Journal of Pre-College Engineering Education Research (J-PEER)

2020

The Inaugural Readership and Authorship Report of the Journal of Pre-College Engineering Education Research (J-PEER)

Senay Purzer
Purdue University, spurzer@purdue.edu

Emily Jones
Purdue University, jone1420@purdue.edu

Follow this and additional works at: https://docs.lib.purdue.edu/jpeer

Part of the Other Engineering Commons

Recommended Citation

The Inaugural Readership and Authorship Report of the Journal of Pre-College Engineering Education Research (J-PEER)

Abstract

The *Journal of Pre-College Engineering Education Research* (*J-PEER)* approaches a decade of publications since its launch in 2011. This inaugural report presents metrics and statistics on *J-PEER*'s readership and authorship, looking specifically at data from 2019, along with reflections from the founding and immediate-past editors.

Keywords

annual report, journal metrics

Document Type

Front Matter

The Inaugural Readership and Authorship Report of the *Journal of Pre-College Engineering Education Research (J-PEER)*

Senay Purzer and Emily Jones

Purdue University

Reflections on *J-PEER*'s Birth, Growth, and Future

In 2020, the *Journal of Pre-College Engineering Education Research* (*J-PEER*) entered its ninth year since its establishment in 2011 by Johannes Strobel. As we get ready to leave a decade behind, we bring together the journal's prior chief editors, Johannes Strobel (founding chief editor) and Monica Cardella (immediate-past emeritus chief editor), to reflect on the inaugural report presented in later pages. Strobel's visionary thought has created a reputable journal that addresses a gap in the emerging discipline of engineering education. Moreover, we argue that *J-PEER* is the model of future academic research by providing universal open access to scholars and non-scholars.

In 2016, Monica Cardella accepted the role of interim chief editor and became the permanent chief editor in 2017, followed by Şenay Purzer in 2019. *J-PEER* continues to grow as a pioneering, niche journal with a focus on pre-college engineering education. Cardella and Purzer (2019) wrote about the viability and rigor of *J-PEER*'s model during International Open Access Week, highlighting that open access models democratize authorship and readership of research. In *J-PEER*, as with many other prestigious journals, most of the heavy work is done by the generous contribution of volunteers, including our associate editors, reviewers, and chief editors. The necessary typesetting and publishing costs are covered through the commitment of Purdue's School of Engineering Education, Purdue University Press, and Purdue University Libraries and School of Information Studies.

Since its launch in 2011, *J-PEER* has published 82 peer-reviewed articles. The number of annual submissions has increased gradually over the years, reaching a high of 40 in 2019. Between December 2014 (when the data were available) and January 2020, *J-PEER* articles have been downloaded 143,869 times and read at 6,352 different institutions located in 190 different countries.

Comments by Founding and Immediate-Past Editors

Johannes Strobel (2011–2016): *J-PEER* has come a long way from the time it was just an idea and, yes, a dream. When the planning started, major engineering education journals maybe rightfully struggled what to do with papers focusing on "pre-college engineering education" (a term deliberately chosen to avoid US-centrism with a term like PreK–12) since the readership of engineering education journals at that time included nearly exclusively researchers and practitioners focusing on college and beyond issues. Similarly, the landscape and way of thinking of engineering in pre-college was highly in flux and boundaries fluid, including the relationship between technology and engineering education and the role of engineering

in pre-college schooling. Now we see a flourishing landscape of pre-college engineering education, with AERA having a sub-division focusing on engineering and computer science education, NARST running strong a SIG on engineering education, and many initiatives such as the Next Generation Science Standards (NGSS), which opened the standards door very wide for engineering in the United States and STEM education as an international phenomenon. In the future, I wish for us as a field two things: (1) that the now existing clearer boundaries set by standards, definitions, and reports do not distract us from the beauty of engineering, which is constantly and dynamically reimagined, expanded, and redefined in the context and by the people acting as engineers—very young or older; and (2) to preserve and defend the open access nature of *J-PEER*, making publishing and reading not a privilege for the few, but a public good globally.

