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ARTICLE



# 'The ability to lay yourself bare': centering rupture, inherited conversations, and vulnerability in professional development

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**ABSTRACT**

A dominant paradigm for research on teacher professional development has centred teacher learning as created in and through practice. Critical scholars argue for the need to grapple productively with the complexities of teaching in the power-laden contexts of schooling. This involves continual reflection on the ways that teaching reinforces structural inequalities. We articulate the notion of historical self to describe noticing as ground in both personal and social histories that are situated in hierarchies of power and dominant ideologies. We draw on data from a three year, multi-site project that engaged teachers, community members, and researchers in co-developing a noticing for re-humanising framework. Through the narrative of Shannon, a project participant-researcher, we illuminate as part of the historical self: (1) the interconnectedness of both personal and social histories in and through moment-to-moment interactions and their relation to what and how we notice; (2) the vulnerability embedded in rupturing embedded assumptions in these histories, and (3) the importance of understanding what we do *not* notice, as tied to our privilege.

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## Introduction

In the last decade, a dominant paradigm for research on teacher professional development has centred teacher learning as constituted in and through practice (Grossman and McDonald 2008; Lampert 2010). Critical scholars argue, however, that this work has not grappled productively with the complexities of teaching in the power-laden contexts of schooling. Philip et al. (2019) contend that classrooms require 'critical analysis of how each moment in the classroom reproduces, challenges, or transforms status quo relationships (i.e. structured by systems of power such as White supremacy, Eurocentricity, heteronormativity, patriarchy, and coloniality)' (p. 257). This perspective on teaching involves continual reflection on the ways that teaching reinforces structural inequalities (Souto-Manning and Stillman 2020) and creates possibilities for disrupting inequities embedded in moment-to-moment interactions (Freeman and Jurow 2018). Learning to teach, then, does not revolve solely around learning what to teach, or even how to teach. Rather, this perspective on teaching involves questioning, 'Who am I as a teacher?' and 'How is my instruction mediated by dominant histories and artifacts that serve to expand or constrain learning?'

We draw on sociocultural perspectives of learning to conceptualise the notion of historical self – the awareness of how personal and social histories shape what and how teachers notice in their classroom interactions – to facilitate awareness of self and history in teaching. The

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following question guides our study: In what ways do teachers develop an awareness of the relationship between their personal and social histories through what they do and do not notice? We draw on data from CoATTEND, a three-year, multi-site project that engaged teachers, community youth leaders, and university scholars to co-develop a framework of mathematics teacher noticing focused on how teachers attend to and interpret classroom interactions.

With a focus on equity, we more specifically sought to understand noticing towards re-humanising mathematics (Gutiérrez 2018b). Re-humanising mathematics starts with the understanding that dehumanisation is inherent in the current system of mathematics classrooms, and prompts an intentional need to elicit a sense of joy, belonging, and honouring multiple perspectives in mathematics activity. This concept served as a touchstone in our theorisation of a *historical self* and served as a reminder that re-humanising is always in motion, without a fixed end point (Gutiérrez et al. 2019). Although the conceptualisation of historical self occurred in and through a project centred in mathematics teacher noticing, we argue that the notion of historical self can be applied to teacher professional development across disciplines.

We present a case study of one teacher to illuminate how in and through a focus on teacher noticing towards re-humanising, she built awareness of her noticing as related to her experiences and position within a broader sociopolitical history. Through this work, we seek to highlight: (1) the interconnectedness of both personal and social histories in moment-to-moment interactions; (2) the vulnerability embedded in rupturing learned assumptions in these histories as a necessity in the process of learning; and (3) the understanding that what we do not notice about history and self can be tied to our privilege and power.

## Theoretical framework

To develop teachers' awareness of how their historical selves influence classroom interactions, we draw on three interrelated concepts of sociocultural theories of learning. First, we recognise history in the present as a foundation to the co-construction of the individual and context across space and time (Gutiérrez, 2008). Building from the first assumption, the second conceptualisation of history, specifically the *image in the making* (Cole and Levitin 2000), points to how the interpretation of social and personal history shapes how we see in the world. Last, we leverag the double-sided nature of learning (Cole and Gajdamashko 2009), in which learning is understood as involving both learning the acquisition of new and breaking away from the old, to point to the non-linearity, and vulnerability, inherent in learning.

