

Developing Teacher Empathy

– A journey of three
engineering faculty members
implementing empathetic
actions in their classroom

Indigenous land acknowledgement

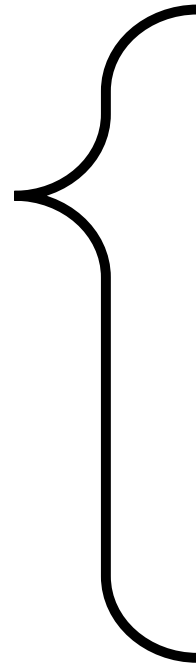
We acknowledge that Arizona State University is built on the ancestral homelands of Indigenous communities who have inhabited this land for centuries, including the Akimel O'odham (Pima) and Pee Posh (Maricopa) peoples. We honor those who have stewarded this land throughout generations.

Contents for the day

My Introduction

Dissertation talk

Questions



Introduction

Literature Review

Methods

Findings

So what???

A little about me...

Dream job: Engineering Professor

Reason: Dad

Masters of Design in Mechanical Systems

Job: Software test engineer for two years

Finally, Assistant Professor in Mechanical Engineering, but...

PhD in Engineering Education Systems and Design in ASU



Positionality

Optimistic – positive bias is still bias

Love teaching

Excited to try new teaching methods – favor evidence based

Constructivist epistemology – learn through experience & context

My dissertation: Teacher Empathy

My undergraduate learning was bad. The system was not conducive.

Wanted to be the change and not just complain from the sideline, plus I loved teaching

As a faculty – a lot of positive student feedback, but all I said was, ‘hey, let’s learn together’ – Not a sage on the stage but a guide by their side

Curiosity led the cat to literature and found **Teacher Empathy**

Before going further...

Teacher Empathy

My definition: Faculty understanding the students and helping them to grow **from where they are to where they need to be**, or, being in their shoes and using that information to customize my teaching.

Snapshot of prior work (Literature Review)

Started within engineering education field

Very few articles on empathy, let alone teacher empathy

Model of Empathy Framework by Walther and colleagues (2017)

Expanded to Higher Education and found many studies

Oldest I found was in 1983 by Coffman

Psychology, medicine, pre-service teacher education and nursing

Reduced teacher burnout, improved satisfaction, better student outcomes some highlighted benefits of teacher empathy

Snapshot continued...

Literature hunt slowly developed by research question

Stumbled upon a thesis leading to imposter syndrome (Yes, it's real...)

But later became the foundation for my dissertation (Not a fun ride for few weeks)

Youmans's study on empathic concern in engineering context (2020)

