

What makes an effective mentorship program for early career researchers?

A case study of the newly designed program at TRIUMF

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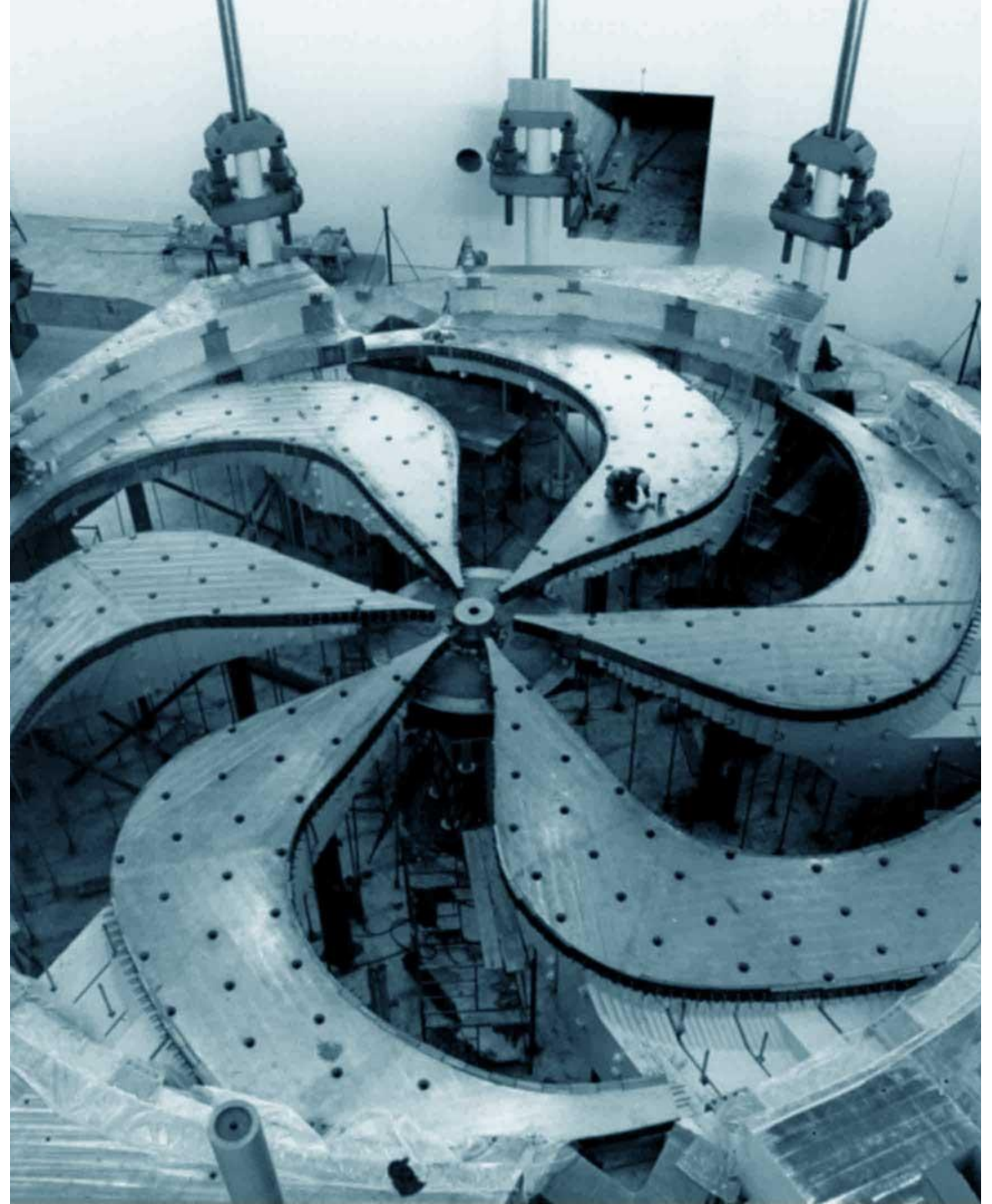
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<sup>3</sup>*Laurier Centre for Women in Science*

<sup>4</sup>*Simon Fraser University*

2026-06-23, CAP Congress



# Land Acknowledgement

*TRIUMF is located on the traditional, ancestral, and unceded territory of the  $x^w m \theta k^w \acute{e} y \acute{e} m$  (Musqueam) people, who for millennia have passed on their culture, history, and traditions from one generation to the next on this site.*



# The Value of Strong Mentorship

A strong mentorship program has<sup>1,2</sup>:

1. Clear mutual mentor-mentee goals and expectations
2. Lasting engagement and accountability; participants are self-motivated to fulfil program expectations
3. A relationship-centered model

A strong mentorship program builds:

1. New connections within the community, extending beyond program participants
2. Confidence within *Early Career Researchers* (ECRs) and opens avenues for skill development and career progression
3. Resources to support mentors in navigating how to guide and motivate others

1. National Academies of Sciences, Engineering, and Medicine; Policy and Global Affairs; Board on Higher Education and Workforce; Committee on Effective Mentoring in STEMM. *The Science of Effective Mentorship in STEMM*. Edited by M. L. Dahlberg et. al., National Academies Press (US), 30 October 2019.

2. M. K. R. Wimberly, A. L. Rudolph, C. Hood, R. E. Scherr, and C. Pfund. *A model of mentorship for students from historically underrepresented groups in STEM*. <https://arxiv.org/abs/2209.03395> (2022).

# Our Goals

Understand how mentorship program design impacts mentees and mentors.

- What aspects of a program's design create positive experiences?
- Are these experiences different based on mentee career stage?
- Do differences exist in how mentors and mentees perceive this shared experience?

*Case study: TRIUMF ECR Mentorship Program*

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# TRIUMF Program

1. Support and enhance personal and professional development for postdocs, graduate and undergraduate students across TRIUMF.
2. Make new connections to form unbiased relationships that will build networks and provide novel learning opportunities and career development.
3. Provide funds (TRIUMF Education) to support program success.

*Case study: TRIUMF ECR Mentorship Program*

# Program Structure

## Academic Stream

14/21 pairs included in data

- Career-growth based guidance
- Mentees: undergraduate and graduate students, postdocs
- Mentors: TRIUMF permanent staff



## Peer Stream

8/10 pairs include in data

- Community-based guidance
- Mentees: undergraduate and graduate students, postdocs
- Mentors: senior graduate students and postdocs



## Coffee Chats

3 sessions

- Small group guided discussion, career growth focused
- Open to all academic and peer mentees
- Non-mentor TRIUMF leadership

