

# Examining the Motivations of STEM Graduate Teaching Assistants through Expectancy Value Theory (EVT) and Self-Determination Theory (SDT)



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This Poster:



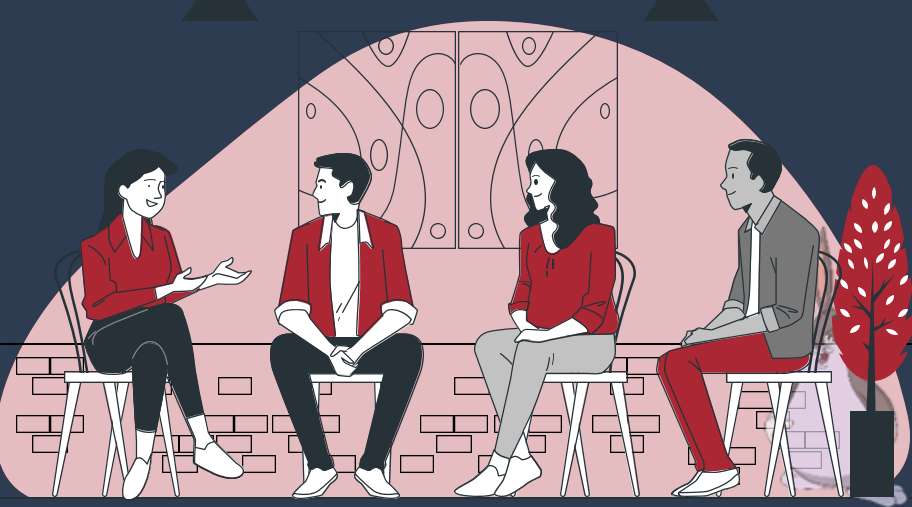
## Introduction

Graduate Teaching Assistants (GTAs) often supervise labs, proctor exams, and grade various assignments. [1]

Research on GTAs often focuses on professional development. [2] Limited research on GTA experience [3]

Graduate students are 6X as likely to suffer from depression and anxiety as nonstudents their age [4]

RQ: How are GTAs motivated to engage with their assigned duties?



## Participants

Cow



- 1<sup>st</sup> Year
- Physics
- White Male

Cat



- 2<sup>nd</sup> Year
- Computer Science
- Asian Male
- International Student

Giraffe



- 2<sup>nd</sup> Year
- Physics
- White Male

Dawg



- 3<sup>rd</sup> Year
- Computer Science and Engineering
- Hispanic Male
- International Student

## Methods

### Secondary Analysis of Photovoice Study

Focus Group Audio Recording Transcribed by External Human, Checked by Study Team

Deductive Coding with Motivation Framework (2 Study Members)

Start with EVT [5]  
Introduce SDT [6] Later

Interrater Reliability  
 $\kappa = [0.28 - 0.67]$

Disagreement Resolved via Discussion

## Why SDT?

Agency!  
Not EVT!

"Specifically for this semester, we didn't have like a head TA that we just kind of assigned between us to take on more of the 'you talk with the professor, you be the point of reference.' So having that support system... and someone to... talk with. I guess, I'm just extremely grateful for these people. They're so dependable and I think that feeling that camaraderie is what I'd say."

Friends!  
Not EVT!



## Theoretical Framework: \*EVT\* and +SDT +

| Construct                 | Defining Questions   | Example Quote from Transcript  |
|---------------------------|--|--|
| Expectancies for Success* | How difficult is this?<br>Will I overcome this challenge?  | "There's nothing I can do about that, personally. I don't know. Seeing it. It's so... I don't know. I try hard, but so often, <b>what I try to do feels futile.</b> "  |
| Intrinsic Value*          | Is this fun?<br>Do I find this interesting?  | "Then I got to lead and sort of teach this class. And <b>it was really fun!</b> And I regained my sense of purpose."   |
| Utility Value*            | Will this be useful in the future?<br>Will this help me achieve my goals?                          | "And like in office hours or, the students don't come the next week because it just wasn't useful. And you're like 'Dang, it's happening again!' <b>You feel like... not useful.</b> You're not doing what you're supposed to be doing. And it feels like, I don't know, like <b>purposeless</b> or not as good" |
| Attainment Value*         | Is this important to me?<br>Am I the type of person to do this?                                    | "For me, it was getting the keys to the lab. <b>Being the person</b> who goes and unlocks the lab door and the students walk in and they're just staring at you and it's like 'Oh. I get it.' <b>I'm like... the lab person in their eyes.</b> And that's really cool."  |
| Cost*                     | How much energy will this take?<br>How will this make me feel?<br>What do I give up by doing this? | "[I gave them] enough feedback so they could work on their shortcomings, but it wasn't possible to help them refine everything completely. <b>There just wasn't enough time or capacity</b> to go that deep into every single report."   |
| Autonomy+                 | Am I being trusted with responsibility?<br>How much agency do I have?                              | You have this feeling of 'I want to do something, I want to be able to change this' but then <b>it's outside of your control</b> so you just have to... be there as best you can."   |
| Relatedness+              | Will we help each other?<br>Do I like spending time with these people?                             | "It may not be the best circumstances. But <b>I feel grateful to have this other person</b> going through the exact same thing. We can talk about what's going on. We can riff off each other to try to make the experience better for the students."  |

## Discussion and Limitations

- Each experience described can be categorized as one or more of these 7 constructs!

