

**Educating the Future
Professoriate:**

**Summer Institute for
Graduate Teaching
Assistants**

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**Clarkson University
Institute for
STEM Education**



Program Rationale

More than 85% of STEM undergrads encounter TAs

TAs typically receive 0-2 days of training

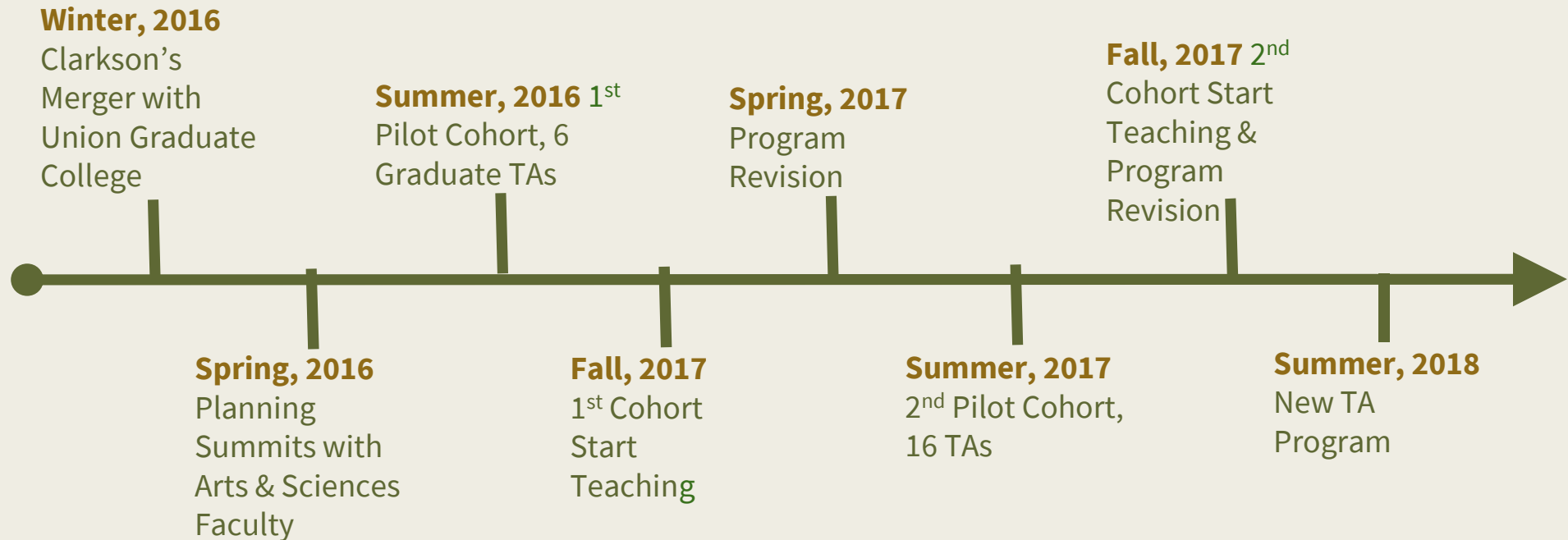
Most have no pedagogical background

Most teach the way they were taught

Little research, because few substantial TA training programs



Program Development Timeline



The Four Week Curriculum

STEM Teaching Methods

- 3 credits, letter grade
- Fundamentals of planning, assessment, methods, student interaction

STEM Literacy Methods

- 2 credits, letter grade
- Strategies for helping students deconstruct text, identifying literacy needs and common misconceptions, scaffolding of instruction, differentiation

STEM Teaching Lab

- 1 credit, letter grade
- practice teaching with peer and instructor feedback
- 10 hours/week

Professional Communications

- 1 credit, letter grade
- career planning, professional dispositions, communication skills
- 1/week faculty research lecture