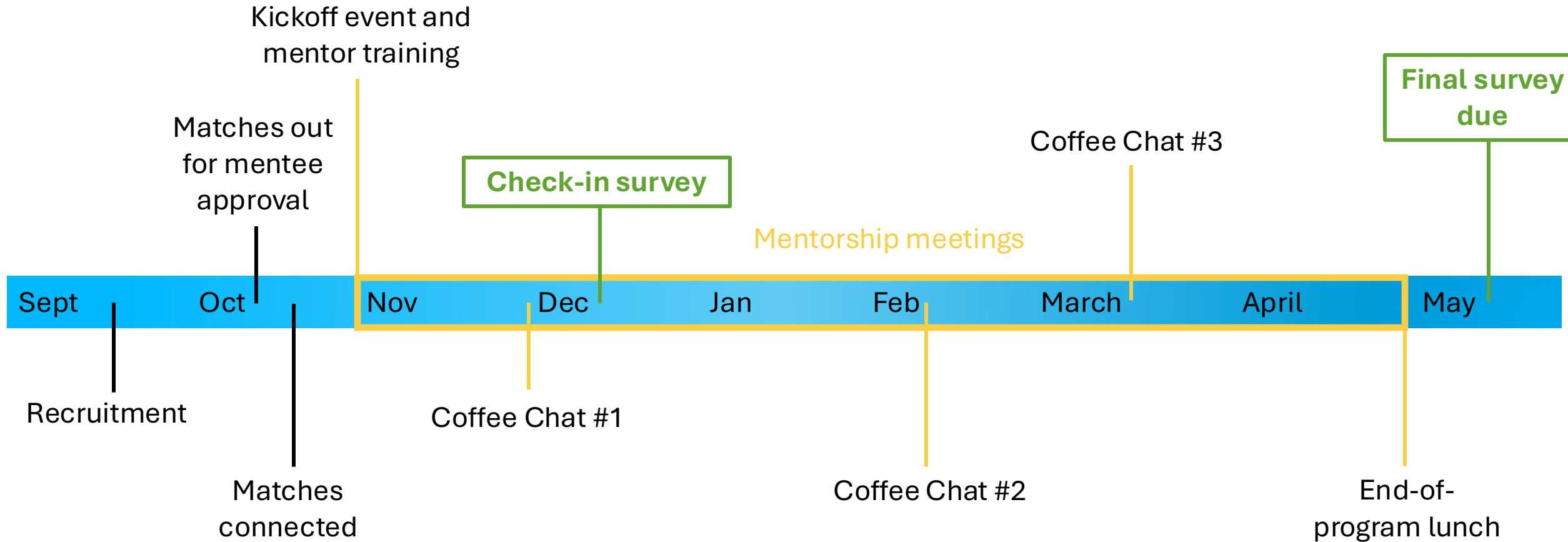


TRIUMF-funded meal allowance for six meetings



# Program Milestones

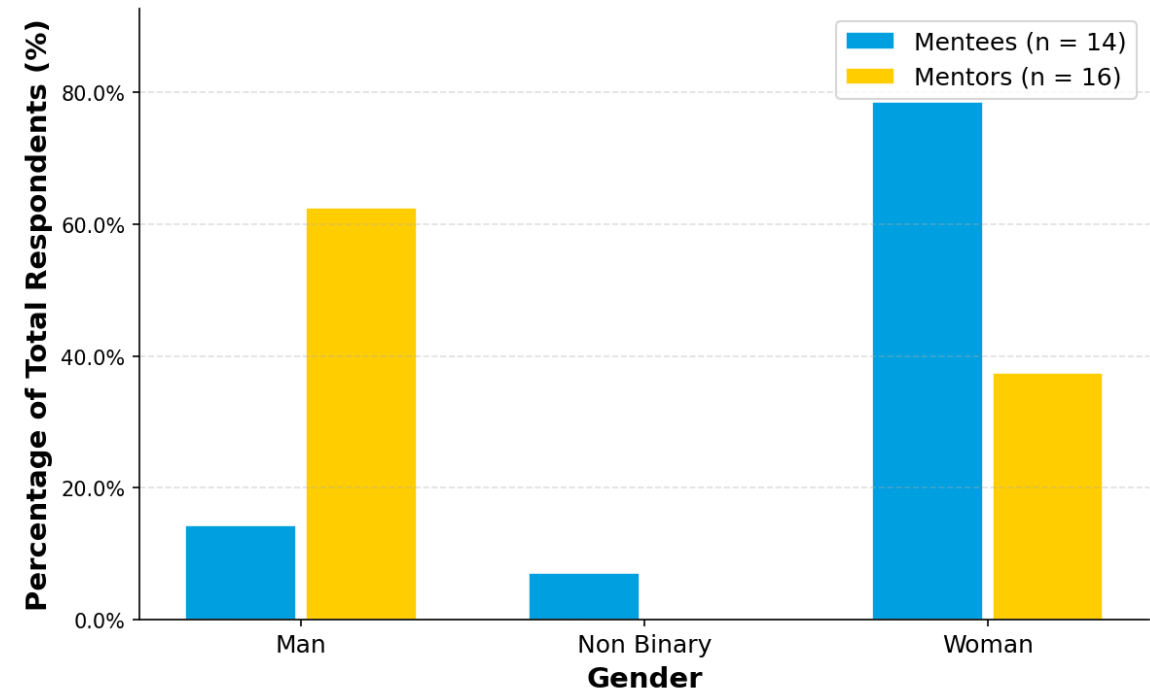
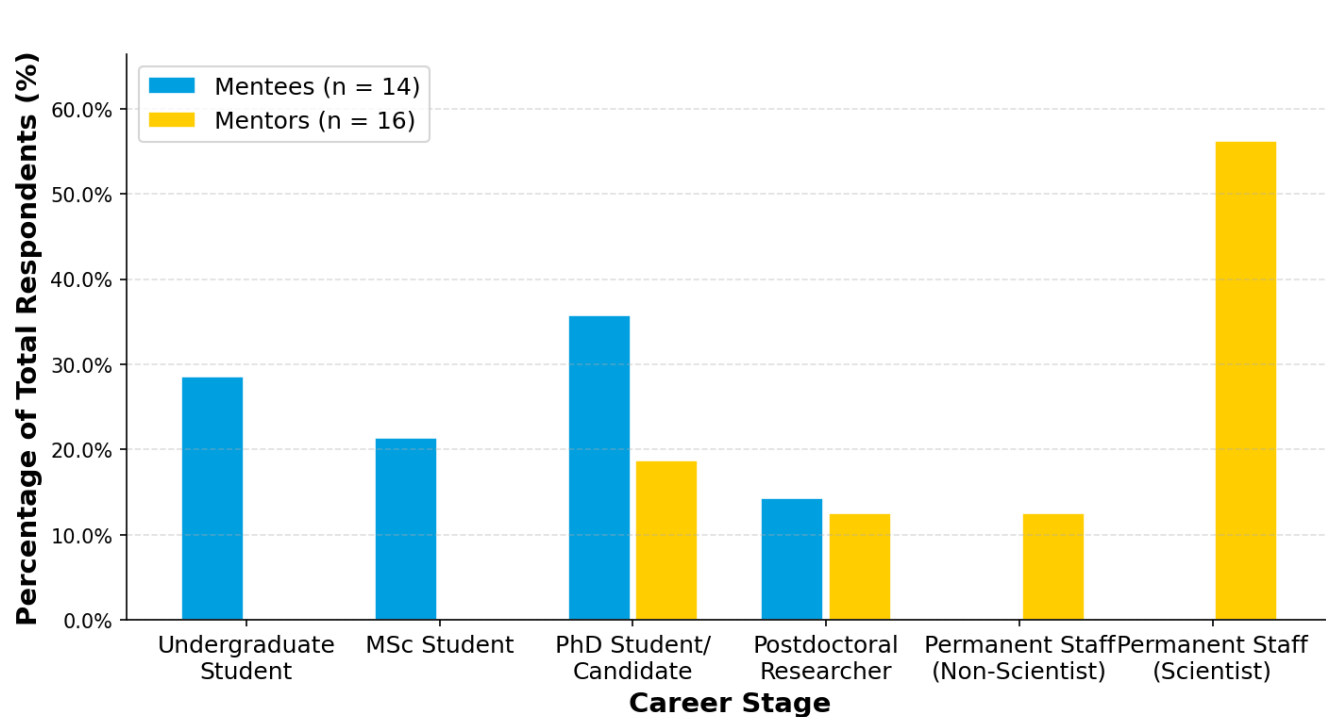
All presented data are from the two surveys



Average number of meetings: Academic =  $3 \pm 1$   
Peer =  $4 \pm 1$

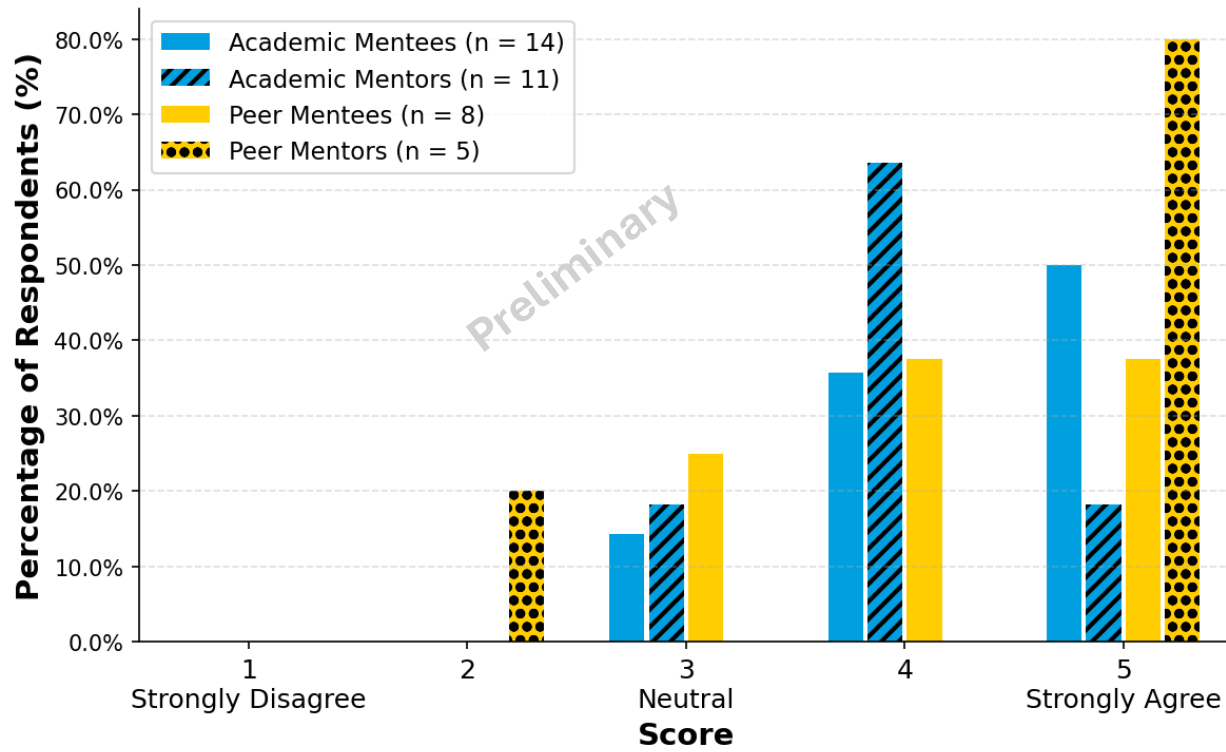
# Respondent Demographics

Overall ~67% survey response rate.

