

Differences in teaching and leadership networks between Master Teaching Fellows (MTFs) and non-MTFs

Joshua Reid

Texas Tech
University

Adem Ekmekci

Rice University

Mahtob Aqazade

Rice University

Andrea Reeder

Middle Tennessee
State University

Greg Rushton

Middle Tennessee
State University

Western Regional Noyce Conference
March 10-12, 2023
Sacramento, CA

Overview

1. Introduction and overview of research project
2. Social networks and characteristics
3. Social network activity
4. Leadership and teaching networks: Find the differences
5. Results from our analyses: MTFs' and non-MTFs' networks
6. Implications for teacher leadership programs and teacher retention

1. Project Overview

Goal: To study the retention and persistence of MTFs beyond their teaching commitment in comparison with non-MTFs and in relation to their:

- self-efficacy for teaching,
- leadership skills,
- diversity dispositions,
- school-work environment, and
- **social networks.**

DUE #1950019 (Lead)



DUE #1949925



DUE #1949927



DUE #1949969



DUE #1949985



DUE #1950001



DUE #1950002



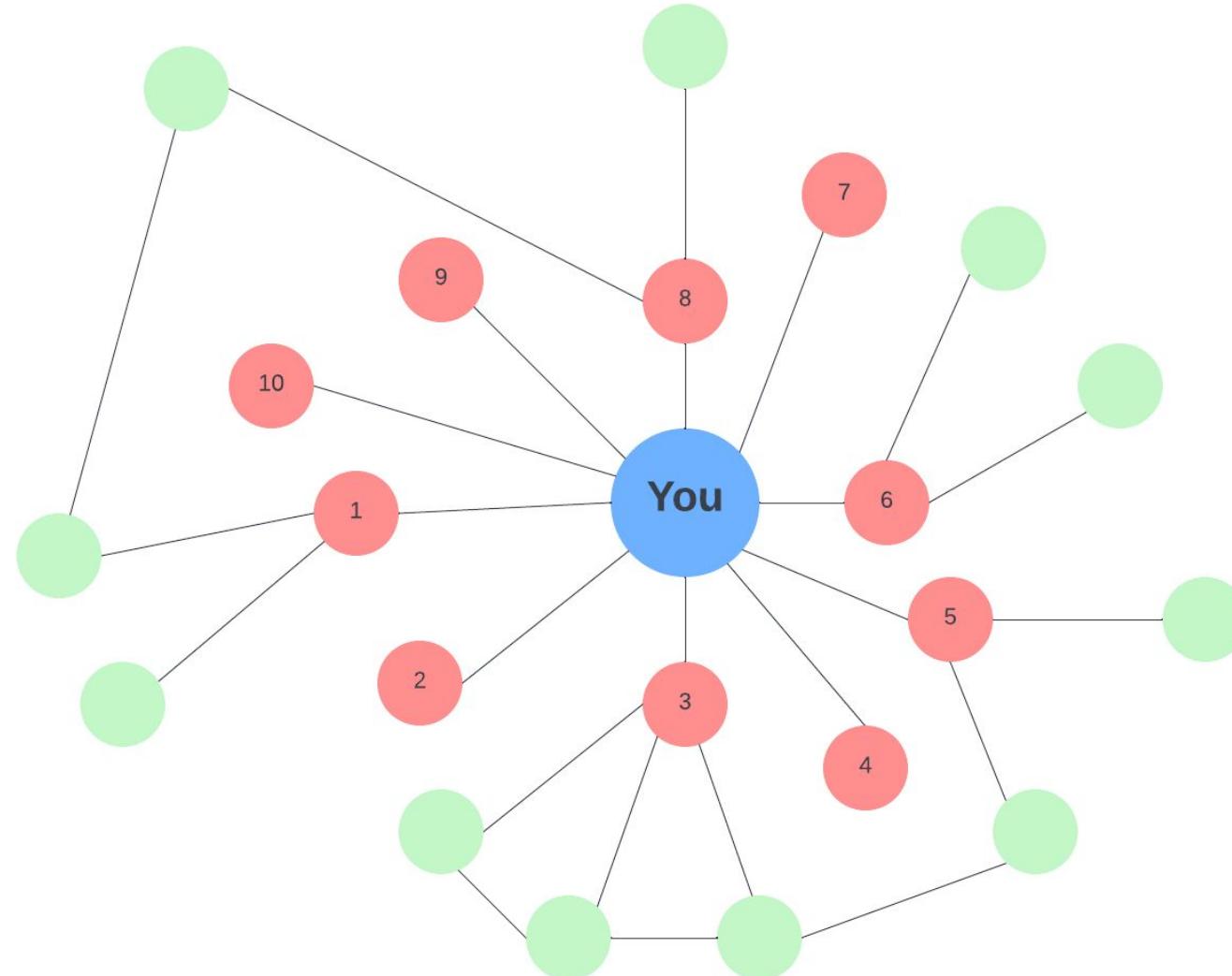
Participants

		Retention				
		Stayer	Mover	Shifter	Leaver	Total
Non-MTF	62	5	13	3	83	
MTF	42	9	24	9	84	
Total	104	14	37	12	167	