Monica Cardella (2016–2019): *J-PEER*'s commitment to open access is also consistent with the journal's commitments to equity and inclusion, advancing formal and informal engineering learning, and supporting the community of pre-college engineering education researchers. Our review processes are at their best when authors receive thoughtful feedback on their papers that stretches their thinking and advances their scholarship. To expand capacity for both timely and thoughtful feedback, a critical change under my leadership was the introduction of the associate editor structure, which provided new leadership opportunities for pre-college engineering education researchers under a distributed leadership model and a faster review process with a broader network of potential reviewers. In 2017, we also established a relationship with the American Society for Engineering Education that allows us to republish the best papers from the ASEE Pre-College Division each year (pending the authors' interest), including the best overall paper from the division, and the best paper focused on diversity and inclusion. This agreement allows us to further support the community, but also serves as a foundation for possible future partnership with other professional societies, as our authorship and readership is distributed across many professional (and disciplinary) communities.

Starting a New Tradition

In 2020, we are launching a new tradition to publish an annual report. The annual report highlights two areas: (1) an *authorship report*, which provides an annual summary of the trends observed in that year; and (2) a *readership report*, utilizing *J-PEER*'s powerful analytics dashboard to present data to readers in a brief, synthesized format.

J-PEER publishes papers "on-demand," meaning papers are published as soon as their copyediting and typesetting are finalized. The papers are then compiled under two issues annually: an April issue and an October issue. Since 2011, 82 articles have been published in *J-PEER* (see Figure 1).

A journal's quality and its papers' impact can be quantified in different ways, including journal impact factor, editorial board membership, number of databases indexing the journal, longevity, and journal citations report (Ni, Shaw, Lind, & Ding, 2013; Walters, 2017). Yet papers featured in open access journals can be read and cited based on their own merits, not limited to a journal's availability through a library or membership (Lozano, Larivière, & Gingras, 2012).
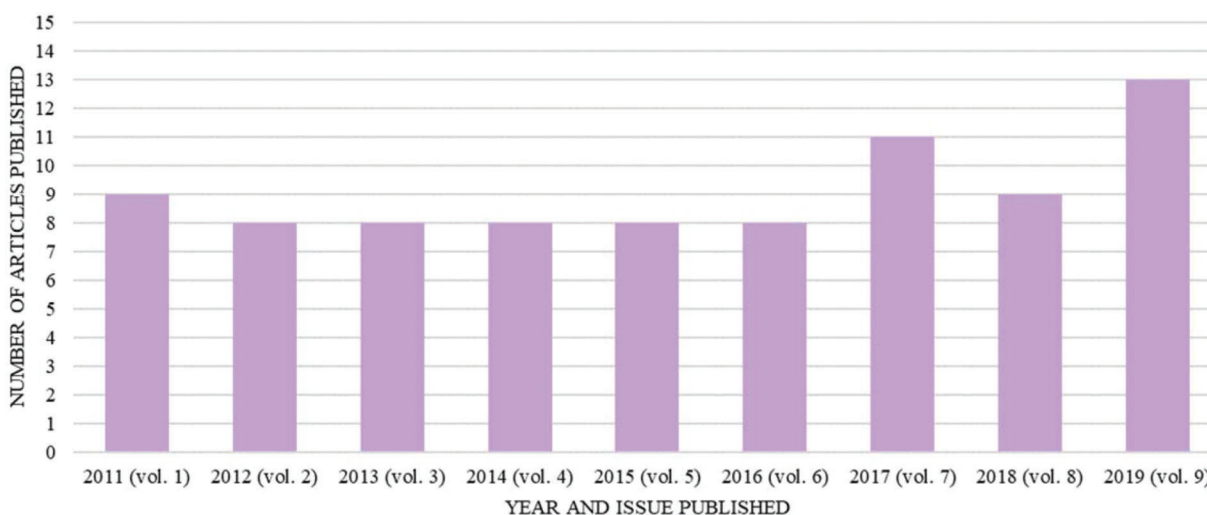

Figure 1. The annual number of articles published in J-PEER.

Table 1
Readership metrics.

Year	Number of total downloads	Metadata page hits	Number of institutions	Number of countries
2019	32,937	17,721	2,528	176
2018	27,808	12,218	2,309	157
2017	21,688	10,741	1,992	155
2016	21,322	8,018	2,072	154
2015	12,756	4,722	1,297	126

Figure 2. Global readership distribution of J-PEER (December 2014 to January 2020).

J-PEER 2019 Readership Report

The readership report complements the authorship report presented in the following pages. Hence, we provide a readership report for *J-PEER* as a measure of its global impact. The readership metrics provide another measure of metrics that can be compared across years (see Table 1).