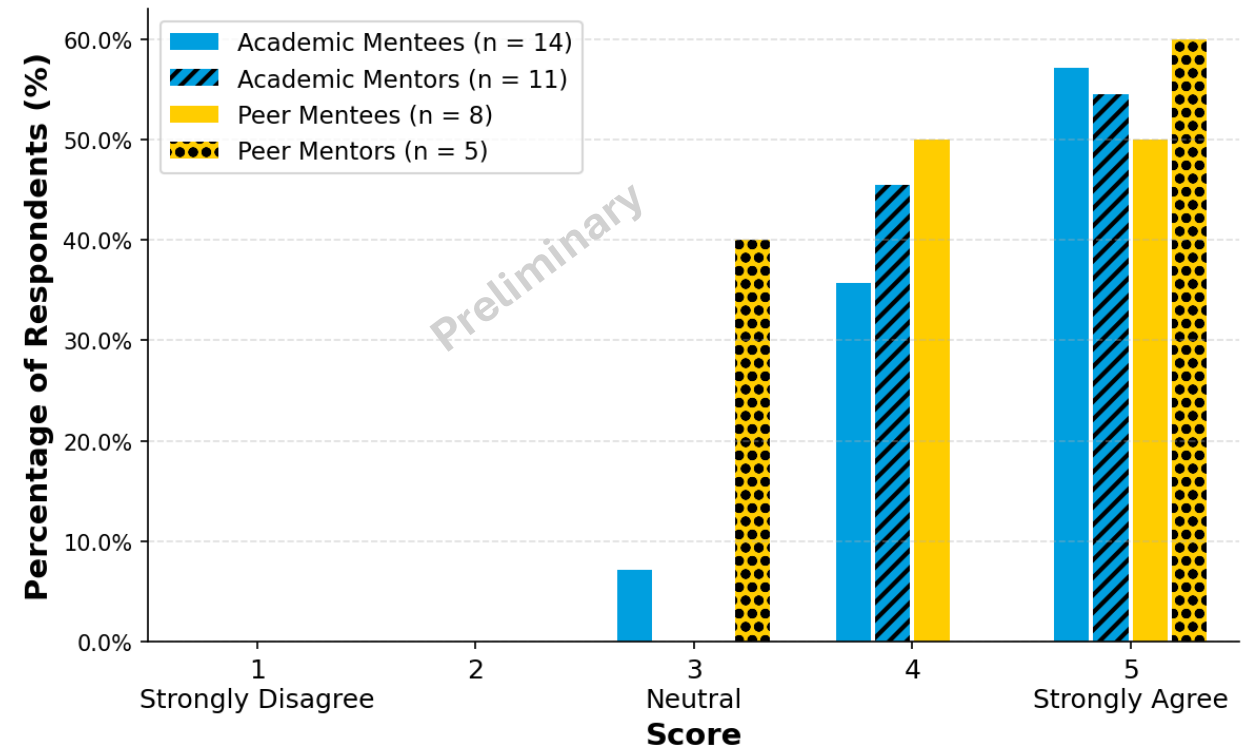


# Check-In Survey – Sample Data

*The goals within my mentor-mentee pairing are clear.*

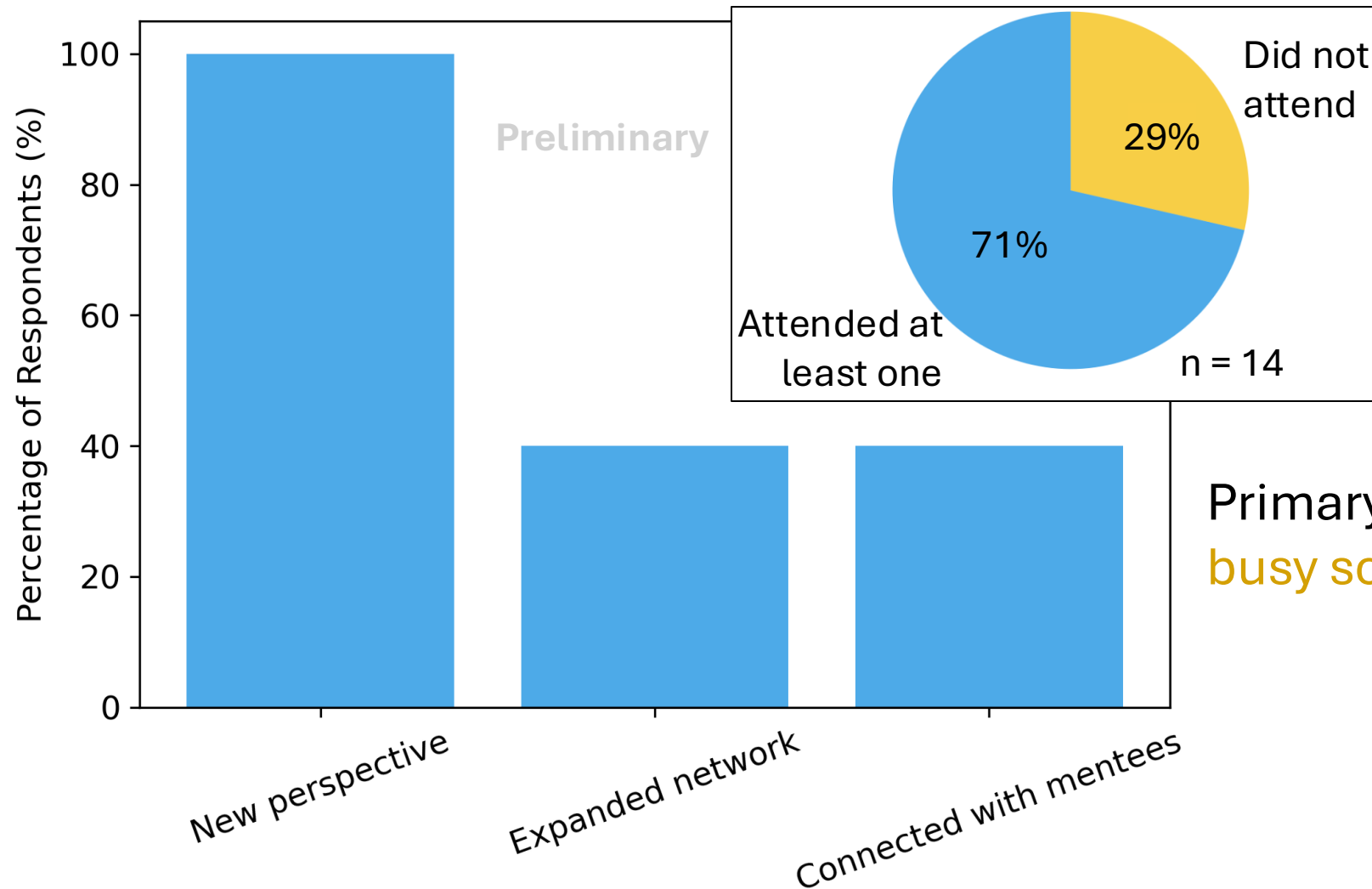


*My mentor (mentee) shows interest in helping (letting) me (help them) reach my (their) program goals.*



# Coffee Chats

What did you gain from attending a Coffee Chat(s)?