### *History in the present*

Sociocultural perspectives articulate how individuals cannot be understood as separate from social context; and social context cannot be separated from history (Vygotsky 1978). History is brought to the present through the meanings and interpretations of artefacts (Cole 2003) – both material, relational, and ideational – and 'through political and economic forces and cultural imaginaries that shape conflictual practices in and between institutions and collective activities' (Holland and Lave, 2009, p. 5). Because each moment between the individual and the social is co-constituted (Rogoff 1995) – meaning the individual shapes the context and the context shapes the individual – each moment also provides opportunities for agency and 'improvisation and innovation' (Urrieta 2007, p. 107). As Gutiérrez and Jurow (2016) write, 'The coordination of past, present, and future-oriented actions and identities sets the conditions for new forms of agency central to realizing possible futures' (p. 567). It is in this understanding of the present as a bridge to the past and future that we locate teacher awareness of their historical self towards re-humanising pedagogies. More specifically, we place emphasis on the awareness of the history in the present (Cole 2003) to develop

awareness of the power and privilege situated in everyday interactions, while still maintaining an eye towards the possibility of being an agent of change.

## Image in the making

Building on the recognition of history in the present, we leverage the concept of *image in the making* (Cole and Levitin 2000) to conceptualise historical self in teacher noticing as the awareness that what and how we see is simultaneously composed of our personal experiences and the social histories we inherit. To examine only personal history risks remaining focused at an individual level, thus allowing for inequities to be explained away as an isolated experience. Conversely, to examine only the social histories leaves out the necessary connection to personal experiences and actions – thus power and oppression can be seen as systemic, but too abstract to create change.

Cole and Levitin (2000) discuss the *image in the making* – the interconnectedness of time scales to interpret the present moment – through the analogy of saccadic eye movements. Saccadic eye movements are the involuntary and unconscious, back-and-forth movements of the eye that help humans 'see' a stable image or picture. Thus, in any moment of interpretation, and the movement of the eye is not only across the picture, but instead the back and forth across the simultaneously occurring levels of the history – including the history of our species, or evolutionary history (phylogenesis), the history of the cultural group into which we are born (cultural-history), the history of an individual human being (ontogeny), and the moment-to-moment interactions of the present (microgenesis). Moreover, our understanding of the *image in the making* – our present moment – occurs in and through the unconscious, interpretation of artefacts present in the moments of sense making, including languages, tools, and practices, and the meaning we have created around them through continuous exposure to them at the various levels of history (Vygotsky 1978).

For example, an image in the making can be the interpretation of race in any given moment. The evolutionary line could be the variations of skin pigmentation that have evolved for biological reasons (Jablonski and Chaplin, 2010). However, in sense-making in the present, our 'eyes' attach meaning from the evolutionary line (skin pigmentation) and grab meaning through back-and-forth eye movements between the mediated lines of our social and personal histories. Thus, our individual *and* social histories mediate our interpretation of skin pigmentation through the construct of race (social history), and the assumptions about race we have learned in our lifetimes (personal history) (Haney-Lopez 2003). By understanding that each interpretation of a situation is always influenced, or mediated, by personal and social histories, then no human interpretation of context – the ways we attend to and make sense of our world – can be truly objective.

## Double-sided nature of learning

Through the analogy of image in the making, it becomes evident that sense-making of artefacts is value-laden and also enabling and constraining (Cole 2003 Gutiérrez and Jurow, 2016). For example, research on teacher noticing documents the way language, such as labels given to students (e.g. gifted, remedial, special) can serve as coding schemes 'to synchronize individual noticing with culturally established standards' (Louie 2018, p. 16). Thus, artefacts allow for collective meaning and the organisation of activity efficiently. At the same time, artefacts (e.g. coding schemes) can obscure how students' classroom participation is mediated by structures of power that are being reproduced through the use of these schemes themselves. In other words, artefacts can be constraining to the degree that, over time, they can become invisible to the ways they are perpetuating norms and practices (Garfinkel 1967, Mendoza 2014). In essence, when our histories, bodies, and identities match the dominant narrative of, for example, White supremacy, Eurocentricity, heteronormativity, patriarchy, and coloniality, we are likely *not* to see the embedded injustices in our lives, and in our classrooms.

We conceptualise historical self in teacher learning towards re-humanising practice not only as what teachers notice, but also what they do not notice as a point of entry to discuss power and privilege. To do so, we leverage the double-sided nature of learning (Cole and Gajdamashko 2009) to theorise learning of the historical self as not only acquisition of new information – for example, awareness of the use of coding schemes as developed through history – but also a rupture of old – including reconciling participation in practice that perpetuated dominant ideologies. The cyclical rupturing and re-learning demonstrates both the non-linearity in learning, and as we discuss in our findings, the vulnerability that is embedded in deep, reflective, and embodied work. We argue that vulnerability, rupture and noticing are important points of consideration as we design spaces to cultivate teacher awareness of 'who am I' in the classroom.