As illustrated in Table 1 and in Figure 2, *J-PEER*'s global readership is strong. In 2019, the journal's readership reached 90% of all countries in the world, compared to 65% in 2015.

J-PEER 2019 Authorship Report

This inaugural annual authorship report of *J-PEER* reports on data collected from January 1, 2019, to December 31, 2019. The distribution of manuscript submissions was consistent across each month but was concentrated at the start and end of the year, with peak submissions in January (see Figure 3).
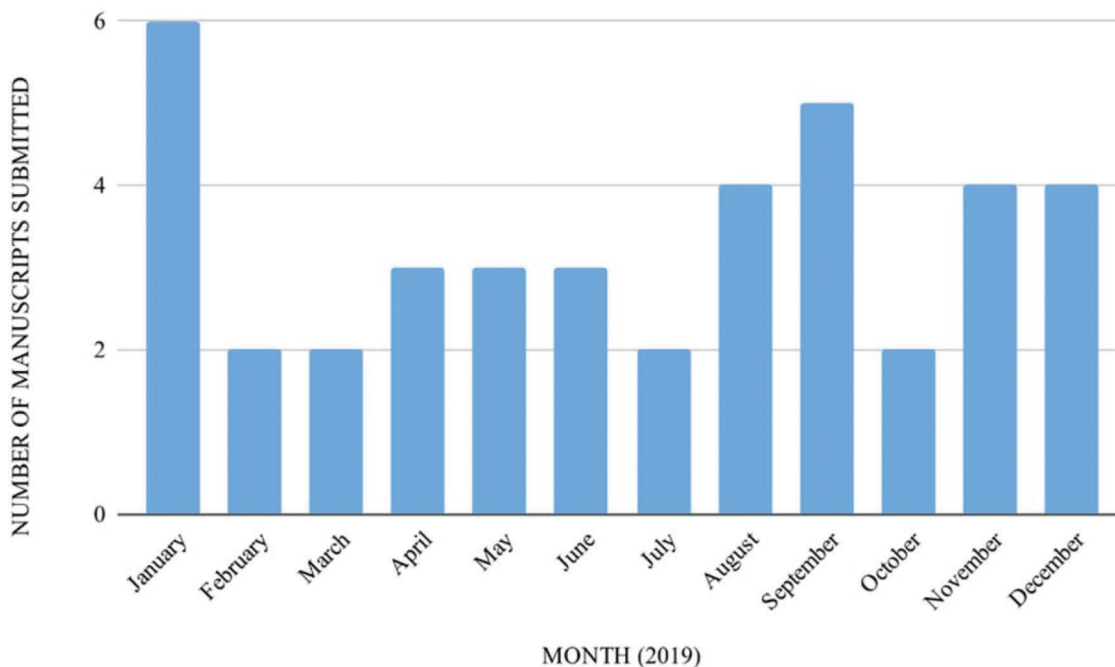
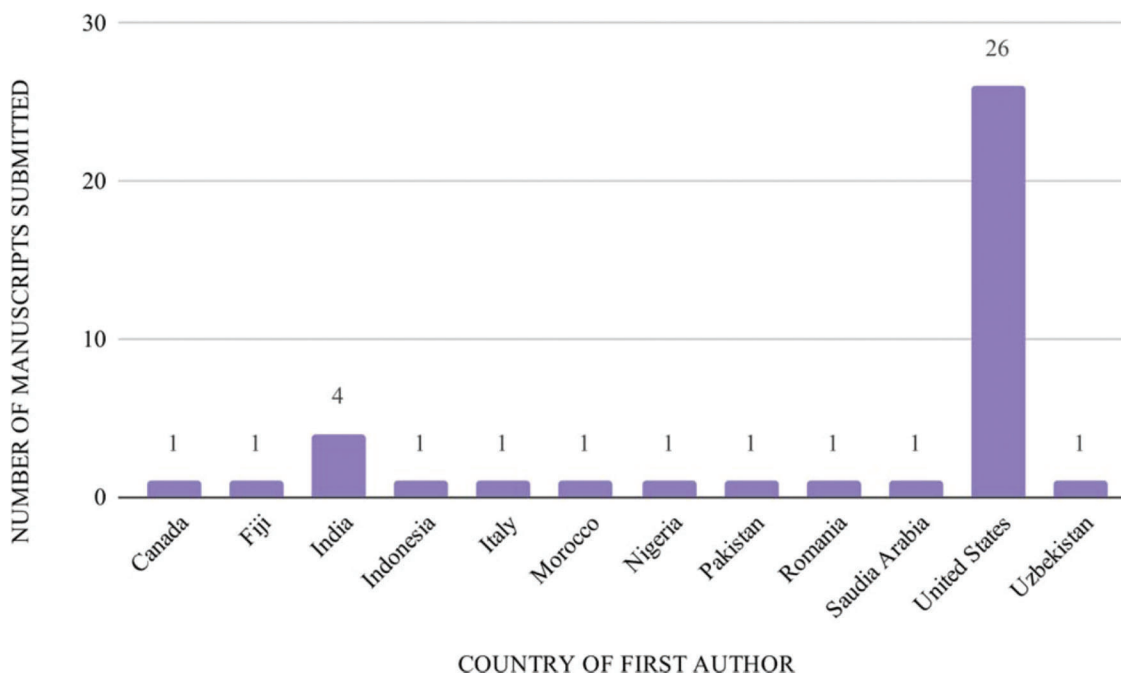*Figure 3.* Monthly distribution of manuscript submissions in 2019.