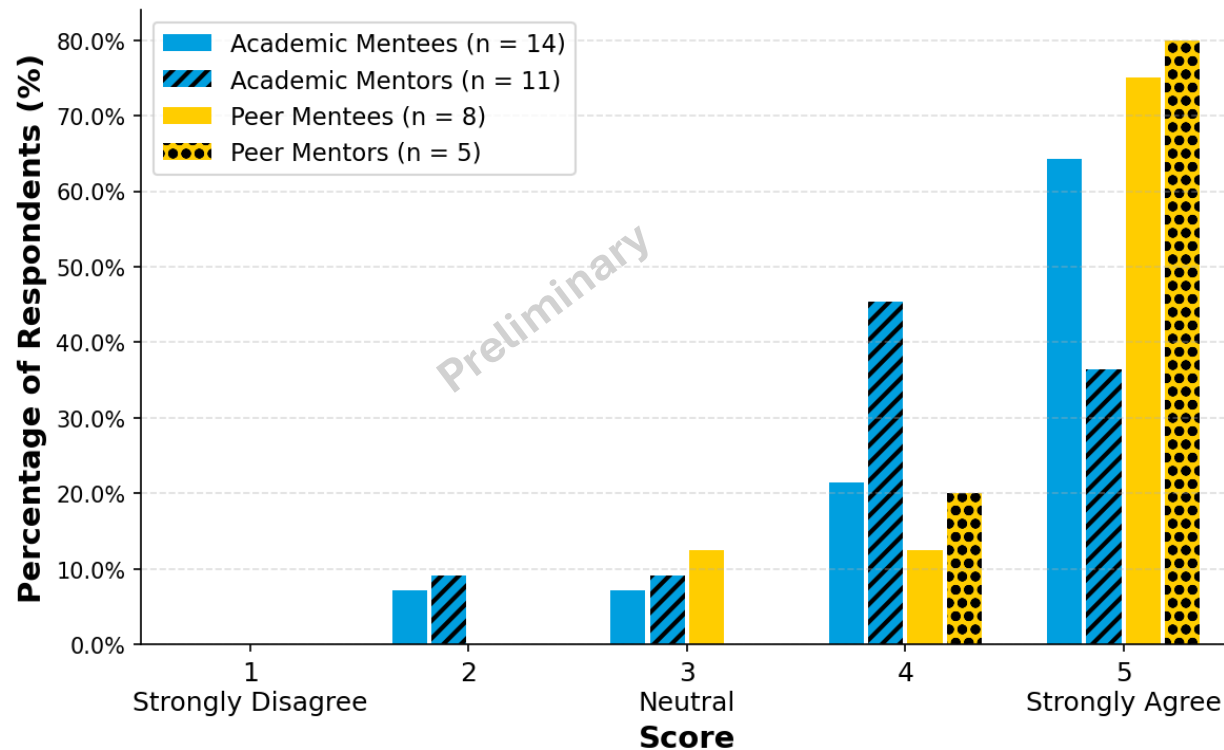
100% of attendees attributed value to the session(s)

Primary barrier to attendance:  
busy schedule

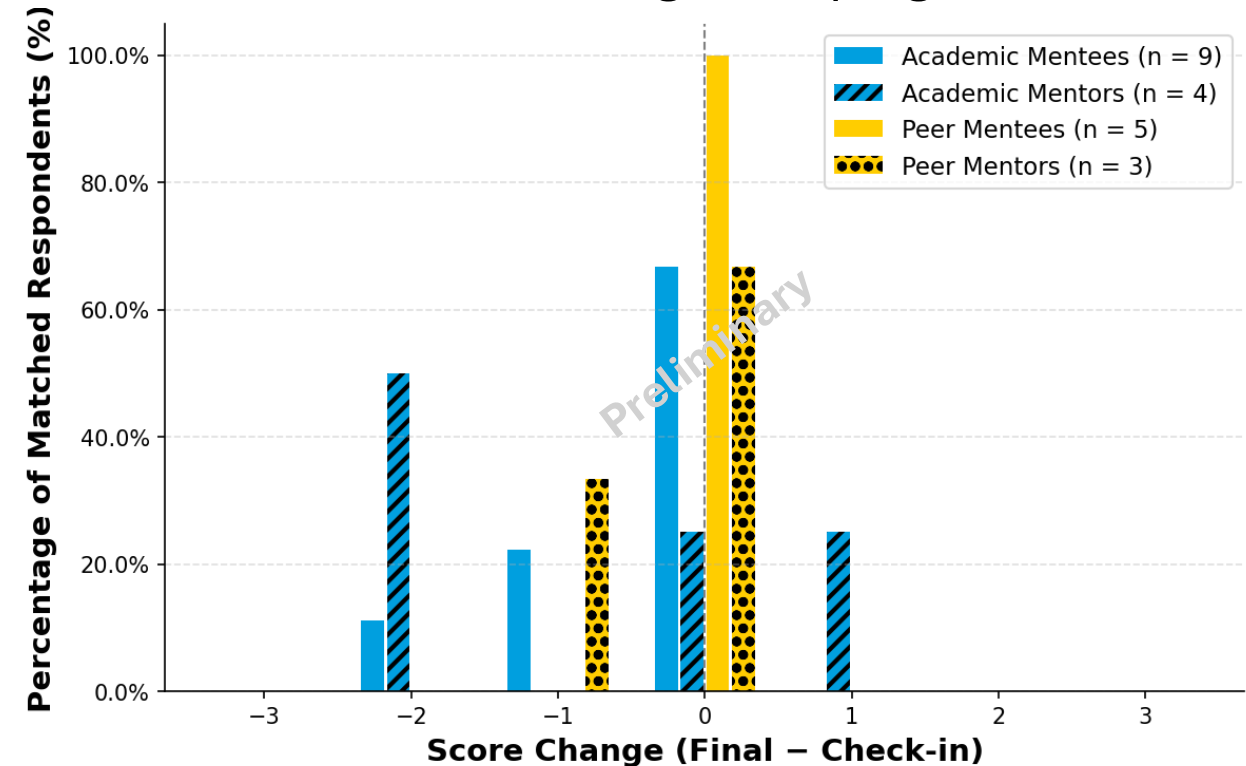
# Overall Satisfaction with Pair

*I am/was satisfied with my mentorship pair.*

### Check-in survey



### Score change over program

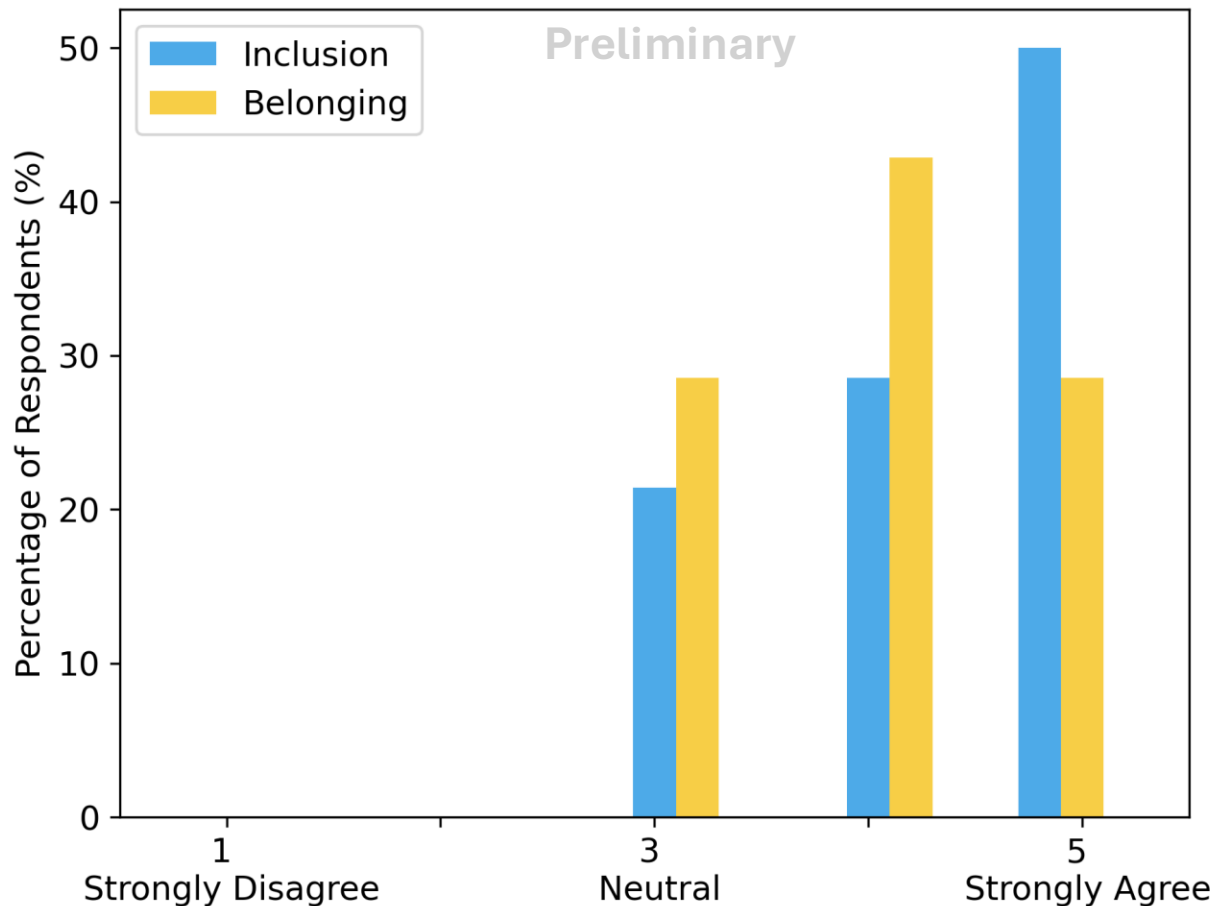


Score changes correspond to the same individual's anonymously-matched responses.