Research Methods

Questionnaires for trained and non-trained TAs

TA focus group interviews

Class and drop-in room observations

Video recordings and analysis of trained and non-trained TAs

Interviews with TA faculty advisors

Trained TA follow up interviews

Course evaluations for trained and non-trained TAAs

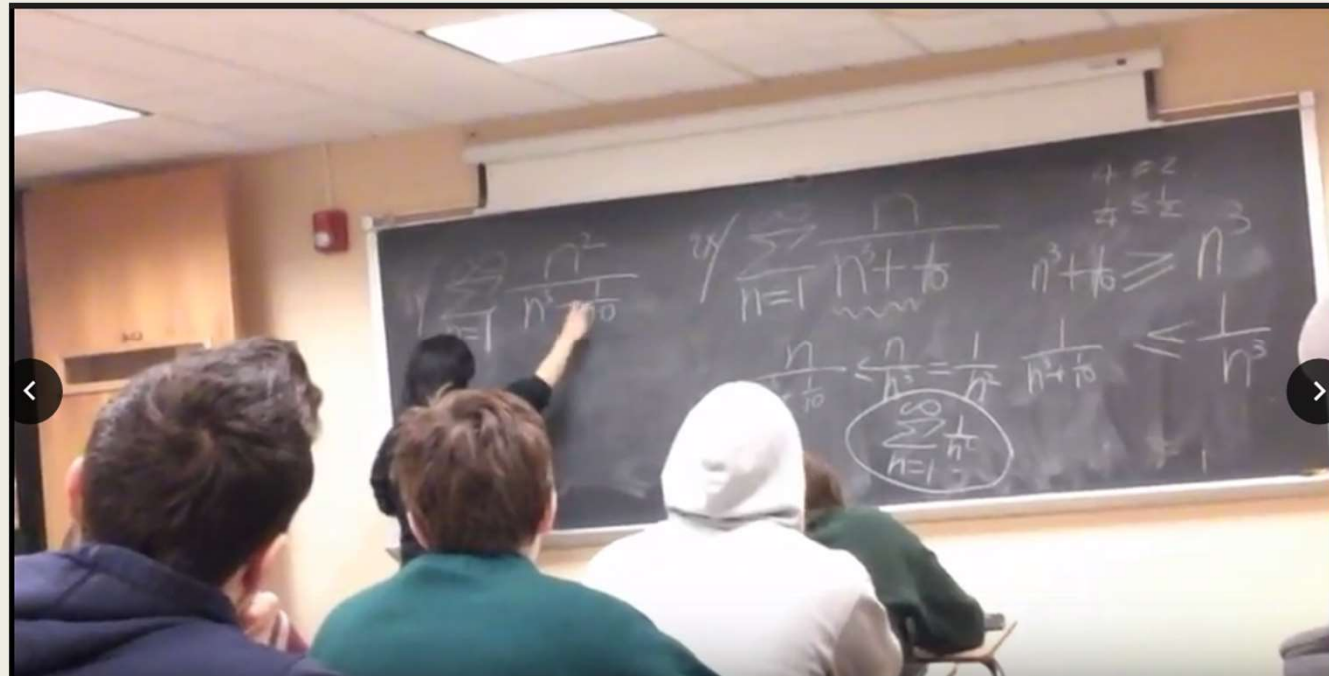


Research Q1

What does a Summer Institute (SI) on STEM GTA pedagogy and the experience of the first year as a teaching assistant reveal about STEM GTA perceptions concerning their role as a teaching assistant?

Data Sources

- Reflection Journals
- Interviews
- Video-recorded observations
- Focus Groups



Results

- Wait Time
- Learning to Assess
- Teacher confidence, particularly for international GTAs
- Teacher-centered to Learner-centered shift—Scaffolding these views led them there
- Better GTAs = better graduate students too?



