

TENSIONS ABOUT EQUITY: INSTRUCTORS' NEPANTLA ATTENDING TO IDENTITY AND POWER IN MATHEMATICS

Brinley Poulsen Stringer
San Diego State University
bstringer@sdsu.edu

Gabriela Maria Hernandez
San Diego State University
gmhernandez@sdsu.edu

Charles E. Wilkes II
San Diego State University
cwilkesii@sdsu.edu

Mary E. Pilgrim
San Diego State University
mpilgrim@sdsu.edu

In this paper, we discuss the case studies of two professional development (PD) participants: Nhung Tran and Stella Miller. This data comes from an NSF-funded grant studying inquiry and equity within mathematics instruction at a two-year college. We analyze participant conceptualizations of equity using Gutiérrez' (2009) equity framework. By considering the dominant axis (Access and Achievement) and the critical axis (Identity and Power), we identify places of dissonance, or Nepantla, that emerge for each participant. We discuss how these tensions give us valuable information as we consider future iterations of PD on the MPIE project.

Keywords: Equity, Professional Development

Community colleges often do not have the infrastructure and culture for supporting professional development that focuses on instruction (Edwards, Sandoval, & McNamara, 2015). Further, professional development that is offered are often one time workshops that do not provide meaningful and sustained opportunities for faculty to improve their practice (Bailey & Smith Jagers, 2015; Huber, 2008). This places much of the responsibility of instructional improvements on the shoulders of the instructors themselves. This issue coupled with state mandates to redesign remedial mathematics courses (e.g., California, Tennessee, Florida, etc.) and initiatives to increase participation of *mintorized learners* in STEM raises two important questions: 1) How do faculty shift their practices as it relates to equity in response to attending PD and 2) How should professional development be designed to support faculty in two-year college practice? In this paper, we take up the former question and characterize how participants describe their beliefs about equity and how they shift over time.

Theoretical Framework

We drew upon Gutiérrez' (2009) framework of equity. This framework is composed of two axes – the dominant axis concerning Access and Achievement, and the critical axis concerning Identity and Power. These elements help us understand how to “play the game” of education in order to “change the game”. In other words, in order to move towards more equitable and liberatory systems, one must understand and leverage the current systems and structures in place. The framework also discusses the important concept of *Nepantla*, which resides at the intersection of the dominant and critical axes, highlighting the dissonance that inherently occurs between dominant and critical axes (Gutierrez, 2009; Gutierrez, 2017).

The dominant axis is so labeled as it is perceived as representing the most fundamental aspects of equity; in other words, it represents the elements often required for students to “play the game” in traditional education settings. The dominant axis is composed of Access, which is a “precursor” for the other pole of the dominant axis–Achievement. Access represents the

opportunities that students have to engage in their education. Equitable access implies that all students have the resources they need to learn. Achievement cannot occur without this Access, but Achievement also represents a distinct and important element of this framework. The reality is that providing students with the resources to learn (i.e., access) does not guarantee successful outcomes (i.e., achievement). Students deserve support along their journeys, in addition to access, to help them accomplish tangible results—to reach achievement. Research also shows that even when controlling for measures like access and achievement, equity gaps still exist (Oakes, 1986; Spencer et al., 2016). This introduces the necessity of the critical axis.

The critical axis is made up of Identity and Power, where Identity is a “precursor” for Power. The goal of this axis is to utilize the unique frames of references, backgrounds, and resources of students in a way that empowers them to become critical citizens who can ultimately change the game. Oftentimes, many students feel that they have to give up parts of their identity in order to assimilate in the classroom. In order to ensure that students, particularly students who are historically discriminated against, are not leaving parts of themselves out of the classroom, issues surrounding identity are essential to consider. Identity can be attended to by leveraging the history of the students as well as their cultural and linguistic resources. When students are given the opportunity to fully leverage their identities, they are afforded a greater wealth of Power from which to draw upon. The dimension of Power considers the social transformation at different grain sizes ranging from moment-to-moment interactions within the classroom to helping to create societal agents of change. Additionally, the Power dimension can be measured in the reconceptualization of education as a humanistic pursuit.