# Mentee Impact

*My experience as a mentee made me feel more included at TRIUMF.*

*My experience as a mentee increased my sense of belonging as a scientist.*

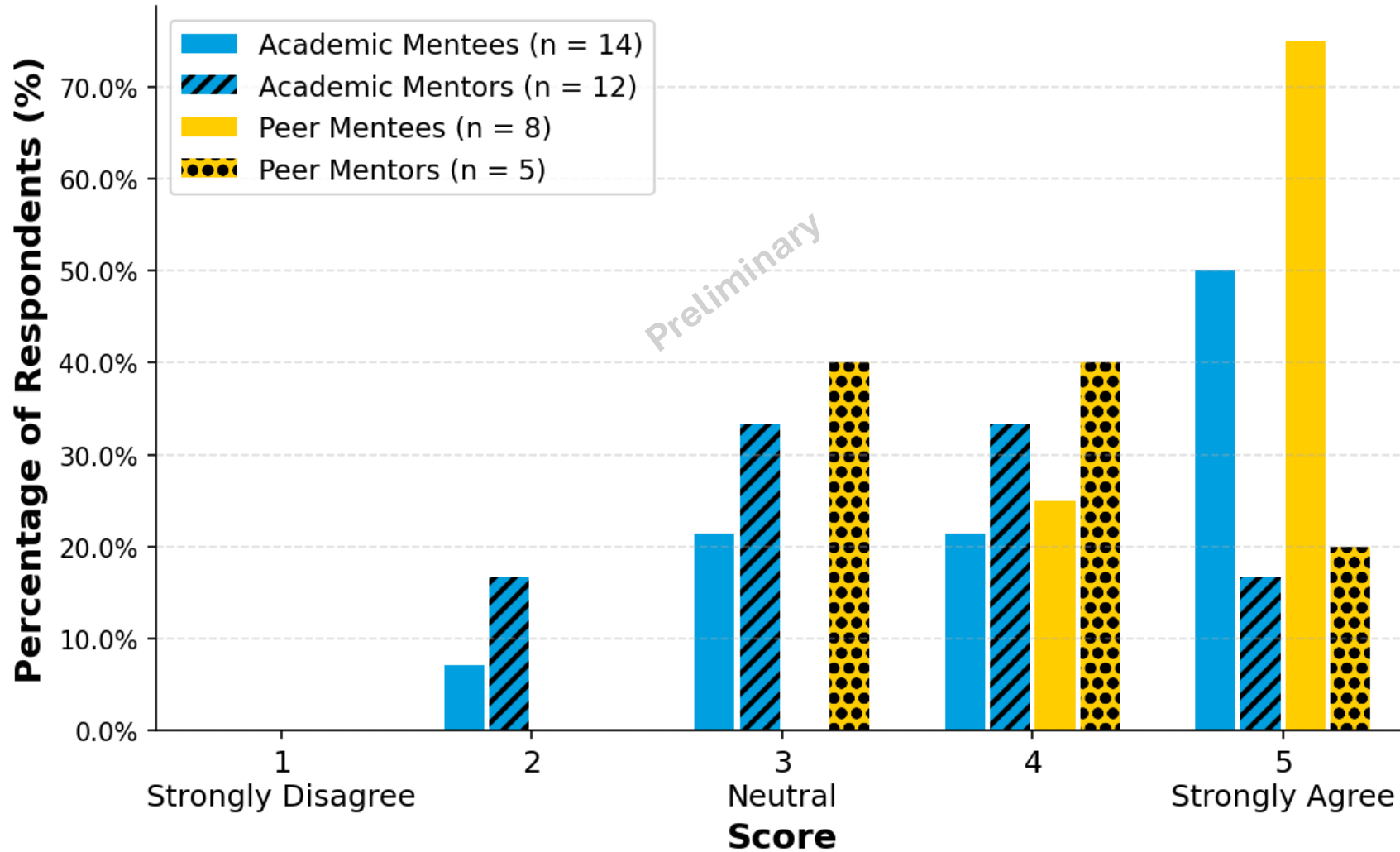


**78%** reported an increase in feelings of inclusion.

**71%** reported an increase in feelings of belonging.

# Final Goal Achievement

*I achieved my (I think my mentee achieved their) primary goal associated with the program.*

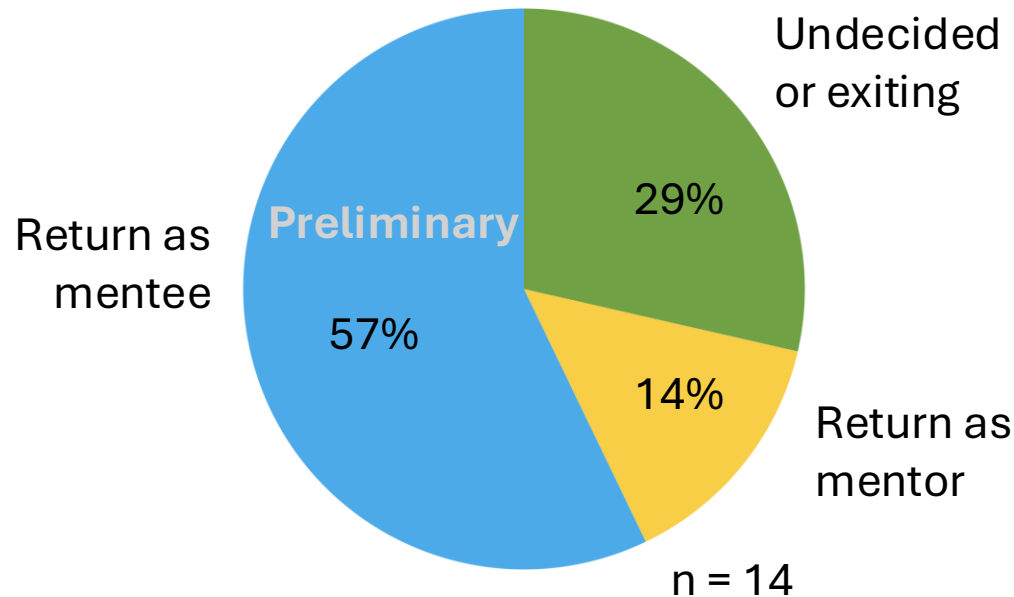


Mentee average = 4.4  
Mentor average = 3.6

# Predicted Program Retention

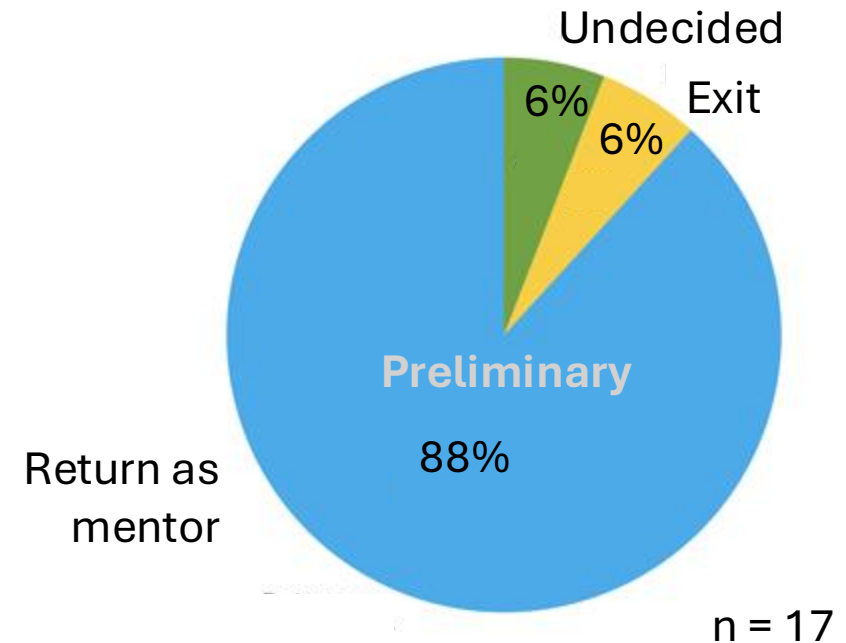
*If the program ran again, would you participate?*

Mentees



"One of the main reasons I enjoyed this program is the ability to connect to other divisions and research areas at TRIUMF. It was nice to expand my network and lead to potential collaboration opportunities between divisions."

