



Rice University
Noyce Master Teaching
Fellowship Program (RU-MTF)



Research and Evaluation Results from RU-MTF (DUE #1556006)

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Goals

- Teacher leadership
- Reform-based mathematics teaching
- Mathematical knowledge for teaching
- Effective professional development
- Culturally-relevant instruction
- Andragogy



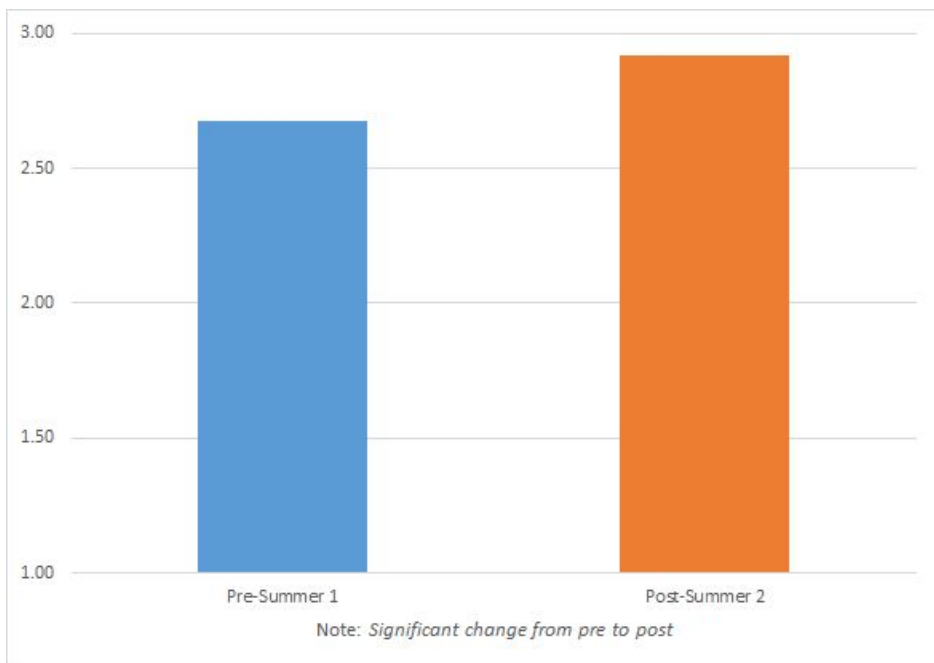
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Timeline (cont.)

Activities/Courses	Year 1 2016–17		Year 2 2017–18		Year 3 2018–19		Year 4 2019–20		Year 5 2020–21		Year 6 2021
	Aca Year Sp '17	Sum	Aca Year	Sum	Aca Year	Sum	Aca Year	Sum	Aca Year	Sum	Aca Year Fall '21
Participate/lead planning school & district math initiatives	x	x	x	x	x	x	x	x	x	x	x
Collaborate & interact with other MTFs	x	x	x	x	x	x	x	x	x	x	x
Plan co-teaching (summer PD)					x		x		x		x
Co-teach (summer PD)						x		x		x	
Mentor pre-service & intern math teachers					x	x	x	x	x	x	x
Assist in math methods courses					x	x	x	x	x	x	x
Observed by pre-service & intern teachers	x		x		x		x		x		x
Demonstrate exemplary lessons at the Life in School Conference			x		x		x		x		x