Implications

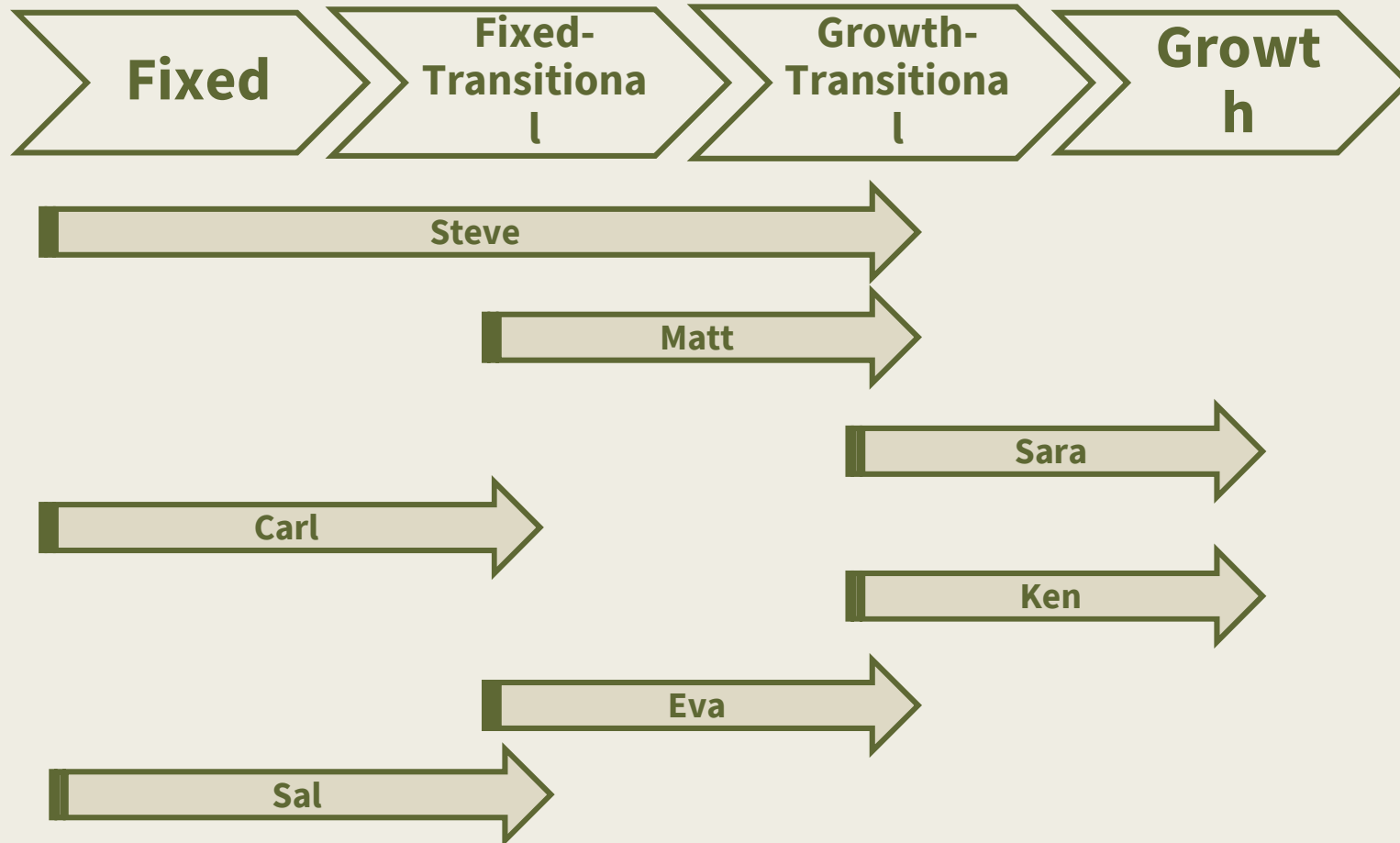
Multiple Identities of GTA

What are you worried about in your role as a TA? maybe language..
I am little bit fraid, because this
is a new place for me. I have to adapt to
environment



Rivera, S. (2018). A Summer Institute for STEM Graduate Teaching Assistants. *Journal of College Science Teaching*, accepted, July 2018.

Growth Mindset Framework



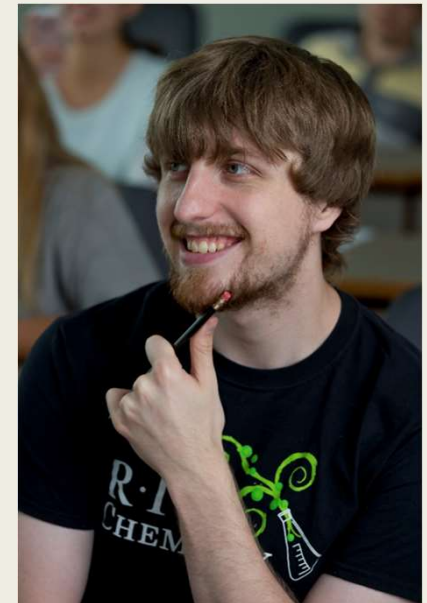
Growth Mindset Framework



*...I tried to explain concept through examples. They do not like that. **They need to figure it out**, I can't just show them how to do all of it...*

...I'm not sure I can just help show them how to do it without giving them the answer...

