On the Evolution of Graduate Student Mentees' and Mentors' Conceptualizations of Peer Teaching Mentorship

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Peer mentoring programs can provide instructional support for graduate teaching assistants (GTAs) (Rogers & Yee, 2018; Yee & Rogers, 2017) through more specialized and detailed discussions than just working with faculty (Speer et al., 2015; Yee & Rogers, 2016). Lanius et al. (2022) explored how mentees and mentors participating in a comprehensive multi-component GTA pedagogical training program, *Promoting Success in Undergraduate Mathematics Through Graduate Teacher Training* (Harrell-Williams et al., 2020), at three universities at the start of an academic year conceptualized the role of an effective mentor. In this poster, we explore whether this conceptualization of the mentor role changed over the course of the academic year after participation in components of the training program: a GTA Teaching Seminar, Critical Issues Seminar, and peer mentoring (including mentor training).

Forty GTAs across three universities completed online surveys in August 2020 and May 2021, answering the same items both times. Two Likert-type items asked about their view of the mentor role in a mentor-mentee relationship. For the first item, a score of "1" indicated viewing the role of mentor as an authority figure whereas a score of "5" indicated more of a collaborative relationship. For the second item, a score of "1" indicated the mentor is a problem-solver and "5" indicated being an empowerer. Mentors also answered two items rating themselves on these continuums. All GTAs were asked to describe the characteristics of an effective mentor.

The related samples Wilcoxon signed-rank tests indicated that there were no statistically significant changes for mentees or mentors for the Likert-type items from August to May. Specifically, six mentees of 23 mentees and five of 17 mentors did not "change" on either of the role conceptualization items. Five of 11 mentors did not "change" on the self-as-mentor items. However, Spearman correlations across timepoints only ranged from .20 to .56, indicating some individual change which was also supported by the qualitative data. The poster will also report results from a psycholinguistic analysis of the responses to the open-ended items. Future work will explore changes in role conceptualization as mentees become mentors.

Acknowledgements

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Background

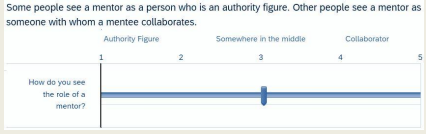
There is ample evidence that peer mentorship among graduate students benefits their academic, professional, psychological, and social learning (Lorenzetti et al., 2019). Specifically, peer teaching mentorship supports graduate teaching assistants' (GTAs) instructional effectiveness, leadership, and confidence (Belnap, 2005; Lorenzetti et al., 2019; Funkhouser et al.,2021; Yee & Rogers, 2017). Views on what makes an "effective" mentor vary throughout literature (NASEM, 2019). Based on the social theory of learning, mentors and mentees tend to conceptualize the mentor role as an authority figure or collaborator, and a problem solver or empowerer (Lanius et al., 2022). In this poster, we examine how GTAs' conceptualization of a peer-mentor's role changes over time as they engage in the peer-mentoring component of the PSUM-GTT program.

Methods

- Research Question: How did mentees and mentors' conceptualizations of peer teaching mentorship change?
- Sample: Start-of-year survey completed in August 2020 and May 2021 by 23 mentees and 17 mentors.
- Survey items:
  - 2 Likert-type items about mentors' roles (see box to the right)
  - 1 open-ended question:
    "What do you believe are the characteristics of an effective mentor?"
- Analysis:
  - Related samples Wilcoxon signed-rank tests & Spearman's correlation to assess change over time
  - Qualitative coding analysis to organize and group descriptive terms for characterizing an effective mentor obtained from the open-ended survey question.

Items about Mentors' Roles

Some people see a mentor as a person who is an authority figure. Other people see a mentor as someone with whom a mentee collaborates.



Some people see a mentor's role as solving problems for their mentee. Other people see a mentor as empowering or equipping the mentee to solve their own problems.