Research Questions

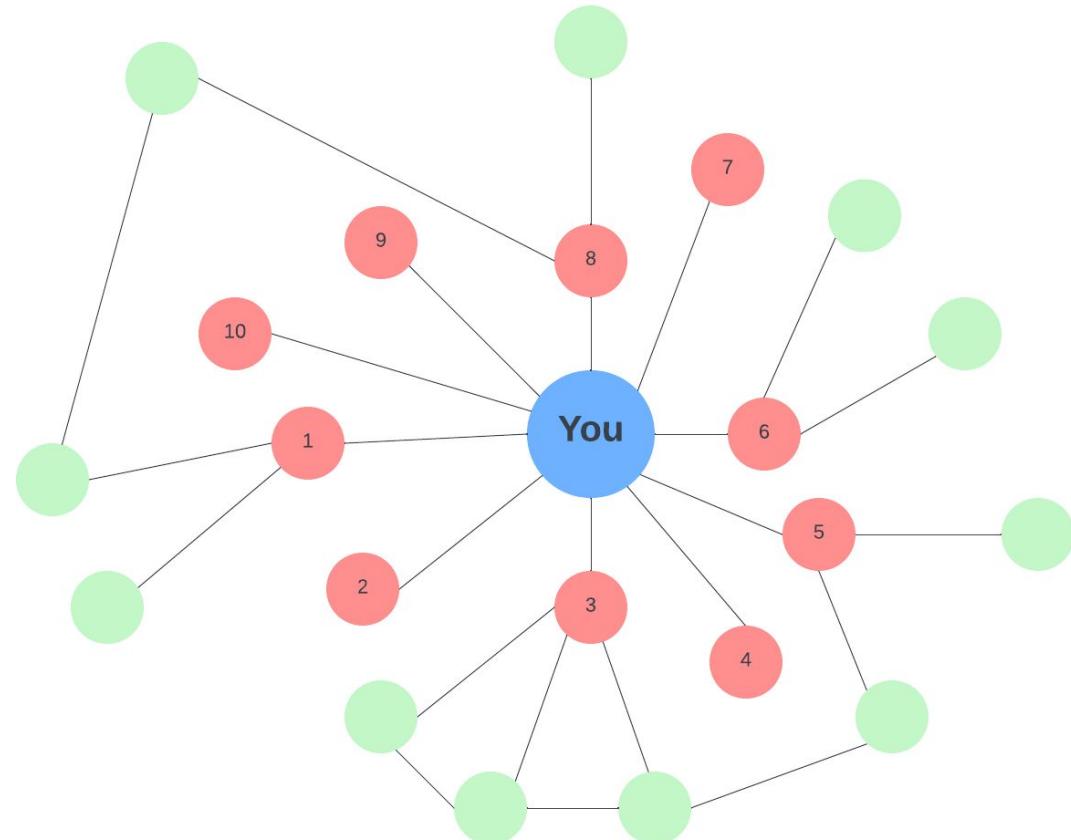
- How do Noyce MTFs' social networks differ from the networks of non-Noyce teachers?
- How do Noyce MTFs' teaching related networks differ from their leadership related networks?

2. Social Network Analysis

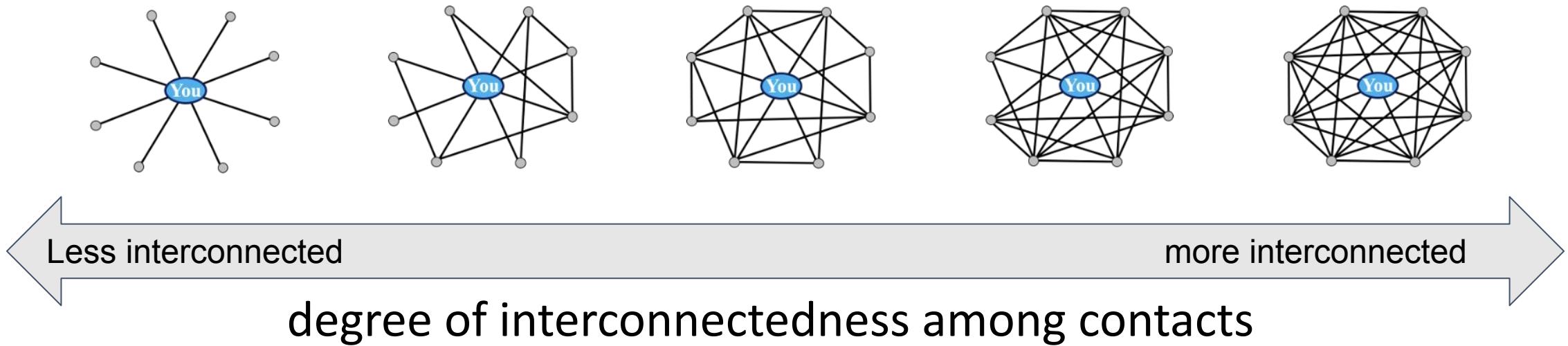


Characteristics of Networks: Size

- Number of ego's direct contacts
- Number of edges (interactions) within the network

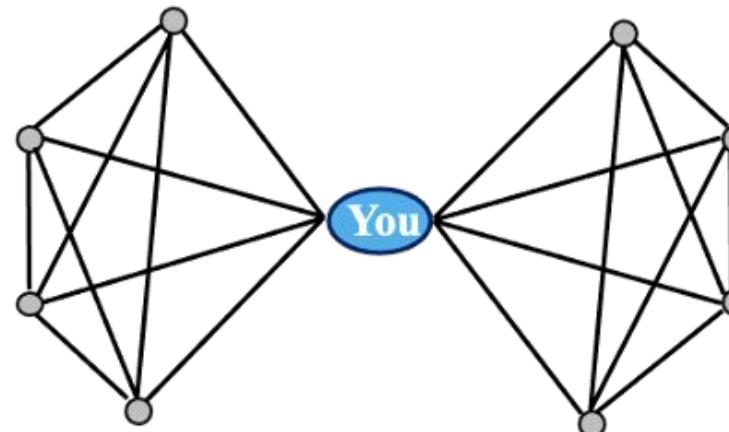


Characteristics of Networks: Interconnectedness (Density)