Participants were students, outcome was a table of empathic actions

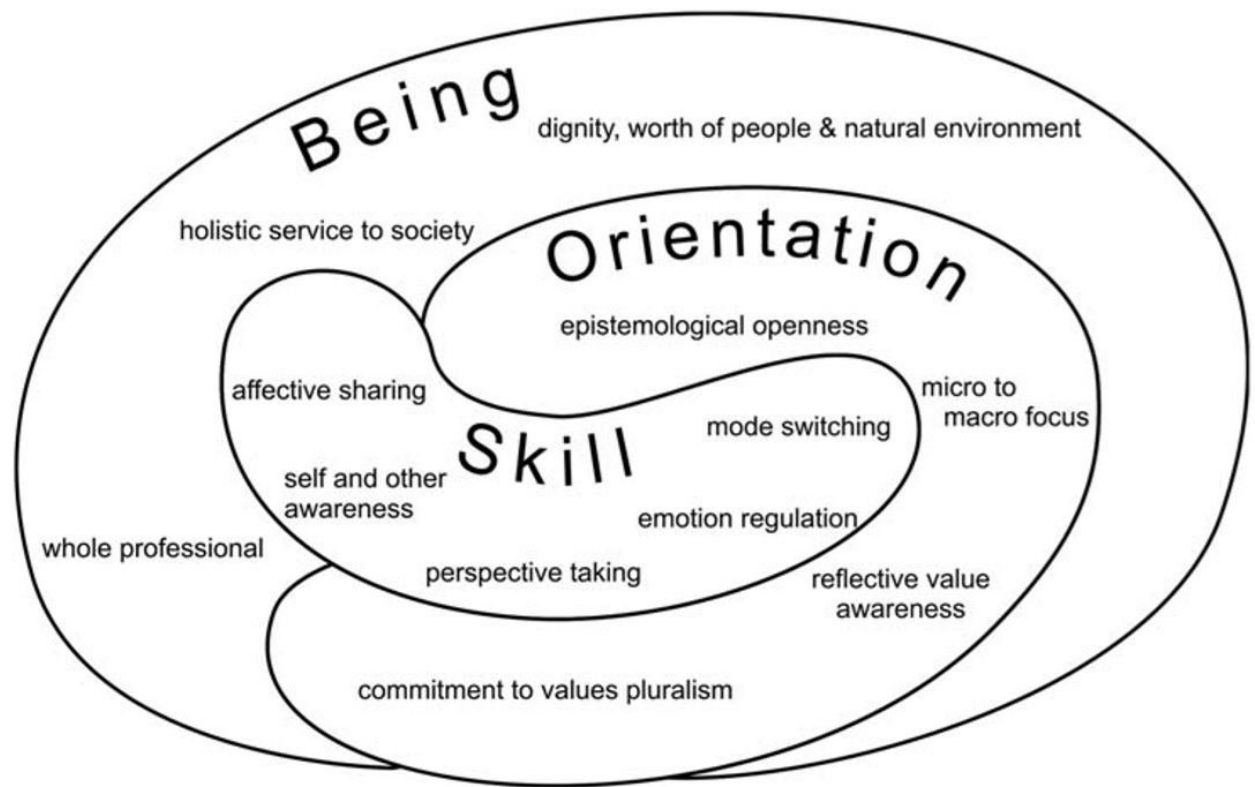
Snapshot continued...

Meyers definition of Teacher Empathy:

“the degree to which instructors **work to deeply understand** students’ personal and social situations, **feel caring and concern** in response to students’ positive and negative emotions, **and communicate** their understanding and caring to students through their behavior” (Meyers et. al, 2019, p. 161)

Recipe for my study (Methods)

Model of Empathy Framework (Walther et. al, 2017) to define empathy in engineering context.



Recipe continued...

Teacher Action Research Methodology (Pine 2008) – work *with* the participants and not *on* the participants; provides agency

Participants

- Chose empathetic actions

- Modified/iterated when they felt necessary

- Chose the extent of involvement in the study

Recipe continued...

