Work-In-Progress: Facilitating Engineering Students' Entrepreneurship Through Self-Regulated Learning Instructions

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Abstract

This Work-in-Progress investigates the implementation of an innovated entrepreneurship education program integrated with self-regulated learning (SRL) instructions in College of Engineering within a public university in the United States. Entrepreneurship education programs have become prevalent across engineering schools nationally and globally. While SRL demonstrates positive effects on students' learning, little is known about how to integrate SRL instructions in teaching that facilitates engineering students' learning in entrepreneurship. Through an experimental study, we assume that students with support of SRL will improve their entrepreneurial skillset and mindset and demonstrate improved learning outcomes in entrepreneurship.

Research has suggested that self-regulatory skills are beneficial for students to develop entrepreneurial skills (Harms, 2015). In other words, effective entrepreneurs regulate their cognition, metacognition, and motivation to adapt to new environments and unexpected challenges, make appropriate decisions, and overcome obstacles, which overlaps with the essential elements in SRL (Neck et al., 2011; Zimmerman, 1989). SRL describes a phase-like learning model that includes students' goal setting and planning before a task, strategic actions and monitoring during a task, and self-reflection and evaluation after a task (Zimmerman & Moylan, 2009). To understand how SRL plays a role in understanding and fostering engineering students' learning in entrepreneurship, we are conducting a semester-long intervention that provides students with SRL instructions in addition to the regular teaching activities. Our main purposes of the study include 1) contextualize SRL instructions into the entrepreneurship course; 2) provide students with SRL instructions to support their learning in entrepreneurship; 3) identify and assess learning and psychological outcomes related to SRL that indicate students' growth in entrepreneurship.

The study follows an experimental design, including an experimental condition and a control condition. In the experimental condition, students will receive various SRL prompts throughout the course. The SRL prompts will be designed to facilitate students' self-regulatory skills in cognition, metacognition, and motivation in a way that cultivates students' learning and application of entrepreneurial knowledge and skills. In addition, the course instructors will teach students how to use a metacognitive strategy, self-reflection, with explicit instructions to prepare students for their future careers. Specifically, students will be taught to self-reflect upon their learning experiences related to the topics taught in the entrepreneurship course and to potentially

form entrepreneur identities from connecting their real-life experiences and the learning content in the course.

Currently, we have implemented sample prompts in the midterm project where students were asked to reflect on their real-life experiences when preparing for job interviews. We plan to test our study materials and start formal data collection in Spring and Fall 2022. Data will include pre- and post- entrepreneurial knowledge tests, students' written self-reflection responses, and SRL instruments. We expect results to show increases in students' SRL skills and the impact of SRL on students' learning in entrepreneurship-related concepts and application. The findings of this work will demonstrate the impact of SRL in an entrepreneurial context using rigorous research methods and theory-based pedagogical practices.

References

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