

A Case Study of Graduate Teaching Assistants' Views on Relatedness in a First-Year Engineering Program

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Introduction

The first year of any student's college experience is critical. During that time, students often face life challenges and changes as well as difficult curriculum. In engineering, many students participant in first-year engineering programs (FYEPs) during that first year as well.¹ In these programs, Graduate Teaching Assistants (GTAs) are a key component to the overall structure and operation.²⁻⁴ GTAs often teach in these courses and are in direct contact with freshmen students creating the potential for GTAs to significantly impact students' initial experiences in engineering. Because of this potential impact, this extended abstract examines the relatedness experiences of a group of GTAs involved with a common content based FYEP. By relatedness, we mean the ways GTAs connect with other people involved in the program. Our belief is that by first understanding the experiences of GTAs, we can ultimately enhance GTAs' teaching experiences and then the experiences of first year engineering students in these types of programs.

Theoretical Framework

Relatedness is one of three motivational needs identified in self-determination theory (SDT).⁵ At a fundamental level, relatedness is defined as a sense of connection or community to those you interact with.⁵⁻⁷ For GTAs working in FYEPs, relatedness was defined to included connections to students, fellow GTAs, faculty or instructors, and the department or university. Using this framework, this research project was designed to answer the following research questions:

1. Who are the key people GTAs connect to or relate with within the context of FYEPs?
2. What are the factors that affect these relationships?
3. How are the relationships characterized?

Methods

To examine relatedness experiences, six GTAs in a FYEP at a large Midwest research university were interviewed using a semi-structured interview approach where the six interviews served as the bounded case for this study.^{8,9} Participants were invited to volunteer for interviews via an email message sent to all GTAs working in the FYEP at the target school. All of those who volunteered were interviewed over the phone for approximately one hour. The interviews were recorded and transcribed verbatim for analysis. To elicit an understanding of GTAs relatedness experiences, the interviews were segmented and coded for passages associated with relatedness. These same sections were then coded using an open-coding approach to allow inductive

development of themes within the broader category of relatedness.¹⁰ The codes that emerged related to the types of people with whom GTAs forge connections and the nature of those relationships.

Results and Discussion

Initial findings suggest that GTAs have different types of relationships with the people they work with including students, peers, and faculty. They also have unique connections to their department and/or university that impact their experience. To begin, while GTAs often have strong connections to their students, they work hard to maintain what they perceive to be professional relationships. For example, GTAs tend to refrain from interacting with their students outside of the formal settings of the classroom and office hours. This could be attributed to the closeness in age between many GTAs and their students where GTAs try to remain an authority figure opposed to a friend. With regard to fellow GTAs, the relationships are mixed. Some GTAs had strong and interdependent connections with only a small group of GTAs in their FYEP while other GTAs related well to all of their fellow GTAs. Many of these relationships seemed to depend on the past experiences of GTAs and the level of support they needed from their peers to succeed in their role. For example, those who were new to teaching often relied on their peers for support while those seasoned in teaching did not need that close knit of a group to succeed. Relationships with faculty and instructors were equally varied, and the nature of the relationships tended to be dependent on the faculty supervisor. These relationships often varied semester to semester based on the instructor with whom the GTA was paired. Finally, connection to the department or university depended on how long the participant had been at that university. The connection was very strong for those who attended that university for their undergraduate degree, but those who did not attend that university for their undergraduate education seemed to have a strained relationship.

Conclusion

This work is part of a larger mixed methods study aimed at understanding the motivation and identity development of GTAs in FYEPs. The results of this portion of the research point to the unique and multifaceted sense of relatedness that GTAs develop during their teaching experiences. These findings will be used to develop future research based GTA training programs and appointment structures that aim to facilitate increased relatedness as it supports increased motivation and identity for GTAs. Ultimately, our belief is that positive GTA motivation and identity development will have a direct positive impact on the motivation of students helping to improve the overall first year engineering experience.

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