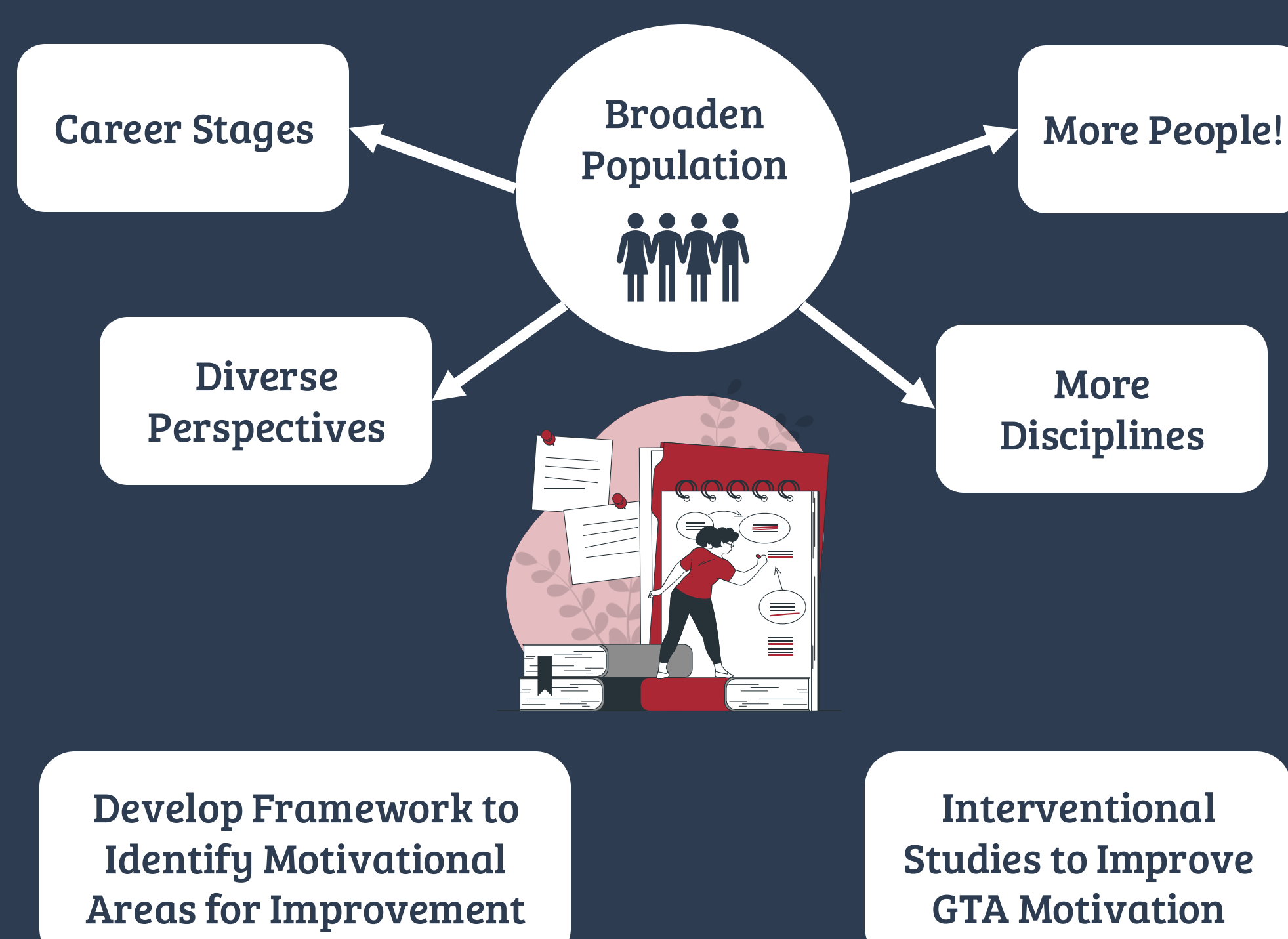
- EVT and SDT completely describe these GTAs' Experiences

Most Frequent Codes:  
Relatedness (36 codes)  
Intrinsic Value (33)

Least Frequent Codes:  
Cost (18)  
Utility Value (12)

- We may be able to demonstrate what aspects of motivation these GTAs lack
  - Use to inform efforts to reform and improve GTA experience
- This study lacks diverse perspectives
  - Only men participated
  - Only Physics, Computer Science, and Engineering perspectives present
- Technological difficulties in recording the focus group led to partial loss of some data

## Future Work



## References

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- [6] Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68-78. <https://doi.org/10.1037/0003-066X.55.1.68>