Within the Gutiérrez (2009) equity framework, tensions exist at the intersection of the dominant and critical axes. To address this, Anzaldúa (2015) discusses the Aztec concept of *Nepantla*, which refers to “a space of tensions, of multiple realities” (Gutiérrez, 2017, p. 13). In this space, several conflicting views are held simultaneously. For example, instructors may see the need to change their practices while also preferring their current routines, and being resistant to implementing new ideas in the classroom. This allows the opportunity to leverage ideas from each perspective and to collate them, creating a “third space.” Within this coalescent space, an individual is opting to exist within the dissonance, rather than simply choosing one view over the other. This dissonance may be uncomfortable, but if one is able to stay with the tensions long enough, new perspectives and knowledge have the potential to emerge. While Access, Achievement, Identity, and Power are each important, attending to one alone does not constitute equity; yet, leveraging all four of these is no easy feat. Therefore, *Nepantla* gives perspective to the messy process that occurs along the journey towards equity. More broadly, considering *Nepantla* in the work that we do allows us to more fully understand the ideas and perspectives across and within individuals that at first glance might seem contradictory. By considering *Nepantla* within professional development, we are more able to leverage the beliefs and ideas that participants currently hold, and use them to guide further growth along each individuals’ journey.

Methods

This study is part of the Mathematics Persistence through Inquiry and Equity (MPIE) project at a local two-year college—Southern Hispanic Serving Institution (SHSI). The MPIE project is studying SHSI’s response to a state-mandated change regarding mathematics courses. Specifically, the state mandate requires that students enroll in transfer level mathematics by the end of their first year. Using cycles of design research, the MPIE project aims to build the capacity of math instructors in the two-year college to foster student success, and investigate the

effects of the capacity-building effort. The primary focus of this project's capacity building effort is on the professional development (PD) for two-year instructors. The MPIE project is a regional partnership between a two-year and four-year institution, both Hispanic Serving Institutions (HSIs) located in the same region and serving the same student population. A key outcome of our work will be improved understanding of how department-based mathematics course reform can be accomplished at a two-year HSI.

There were a total of 7 participants in the PD. Participants were math instructors at the college, most of whom taught a variety of courses including gateway courses. Participants met six times, two hours each in the fall (for a total of 12 hours). The PD consisted of activities that shared resources that could be used in their courses (e.g. Desmos, mathematical tasks, norms, etc.) and practices that could be implemented during classroom whole group discussions. The five practices from Smith & Stein (2018) and Gutiérrez's four dimensions of equity (2009) were discussed during PD and provided a guide for understanding the intersection of equity and inquiry in participants' practices. Instructors also had assignments outside of PD centered on inquiry and equity, such as taking an equity lens to their syllabi, as well as modifying and implementing tasks that were inquiry-oriented.

For this paper we conducted case studies focusing on two participants, Stella Miller, a middle-aged white woman, and Nhung Tran, a middle-aged Vietnamese man. We selected them as cases because they appeared to have similar views about equity and worked frequently together during the PD sessions. Where race and gender played a role in these conversations, we find it relevant to include the identities of these two participants. Given their similar perspectives on equity, we found their cases to provide insight about their trajectories during the course of PD. Further, each provided a unique perspective from their instructional roles as part-time (Stella) and full-time (Nhung) instructors.

The data for this study are comprised of professional development session artifacts, participant reflections, interviews, Application, Collaboration, and Exploration (ACE) assignments, Zoom recordings of PD sessions and PD facilitator and observer debriefs. Drawing upon our theoretical framework we analyzed the data of our two participants, Nhung Tran and Stella. We split into pairs to analyze the PD artifacts. Both pairs then split up, such that each individual was focused on one participant's data (Stella or Nhung). Pairs then met to compare and verify analysis. Our analysis process consisted of looking through the PD artifacts in chronological order to understand how the participants were thinking about equity over the duration of the PD. We then identified open-coded themes related to the participants' trajectories and presented data to support the themes, which were shared with all of the authors (Miles & Huberman, 1994). Below we unpack the themes for each participant.

Findings

Case 1.

Stella has been an educator for nearly 30 years. She has been an instructor at SHSI for over 20 years. She is, by choice, an adjunct instructor. She teaches introductory math courses including liberal arts mathematics, college algebra, and trigonometry. During PD, Stella actively participated and was willing to share her ideas with the group; she also consistently engaged with the in-between session ACE assignments, giving the different prompts attention, though not in the way we had anticipated. We illuminate her story over the course of professional development next.

Stella Miller at the start: Equity is Equality (Pre-PD, Session 1). In an interview prior to professional development, Stella described herself as an "organized, consistent, rule follower".