*I am using discussion techniques to engage students into the class...That will allow me to manage time and facilitate a good discussion among students. Even when students don't talk or are chatty, **I am confident I can help though...***



Growth Mindset Framework



*“Previously, as a TA I had a hard time to engage student in the discussions. I tried to ask questions from them, they always avoided to answer. **In Sri Lanka this never happened. They respect the lecturer and at least tried to give an answer. But in the US, I cannot tell them you must give an answer. I tried to do that and they complained to the professor. I am not sure this is my job to get them to try and given an answer.**”*

*I’ve found ways to engage the students, like, sometimes I start class using Kahoot or some other similar app to assess them...or I get them to work in groups and have them write their work on the board in groups. **I don’t think they’re being disrespectful but they don’t want to be embarrassed in front of others.**”*

Growth Mindset Framework



*I just follow what the professor tells me to do, **I'm not sure how else to help each kid learn**...I guess I thought they would be similar to each other in how much and what they know.*

*Without the summer program, I believe I would've just listened to the professor with the thinking that they are always right. **But now I see I need to help address student needs**...and that can be different for each student.*

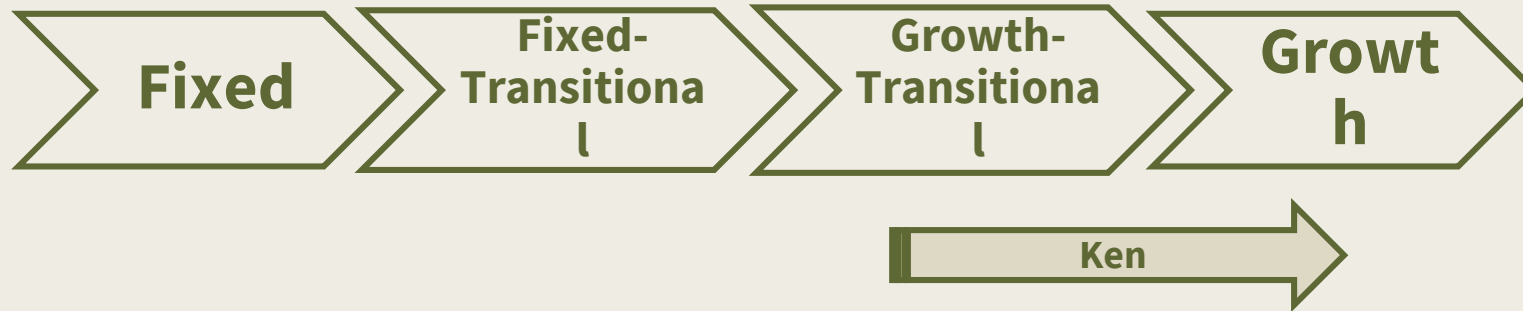
Growth Mindset Framework



*It seems like they don't want to talk and just like to be quiet. **It seems like getting them to talk is out of the question.***

*Maybe it's an American thing but they don't always volunteer to answer or speak up. **I've been working on them getting up and being more comfortable in the room.***

Growth Mindset Framework



I've been trying to be better in front of the room but I think I'm just not a good speaker...or teacher maybe.

I think I just needed time to practice and be comfortable...I'm still not 100% confident up there but I think I'll be ok...I'll probably keep getting better

Reflections and Looking Ahead: Summer 2018 and the future

- Preliminary “analysis”
- Goals for program moving forward
- Chronicle article (handout?)
- Opening to other Colleges/Universities
- Move to Potsdam 2018
 - *Costs and benefits*
- Adding early career faculty
 - *Especially in Engineering*

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