Advances in Engineering Education

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From The *Looking Ahead* Editor

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Advances in Engineering Education is expanding our content to now include short, work-in-progress articles that suggest potential impacts within the field of engineering education. These *AEE Looking Ahead* articles may include pilot studies with promising preliminary results and the potential to be more-fully implemented in the classroom. They might also include results, findings, and anticipated directions from venues such as mini-conferences and workshops. However, the aim is to align with the mission of *Advances in Engineering Education* – to showcase *preliminary implementations,* or research with the strong *potential for implementation*, so as to ultimately improve learning and/or satisfaction inside and outside the classroom. *Looking Ahead* uses a structured extended-abstract format of approximately 1000 words, in which authors describe the study background, methods, preliminary results, and next steps, including plans for implementation or future activities. The articles are peer-reviewed using criteria that include interest and appeal, potential impact on engineering education, originality, methodology, and potential for implementation or continued implementation.

In this inaugural edition of *Looking Ahead*, we are delighted to publish two articles, both of which relate to the important and interrelated topics of innovation, entrepreneurship, and diversity. In the first article, submitted by an interdisciplinary team from the University of San Diego, *Drones for Good* was created to bring together students from two schools at the university – the school of Engineering and the school of Peace Studies. In this interdisciplinary course setting, students were tasked with designing a drone having a positive effect on society as part of a semester-long project. The key learning objective was to train students to think with an entrepreneurial mindset when developing an innovative solution to a societal challenge. With this socio-technical educational approach, students reported the positive impact of team heterogeneity and background on entrepreneurial thinking. The research team plans to continue to offer the course and in the process collect additional data for a highly-structured qualitative analysis of student perspectives as well as direct assessment of their innovation achievement with the use of entrepreneurial thinking.

In the second article, the concept of a diverse and inclusive “liberatory” makerspace was explored by researchers at Virginia Tech to ultimately drive greater involvement by students from under-represented minority groups within engineering in innovative makerspace use. By way of

participatory action research, in which "partner" makerspace sites are actively involved, multiple makerspace sites were visited and studied ethnographically, and a subsequent "unconference" was held with members of these makerspaces. A key finding was that it may not be feasible to establish a list of "best practices" for inclusive makerspaces. Rather, the researchers suggest that a more informed and responsible approach may be a proposed heuristic tool that *prompts* makerspace designers and leaders to consider the inclusiveness of their particular makerspaces by reflecting upon their particular contexts, policies, and practices.

If you are involved with a preliminary or pilot project that holds the potential for impact when completed and implemented, we urge you to submit 1,000 word (body) extended abstracts that include four sections - background, methods, preliminary results, next steps – as well as appropriate references using the Manuscript Central portal: https://mc.manuscriptcentral.com/advances, Make sure to include a note to the editor stating that the article should be considered for "Looking Ahead."

AUTHOR

Renee Clark is Research Assistant Professor of Industrial Engineering and Director of Assessment for the Engineering Education Research Center (EERC) in the Swanson School of Engineering, University of Pittsburgh. She conducts research on education projects that focus on active learning and engineering professional development. Renee has published her research in *IEEE Transactions on Education, Computer Applications in Engineering Education, International Journal for the Scholarship of Teaching and Learning,* and *Advances in Engineering Education*. She received the Ph.D. in Industrial Engineering from the University of Pittsburgh and the MS in Mechanical Engineering from Case Western. She has 25 years of experience as an engineer and analyst in industry and academia.