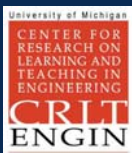


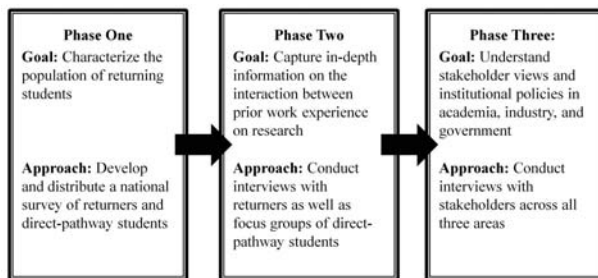
Characterizing the Experiences of Practitioners who Return to Engineering Graduate School

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Abstract

Our research is aimed at developing a better understanding of the perspectives and engineering graduate school experiences of returners, students with engineering undergraduate degrees who work outside of academia for at least five years and come back to the academic setting to earn their PhDs, as well as direct-pathway students. This work is informed by our pilot study of 10 returners which identified Eccles Expectancy Value Theory as an appropriate model of the decision to return to school. The first phase of the study is a national survey of over 400 engineering PhD students.



Research Goals

- What are the characteristics of those who return to graduate school after work experience compare to direct pathway students? Why do they return?
- What is the returning experience like?
- How does the intersection of prior engineering experience and academia shape the topics of research work and their connectedness to the “real-world?”
- How do stakeholders view the returning experience and impact returners?

Pilot Study

- 10 interviews with STEM returners
- Interviews were analyzed inductively and deductively
- Fit Eccles’ Expectancy Value Theory: people make decisions based on the expected results of their choices, the costs of each choice, and personal values and interests, proved to be a good model to explain these students’ decision to return.

Interest Value	The individual’s anticipated enjoyment of engaging in the activity
Attainment Value	The individual’s perception of how the activity contributes to the conception of who he or she is fundamentally
Utility Value	The individual’s perception of the advantages that result from engaging in the task for future goals or rewards
Cost	The individual’s perception of the sacrifices required, including effort, time, and psychological impact

Category	Cost	Cost Reduction
Intellectual	<ul style="list-style-type: none"> • Need to re-learn material • Difficulties working with or finding study groups/partners 	<ul style="list-style-type: none"> • Finding good resources for re-learning material • Actively seeking out study groups
Financial	<ul style="list-style-type: none"> • Cost to pay tuition • Lost wages while in school 	<ul style="list-style-type: none"> • Finding fellowships and scholarships • Reductions in personal expenses
Balance	<ul style="list-style-type: none"> • Less time for family • Less time for community involvement 	<ul style="list-style-type: none"> • Preparing family for the experience • Maintaining some involvement in the community
Cultural/ Environmental	<ul style="list-style-type: none"> • Feeling of being “demoted • Learning a new culture at the university” 	<ul style="list-style-type: none"> • Establishing a support system • Establishing common ground with other students

Survey Goals and Content

- How do students’ perceptions of graduate school compare?
- What influences students’ confidence in their ability to succeed in their PhD?
- What motivates students to enroll in an engineering PhD program?
- What aspects of earning a PhD do students most value?
- What costs do students experience during graduate school?
- What strategies do students use to reduce these costs?
- What do students plan to do after completing a PhD?

Survey Section Topics

- Demographic Information
- Academic Background Information
- Current Academic Information
- Pre-PhD Activities/Career
- Decision to attend graduate school
- Expectancy of Success in Graduate School
- Values of the PhD
- Costs of the PhD
- Cost Reducers
- Advisor Relationship
- Post-PhD Plans

Next Steps

