

**Learning Engineering Special Event:
Develop recommendations regarding learning engineering as an academic and career field**

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Background: “Learning Engineering is a process and practice that applies the learning sciences using human-centered engineering design methodologies and data-informed decision making to support learners and their development” (IEEE Industry Consortium on Learning Engineering)

Discussion:

Talking Point #1: Building an Interdisciplinary Field - Learning engineering is envisioned as an interdisciplinary career field. What specific disciplines and skills are/will be required to be successful in field of learning engineering?

Talking Point #2: Skills and New Learning - Learning sciences has been a career field for many decades. What are the anchoring points in existing academic programs from which we extend to support learning engineering as a career field?

Talking Point #3: Certifications - As new academic and career fields have evolved so have certifications to identify suitable candidates with the right skill mix to be successful. How might we approach the certification process for learning engineers and should we expect certification to be mandatory to practice learning engineering?

Recommendations:

Recommendation #1: Building an Interdisciplinary Field - Graduate programs in learning engineering have been established at Carnegie Mellon University and Boston University, and others will soon follow. We need to begin thinking about learning engineering as an interdisciplinary undergraduate academic program. Recently, UCF has refocused many of their research programs by establishing interdisciplinary partnerships between their colleges/schools. These research clusters include a learning sciences cluster that is a partnership between educational technology and computer science. Expanding on this thought, we should add majors from psychology, biology, and statistics/informatics.

Recommendation #2: Skills and New Learning - In areas like Orlando where there is a concentration of learning tech research and development, industry partners should work with universities to establish partnerships in support of undergraduate learning engineering programs. These programs should include courses in educational technology, instructional design, computer science, modeling and simulation, cognitive psychology, human factors, physiological and behavioral sensing and data analytics. Many of these courses already exist in some form and could serve as anchoring points for developing additional learning engineering skills.

Recommendation #3: Certifications – In the last 20 years, the modeling and simulation career field has grown and professional certification was developed through a grassroots process.

Experts were invited to participate in discussions about essential skills and then contributed assessment questions/problems associated with these skills to establish a certification exam. While this was effective in identifying core skills, certification has primarily been a localized phenomenon. If we wish learning engineering to be nationally or internationally recognized, we should examine a pathway to certification that involves state departments of professional regulation as for other engineering professions (e.g., civil, mechanical or electrical engineering) or pursue profession certification through an international body such as IEEE.