Participant selection – Purposeful sampling

- Three participants

 - Two women and one man

 - Senior Lecturer, Assistant Professor and Associate Professor

 - One lecture-based and two-project based courses

Data collection

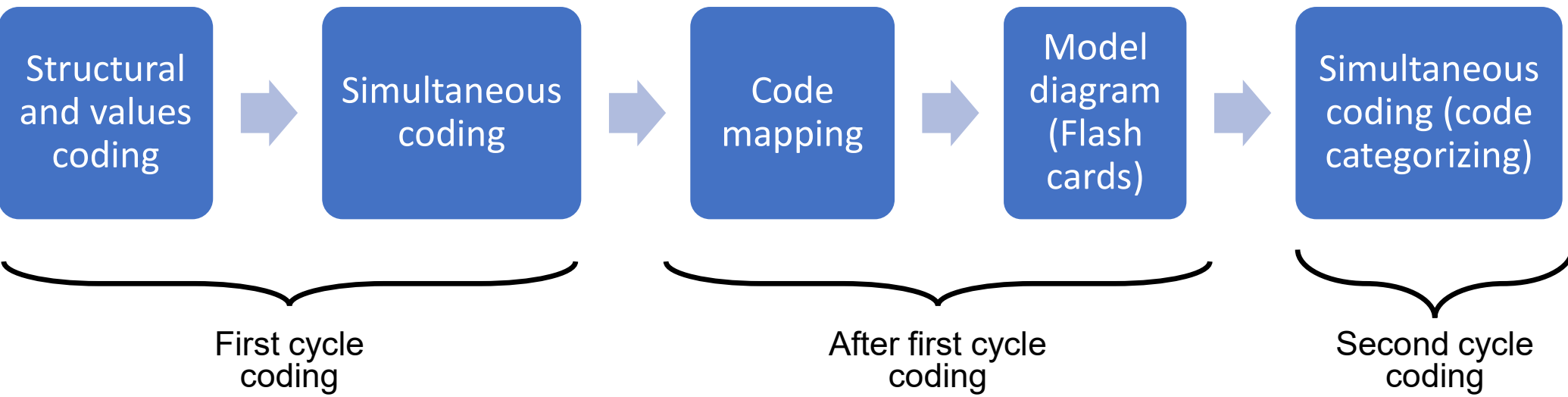
- Two pre-study meetings, three one-hour interviews

- Audio reflective journaling after every class

- Classroom observation and analytical memos

Recipe continued...

Data Analysis



Saturation, limitation and quality

Saturation not the goal for full and rich personal accounts (Saunders et. al, 2018; Hale et. al, 2008)