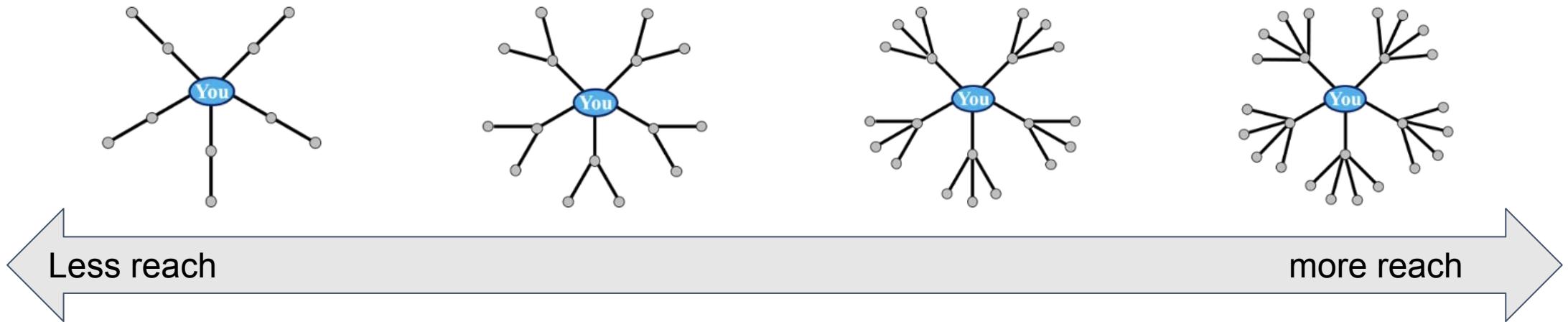


Characteristics of Networks: Bridging

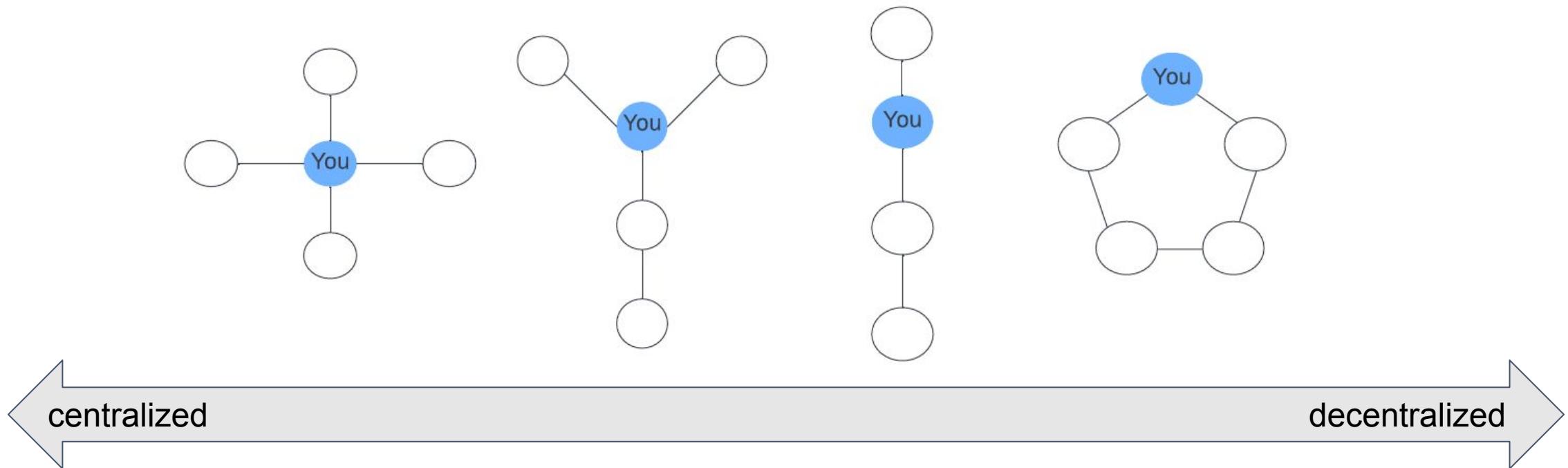
Connecting two groups or people who would not be connected otherwise.



Characteristics of Networks: Reach



Characteristics of Networks: Centrality



Characteristics of Networks: Other

- Proximity (geographic): Geographic relation to ego (e.g., school, district, state, nation)
- Energizing-ness: The extent to which each contact is energizing.

3. Social Network Activity

Write out the names of the last 10 people you talked to related to teaching.

- **Sally**
- **Bob**
- **Mason**

*In a column next to these names, write what your **relationship** is with that individual.*

- **Sally** **Colleague**
- **Bob** **PI**
- **Mason** **Colleague**

3. Social Network Activity

*In a column next to these names and roles, write whether you feel this relationship/interaction is **energizing** or **de-energizing**.*

- Sally Colleague Energizing
- Bob PI De-Energizing
- Mason Colleague Energizing

3. Social Network Activity (Cont)

For each individual in your network, who do they talk to (people in your network only)?

- **Person A talks to person B**
- **Person B talks to person C**
- **Person C talks to person D**
- **Person D talks to person B**



Draw a node (circle/shape) to symbolize yourself (the ego).

Begin by drawing another node for the first person in your network.

Connect these nodes by lines (representing interactions/relationships).

3. Social Network Activity (Cont)

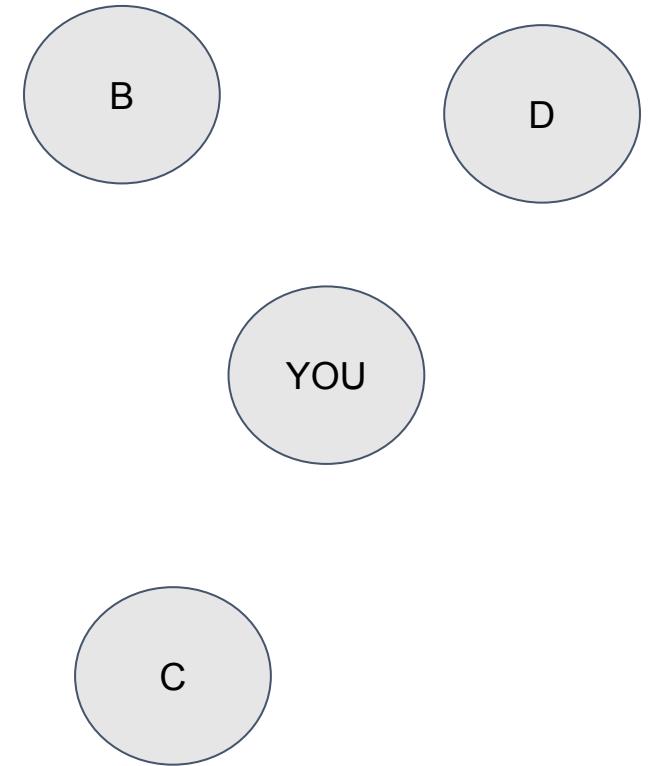
For each individual in your network, who do they talk to (people in your network only)?

- You talk to person B
- Person B talks to person C
- Person C talks to person D
- Person D talks to person B

Draw a node (circle/shape) to symbolize yourself (the ego).

Begin by drawing another node for the first person in your network.

Connect these nodes by lines (representing interactions/relationships).



3. Social Network Activity (Cont)

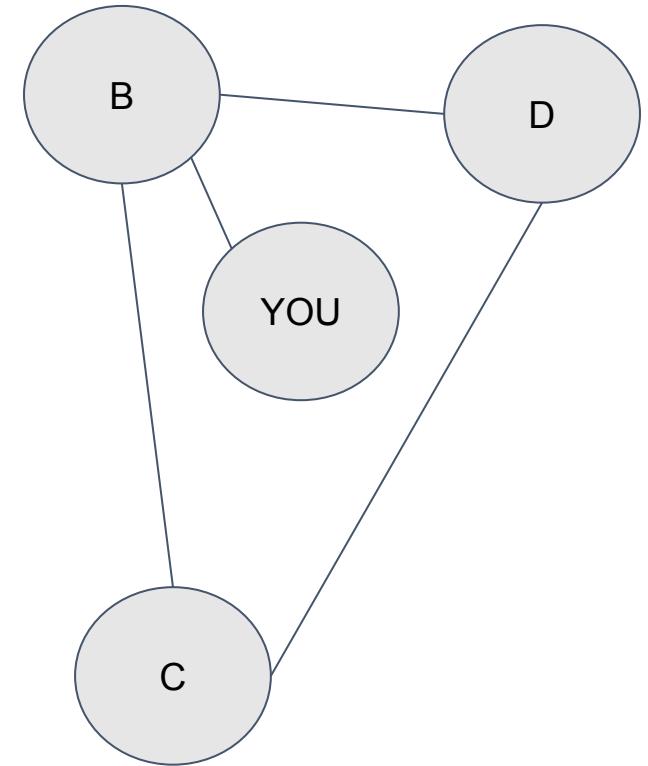
For each individual in your network, who do they talk to (people in your network only)?