When asked about equity, she said that students would describe her as equitable because regardless of student situations, she treats everyone the same. Because of this, Stella described her class as being a place where regarding personal beliefs and identities:

there's going to be a time where we've got to just turn that off and go with what you're doing and what am I doing in this classroom? I am teaching all the students here...And I'm going to do that to the best of my ability. And that's how I feel like I'm being equitable.

Stella in these instances describes her beliefs of equity as equality, which, from her perspective, justifies looking over various aspects of student experiences or identities. So long as she is doing her best to engage all of her students in mathematics, and to treat them all equally, that is what she constitutes as a learning environment that attends to equity.

While there are certain aspects of students' identity that Stella perhaps does not prioritize in the classroom, in early professional development sessions, she also shared thoughts informed by her personal experiences with students by discussing the importance of "getting to know your audience". She demonstrated an example of how this has impacted her practice by sharing that she chooses not to talk about traveling with her students, because through experience of getting to know her students over the years, she recognizes that this topic may not be relatable for them, implying a recognition of socioeconomic differences. In a debrief survey after session one, Stella expressed an eager interest to learn from her peers by listening to their ideas and experiences, also stating the need "to recognize our own personal strengths and weaknesses and see how we can best work with/around them. That take[s] a lot of listening to others for sure."

Stella Miller at middle: Resistance emerges (PD sessions 4 & 5). When Stella was introduced to the student profiles in the fourth PD session, she demonstrated resistance to accounting for student profiles for selecting and sequencing students' mathematical work. She describes it as "an extremely hard task," because reading the profiles did not in any way inform who she would choose. She asserts that "the reality is I am not colorblind, but I try to think that the profile of the students, their color, their gender, their this or that, does not matter to me!" To Stella, the dimension that she finds relevant with respect to equity is how students participate in the class— "the quietness versus the outspokenness." In the next PD session, facilitators followed up on the same task and asked participants specific questions regarding identity in relation to student profiles. We continued to observe resistance during this activity. When asked what identities the PD participants noticed about student profiles, Stella responded that the "identities were that half the students talked and half did not." When we pair this response with her earlier response about not being colorblind, it becomes more clear that Stella values verbal participation of students in her class when considering equity rather than gender or race. For Stella, student participation relies heavily on the agency of each individual student— from her perspective, students engage to learn in the way that best serves them. If a student is participating in a class discussion, they should not be discouraged from doing so. Similarly, if a student is silent and chooses not to participate in class, she assumes that is best for their learning style and she does not want to force them to speak up.

When Stella was asked if she was familiar with narratives that are relevant to student profiles, she stated that if there is a certain profile that is congruent with historical narratives, it should not be ignored. She states that "...after being in the classroom for 25 years, that is just reality... I think it would be silly to not use prior experience, it's like ignoring history." However, she also mentions that each individual is a new person coming into each class and that they may not conform to the dominant narrative. This tension between expecting students to behave a certain way versus breaking the mold highlights Stella's resistance but also willingness

to change her mind based on experiences.

Stella Miller at end: Equity is justification for existent practices (Session 6 and after PD interview). Towards the end of the semester, Stella shared some of her thoughts about PD in an exit interview. When asked about equity, she shared, “now this one, I have to say, this one has been more of a learning for me”. Stella went on to share how she had not previously considered equity in relation to participation within her classroom. While Stella had discussed previously how she “works the crowd” by working with students who are louder and more quiet in the class, she now saw and described how these practices were related to equity because it was attending to various and differing student needs. While this marks a shift in how Stella describes equity compared to her first interview, a shift which Stella herself recognized was present, there was not strong evidence of any major shifts in her actual teaching practices. Rather, she saw how her existing practices could be viewed as equitable practices.

Stella also shared in the interview a recent personal experience in the classroom that had her thinking about shifts that could occur within her teaching practices. She discussed how she had recently come to realize that a student in her class did not speak English fluently, and had been utilizing a peer in the class to translate what was going on during class time throughout the semester. When she realized towards the end of the semester that this was occurring, she expressed feeling “embarrassed” and “ashamed” for not knowing the student better. She then discussed how had she known sooner, she could have made some adjustments to her teaching to better accommodate this student. While Stella did not articulate these ideas in connection to equity, we again see how her personal experiences do impact her teaching practices, and that they also are slowly moving her towards a direction of more equitable practices in the classroom.

Case 2.

Nhung Tran has been teaching at the two-year college level for over 10 years. He is currently a full time instructor at SHSI where he teaches a variety of introductory mathematics courses including college algebra and statistics. In addition, he often teaches courses for preservice mathematics teachers. Throughout the PD sessions Nhung constantly asked questions and was vulnerable with his own practice. His inquisitiveness and curiosity help us in understanding his views about equity in practice. Below we unpack Nhung’s trajectory with respect to his equity development into three phases, the beginning of the PD, the middle of the PD, and the end of the PD.