Time and effort requirement were high for Teacher Action Research

Quality was approached by

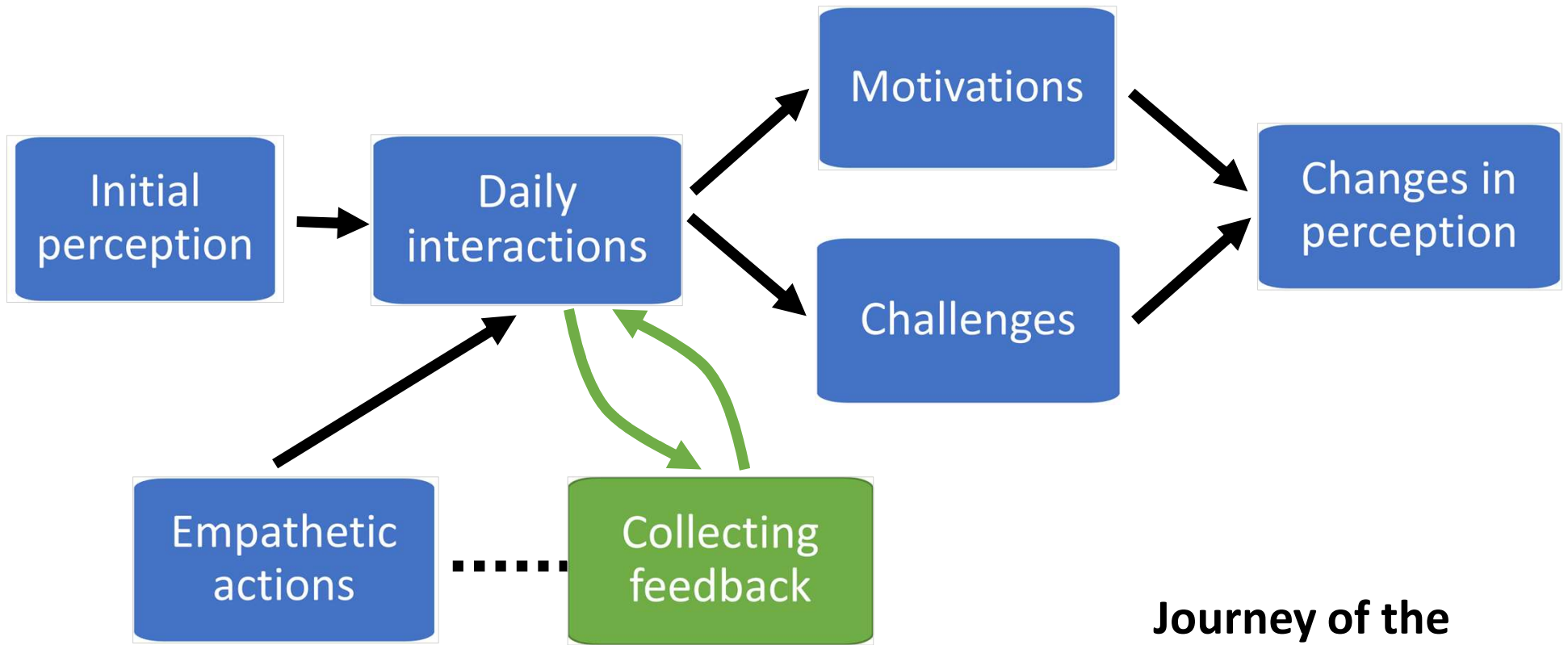
- Analytical memo

- Transcription

- Member checking

- Shop talk

Results



**Journey of the
participants**



Initial perception

Nadia

The first thing that comes to mind is the, **'living in someone else's shoes'** or trying to sort of feel what another person feels or what it's like to be another person. I think that's a hard thing to do. And **maybe hard to do with, depending on your background or where you come from.** But, something that **can be improved also**, by learning about other people's stories and other people's experiences, so, through talking to people, I think you can start to get a sense of what it's like to be someone else. (Pre-study meeting 2)

Initial perception

Jacqueline

Jacqueline initially shared that empathy is rooted in caring about others, **trying to put ourselves in their shoes** and understand how they think. She also said that empathy helps us to sit and talk and address the real problems or underlying problems the student faces. Empathy is also to provide a **safe space to be open, vulnerable, and express themselves**. She also touched upon the background of the students by defining empathy as trying to understand where the students come from and try to respond to that. (Pre study meeting 1)

Initial perception

Robert

[I] **put myself in their shoes**, identify what I would want to do, trying to relive their age, if you will, their experience level and make alignments that will keep them engaged and help them learn the concepts, learn the topic. (Day 5)

Initial perception

- All three participants take students perspective – perspective taking attribute
- Nadia tries new techniques to provide better learning experience – service to society attribute
- Jacqueline wanted to be respectful of all her students – dignity and worth of all stakeholders attribute
- Robert defines empathy as a pathway to prepare students for their engineering careers – Service to society attribute

Empathetic actions

Youmans empathetic action list

Theme	Expression of empathic concern	Recommendations for Engineering Professors
Express care for students as individuals	Understand individual's situations and make accommodations	<ol style="list-style-type: none">1. Take time to listen to individual students' situations2. Reflect on the importance of deadlines and due dates3. Make accommodations when they support learning
	Commit to helping students succeed	<ol style="list-style-type: none">1. Establish an open-door policy or accessible office hours2. Encourage students to ask for help during lectures3. Give students your full attention when providing help
	Care about students' well-being and respond non-judgmentally to emotion	<ol style="list-style-type: none">1. Acknowledge and validate students' feelings2. Know resources on campus to support mental health

Empathetic actions

Youmans empathetic action list

Theme	Expression of empathic concern	Recommendations for Engineering Professors
Cultivate student learning	Prioritize learning over grades through the design of course material	<ol style="list-style-type: none">1. Review and refine learning outcomes for courses2. Prioritize learning in designing assignments and assessments3. Collaborate with teaching and learning experts
	Create a dynamic lecture environment and a safe space for asking questions	<ol style="list-style-type: none">1. Acknowledge and validate students' questions in a lecture environment2. Build connection with students by sharing personal anecdotes and learning students' names
	Adjust the pace of course based on student needs	<ol style="list-style-type: none">1. Collect feedback from students throughout the semester2. Plan for flexible days if additional time on a topic is needed3. Adjust assignment due dates to support learning