- You talk to person B
- Person B talks to person C
- Person C talks to person D
- Person D talks to person B

Draw a node (circle/shape) to symbolize yourself (the ego).

Begin by drawing another node for the first person in your network.

Connect these nodes by lines (representing interactions/relationships).

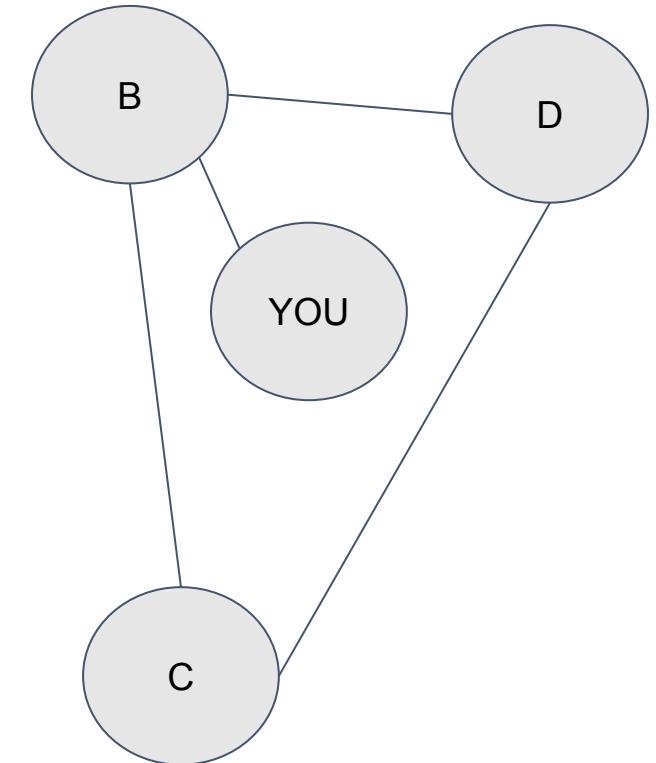


3. Social Network Activity (Cont)

Now, let's see do the same for our research networks!

What do you notice about teaching vs research networks?

Think about this in terms of reach, interconnectedness, bridging, roles, etc.



4. Leadership and Teaching Networks: Find the Differences

How would you expect teaching and leadership networks differ, if at all?

Why would you think this?

Teaching Network

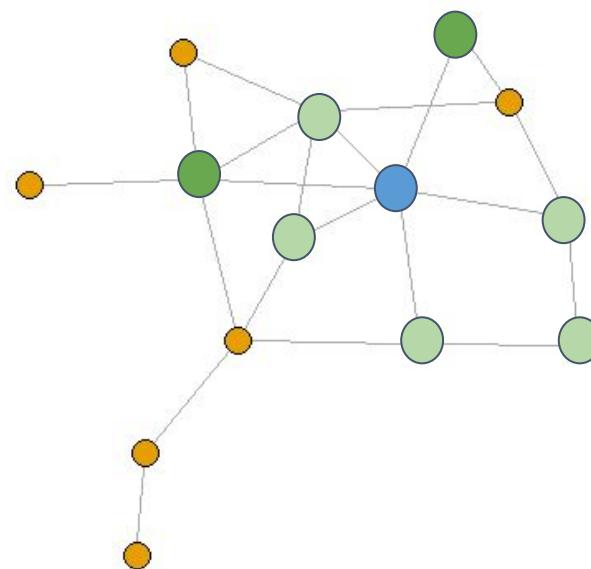
Teaching network includes your personal and professional contacts you interact with in-person or virtually related to teaching and/or education (instructional practices, classroom management, technology integration etc.).

Leadership Network

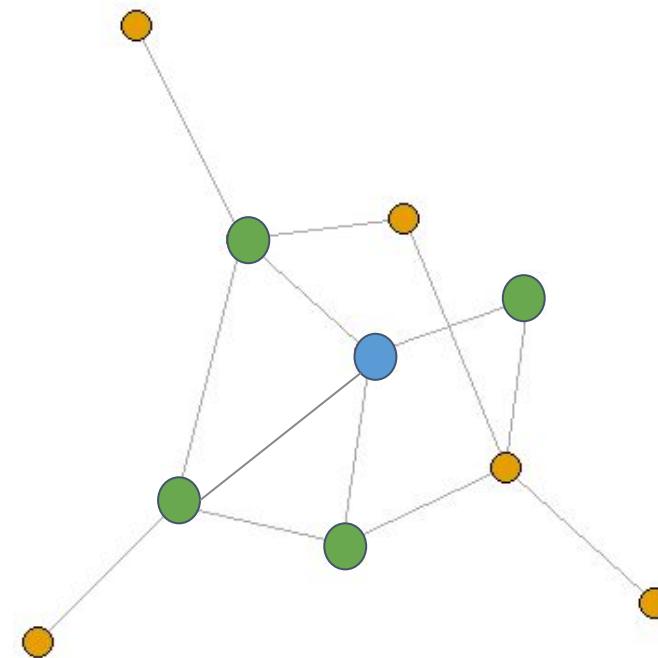
Teacher leadership network includes your personal and professional contacts you interact with in-person or virtually related to teacher leadership. Teacher leadership may be broadly defined as the active involvement of teachers in the improvement of school culture and instruction and ultimately student learning through their participation in school-wide decision-making, and promotion of their teaching and learning expertise. Leadership activities include but are not limited to mentoring new teachers, helping with school policy, leading school committees etc.

