

Storytelling in Engineering Education

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The engineering education research community is evolving, as evidenced by the growth of capacity building programs and emerging venues for disseminating engineering education scholarship. Central to these changes are conversations around envisioning engineering education as a new professional discipline. One challenge emerging from these conversations is how to share what we as a community are learning about the process of conducting engineering education research, ways to make an impact on engineering education, and strategies for successfully navigating an engineering education career. The community is at a point in time where focused dialogue and community building are crucial.

Implications of Findings

An underlying premise for this paper is the value of using storytelling in engineering education to make explicit knowledge that can advance engineering education as a profession. The interactive story poster pedagogy described in this brief (and the full paper at the link below) focuses on building community and intellectual capacity in engineering education research. Evaluation results suggest both a need for and the value of a community of practice storytelling forum for sharing stories about the challenges and strategies of navigating engineering education research and careers.

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Perhaps the most valuable lesson learned is the extent to which participants wanted to share and hear stories—and that this was not something generally experienced at engineering education conferences. Storytelling provides a vehicle for scholarly discourse that makes explicit our implicit knowledge, promotes reflective practice, and provides entry points into a community of practice.

Design and Background of an Interactive Storytelling Workshop

The Institute for Scholarship on Engineering Education (ISEE) team of the Center for the Advancement of Engineering Education, designed and implemented a 120 minute interactive session called “Communities In Practice—What Are We Learning?” for the 2006 Frontiers in Education Conference in Indianapolis. Six story posters were provided by 8 Scholars of the 2004 Institute. Poster content focused on sharing insider knowledge regarding passions and goals, processes such as getting started, and what they learned about research.

Story posters provided an anchor for session activities, functioned as an interactive space for promoting dialogue by involving the audience, modeled strategies for eliciting stories from the audience participants as well as the kinds of stories that could be shared more publicly, and made use of the ISEE practice of using posters to create public spaces for feedback and dialogue around designing research studies.

Participating ISEE Scholars were asked to reflect on what they've been learning about engineering education research. They were then asked to share aspects of their "story" with another workshop participant. This was followed by a mini presentation describing the session goals and activities. The participants were then invited to view the ISEE Scholars' story posters and to use sticky notes to place comments, questions, or reflections on the posters themselves. Posters featured stories of engineering education research experiences such as the "dirty details" of designing and conducting research, building community, designing effective learning environments, and bridging engineering and education perspectives.

Following the story poster walk, participants were encouraged to select a poster that would serve to anchor discussions around stories of engineering education research. The posters thus served a two-way exchange of ideas by first modeling the concept of sharing stories, and then engaging others to share their own stories. A particular focus of the discussions was on identifying challenges, strategies, advice, and epiphanies.

At the end of the story sharing discussions, participants were asked to share stories from their table with the broader audience. Some story themes were common across tables such as the challenges and strategies for navigating new vocabulary, ideas, and techniques. Other stories were more personal epiphanies that seemed to resonate with others in the audience. Some examples of these include "formulating questions IS research," "doing this is like going through a second PhD process," and "at what point do you stop studying it and do something about it?" Finally, the presenters brought the session to a close and asked for feedback on the session and ideas for future opportunities.

What The Evaluation Revealed

The session was formally evaluated by the Educational and Research Methods (ERM) division. This involved a written evaluation form that included closed and open ended questions regarding how audience participants experienced the session. Although more than 50 people participated in the session, only 39 evaluations were completed. The session was highly rated, which substantiated some of our observations.

Themes from the open-ended questions were analyzed in terms of the following session goals: 1) creating collaborative knowledge, 2) fostering professional development and learning, 3) building networks and community, and 4) providing strategies for reflective practice.

The group debriefs illustrate that one of the session outcomes was collective knowledge around engineering education research and specific research endeavors. Most participants commented on the highly interactive nature of the session—such as "truly interactive, great discussion at my table about an issue I am really passionate about" and "active and interactive." Participants also described how the activities promoted opportunities for learning.

Networking and community were frequently observed in the participants' comments and often this illustrated how participants valued the importance of community building. Some comments focused on the value of connecting with like-minded people around personally important issues, and other commented on the value of meeting new people. A number of participants commented on how the session provided an experience they'd been looking for at this conference—more formal community building activities.

Many participants commented on the self-reflective properties of storytelling, and storytelling as a pedagogical strategy. Participants also commented on areas for improvement and ideas for taking storytelling into the future.

There are many affordances to storytelling. Prior work has illustrated that storytelling plays an important role in learning, meaning making, facilitating change and innovation, and effective pedagogy. Given the success of this experience, the team plan to take the storytelling idea forward and hope that others will be motivated to build on the ideas presented in this paper.

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