Empathetic actions

Youmans empathetic action list

Theme	Expression of empathic concern	Recommendations for Engineering Professors
Acknowledge challenges of engineering programs	Convey the challenges of learning engineering concepts	<ol style="list-style-type: none">1. Explicitly convey the challenge of learning complex engineering topics for the first time2. Provide opportunities to master fundamental concepts that will be needed for future success in engineering
	Recognize the culture of engineering programs	<ol style="list-style-type: none">1. Understand the implicit culture of engineering programs including rigor and meritocracy2. Explicitly acknowledge the challenges of this culture

Empathetic actions

- Nadia came up with her own actions
- Jacqueline chose most of the examples from the action list
- Robert did not use the action list and went ahead as usual

Collecting feedback – the prerequisite

Nadia

Apparently, **they are still having trouble with Wi-Fi in the classroom**. So... We have three of us there. It could still be timed; you have two opportunities to do it in this hour and fifteen-minute block. **But if they had a cover sheet where they had all the answers**. We could still do multiple choice or fill in the blank, but something so that it is easy for us to look at it and mark it, check the answers being right or wrong. And if they get it wrong, they can fill in the second, or then they can sit in their desk and work on it again and then bring back the second answer. And then that's the one that we grade. So maybe we could do that. we do it manually... That might be good. Because **I don't want the Wi-Fi to be an anxiety provoking thing**. (Day 4)

Collecting feedback – the prerequisite

Jacqueline

In a big class... this is a much smaller class than I taught before. And so like, very eager kids and then disengaged kids and then everyone in the middle. Because it's when you think, **this class feels a little bit more bipolar in terms of like people who are wide eyed and bushy tailed and then other people who are just kind of like, 'ehhhh'** [disinterested disliking facial reaction]. The tables in the back weren't necessarily as engaged. Maybe that's why they sit in the back, I don't know. But I'm just thinking, **how to get them to kind of reach out a little bit.** (Day 2)

Collecting feedback – the prerequisite

Robert

If you read the slides, you will notice that I asked them on every other slide how they feel and if we are hitting their expectations. (Day 1)

Collecting feedback – the prerequisite

Observing the students - primary mode of collecting feedback.

Based on feedback, the participants verified and refined their actions.

Student names

One of the key empathetic actions

Nadia

I thought for the empathy thing when she was like, '**you know my name**'.... 'yes I know your name. I'm trying to learn everybody's names'. **She's like, 'wow'**. But you could tell that was like a big deal [for her]. I've been trying to study those introduction slides so that I learn all their names (Day 4)

Student names

Jacqueline

I can't put myself in their shoes and mindread what they are thinking, but I would imagine that **it would just make it seem more personal** and more like, I've taken the time to get to know who they are. So, I think that to the extent that you can use names. That's helpful because, **'hey you' just isn't acknowledging of the other person as a person.** (Long interview 1)

Student names

Robert

I see a hundred Joe's, Jim's and Nancy's in here, I don't need any more of them. What I need are those that want to gain some perspective, that need something out of me that I can help them with. Knowing their name alone isn't going to solve your problem. As I'm being empathetic, I'm sitting in their shoes now thinking, **now for those that are on the outside that don't know how to come in, would calling them by name help to bridge that gap? Possibly, it could.** But, again, I'm here as a resource, I'm not here to direct their lives. They are here to gain knowledge; they need to figure out how to get that knowledge. That's my perspective. (Long interview 2)

Student names

- Learning student name is important to form relationship
- Nadia and Jacqueline – They take the first step to learn names
- Robert – Students take the first step to let the faculty know
- After some form of relationship, all three participants were similar in their approach