Teaching vs Leadership Networks

Typical Teaching Network MTF



Typical Leadership Network MTF



5. Results from our Analyses: MTFs' and non-MTFs' Networks

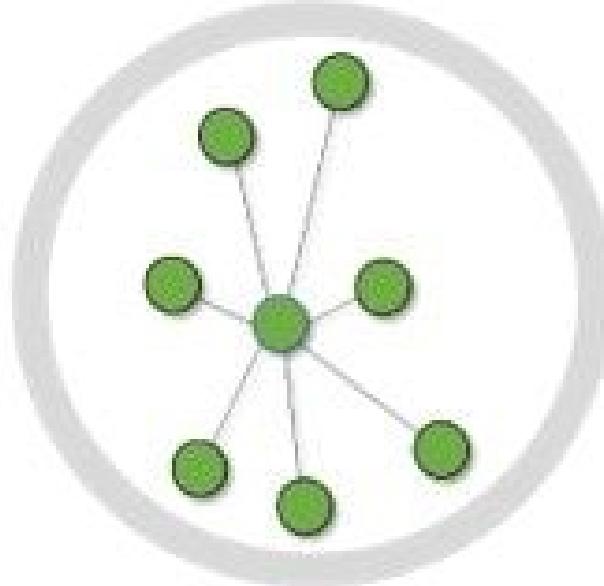
What did we find when we compared teaching and leadership networks between MTFs and non-MTFs?

	t	df	Significance	Mean Difference	Std. Error Difference	95% C.I.	
						Lower	Upper
Teaching centralization	.77	118	.22	0.04	0.05	-0.06	0.13
Leadership centralization	.05	107	.48	0.00	0.06	-0.11	0.11
Teaching density	-.48	118	.32	-0.02	0.04	-0.10	0.06
Leadership density	-.08	118	.47	-0.00	0.05	-0.09	0.09

	t	df	Sig.	Mean Difference	Std. Error	95% C.I.	
						Lower	Upper
Teaching Network Size	3.33	165	0.00	1.99	0.60	0.81	3.18
Leadership Network Size	0.65	165	0.26	0.45	0.69	-0.91	1.81
Teaching Network Bridging	0.91	165	0.18	0.16	0.17	-0.18	0.50
Leadership Network Bridging	1.86	165	0.03	0.33	0.18	-0.02	0.68
Teaching Network Reach	0.90	165	0.18	0.48	0.53	-0.57	1.53
Leadership Network Reach	1.79	165	0.09	0.46	0.26	-0.05	0.96
Teaching Network Proximity (Geographic)	3.50	165	0.00	0.21	0.06	0.09	0.33
Leadership Network Proximity (Geographic)	2.91	159	0.00	0.28	0.09	0.09	0.46
Teaching Network Energizing	-0.13	165	0.45	-0.01	0.07	-0.14	0.12
Leadership Network Energizing	1.67	159	0.05	0.17	0.10	-0.03	0.38