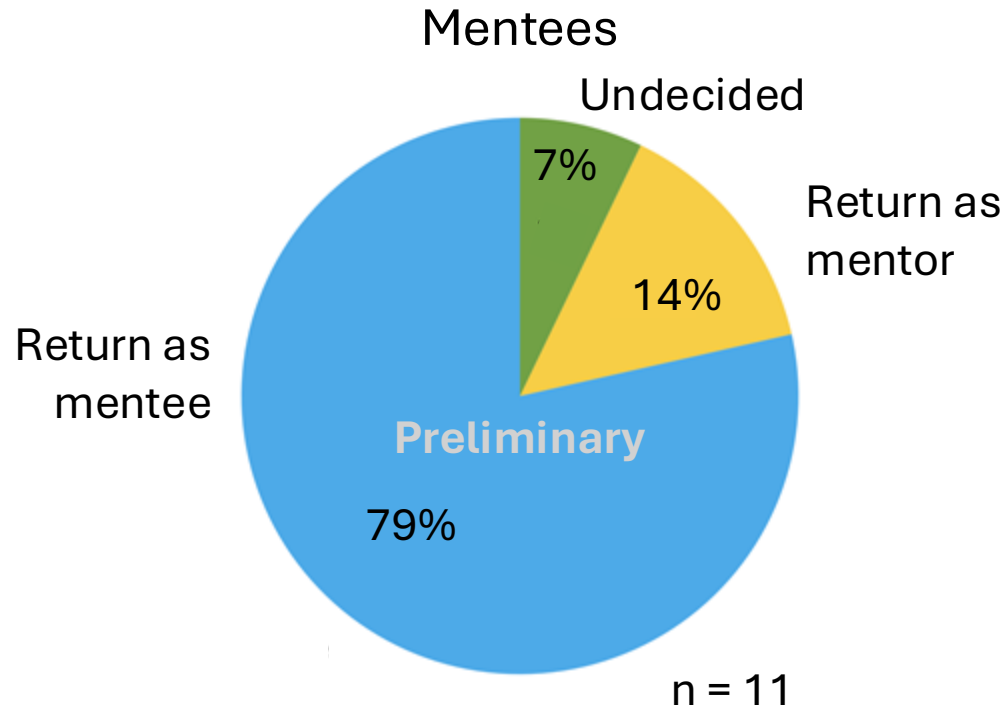
Mentors



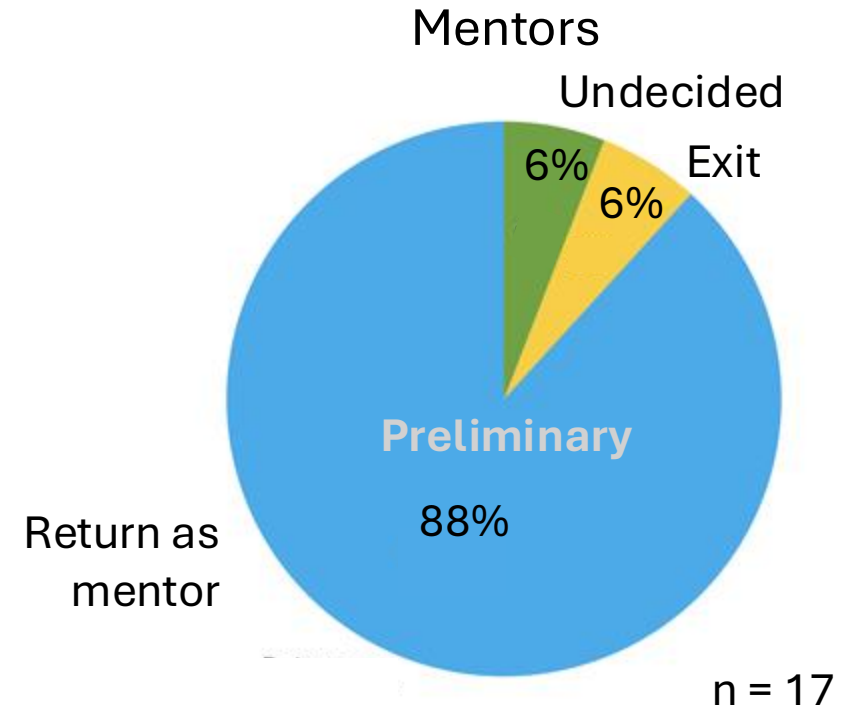
"This program was useful for me as a mentor because it reignited my excitement for my research, I formed deep connections with my mentees and we will be staying in touch afterwards."

# Predicted Program Retention

*If the program ran again, would you participate?*



"One of the main reasons I enjoyed this program is the ability to **connect to other divisions** and research areas at TRIUMF. It was nice to expand my network and lead to potential collaboration opportunities between divisions."



"This program was useful for me as a mentor because it **reignited my excitement for my research**, I formed deep connections with my mentees and we will be staying in touch afterwards."



# Preliminary Findings

A structured institutional mentorship program with regular participation incentives can help ECRs define and achieve personalized career-growth goals and strengthen community.

**80%** of participants were satisfied with their mentorship pairings

**78%** of mentees reported an increase in feelings of inclusion

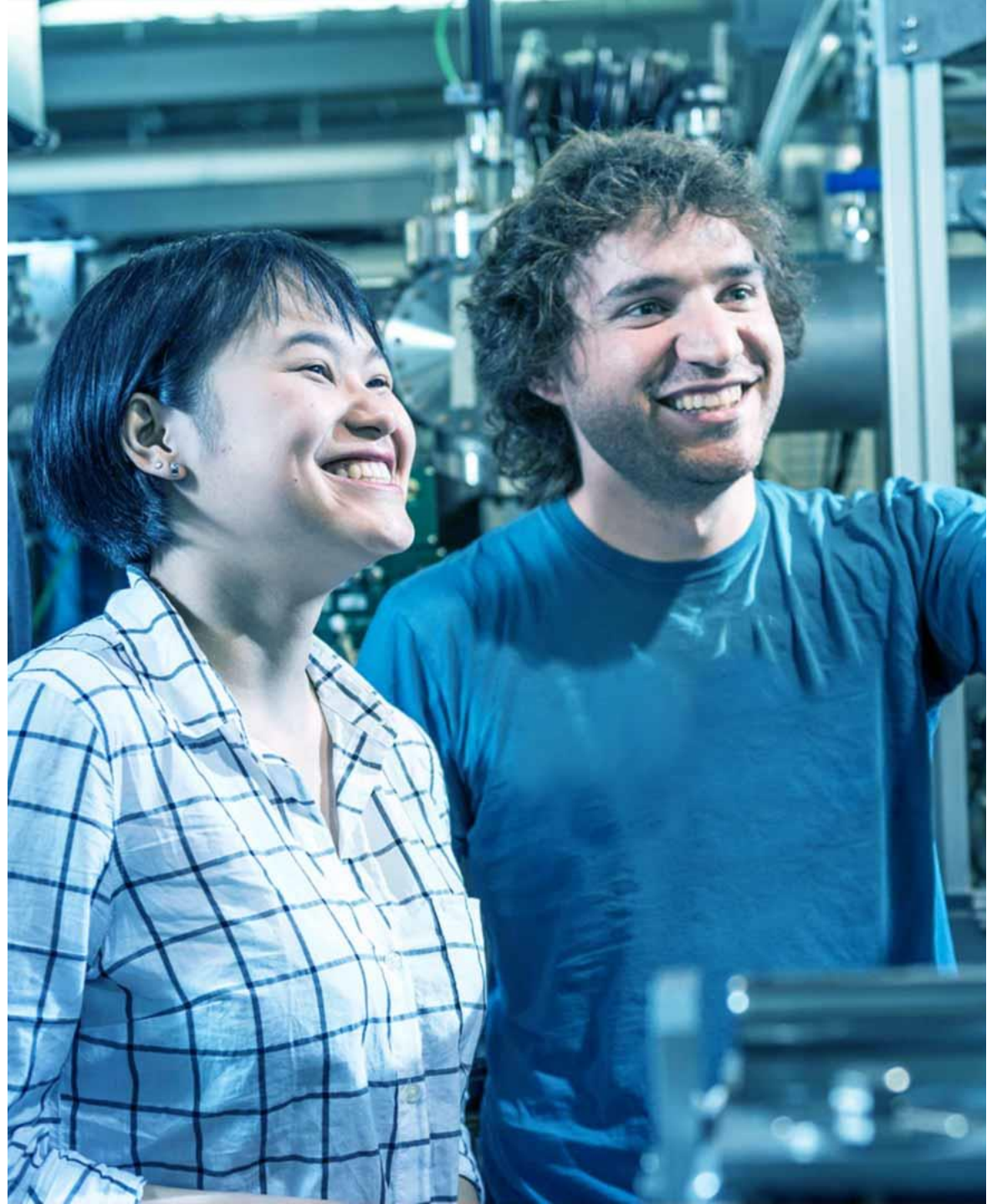
**82%** of mentees reported achieving their primary goal of the program

