



## **Student-Led Undergraduate Journals: A Catalyst for Comprehensive Research Experience and Professional Growth**

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**Abstract:** This opinion piece underscores the critical role of undergraduate academic journals in fostering a comprehensive research experience for students, with a spotlight on Qapsule, an open-access journal at Queen's University led by undergraduates. These journals offer a unique platform for students to engage in the full spectrum of scientific inquiry, from conducting research to writing, peer review, and publication. The paper emphasizes the importance of undergraduate students' involvement in all aspects of research, discussing its crucial role in intellectual growth and professional development. However, these journals often remain underutilized due to a lack of awareness. The paper discusses the importance of universities actively promoting these journals and providing the necessary resources for students to establish such platforms, thereby nurturing a culture of academic collaboration, creativity, and excellence. It also addresses quality concerns about undergraduate journals, asserting that with appropriate mentorship and guidance, undergraduate students are capable of contributing to the academic community.

**Keywords:** undergraduate journals, academic institutions, undergraduate students, open-access journals

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## Introduction

In the realm of academic pursuit, where knowledge and curiosity intertwine, there exists an undeniable allure—a realm where student voices yearn to break free from the confines of lecture halls and textbooks, eager to make their mark on the vast canvas of scholarly conversation. As undergraduate students, we are given the opportunity to explore the world of research and gain invaluable insights. However, there is a crucial aspect that often eludes us—the profound significance of sharing our findings with the broader community. As posited by John R. Jungck, “research is not complete until it is published” (Siegel, 2004, p.24). Yet, as we navigate through textbooks, attend lectures, and engage in traditional labs, we find ourselves missing out on the core values that define the scientific profession: publishing and peer review.

### The Full Spectrum of Undergraduate Research

While some of us may receive acknowledgments or even co-authorship in professional journals, it is rare for undergraduate students to be fully immersed in the intricate writing and peer review processes. Unless we wholeheartedly embrace the entire scientific process, including the rigorous journey of publication and peer review, we may never truly grasp the trajectory of our potential career paths.

This is not to say that there are few opportunities for Canadian undergraduate students to engage in the academic community. In Canada, there are several initiatives and platforms that recognize the importance and value of undergraduate academic practices and research. These initiatives aim to provide opportunities for undergraduate students to showcase their work, engage in scholarly activities, and contribute to the scientific community. A notable example is the Canadian Undergraduate Conference on Healthcare—an annual conference that provides a platform for undergraduate students from across Canada to present their research findings. It serves as a forum for students to share their work, receive feedback from peers and experts, and network with fellow researchers. There is also the Undergraduate Student Research Awards program that supports undergraduate research through resources, grants, and professional development opportunities.

While these initiatives and platforms provide valuable opportunities for undergraduate students to engage in research and present their findings, they often fall short in emphasizing the importance and practice of the publishing process. Many of these programs primarily focus on performing research and presenting results without giving due attention to the essential process of conveying and disseminating findings in a written format and engaging in rigorous peer review. This raises the question: Is conducting research alone more important than the critical process of conveying and validating research through the peer-reviewed publication process?

By focusing on research performance and presentation, without adequately incorporating peer review, we risk overlooking a fundamental aspect of scientific scholarship. To effectively equip undergraduate students for success, it is imperative to expose students to the full spectrum of the research process. Undergraduate academic journals play a crucial role in filling this gap. Since the rise of the digital era, the landscape of research participation has been democratized, opening doors of opportunity for undergraduate students to engage in scientific exploration like never before. With open access to online databases, scientific literature, and research platforms, students can delve into diverse fields, uncover new knowledge, and contribute to the broader

academic community. However, navigating this vast expanse of information and successfully conducting research requires the guidance and support of experienced researchers and professors. Experienced researchers play a vital role in mentoring and guiding students through the entire research process, from formulating research questions to designing experiments and collecting data. Their expertise and guidance ensure that students receive proper training and learn to navigate the complexities of scientific research. Furthermore, as students embark on their research journeys, these mentors help them understand the importance of peer review, providing valuable insights and feedback on their work.