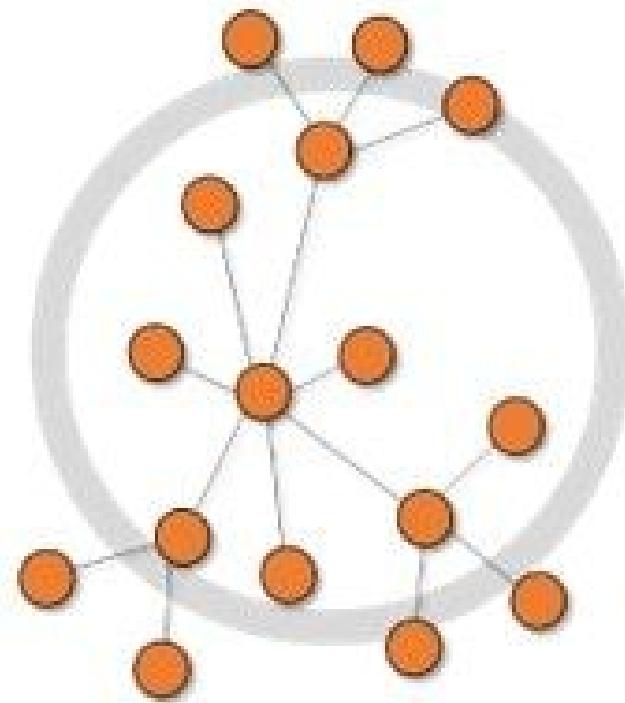
Network Centralization

CENTRALIZED



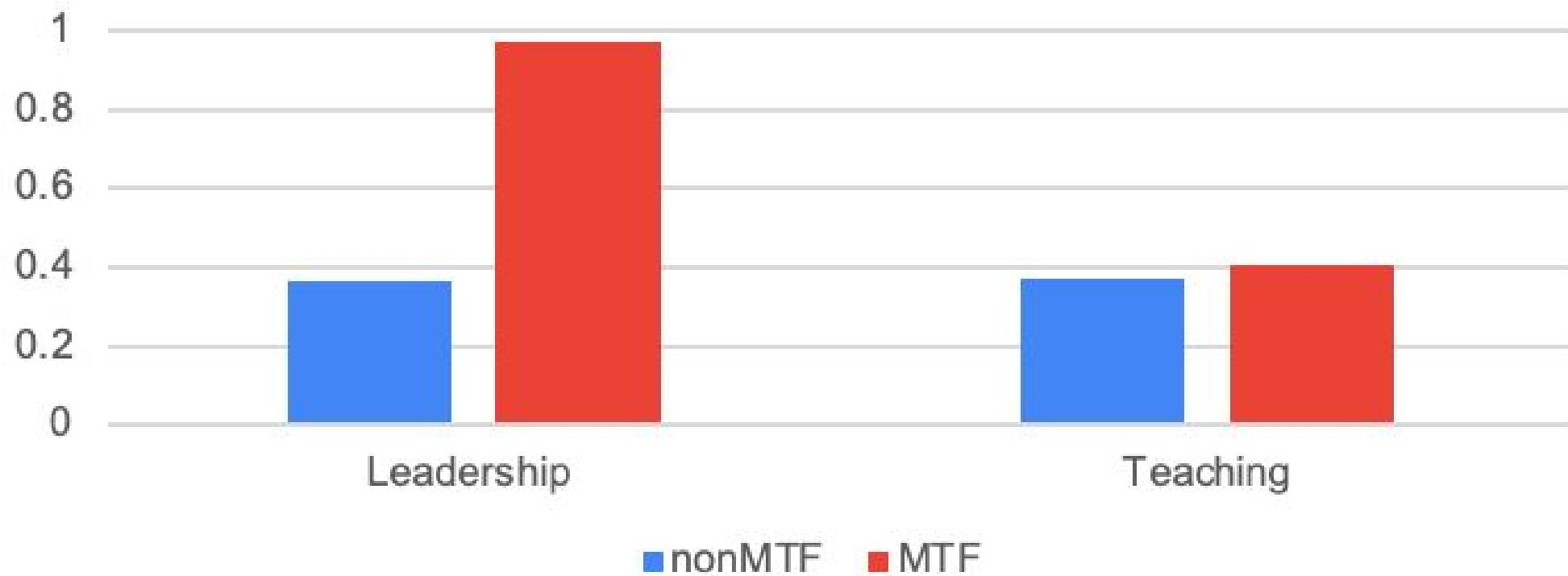
1

DECENTRALIZED

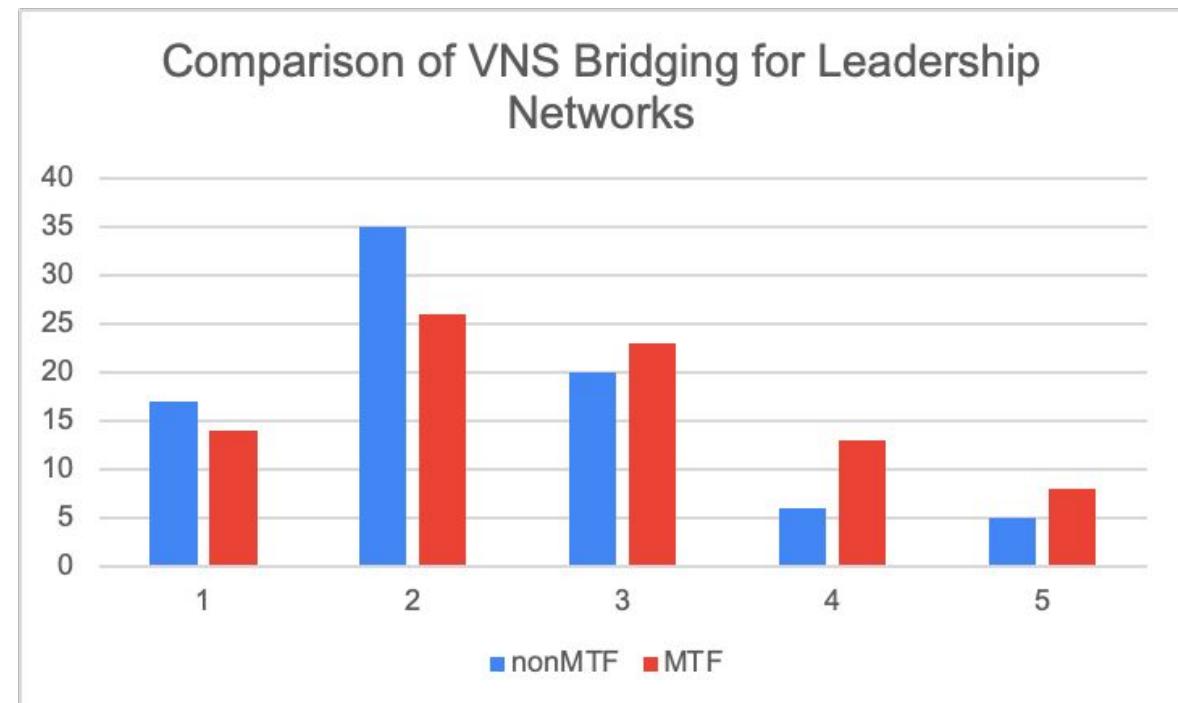
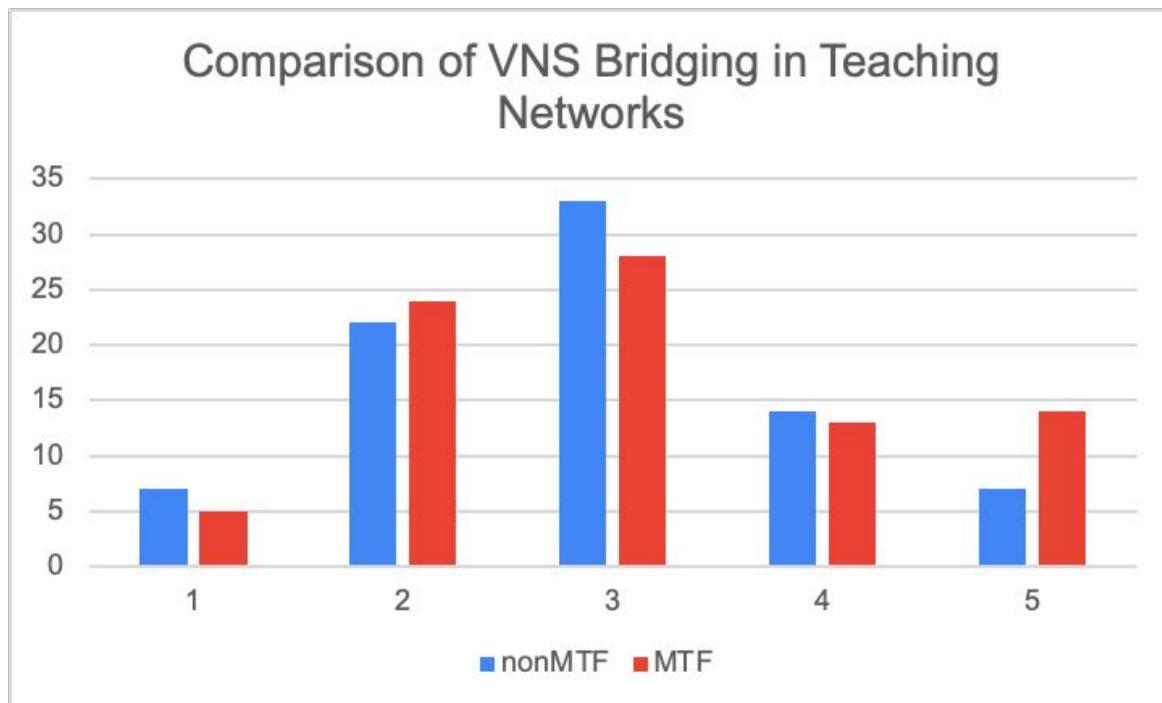


0

Comparison of Average Centralization between MTF and non-MTF Teaching and Leadership Networks