Figure 4. International representation of first authors of manuscripts submitted in 2019.

Global Distribution of Authorship

Among the original submissions received in 2019, 35% were submitted from countries outside of the United States (see Figure 4). Of the 14 international submissions, 11 different countries were represented: Saudi Arabia, India, Canada, Pakistan, Morocco, Romania, Fiji, Nigeria, Indonesia, Uzbekistan, and Italy.

In contrast to the readership, which was globally distributed, the first authors of *J-PEER* were predominantly from US institutions. Of the 13 articles published in 2019, all of the first authors were based in the United States (see Figure 5).
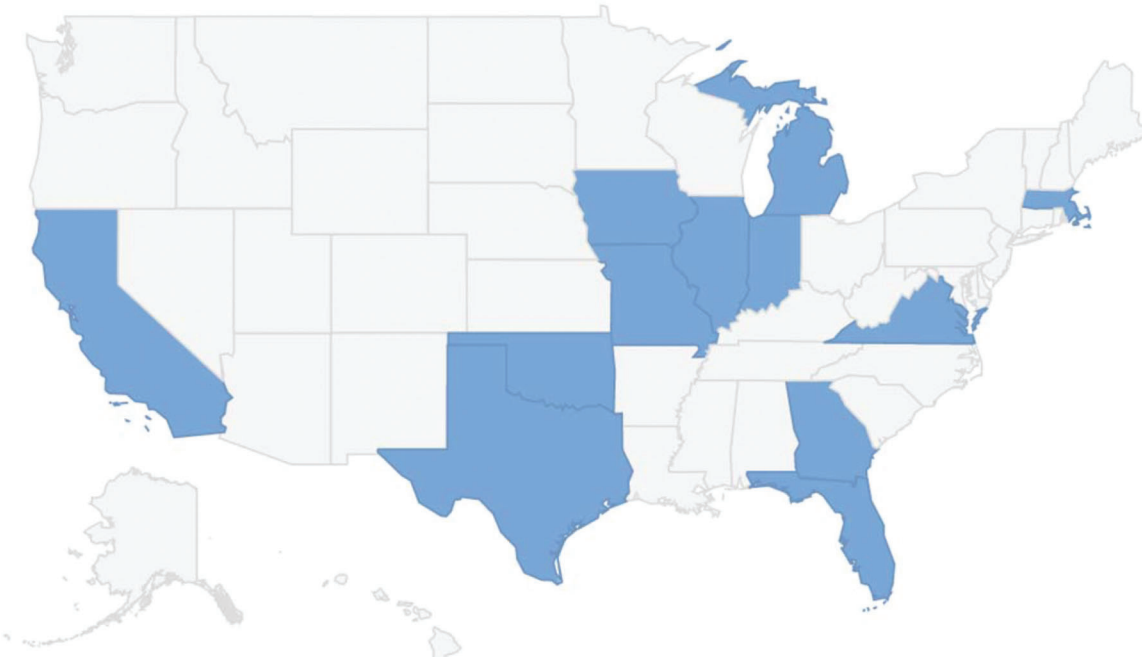