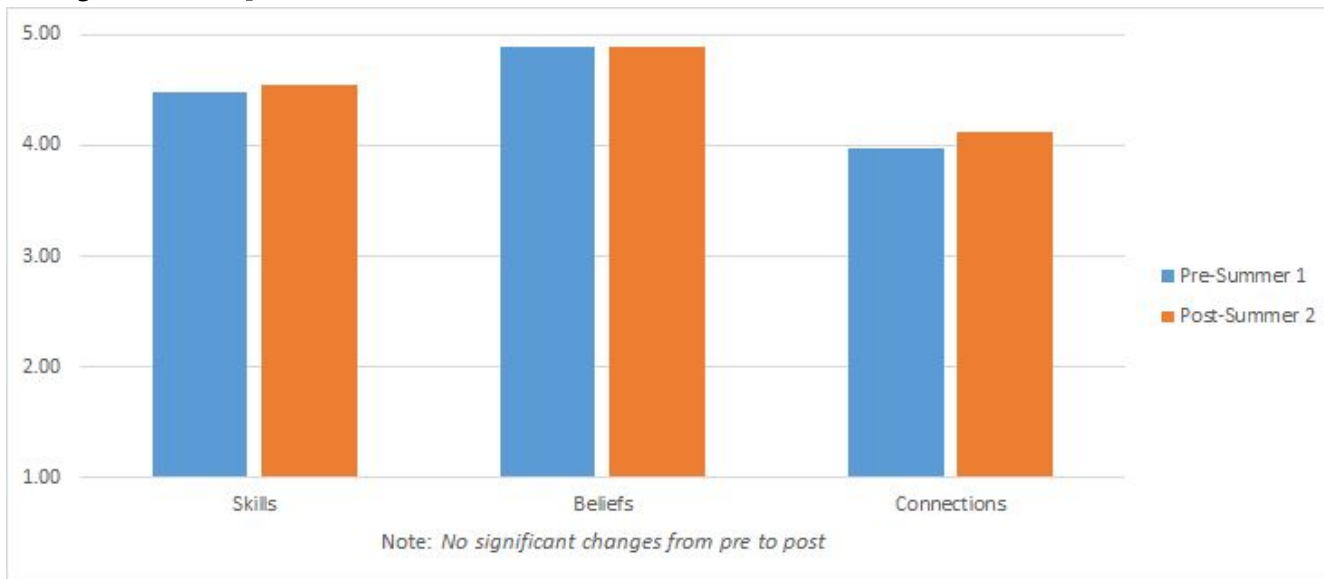
AVID Survey of Teacher Leadership



In the past 12 months, how often did you engage in:

- *helping develop school policy*
- *serving as a mentor to new teachers*
- *reflecting on my own teaching practice*
- ...