MTFs and Non-MTFs Bridging Roles



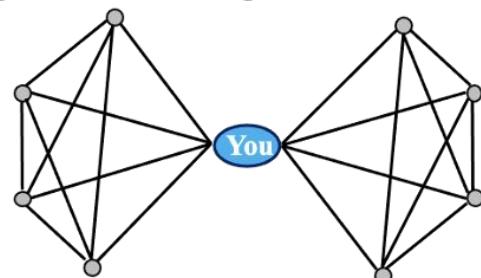
B. Bridging

○Zero

○

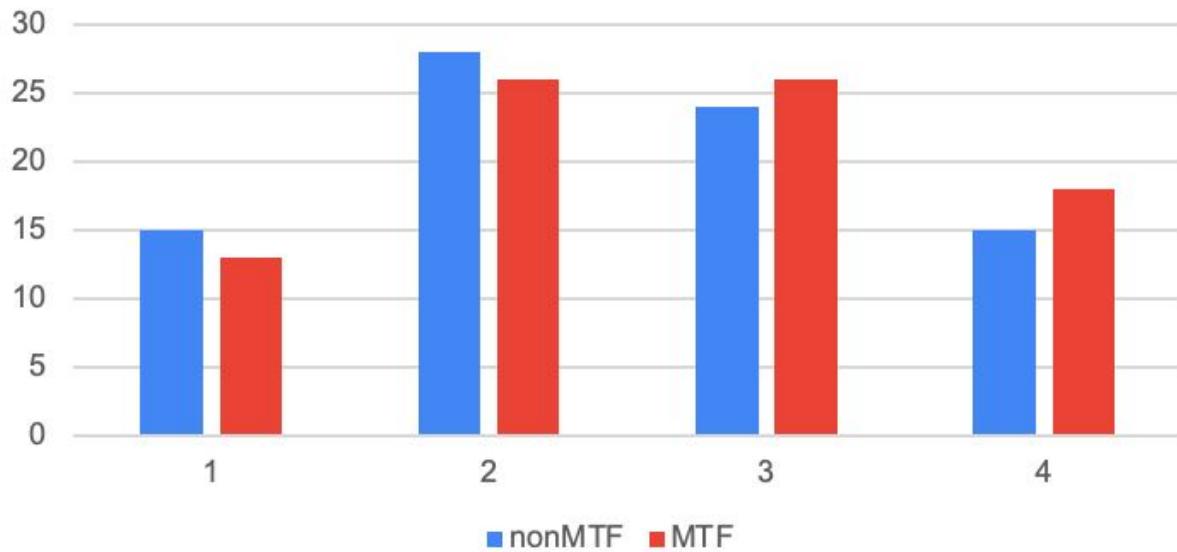
○

○ Many

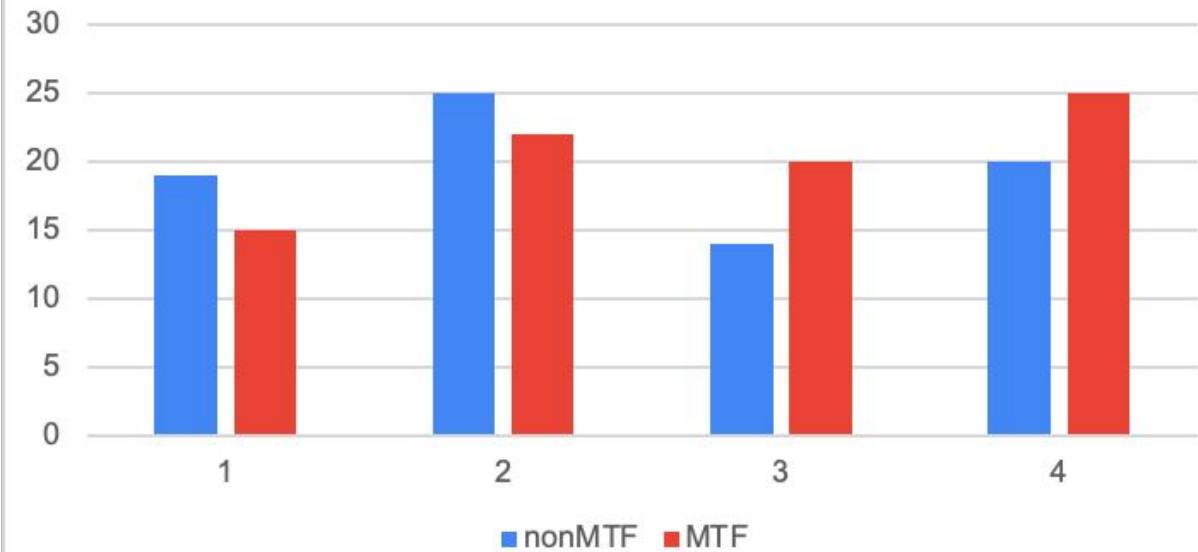


Reach (MTFs vs Non-MTFs)

Comparison of VNS Reach for Teaching Networks



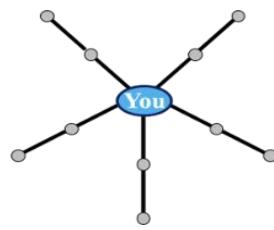
Comparison of VNS Reach for Leadership Networks