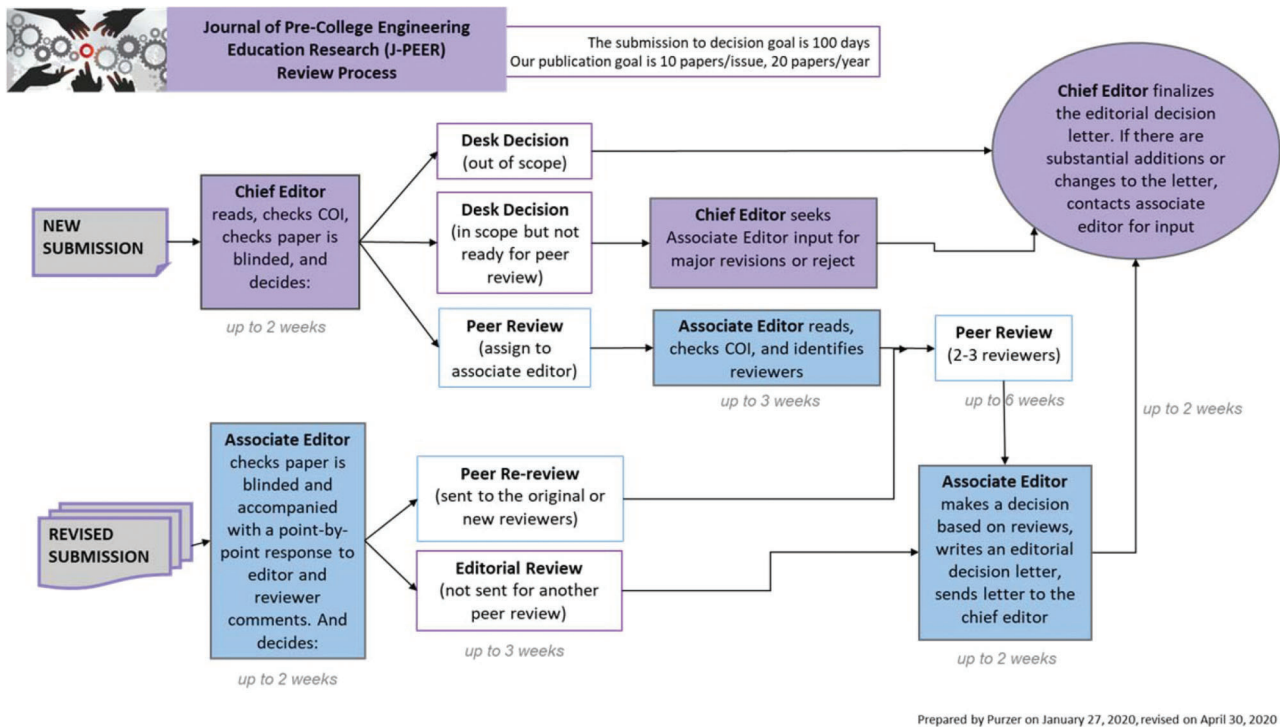*Figure 5.* State distribution of US-based first authors of articles published in 2019.

Figure 6. J-PEER's manuscript review process.

Editorial System and the Review Process

Manuscripts are initially submitted to *J-PEER* using the online system managed by Berkeley Electronic Press. Once submitted, papers are first reviewed by *J-PEER*'s chief editor. If deemed ready for peer review, manuscripts are then assigned to an associate editor on the basis of expertise, equally distributed workloads, and conflicts of interest. Neither the chief editor nor the associate editor manages papers from their home institutions or papers from their collaborators.

In preparation of peer review, the associate editor first checks that manuscripts contain no author identifiers; the double-blind process used by *J-PEER* keeps the identities of authors, referees, and often associate editors private.

The current review process under Şenay Purzer, which may not perfectly represent that of previous years, is depicted in Figure 6. The review of the original submissions and the revised submissions are differentiated. A new submission is first reviewed by the chief editor. The revised submissions are managed by the associate editors. While the associate editors work closely with the chief editor, the responsibility for finalizing the decision letters rests with the chief editor.

