Guest Editorial

AEE and *JEE*: Where Are the Boundaries? Should There Be Boundaries? Do We Need Boundaries?

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JEE – the *Journal of Engineering Education* – is entering its second century. The *Journal* began in 1910 as the *Bulletin of the Society for the Promotion of Engineering Education*, a monthly periodical "devoted to technical education" (ASEE, 2013). Over the years, the *Bulletin* published communications of the professional society and articles on engineering education (subsequently being renamed twice, first as *Journal of Engineering Education*, 1925–1969, and then as *Engineering Education*, 1969–1991). In 1991, ASEE announced two separate publications, *Prism* and *Engineering Education*; and in 1993 *Engineering Education* was renamed once more to the *Journal of Engineering Education*, emerging as ASEE's "scholarly professional journal." In 2003, *JEE*'s mission was redefined to "serve as an archival record of scholarly research in engineering education." With its current mission, *JEE* primarily publishes work that results from what Boyer calls "the scholarship of discovery" (1990). This field of engineering education research is best described by Streveler et al. (2007) and Borrego et al. (2007).

In contrast to *JEE*, *Advances in Engineering Education* (*AEE*) is a very new journal. Now just five years old and working on our eleventh, twelfth, and thirteenth issues (ten are already published and the eleventh will be online by the time you read this), we are attracting submissions from literally around the world. Further, by that time we will be close to receiving our five hundredth paper. But what is *AEE*, and how does it differ from *JEE?*

AEE was conceived by the American Society for Engineering Education (ASEE) to be a complement to *JEE* – a peer-reviewed, archival but online publication, which would focus on those innovative "applications" of engineering education research – and, for that matter, science and mathematics education research as well. Thus, *AEE* focuses on work resulting from the scholarship of application, or what Wankat and colleagues call "the scholarship of teaching and learning" (2002), which addresses the question, paraphrasing Boyer (p. 21), How can knowledge resulting from research be applied to improve engineering education?

When the idea of a new journal was proposed by ASEE, it was in response to a perception that engineering instructors needed a resource for articles that describe innovative applications of rigorous research in engineering education. While *AEE* would focus on applications, whether in the classroom or out of the classroom, it would not be just *any* applications. We specifically chose the name *Advances in Engineering Education* to emphasize that we would publish articles based on scholarly work that would truly be an advance as judged by peer reviewers. Therefore, the advance would need to be supported

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by an appropriate literature review, a recognized pedagogy, rigorous methodology, and appropriate assessment. We were certainly not going to publish "I had a good idea, I tried it, it worked" papers. Specifically, while we were not going to be a research journal in the same sense as *JEE*, we were not going to be a repository for unproven ideas. We were also not going to be a second-class *JEE*, or an outlet for those articles that were rejected by *JEE*.

ASEE also wanted a peer-reviewed journal, and we have taken that charge to heart. Articles go through a rigorous review process. It is the exception for an article to be accepted as submitted with only minor editing. Rather, the large majority of the articles we have published have been revised at least once, and in some cases twice, while responding to reviewers' constructive comments and suggestions. One result is that only about a quarter of submissions are published – a rate that is consistent with those of higher impact journals, but now substantially more than *JEE*'s ten percent.

With an experienced editorial board and supportive advisory board, we have been able to create a journal that we hope will be an appropriate complement to *JEE*, but not a duplicate. Yet, as we have developed, there is one question that we have consistently faced and wrestled with: "What is the difference between *AEE* and *JEE*? Which articles should go into *JEE* and not *AEE*, and vice versa?" It is too simple and, in fact, not completely accurate to state that *AEE* publishes applications and *JEE* publishes research. Indeed, as engineering education research becomes a more established field, we are seeing that more applications and certainly most advances result directly from research. We find a number of instances among our submissions where authors need to summarize past research results to build a foundation for the application that the article describes; although hopefully in the future, the authors will be able to point to a *JEE* article that describes this research.

Conversely, does this also imply that *JEE* will not publish applications? Certainly, a review of past issues suggests that this may, in fact, be the case. A quick examination of the *Journal*'s volume 101 reveals that 29 articles were published. Of those, one would have been appropriate for *AEE* in a general issue, and a second one for a special issue. This is not to say that the authors could not write a second paper focused on applications – something that we would be delighted to see! However, in the broadest sense these 29 articles form a body of well-designed research studies or essays on a particular aspect of engineering education. To date, we have been referring such articles elsewhere.

So, where do we draw the boundary? When Jack Lohmann was *JEE* editor, he had initially suggested that we fix the boundary. When Michael Loui became editor, the issue was raised again, and Michael suggested that this would be an ideal topic for a guest editorial.

We propose that any boundary, if there is one, will always remain a bit fuzzy. As noted, *JEE* isn't strictly research without applications, and *AEE* isn't simply applications without research. We both have also published serious overviews of the literature, although we have done it only as part of a special issue. *AEE* would not publish a pure research piece – clearly that is the province of *JEE*. But a description of research that has led to an important advance – either in or out of a classroom setting – we see that fitting *AEE* if the application is clearly described and, as noted, documented by an appropriate assessment. In addition, we would not, and most likely neither would *JEE*, publish a paper that describes a new algorithm, an elegant proof, or the solution to a perplexing mathematical or engineering problem; those are more the purview of the various disciplinary journals. Such papers, which now make up close to twenty percent of our submissions, are typically returned, unreviewed, to the author with a polite thank you note.

We also would not publish a paper that has a solid literature review, utilizes appropriate methodology, and incorporates proper assessment, but concludes that the project was not successful. That is not an advance. Until we are much further established, we prefer to highlight proven successes.

We hope this editorial is helpful to you in understanding the distinction that we perceive between *AEE* and *JEE*. This distinction is an important topic of dialogue for ASEE and the larger engineering education community. We welcome your feedback. Please let us hear from you.

References

American Society for Engineering Education. (2013). *History of JEE*. Retrieved from http://www.jee.org/about-jee/history-of-jee.

Borrego, M., Streveler, R. A., Miller, R. L., & Smith, K. A. (2007). A new paradigm for a new field: Communicating representations of engineering education research. *Journal of Engineering Education*, *97*(2), 147–162.

Boyer, E. L. (1990). *Scholarship reconsidered: Priorities of the professoriate*. Princeton, NJ: Carnegie Foundation for the Advancement of Teaching.

Streveler, R. A., Borrego, M., and Smith, K. A. (2007). Moving from the "scholarship of teaching and learning" to "educational research": An example from engineering. *To Improve the Academy*, *25*, 139–149.

Wankat, P. C., Felder, R. M., Smith, K. A., & Oreovicz, F. S. (2002). The scholarship of teaching and learning in engineering. In M. T. Huber and S. P. Morreale (Eds.), *Disciplinary styles in the scholarship of teaching and learning: Exploring common ground* (pp. 217–237). Washington, DC: American Association for Higher Education.

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