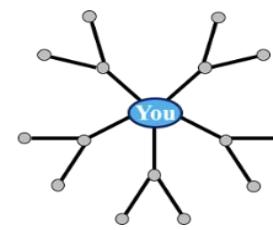
C. Reach

n = 167

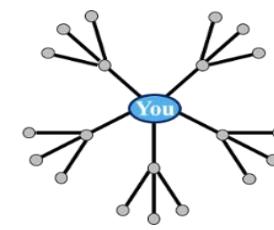
○ Few



○

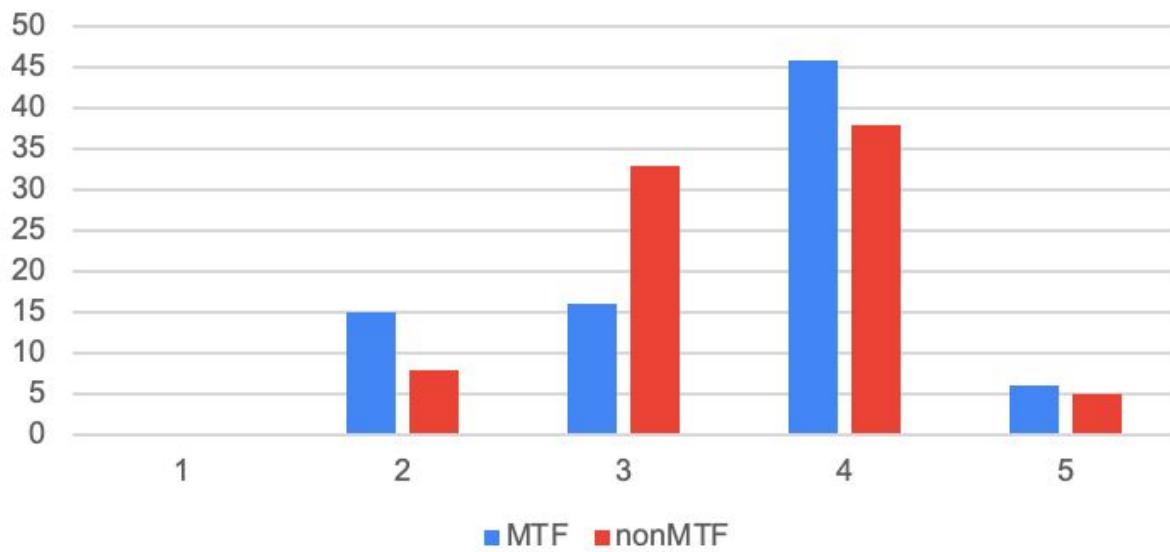


○ Many

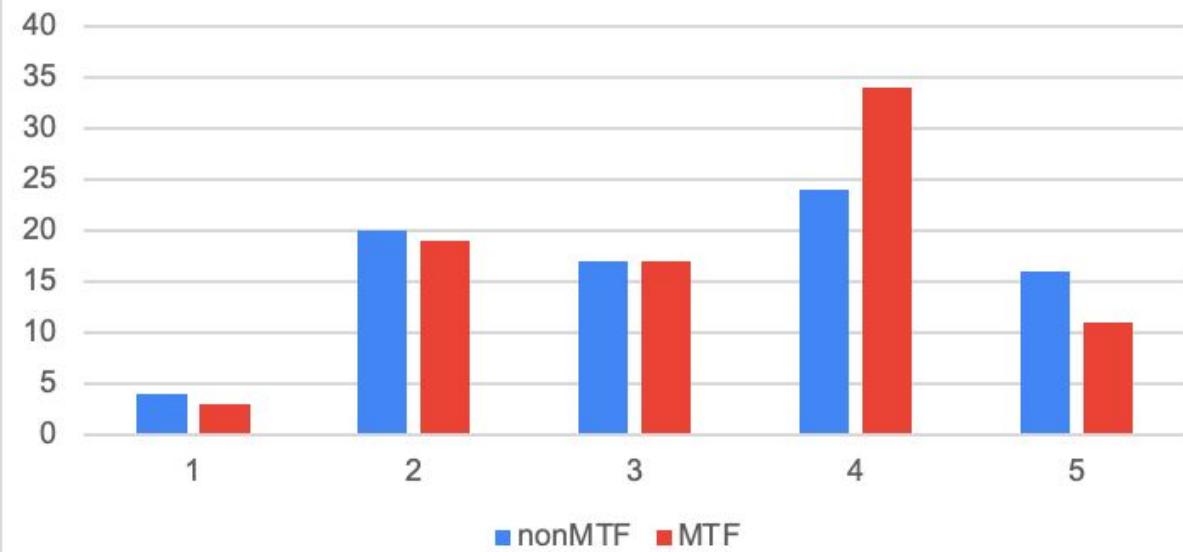


Density (MTFs vs Non-MTFs)

Comparison of VNS Density for Teacher Networks

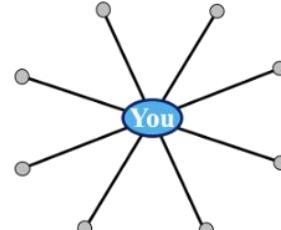


Comparison of VNS Density for Leadership Networks



None

A. Density



Few



About Half



Most



All



n = 167

6. Implications

- MTF programs seem to make a positive difference in teachers' network size, bridging role, and network energizing-ness
- MTF programs seem to provide opportunities for broader geographical reach
- More networking opportunities should be provided by PD programs
- To support TL development, programs should be purposeful about the network positioning of the TLs
 - NOYCE does this through conferences such as this!

Feedback on this Session

Share feedback on sessions and earn extra tickets for our Drawing! You can access the feedback form in many ways!

- Sched App - find this session on Sched and click the Feedback button
- Visit www.tinyurl.com/wrnn23
- Use the QR code on the right

Every session will use these same links!

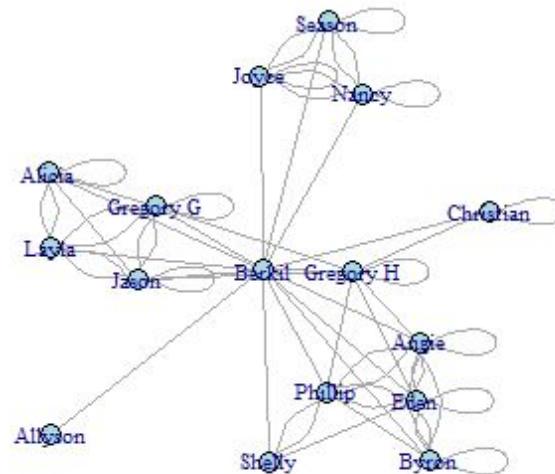


Extra slides

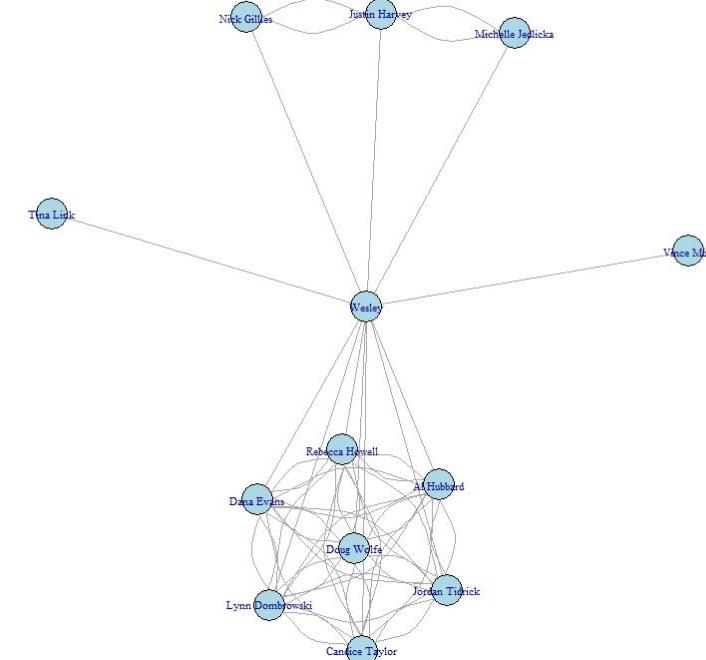
4. MTFs' and Non-MTFs' Networks

Find/ discuss the differences activity for the audience

MTF Teaching Network



Non-MTF Teaching Network



What is the relationship between the network variables and outcome variables of interest?

Negative correlation with network size,
Self-efficacy, and TSF.

Positive correlations between bridging (in both networks) and retention.

Spearman correlation
Only significant correlations are shown ($p < .05$)