Average Turnaround Time

Original manuscripts submitted in 2019 were processed with an average turnaround mean of 82 days, with a maximum of 210 days between the author's submission of a new manuscript and receiving an editorial decision letter. Our target is to keep the average turnaround time below 100 days, which was achieved in 2019. One of the major factors in turnaround time is how quickly reviewers respond to the invitation, and whether they agree. The peer evaluation process is the most critical and essential part of a journal's manuscript review process, and it is also the most time-intensive part of the process.

Manuscripts are initially processed by the chief editor in two ways: (1) send to an associate editor for peer review or (2) make a "desk decision" if unfit for peer review. Revised submissions are also subject to desk reviews, which determine whether they are to be accepted, accepted with minor revisions, rejected, or sent for another round of peer reviews. Those manuscripts that are deemed ready for external review are assigned to an associate editor, who then identifies two to three expert reviewers. While the reviewers know the associate editors, they do not know the authors. For those who committed to submitting a review in 2019, it took an average of 20 days from commitment to completion—in accordance with our requested deadline of three weeks.

Identifying reviewers with the necessary expertise is an important step; however, not all experts are able to commit to a review, requiring the need to identify alternative reviewers. In 2019, 93 scholars were invited to review manuscripts. Of this group, 57% committed and completed a review (see Figure 7). Thirty-three percent either did not commit (15%) or declined to review (18%). The remaining 10% initially committed but were not able to complete their review. Any journal's quality depends on the close match between the reviewers' expertise and the manuscript's topic and approach as well as the reviewers' comments in guiding the authors and the editors. Hence, the time taken to identify reviewers and in writing quality reviews is worthwhile and necessary.
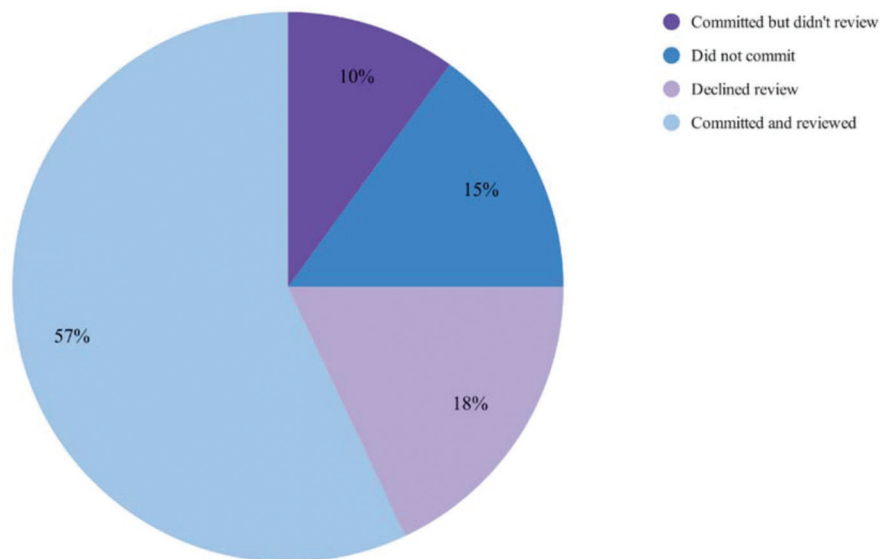

Figure 7. Responses to reviewer requests in 2019.

INDEX	SINCE
Elsevier BV	
Scopus	2015
EBSCOhost	
EBSCO Engineering Collection: India	2011
EBSCOhost—Bibliosan	2011
Biotechnology Source	2011
Education Source	2011
Engineering Source	2011
STM Source	2011
TOC Premier (Table of Contents)	2011
Directory of Open Access Journals	
Directory of Open Access Journal	2011
DOAJ—Bibliosan	2011

Figure 8. Indexing for J-PEER.

Decision Letters and Acceptance Rate

Once all reviews are received, the associate editor drafts a decision letter. They then consult with the chief editor regarding their decision before sending the letter to the authors. The *J-PEER* system registers decisions under four categories: accept, accept with minor revisions, request major revisions, or reject. In 2019, the acceptance rate was 25%, while the rejection rate was 58%. The 2019 acceptance rate of 25% reflects *J-PEER*'s thorough review process. According to Sugimoto, Larivière, Ni, and Cronin (2013), among 98 open access journals published in education, the mean acceptance rate was 37%, compared to business (38%), computer science (42%), psychology (51%), and health (58%) disciplines. The mean acceptance rate for 1,058 education journals that were not open access was 34%.