Nhung Tran at the start: Inquiry is easier to talk about than equity. (Sessions 1 & 2). The PD began with having participants share their ideas about inquiry and equity. For Nhung Tran, inquiry was easier to speak to than equity. He had concrete ideas about teaching practices that fostered inquiry, but only vague notions about equity. This was reflected in PD artifacts, where Nhung brought up questioning strategies and the use of multiple representations to promote inquiry. However, for equity, he did not generate any ideas when reflecting on equity on his own, and only offered sufficient work time for all students as a way to attend to equity as “not everyone works at the same pace” when Nhung was thinking about equity with his PD partner. The reason for this was Nhung’s belief that mathematics is universal, meaning that it is objective and accessible by anyone. This lack of consideration for equity was reinforced in a post classroom observation of Nhung. During the interview Nhung described how he had not thought about equity specifically, instead he just focused on aspects of his practice that he thought teachers should provide, such as equal opportunities and ensuring the content was accessible. After the third author raised different questions about decisions Nhung made during instruction

that were equity related, Nhung began to reflect on why he had not considered them. This marked a shift in how Nhung described equity in the following sessions.

Nhung Tran at the middle: Tensions begin to surface (Sessions 3 & 4). Tensions began to surface in Nhung's mind about how to both attend to equity oriented practices simultaneously with students' identities and work. This point is evidenced by two activities in session 4. The first of which asked participants to consider classroom norms that were inquiry- and equity-oriented. During this activity Nhung agreed that norms such as students asking questions, getting help from each other, and not being afraid to make mistakes are important. In the next activity PD participants were provided with a collection of student work with student identity profiles. Stella and Nhung were paired for this activity, and when Stella shared her thoughts about student identity, and this activity being challenging, Nhung agreed. Nhung expressed struggling to see how an instructor could select and sequence mathematical work for sharing with the class using students' mathematical work while simultaneously attending to the students' identities. Despite some of the student profiles including characteristics such as being afraid to share ideas during whole-group or making mistakes, which he named in the previous activity as important, he still struggled to see how those aspects and students profiles are connected to equity (e.g., students' identities, their work, and past experience should play a role in who is selected and when during whole-group discussion). Additionally, his personal verbalized biases about students' identities (e.g., Asian females being quiet), reflect this disconnect.

Nhung Tran at the end: (Session 5 & 6). In the last two sessions of PD we continued to focus on the intersection of student profiles and teacher practice. We revisited the activity that had participants select and sequence students' work. Instead of selecting and sequencing the work of the students, Nhung and Stella, who were partnered together again, decided to have all of the students share their work at the board and have their peers ask questions and make comments. In practice this move is not necessarily bad, however, in the context of the activity it is an example of the participants not using their power as instructors to think about how and why they may call on students. Additionally, when probed, Nhung and Stella mentioned if they had to call on a student they would call on John, a White male in the class who is always the first student to have his hand raised, has an A in the class, likes to work by himself and only seems engaged when he is talking. In Nhung's last interview he continued to talk about equity in the ways he described in the beginning (e.g., good teaching is equitable), but he also described needing to understand some of the biases he had and wanting to be more intentional about his practice.

Discussion

We first discuss our findings as they relate to the elements of the dominant axis from Gutiérrez' (2009) equity framework. For Stella and Nhung, Access plays a key role in both of their conceptions of equity. Both believe that if they provide quality mathematics instruction for students and establish classroom environments that encourage participation, then students have equitable access to learning. However, this places the agency upon the students to engage in class. For Achievement, it is not clear from the professional development sessions or interviews how Stella and Nhung make sense of this element, other than the fact that it is apparent that they care for their students to succeed. Participants' lack of attention to Achievement could be a result of the PD facilitators' emphasis on inquiry and equity using the five practices from Smith & Stein (2018), which focuses more on teacher practices that lead to more productive classroom discussions. While we see these conceptions of Access as a starting place for understanding

equity, the lack of attention towards Achievement raises questions for the accountability that Nhung and Stella take with regards to their students' success. Findings related to the critical axis further expand upon this idea.