Diversity Disposition Index

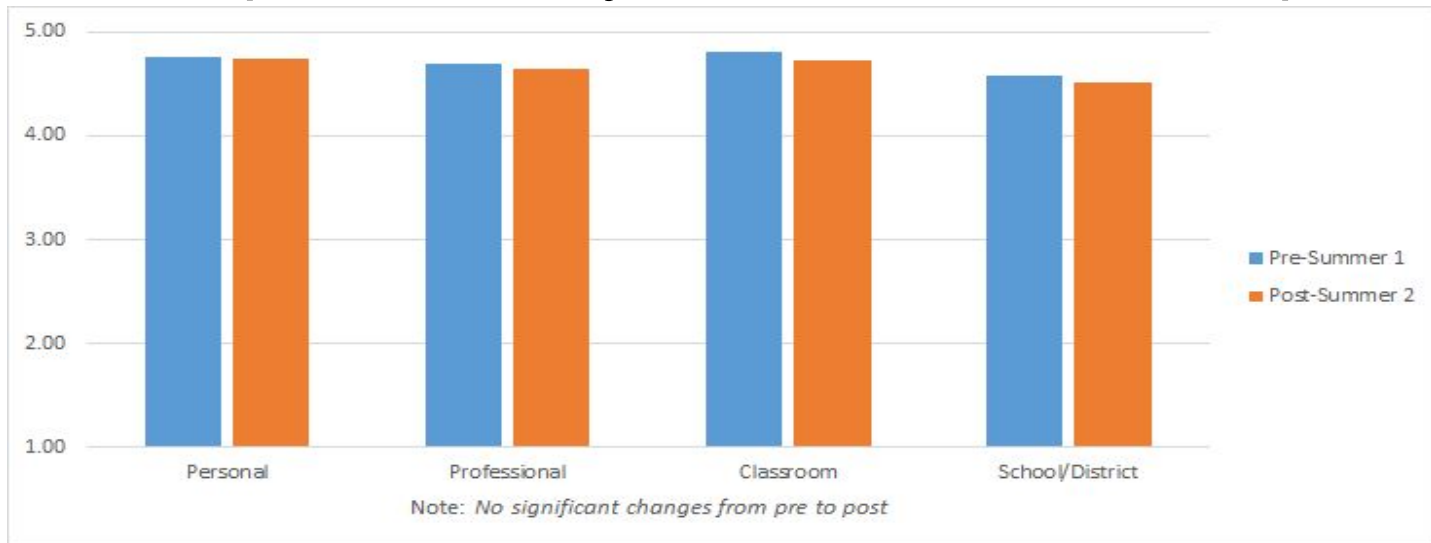


*I work to develop
my students' critical
thinking skills.*

*I believe that
all students can
learn.*

*I am involved in
the community
where I teach.*

Others' Perceptions of Noyce Fellows' Leadership Attributes



*Has great
organizational
skills*

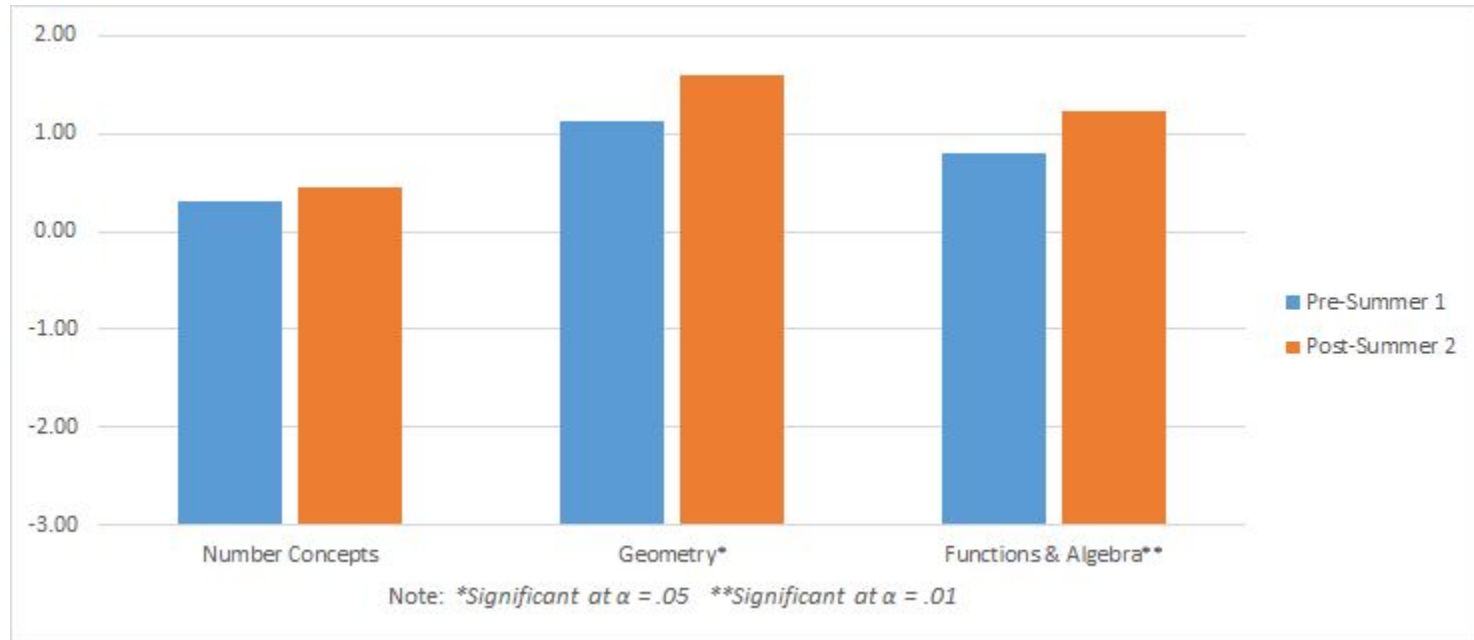
*Grows and
develops
professionally*

*Promotes high
standards for
all students*

*Is committed to
shared decision
making*

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Specialized Content Knowledge



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Addressing PD Needs during COVID-19

- Virtual communities of practice
- Active online learning
- Collaborative work via Zoom breakout rooms
- Variety of technology for reflection, exploration, and assessment
- Demonstrations of exemplary online teaching
- One-on-one assistance

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2019 Master Teaching Fellow (MTF) Focus Group

The focus group revealed that MTFs

- viewed effective mathematics instruction as
 - active
 - teacher facilitated
 - focused on students' experiences

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2019 MTF Focus Group (cont.)