Engaging in the peer review process under the guidance of experienced researchers is a transformative experience for undergraduate students. It exposes them to the rigors of critical evaluation, constructive feedback, and effective communication—the pillars of the peer review process. Mentors help students navigate the intricacies of peer review, teaching them how to present their findings clearly, respond to reviewers' comments, and refine their work to meet the standards of the scientific community. Through this mentorship, students not only learn the importance of thorough and thoughtful evaluation but also develop essential skills in collaboration, scientific integrity, and attention to detail. This collaborative approach fosters a nurturing environment where students can thrive, acquire invaluable skills, and contribute meaningfully to the scholarly community. This is where undergraduate academic journals play a pivotal role as “training grounds” for students to fully engage in the complete research cycle.

Incorporating the peer review and publication process within the undergraduate research experience bridges a crucial gap in their education. It ensures that students not only conduct research but also learn the importance of effectively communicating their findings and engaging in scholarly discourse. This comprehensive experience prepares them for future endeavors in academia and beyond. Therefore, it is imperative that we recognize the significance of undergraduate academic journals as platforms that enable students to go beyond the boundaries of traditional research experiences and embrace the full spectrum of scientific inquiry. They serve as catalysts for student growth, fostering a generation of researchers who are not only knowledgeable in their respective fields but also skilled in the art of publication and peer review upon graduation.

Quality control is a significant concern raised against undergraduate research journals.

Scott F. Gilbert argues that if the research is of high quality, it should be published in a professional journal (Siegal, 2004). Gilbert questions the ability of undergraduate students to provide constructive peer review and maintain consistent high quality, especially given the rapid turnover in the undergraduate student population. There seems to be a fear that if the journal were run solely by undergraduates, it might lead to the publication of subpar work due to a lack of experience and knowledge required to effectively review and critique research papers.

However, such an argument underestimates the capabilities of undergraduate students. As Seymour Papert posits, “much of education is designed to infantilize students” (Papert, 1980, p.31).

This critique suggests that by doubting the ability of undergraduate students to engage in peer review and publication, we are limiting their growth and development as researchers.

In response to these concerns, it is important to note that the majority of students engaged in undergraduate education are adults who are capable of making significant contributions to our economy and society (Siegal, 2004). They are often involved in the governance of higher education institutions, serving on committees and boards of trustees. As such, there is a vast

potential for undergraduate students to expand their involvement in publishing in science, technology, engineering, and mathematics.

Therefore, it is crucial to develop an “adult model of science education” that recognizes student creativity and productivity in all aspects of the research process, including publishing and peer reviewing. Undergraduate research journals can play a pivotal role in this endeavor, providing a platform for students to showcase their work, receive feedback from peers and experts, and contribute to the scientific community. By doing so, students learn to navigate differing perspectives, engage in respectful debates, and refine their work based on the valuable input received. This holistic experience not only fosters intellectual growth but also instills a sense of responsibility and professionalism in the pursuit of scientific knowledge.

Quality control can be addressed through proper mentorship and guidance from experienced researchers. Undergraduate students, when given the proper support, are fully capable of participating in every aspect of the research process.

### **A Case in Point: Qapsule**

Now let’s shift our focus to Qapsule: Queen’s Undergraduate Health Sciences Journal (<https://www.queensqapsule.ca/>), a student-led, open-access journal at Queen’s University that works towards the common goal of publishing undergraduate work, opinions, and insights into contemporary topics in the health sciences. Qapsule offers a unique opportunity for students to share their research findings and engage in the peer review process, empowering undergraduates to participate actively in scholarly discourse and make valuable contributions to the academic community.

Qapsule embraces the goal of providing students with a comprehensive experience of the scholarly publishing process. To ensure credibility and integrity, Qapsule utilizes the Open Journal System (OJS), a widely recognized platform that enhances the transparency and trustworthiness of the journal. In addition, Qapsule follows a rigorous double-blind review process, where each submitted article undergoes thorough evaluation by expert professors who specialize in the respective topic. This process exposes undergraduate students to the principles and challenges of peer review, fostering their understanding of critical evaluation, constructive feedback, and effective communication.

What makes Qapsule particularly noteworthy is its commitment to inclusivity and equitable opportunities. It recognizes that not all students have access to a principal investigator or extensive research experience, yet their insights and perspectives are valuable contributions to the scholarly dialogue. Qapsule offers a platform where undergraduate students, regardless of their background, can submit their contemporary insights into the health sciences and related topics. These submissions go through a similar process of peer review, editing, and publication, ensuring that all students have an equitable opportunity to share their ideas and contribute to the scholarly discourse while upholding high standards for academic publishing.