Indexing of *J-PEER*

A journal's quality and its papers' impact can be quantified in different ways, including journal impact factor, longevity, editorial board membership, number of databases indexing the journal, number of aggregators providing full-text access, and Journal Citations Report (JCR) categories (Ni, Shaw, Lind, & Ding, 2013; Walters, 2017). According to the Ulrichsweb serials directory, *J-PEER* is indexed under the following databases listed in Figure 8.

Editorial Board and Staff

We are grateful for the continuous interest of our readers and authors, who select *J-PEER* to access and publish research on pre-college engineering education. The critical work of *J-PEER* would not be possible without the exceptional work of our associate editors and volunteer reviewers. We appreciate their support and look forward to working with them in the years to come.

In *J-PEER*'s editorial process, the associate editors play a critical hands-on role in processing manuscripts in a timely manner, reading the manuscripts in detail, offering their expert insights, and writing detailed summaries of peer reviews. Thank you to the following associate editors:

- Merredith Portsmore, Tufts University
- Mack Shelley, Iowa State University
- Gina Svarovsky, University of Notre Dame

Thank you to our editorial board, as well. Editorial board members have a vital role in guiding the journal and disseminating the great work of our authors. These members include:

- Robin Clark, Aston University, United Kingdom
- David Crismond, City College of New York
- Lyn D. English, Queensland University of Technology, Australia
- Tirupalavanam Ganesh, Arizona State University
- Stacy Klein-Gardner, Vanderbilt University (also served as an associate editor 2016–2019
- Stephen Krause, Arizona State University
- Marcia Linn, University of California, Berkeley
- Mitchell Nathan, University of Wisconsin-Madison

Thanks to the School of Engineering Education, Purdue University Press, and Purdue University Libraries and School of Information Studies for supporting the open access model of *J-PEER* philosophically and financially. Thanks to Katherine Purple at Purdue Press, whose crucial work facilitates the production of our articles. Thanks to our associates at Berkeley Electronic Press as well, for their timely attention to questions regarding our online system. Last but not least, many thanks to Editorial Assistant Emily Jones, for her work in the background and editing of all manuscripts, including this one.

Social Media

In today's world social media plays a critical role in helping research make an impact. The open access nature of *J-PEER* allows readers free access to original research papers worldwide. We invite our authors and readers to spread the word by following our new Twitter account (@JPEEResearch) and sharing *J-PEER*'s articles with their social circles. The editorial staff will continue to share exciting updates and promote new articles with our followers.

Looking Forward

With this report and subsequent ones, we hope to provide feedback to editorial teams and additional information to our authors. Those authors who have published articles with us can access impact data for their articles within their bepress accounts by accessing the "Dashboard."

In the coming years, we look to expand the journal by incorporating new sections and features such as special issues, editorials, and position papers. Additionally, we plan to update our website design and content. *J-PEER* is growing steadily and leading the field of pre-college engineering education. We look forward to receiving submissions for empirical, synthesis, and visionary papers.

Author Bios

Senay Purzer is the chief editor of *J-PEER* and an associate professor in the School of Engineering Education at Purdue University.
Email: purzer@purdue.edu

Emily Jones is the editorial assistant for *J-PEER* and a senior at Purdue University. She will be graduating in May 2020 with a degree in professional writing.

References

Cardella, M. & Purzer, S. (2019, Oct. 21). *Democratizing readership of research on teaching and learning engineering*. Retrieved from http://blogs.lib.purdue.edu/news/2019/10/21/oa-week1

Lozano, G. A., Larivière, V., & Gingras, Y. (2012). The weakening relationship between the impact factor and papers' citations in the digital age. *Journal of the American Society for Information Science and Technology*, *63*(11), 2140–2145.

Ni, C., Shaw, D., Lind, S. M., & Ding, Y. (2013). Journal impact and proximity: An assessment using bibliographic features. *Journal of the American Society for Information Science and Technology*, *64*(4), 802–817.

Sugimoto, C. R., Larivière, V., Ni, C., & Cronin, B. (2013). Journal acceptance rates: A cross-disciplinary analysis of variability and relationships with journal measures. *Journal of informetrics*, *7*(4), 897–906.

Walters, W. H. (2017). Citation-based journal rankings: Key questions, metrics, and data sources. IEEE Access, 5, 22036–22053.