Motivations - Teaching team

Nadia

I wonder also if it was in some ways **easier because of the teaching team** we had put together. I don't know if it's a specific incident, but, it was definitely helpful in having you and [grader] as part of [team]. So it was like we had these three people that really were empathetic and cared about the students and wanted to help the students. And thinking about challenges or difficulties in doing some of the stuff, **I think it would have been a little bit harder if it was just me**. But it gives extra motivation if you are working with these other people and extra support for the students. (Nadia, Long interview 3)

Motivations - Teaching team

Jacqueline

Your being in the classroom is sort of a reminder to try to be empathetic. The TA, it was his day, so he was answering questions. So, I kind of felt like, more of in a supporting role. And before I went out to talk to him, his name is [student name], **I was just trying to be like, in the room, present, ready for anything that happened, not on my phone, just kind of there.** I had motivation and that's how I enacted it. (Jacqueline, day 6)

Motivations - Teaching team

Robert

I think it's good to have somebody to run ideas off of. Now does it impact anything? It depends on what that situation is. It could. Today was hugely helpful. I like to have a team effort. And the other side of this is, your [Bala] age and your [Bala] perspective are what I am really looking for. That's why those two youngsters in there are so hugely helpful. **A different perspective** is what you [Bala] give me. So, when I ask the question or came up with a challenge that I did not know how to provide a positive message to those students who put in the extra work, you [Bala] were there to help me better understand options that made me effective. And we came up with a solution. Same thing I want out of those lab assistants. Right. Everybody has a purpose. (Robert, long interview 2)

Challenges

Situations that are not in their control – External situations

Nadia

You wonder how much of it [problems] is the system that we are operating within. Our focus is on the analytical mind and not on creative, artistic [skills], we are like the numbers people, it's just about the numbers and technical stuff. It's not about the social side of things.

Wonder if that is just so engrained in us that it is hard to take three minutes at the beginning of class and actually have a conversation about some things that are not related to the topic. (Long interview 1)

Challenges

Situations that are not in their control – External situations

Jacqueline

I think that a great piece of this is energy level. So, I do teach on Mondays before coming to class. I put in half of the full workday before coming to class on Wednesday too. So, for some reason I thought that Wednesdays are going to somehow be better because I wasn't teaching but I am still meeting and doing work, so it's about the same. And I just noticed that, compared to a year ago, when I was teaching these classes, I remind myself how important it is to sleep and have lunch. **To just generally take care of myself so that I can be in the classroom** on and not feel like I am doing the students a disservice by being off or having an off day. (Long interview 1)

Challenges

Situations that are not in their control – External situations

Robert

Technology. There's my challenge. It's hard to broadcast. Being in the back of the room gave me the empathetic viewpoint of what the students that are at the farthest tables are up against as trying to learn. And you just can't hear. And so, the screens are relatively small which makes it difficult to see what they are looking for. And they can't hear the instructor, so it makes it challenging. And most of them, because they don't want to be exposed for asking questions, simply keep their mouth shut, do the best they can and wing it. And **it's not a good learning experience.** (Day 6)

Changes in perception

Nadia – critical incident transformation

So then it got me thinking about empathy, like, does empathy mean being nice, like hand holding? Or **is it ok to be tough and also empathetic?** What's the correlation between being nice and, I don't if it is mean but, forcing them into that uncomfortable zone of learning or working...I think maybe I associate empathy [as] sort of being nice. **I've never said that but sub consciously** that being empathetic is sort of, thinking about where the students are and meeting them there. But there is something about making them more comfortable or something which is kind of interesting. But I don't know if it necessarily is. But that could be where people could have tensions or problems with it [teacher empathy]. (Day 21)

Changes in perception

Jacqueline – Gradual transformation

Ideally, the case would be that, if the student is not feeling well, if they are isolating or quarantining **if they are feeling sick, they do can come on zoom, but I think that at least two students are beginning to use it as their preferred mode of interaction.** And I don't think it's fair to their teammates because it creates a logistical complication. And so, I have reached out to those students to ask like, what their plans are for the final project. Because, like not inclined to make a teamwork with the one who is never in the classroom, because they are tired, it's not fair, so, they have like two and a half weeks to figure out that. **Maybe there are limits to empathy.** (Day 12)