When considering the critical axis, we see mostly superficial or partial attention from Nhung and Stella towards Identity and Power. With respect to Identity, Nhung does briefly describe the importance of addressing his biases; however, he struggled in making a connection between the identities of students and how those identities can impact their classroom experiences. Stella sees Identity differently, wherein she seems to conflate or reduce the identities of her students to their type of classroom participation. Instead of considering the identities and experiences of her students, she focuses more on her own lived experiences with students and how that relates to her teaching. The second part of the critical axis is the Power dimension which is leveraged differently by Nhung and Stella. While Nhung acknowledges and describes the power he has in practice to be more equitable, Stella focuses more on the power that students have—they must choose to engage in a way that is best for their own learning. Stella relinquishes the power and responsibility she has as an instructor and focuses instead on the power of student agency as a means for success in the classroom, which aligns with Stella's consistent focus on the Access dimension. With regard to Identity, we again see both Nhung and Stella struggling to take responsibility for attending to the identity of their students in the classroom. For Power, we see Nhung acknowledging the role he plays in the classroom, but is unsure of how to leverage his power to support his students. Stella acknowledges her role as well, but highlights she only provides students with resources, leaving them to exercise their agency and control over their own success.

With respect to the dimensions of the equity framework, Nhung and Stella hold several conflicting views. Nhung and Stella both focus heavily on Access, and not as much on Achievement, Identity, and Power. In Gutiérrez's framework, *Nepantla* refers to the tension between these different dimensions. With Nhung, in particular, we see *Nepantla* with his tendency to be easily convinced by Stella during breakout sessions, which leads to shifts in his thinking. Due to his uncertainty, Nhung had a difficult time exploring and establishing beliefs regarding equity. There is a dissonance for Nhung between his open-mindedness to hearing others' ideas, and his own personal beliefs regarding what equity should entail within the class. For Stella, *Nepantla* is most evident in her resistance to acknowledge Identity. Her strong emphasis on student agency seems to serve as a barrier to considering other ways of being responsible for her students and their success, creating a dissonance between her sincere care for student success, and her responsibility to supporting them in their mathematical endeavors. By identifying these instances of *Nepantla*, we see these tensions for Nhung and Stella as opportunities for future growth within our continued PD efforts, which we discuss next.

When considering these findings in relation to what they mean for PD efforts, a few questions and reflections arise. When considering our first research question—how participants shift their practices from PD—these case studies of Stella and Nhung highlight an important follow-up question: how does the resistance of one participant affect the progress of other participants? While we see growth in both Stella and Nhung over the course of professional development, we also identified resistance, particularly from Stella, when attending to ideas relating to the critical axis (Gutiérrez, 2009). Because Stella and Nhung were paired together in several of the PD sessions for breakout room discussions, we wonder how this might have impacted Nhung's experience, and how the conversations around equity and identity might have looked different if he had been paired with a less resistant partner. There were multiple moments

during PD where Nhung raised an idea and Stella pushed back, which in response, Nhung would walk back on his thoughts to agree with Stella. How might Nhung's thoughts regarding equity have evolved otherwise if paired with a partner that took up his ideas in ways that pushed him to think about the ideas he raised and how they might impact his practice? Where Stella often expressed the value in hearing her peers' experiences, we also wonder how pairing her with various other partners might have differently impacted her perspectives regarding equity. We plan to explore this research thread further, and use these findings in the design of PD in upcoming semesters.

This reflection also relates to our second research question—how should PD be designed to support two-year college faculty. As we continue to use design cycles to improve our PD efforts, we can strategically pair participants with partners in future sessions to see if we notice any changes in how participants shift their practices compared to this first semester of PD. These cycles of design also allow us to reflect on the growth that we have observed of participants thus far, and to adjust our efforts and plans to better foster further growth in coming semesters. As these two case studies have outlined, we see dissonance between where participants currently think and engage with the concept of equity and where we hope they will eventually conceive equity. We see this dissonance as an important opportunity to reflect upon, and thus an opportunity to improve our efforts with PD moving forward.

Conclusion

The case studies of Nhung Tran and Stella Miller provide insight about two-year college instructors' beliefs about equity and ways such beliefs might shift. Using Gutiérrez' (2009) dimensions of equity as an analytical lens we gained further understanding about how these instructors think about equity and the influence they can have upon each other's thinking. In particular, this work highlights tensions, or Nepantla, that emerges from the discussion of these topics. We see such dissonance as opportunities for further growth as we work towards building harmony between equity and mathematics education. This work will inform future PD design that attends to activities and group pairings which can support instructors to see equity in ways that attend to both the critical and dominant axes.

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