While undergraduate journals play a significant role in disseminating scientific research, they also serve an equally important purpose of exposing students to the scholarly publishing process. Qapsule’s approach goes beyond traditional research submissions, encouraging students to explore various forms of academic work. Whether it is a research manuscript, abstract, opinion piece, or another type of contribution, students gain firsthand experience in navigating the intricacies of the publishing world. This exposure allows them to develop essential skills in research communication, critical analysis, and scientific writing, preparing them for future

academic endeavors. It empowers students to share their unique perspectives, promote interdisciplinary collaboration, and contribute meaningfully to advancing knowledge in the health sciences and related disciplines.

Undergraduate journals, such as Qapsule, not only serve as platforms for scholarly publishing but also provide the journal executives with invaluable opportunities to enhance their leadership and collaborative abilities. These journals are managed by students, offering a unique avenue for skill development in project management, teamwork, and communication. Taking an active role in running an undergraduate journal can be a valuable addition to students' resumes, setting them apart from other employment candidates. Managing the journal and producing scholarly publications have proven to be highly beneficial for students. For example, despite being in its first year of operations, Qapsule executives have received employment offers directly linked to their role in this endeavour.

Effective project management is a vital aspect of overseeing an undergraduate journal. It encompasses setting clear objectives and deadlines, assigning tasks to team members, and monitoring the project's progress. Through their involvement with undergraduate journals, students gain valuable experience in planning and organizing large-scale projects, a skill that has broad applications in academic and professional domains. For example, being a student-led initiative, Qapsule demands exceptional teamwork and cooperation, ensuring that all team members share common goals and make meaningful contributions to the project. This requires ongoing communication, constructive feedback, and the ability to collaborate effectively as a group. Managing an undergraduate journal offers students more than just project management experience; it also provides opportunities to enhance their communication skills and expand their networks. This involves engaging with other journals and academic organizations, as well as effectively communicating with the team, contributors, and external stakeholders. By participating in Qapsule, students learn how to communicate effectively with diverse stakeholders and cultivate relationships within the academic community.

It is imperative for universities to prioritize increasing student awareness of open-access, peer-reviewed undergraduate journals, as well as providing the necessary support for motivated students who aspire to establish such journals within their own university. To accomplish this, a variety of methods, such as workshops, seminars, and campus-wide events, can be employed. As well, professors may choose to develop assignments fostering original research for submission to these journals. By prioritizing the promotion and cultivation of open-access journals, universities can foster a culture of academic collaboration, creativity, and excellence among their students.

Universities can play a crucial role in supporting the efforts of students who wish to launch their own open-access and peer-reviewed academic journals. In addition to financial assistance, such as funding for website development, marketing, and hosting costs, universities can provide technical support, mentorship, and direction to these students. This can include workshops on journal editing, peer review procedures, and copyright concerns, helping students navigate the complexities of academic publishing. Universities can also provide access to essential infrastructure, such as library resources and technical support services, which can be instrumental in facilitating the production and dissemination of open-access publications. By leveraging their resources and expertise, universities can serve as a platform for open-access journals by hosting these publications on their websites or by providing links to them. The provision of these resources and services by universities can enable students to focus on producing high-quality content, engaging in scholarly dialogue, and advancing their academic careers through publication.

The establishment of Qapsule at Queen's University has been significantly influenced by Queen's Library and faculty members. The library's contribution has been vital in gaining access to the OJS platform, a free and open-source software that facilitated the entire publishing process. The platform is crucial to the double-blind peer review process and aids in maintaining proper workflow, as well as assisting with the assignment of Digital Object Identifiers to articles. In addition, the library provides extensive guidance and coaching to the Qapsule team, ensuring that the journal adheres to the gold standards in academic publishing. Topics such as copyright and licensing, metadata standards, and best practices for digital publishing have been addressed. Faculty members have also made invaluable contributions to Qapsule's success, offering advice on academic standards and the publishing process, as well as serving as peer-reviewers for journal submissions.

Undergraduate academic journals, such as Qapsule, play a pivotal role in providing a comprehensive research experience, bridging the gap between conducting research and the critical process of peer-reviewed publication. They serve as catalysts for intellectual growth, instilling a sense of responsibility and professionalism in the pursuit of scientific knowledge. However, the full potential of these journals is yet to be realized, with universities playing a crucial role in their support and promotion. Looking ahead, universities should prioritize increasing student awareness of these journals and provide the necessary support for students aspiring to establish such platforms. In doing so, we can empower the next generation of researchers, fostering a culture of academic collaboration, creativity, and excellence.

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