Changes in perception

Jacqueline – Gradual transformation

I think I've come to see **being anticipatory as being empathetic**. And when I say anticipatory, I mean, observing what the students are doing and if I see them, not that I am preventing them from failing because I don't want them to learn from failures, but if I see them going down a wrong path, I do it as **empathetic to nudge them back onto the right task** without giving everything away. I think I've come to understand that as an empathetic action that I didn't necessarily think of it as one. (Long interview 1)

Changes in perception

Jacqueline – Gradual transformation

I think it has made me **more comfortable in my own understanding of empathy** or rather, as you have said like, in my own ability to define what empathy means for me in that, like for example, you have already said that it's what I really think. And even though I haven't got in like explicit validation of like, 'ok yes this is empathy and that's not empathy'. It at least makes me feel, it makes me see the things that I am doing that could possibly contribute to empathy and **overall contribute to a positive learning experience** for my class for my students. (Long interview 2)

Changes in perception

Robert – No transformation due to unique perspective

Well, it's not an implementation. That's the issue that we have. Empathy is the structure from what we build from. Every aspect of the course is viewed through the eyes of the student. So, the learning has to be adjusted, the expected outcomes have to be adjusted by this paradigm of empathy. **But it's [empathy] not something that's added. It's not a component of the recipe. It's the foundation of the course.** (Long Interview 2)

Changes in perception

Robert – No transformation due to unique perspective

Can they follow a recipe and become genuinely empathetic? No, I don't think they can. It's the same thing I would say about an engineer. **You're either born one or you are not.**

Now can you improve who you are, and can you gain some better tactics and concepts, of course you can. Everybody can do that. You did it for me. But would I go to the library, pull a book down that says, 'how to be empathetic in university courses', no I would not.

(Long interview 3)

Discussion

Motivations → Benefits → Similar to Higher education studies

Reduced teacher burnout, better teaching and learning, improved student performance

Need → Teacher empathy as a tool to provide inclusive learning environment

Discussion

Personality influencing approach to teacher empathy

Nadia

- Motivated to try new teaching techniques. Not new to empathy.
- Experiences with Engineering Education research and multiple faculty development workshops.
- Frequent minor iterations.
- Primarily Service to Society with a mix of dignity and worth of stakeholders attribute from the framework.

Discussion

Personality influencing approach to teacher empathy

Jacqueline

- Relatively new to empathy in engineering classroom.
- Experiences with Engineering Education research and multiple faculty development workshops – willingness to participate and explore
- “Soft spoken nature” influenced choice of empathetic actions
- Primarily dignity and worth of stakeholders attribute with a mix of service to society attribute from the framework

Discussion

Personality influencing approach to teacher empathy

Robert

- Primary goal to make best engineers out of the students.
- Positivistic epistemology → clear definition of empathy with boundaries
- Did not use the empathetic list but referred later to explain his approach
- Primarily service to society with mix of engineers as whole professionals attribute from the framework

So what??? The Implications

1. Target audience: Faculty Development Programs, Departments Heads and University Deans
2. Teacher empathy has positive outcomes in engineering education context
→ Similar to higher education (potential for transferability)
3. Youmans's empathetic action list could be used as a starting point
4. Motivations and challenges could be used as reference when other faculty members implement teacher empathy

Future work

1. Increase number of participants and verify transferability of teacher empathy from higher education to engineering education
2. Explore the effectiveness of the model of empathy framework in engineering education context and suggest modifications

Key takeaways of Teacher Empathy

- Motivations and benefits outweigh the challenges
- Teachers are equally benefitted as the students
- Youmans' action list is good starting point
- Most empathetic actions are easy to integrate into any classroom