**100%** of mentee attendees attributed value to the Coffee Chats

Contact us with more questions and/or to be notified of paper results!  
We will also post the paper on our LinkedIn pages (so connect with us above).

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# Backup



# Program Structure: Matching

Skill development goals:

	Career Planning	Networking	Sci Comm	Relationship Building	Job Search	Leadership	Other
Mentee	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Mentor A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Mentor B	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Other match criteria included:**

- Career goals
  - o (e.g. industry vs academia)
- Desired meeting frequency
- Preferred mentor gender
- Preferred mentor experiment/field of physics

Apply **list-selected** question weights



Organize by match score



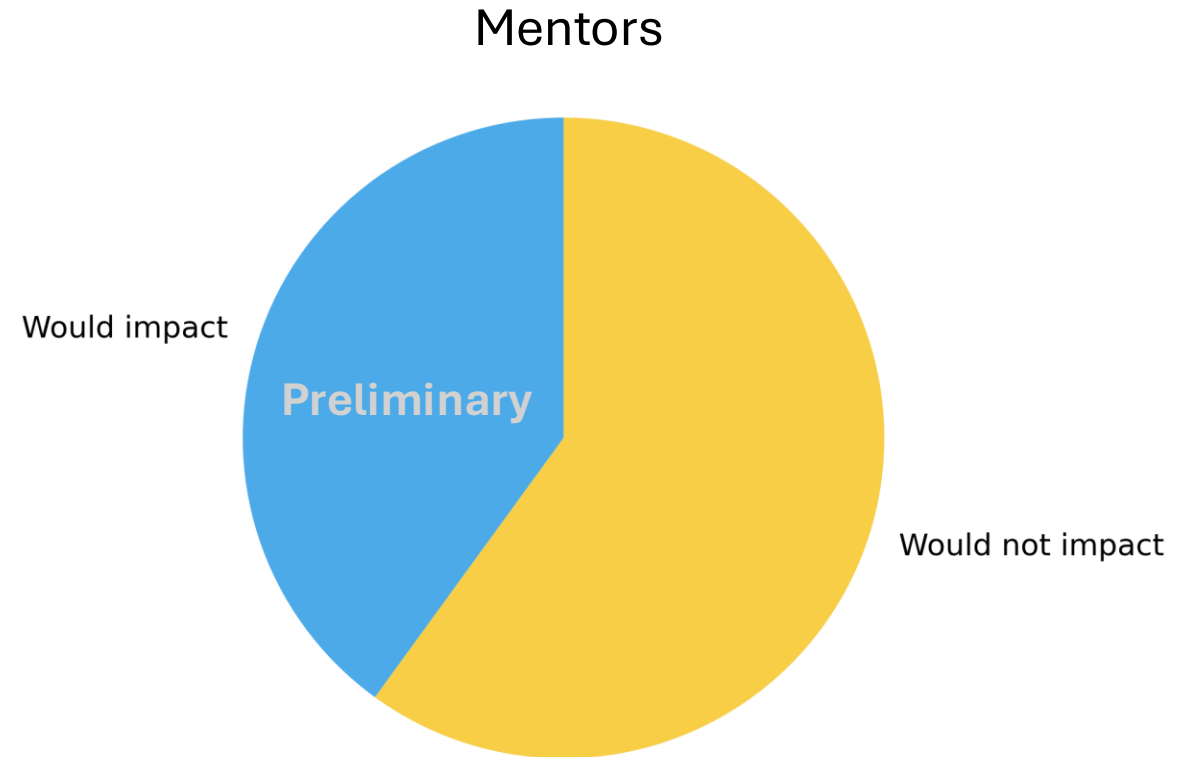
Apply **write-in** preferences

# Predicted Program Retention: Meal Impact

*Would you be less likely to participate in this program if the meal allowance was reduced or eliminated?*

"The meal incentive provides just enough of an activity/something to do to make the meetings not feel super structured and forced, it provides a more casual atmosphere and creates a space that is more inviting for mentees to open up and feel comfortable sharing. I recommend keeping it."

- Peer Mentor



Half of mentors whose participation would be impacted (6 total) were peer mentors

# Goal Tracking

Pilot program feedback showed some mentees needed help defining their program goals.

Poorly defined goals increases challenges for mentors.

**Introduced optional goal tracking worksheet** to guide discussions and encourage accountability.

**Only one mentorship pair chose to use the worksheet.**

Three mentees reported personal reflection writing and goal tracking.

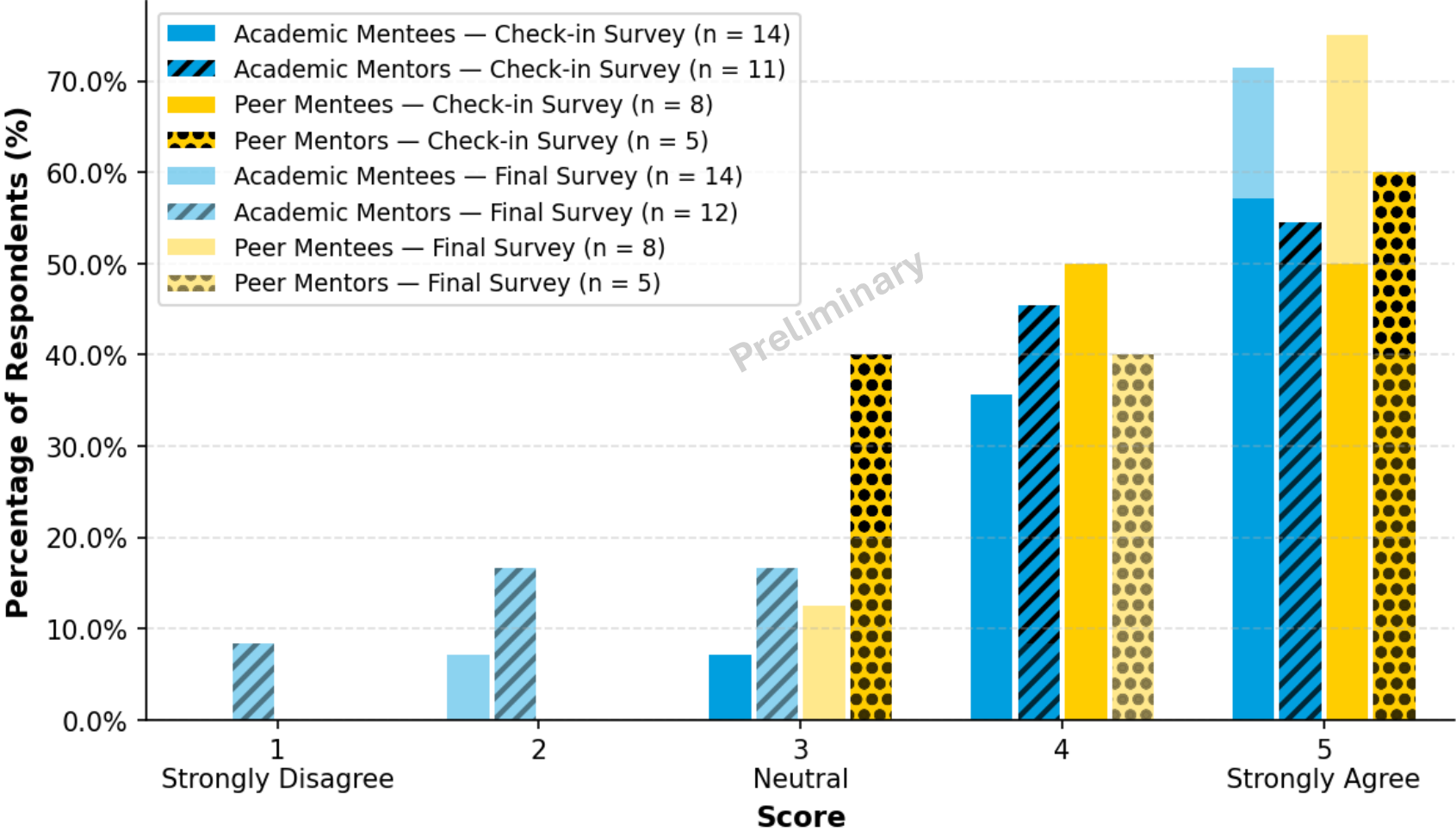
Dominant reason for not using it was mentees lacked well defined goals.