Take-aways

- Neither the repeated samples tests nor the "problem solver/empowerer" correlations were significant.
- The four Transition Diagrams provide insight into interesting cases for further qualitative analysis.
- Both mentees and mentors increased their mentioning of "good listener" as important for effective mentors.
- Mentors increased their mentions of effective mentors as "knowledgeable" while mentees were unchanged.
- Mentees prioritized the "availability" of mentors more in May whereas mentors were unchanged.
- "Constructive feedback" mentions increased over time for mentees but decreased significantly for mentors.
- "Relevant experience" of mentors decreased in mentions for both mentees and mentors over time.

Data Context: About PSUM-GTT

The Promoting Success in Undergraduate Mathematics through Graduate Teaching Assistant Training (PSUM-GTT) program employs a multi-component approach to training.

- ➔ Seminar on teaching with a focus on equity and inclusion
- ➔ Critical Issues in STEM Education seminar series
- ➔ One-to-one peer mentoring
- ➔ Support from a peer TA coach
- ➔ Visits to K-12 mathematics classrooms and enrichment experiences

2016

Program launched at University of Colorado – Denver (NSF# 1539602)

2019

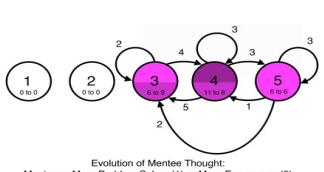
Program introduced at Auburn University and University of Memphis (NSF# 1821454, 1821460, 1821619)

Now

Program leaders from all three universities work together to coordinate program implementation and refinement as well as research on program experiences and outcomes

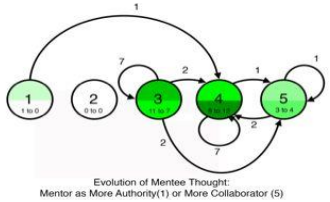
Results

QUANTITATIVE RESULTS



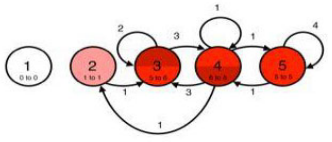
Evolution of Mentee Thought:
Mentor as More Problem Solver (1) or More Empowerer (5)

repeated samples Wilcoxon signed rank test: z = -0.68, p= .50
Spearman's rho: r = .20



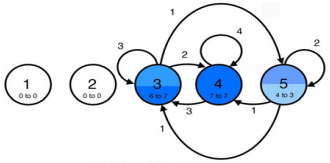
Evolution of Mentee Thought:
Mentor as More Authority(1) or More Collaborator (5)

repeated samples Wilcoxon signed rank test: z = 1.73, p=.08
Spearman's rho: r = .44*



Evolution of Mentor Thought:
Mentor as More Authority (1) or More Collaborator (5)

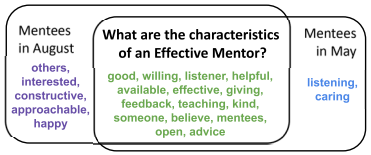
repeated samples Wilcoxon signed rank test: z = -0.28, p=.78
Spearman's rho: r = .56*



Evolution of Mentor Thought:
Mentor as More Problem Solver (1) or More Empowerer (5)

repeated samples Wilcoxon signed rank test: z = -0.51, p=.61
Spearman's rho: r = .25

QUALITATIVE RESULTS



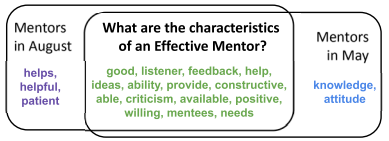


Table summarizing frequency counts for qualitative codes of open-ended question

Mentees	Relevant Experience	Knowledgeable/ Know what to do	Good Communicator	Good Listener	Approachable	Constructive Feedback	Helpful	Available	Uplifting
August	10	4	10	5	5	8	7	1	3
May	6	4	8	11	8	12	8	7	5
Mentors									
August	13	2	4	10	6	14	9	9	5
May	8	9	2	15	8	4	3	9	5

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More information is available on the project ResearchGate page, accessible by using the QR code.