

## **Investigating First-year Engineering Student Resilience**

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In this study, we seek to systematically optimize the transition process for prospective first-year undergraduate students, easing their integration into the university educational system by concentrating on scaffolding resilience and intellectual grit-enhancing strategies, and measuring the effectiveness and persistence in practice as appropriate.

Some commentators have described “learning shock” in shifting from a knowledge- and application-based learning paradigm to independent assessment and evaluation as the primary reason why so many promising students do not pursue engineering careers and subsequent advancement.

We need to understand what resilience and grit means, their attributes from theory/practice, and how this understanding influences transition to and from an undergraduate program of technical instruction, specifically engineering education. Additional analyses can be performed on how the first-year undergraduate environment and program account for this; and how this transition needs to be managed. It is recognised that there is a balance to be struck between anxiety and effective student development, but unclear what that balance should be at each stage of the transition. Though engineering students may not experience physical stressors directly, the impact of intellectual and other stressful environments may play a role in performance and mental/physical health. Research would include working with Outreach and Recruitment, the First-year Office, and with stakeholders in the undergraduate engineering program at Faculty of Applied Science and Engineering, University of Toronto.

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**Research Area:** Engineering Education