Mentor/Mentee Pair:

Meeting Date and Number	Main Topics Discussed
1	Goals for program:  Action items:
2	Topics discussed:  Action items:
3	Topics discussed:  Action items:
4	Topics discussed:  Action items:
5	Topics discussed:  Action items:
6 (or last meeting)	Reflection on program goal:

# Mentorship Pair Goals

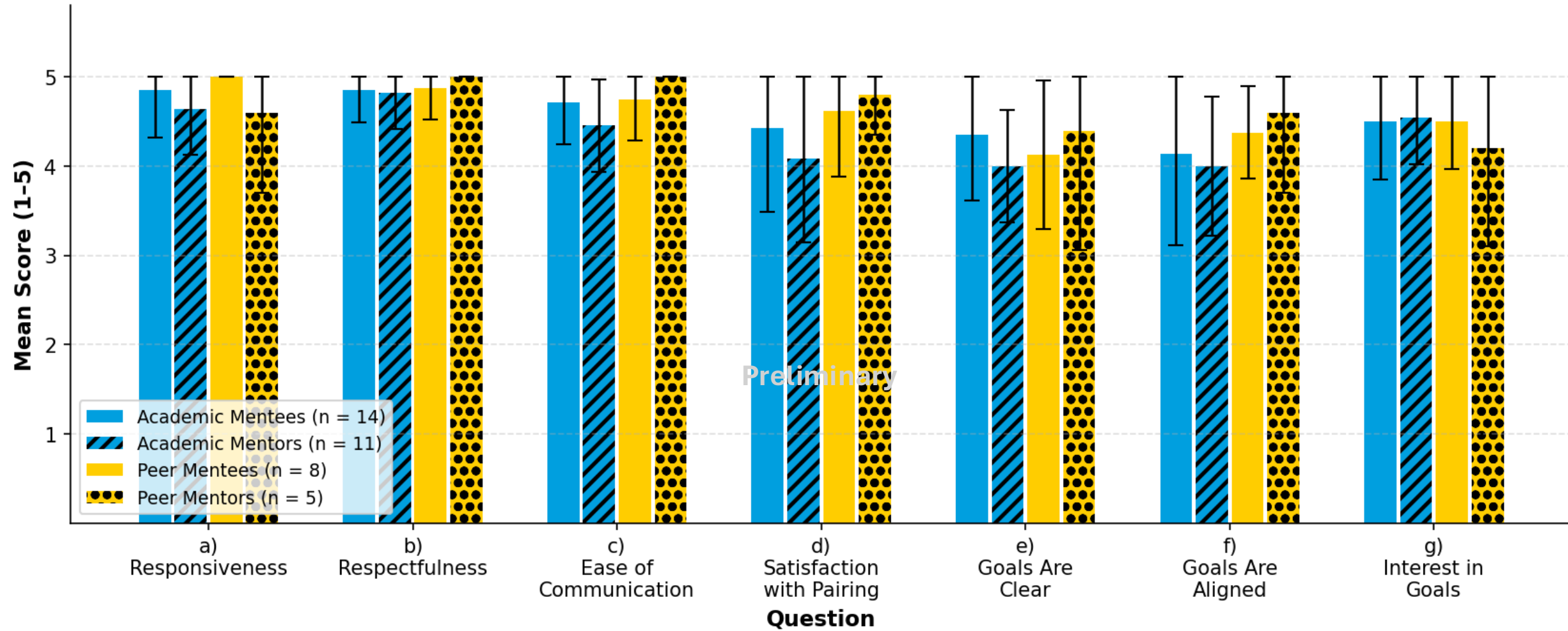
**Interest in Goals — Check-in Survey vs Final Survey**



*My mentor shows/showed interest in helping me reach my program goals.*

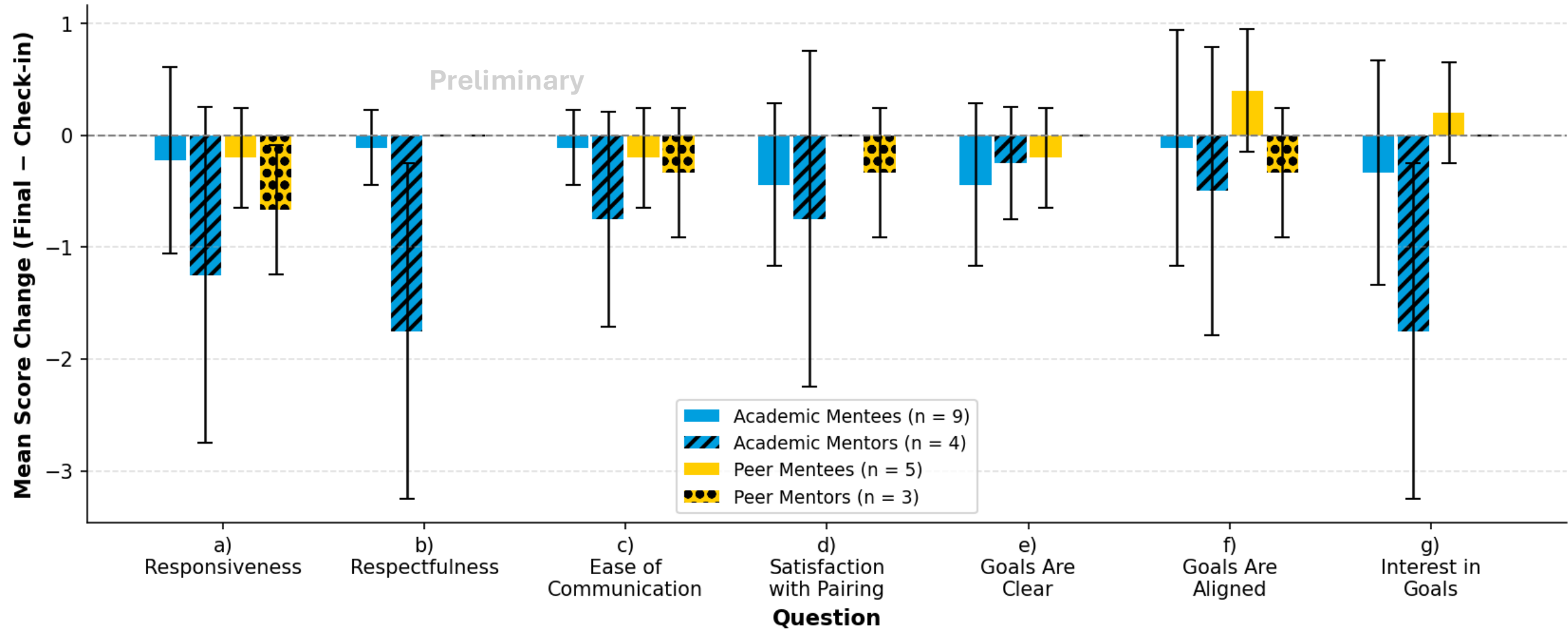
*My mentee shows/showed interest in letting me help them reach their program goals.*

# Mean Score: Check-in Survey



1 – Strongly Disagree ; 3 – Neutral ; 5 – Strongly Agree

# Mean Score Change: Final Survey – Check-in Survey



1 – Strongly Disagree ; 3 – Neutral ; 5 – Strongly Agree