning Outcomes of Wikipedia Writing in the Engineering Classroom

In this presentation, an instructor in the Engineering in Society Program at the USC Viterbi School of Engineering, will discuss the pedagogical implications of Wikipedia writing for engineering students. This presentation will be based on student feedback and instructor reflections from sixteen sections of an upper-division writing and communications course for engineering students from fall 2019 to fall 2021. Since fall 2019, 295 engineering students in this course have written over 100 Wikipedia articles in science and engineering with the addition of 3,781 references and over 260,000 words. These contributions have been viewed over 7.9 million times by Wikipedia readers all over the world.

As an open-collaboration project with hundreds of millions of volunteer editors, Wikipedia is the world's largest encyclopedia that is continually revised and expanded for accuracy and completeness. College students, who are actively acquiring research, writing, and analytical skills in their courses, are well-positioned to contribute to Wikipedia and expand the knowledge base of millions around the world. Students' positionality is leveraged in this Wikipedia group assignment, as students engage in self-reflection about their roles as knowledge consumers and their ethical responsibilities as information producers.

Student feedback about their Wikipedia group work aligns with research by rhetoric and writing scholars which notes that Wikipedia writing provides college students with extensive practice in writing and research, as well as with opportunities for collaboration with other Wikipedia editors inside and outside the classroom. Researchers also note that writing for a real-world audience provides public writing experiences that can increase student motivation to work conscientiously and accurately.

Student feedback also indicates that Wikipedia writing offered opportunities to practice digital citizenship - which was defined as the desire to contribute and ensure the accuracy and accessibility of information for the benefit of society. As this sentiment aligns with foundational principles of professional engineering ethics, such as promoting societal well-being and being honest and truthful, writing for Wikipedia may be a way for engineering students to apply ethical principals with immediacy in a highly relevant and visible context.

While students are usually well-intentioned and highly motivated to add accurate information, there can be circumstances in which their work is incorrect. To mitigate the likelihood of inaccurate information in student work, their drafts are reviewed at multiple points in the research and writing processes by the instructor, other members of the group, and other classmates prior to publication. Any remaining inaccuracies after publication on Wikipedia result in a lower grade on the assignment that students can remedy upon revision. Additionally,

inaccuracies are often removed or revised by external Wikipedia editors, which is a common practice on Wikipedia and the primary manner in which most Wikipedia articles evolve.

In this presentation, attendees will learn how Wikipedia was integrated into the writing curriculum for engineering students, examine the impact of this group project on students' perceptions about their writing, communication, and collaborative skills, and identify connections between Wikipedia writing principles and engineering ethics.