The focus group revealed that MTFs

- recognized that many colleagues did not know what effective instruction looked like
- focused on students' test results because test results are prioritized by administrators

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2019 MTF Focus Group (cont.)

The focus group revealed that MTFs

- reconsidered and changed their teaching strategies as a result of the equity and inclusion components of the summer campus program

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2019 MTF Focus Group (cont.)

MTFs' understanding of the connection between the high school mathematics curriculum and college-level mathematics

- shifted their perspectives and changed how they
 - approach mathematics content
 - teach students
 - emphasize these connections with colleagues

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2019 MTF and Campus Colleague Interviews

In-depth interviews were conducted to gain more detailed pictures of MTFs' work on their campuses and with their colleagues.

3 MTFs were interviewed

1 campus colleague identified by each MTF was also interviewed

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2019 MTF and Campus Colleague Interviews

MTFs shared the following insights about high school students' persistence in high mathematics courses

- when teachers do not understand the vertical alignment of the high school mathematics curriculum this contributes to students' lack of persistence in mathematics

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2019 MTF and Campus Colleague Interviews

MTFs shared the following insights about high school students' persistence in high mathematics courses

- students' mathematics persistence is undermined when they lack
 - prior mathematics knowledge
 - confidence in their mathematics abilities

In turn MTFs, emphasized these connections with colleagues.

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2019 MTF and Campus Colleague Interviews (cont.)

MTFs strengthened their connections with campus colleagues by

- sharing professional learning experiences
- collaborating with colleagues to design new courses
- creating online instructional videos for students and teachers
- modeling effective instructional strategies
- encouraging students to persist in mathematics courses

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2020 Noyce MTFs and the SARS CoV-2 Virus

The emergence of the SARS Co-2 virus and its associated COVID-19 diseases created both a crisis and an opportunity in education.

Noyce MTFs upheld the goal and objectives of the RU-MTF.

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Research and Evaluation Results

2020 Noyce MTFs and the SARS CoV-2 Virus (cont.)

Over 50% of MTFs had sometimes, fairly often or very often—

- been upset because of something that happened unexpectedly
- felt they were unable to control the important things in their lives
- felt nervous and “stressed”
- found that they could not cope with all of the things they had to do
- been angered because of things that were outside of their control
- felt difficulties were piling up so high that they could not overcome them

Over 70% of MTFs reported that they sometimes, fairly often, and very often felt—

- confident about their ability to handle personal problems
- that things were going their way
- they were able to control irritations in their lives
- they were on top of things

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2020 Noyce Master Teaching Fellows Interviews

MTFs identified the following benefits of the Noyce Master Teaching Fellowship

- attending conferences
- personal and professional growth
- developing relationships with each other
- gaining “greater credibility among colleagues and administrators”

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2020 Noyce Master Teaching Fellows Interviews

One MTF said...

Having designated time during the summer seminars to work in math problems individually and collectively, allowed me to re-activate my mathematical knowledge, to review mathematical concepts that I had forgotten, and to learn new ones, experiencing what “doing math” means.

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2020 Noyce Master Teaching Fellows (cont.)

Asked about whether MTFs were a source of support, one MTF said...

Mainly, they are a source of reason, and in that way they are a source of support...open to new ideas while still being skeptical of fads. They have enough experience and sense to decide what is appropriate in a curriculum rather than rely on a strict reading of the TEKS. And they are not afraid or too arrogant to modify or even radically change what they are doing in the classroom in order to best serve their students.

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2020 Noyce Master Teaching Fellows (cont.)

MTFs described their interactions with students' communities and parents in the following ways...

Through this experience, I was able to help out with tutoring students and parents in upper level math.

I have reached out more to parents, especially this year because of the pandemic. Overall, I tried to communicate with parents of my students about opportunities that are available for their child that could help them mathematically besides what is available at the school.

The NSF/Rice Robert Noyce MTF motivated me to make [an] IB Math YouTube channel, which [also] help[s] IB students from other school[s].