## Research design

Our work is grounded empirically in the CoATTEND Research Collaborative, a multi-site, research project that utilised a participatory approach (Gutiérrez and Vossoughi 2010, Bang and Vossoughi 2016, Fine 2018) where teachers, community leaders, and university researchers who are learning side-by-side (Erickson 2006) co-developed a framework for mathematics teacher noticing. Teacher noticing centres what teachers attend to and how they understand classroom interactions during moments of instruction to examine social complexities embedded in mathematics classrooms to move towards developing productive classroom pedagogies (Sherin et al. 2011). The broad aim of the project was to support expansive noticing practices to advance equity and justice in education. At the time of writing this paper, the Research Collaborative had been working together for four academic years.

Across both CoATTEND sites, mathematics teachers were nominated by district personnel or colleagues as engaging in equity-oriented pedagogies. All ten teachers who agreed to participate had over five years of experience teaching mathematics in secondary schools. The eight community youth leaders were nominated by colleagues and other community members for their established histories working on the ground with marginalised youth and families.

### *Project timeline and activities*

In the first year of the project, university researchers focused primarily on research logistics, recruitment, and initial data collection with the mathematics teachers, which included baseline interviews, classroom observations, initial noticing interviews and noticing meetings. During a noticing interview, teachers view selected segments from classroom observations and reflect on their noticing in these critical moments of instruction. Through observations and interviews, teachers' noticing and the rationale tied to their decisions in the classroom context become visible.

The second year of the project started with Summer Institute 1 (SI1) which was an intensive, multi-day gathering of the team (teachers, community leaders, and university scholars). Two aims included community-building and the development of shared language. Multiple constructs were introduced in relation to noticing and included re-humanising mathematics education (Gutiérrez 2018a), teacher noticing (van Es and Sherin 2008), positioning (Hand 2012), and learning as a cultural practice and interrelated to identity (Nasir 2012). In addition, we drew on Chicana Feminist perspectives (Rendón 2009, Anzaldúa 2015) and sociopolitical theories of learning (Gutiérrez 2008) to conceptualise noticing as an embodied, multisensory approach centring the connection of mind, body, and spirit (Valenzuela et al. 2019). Discussions and activities centred on issues of race and power in mathematics education and education broadly.

During the remainder of the second year, as a collective, we continued to conduct noticing interviews with the teachers, and held monthly noticing team meetings in which all participants gathered to (1) understand what and how the teachers were noticing in classroom interactions; (2) develop new lenses for observing interactions informed by the perspectives of teachers, youth

advocates, and university scholars; and (3) identify and generate a framework that reflected the group's noticing. As a team, we also discussed literature on equity in mathematics, and education more broadly.

We started the third year of the project with Summer Institute 2 (SI2). During this meeting, the noticing team co-analysed data and developed conference proposals together based on themes that emerged in the noticing team meetings. Collectively, we imagined and created a professional development model for a second cohort of teachers. This work continued through the third year of the project and thereafter.

## Data collection and analysis

All of SI 1 and 2 sessions and noticing team meetings were video recorded by the university researchers. Content logs were generated for all video recordings, with a focus on language and content being shared, along with reflective notes from a university researcher about inferences and reactions (Saldaña 2015). We also recorded meetings held to plan professional development opportunities for future teacher participants, an effort that emerged out of SI 2. Artefacts collected included planning notes, PowerPoint slides, participants' journal reflections, and handouts. The classroom observations and associated noticing interviews were also video recorded, content logged, and transcribed.

Our guiding question for this sub-study asked: In what ways do teachers develop an awareness of the relationship between their personal and social histories through what they do and do not notice? University scholars read content logs across all group gatherings for both sites to identify moments that captured working through tensions, as a marker of rupture – including moments of tension explicitly described by any member of the research team – and reflections that solicited historical reflections in noticing (Cole and Gajdamashko 2009, Engeström and Sannino 2010). We then viewed the video and documented greater detail of the interactions. We engaged in discussions and wrote analytic memos (Saldaña 2015) for each site with a focus on the messiness and non-linearity of learning through tensions. As we started to write the paper, we recognised that we needed to hone our findings to one site.

We traced moments and experiences that the collective research team highlighted as having informed their perspectives on noticing, including moments where ideas were 're-learned', or learned more deeply. We created visual data displays (Miles and Huberman 1994) to document the saturation of participant shifts in thinking around dominant discourses both across space – various types of meetings – and over time (Jordan and Henderson 1995). As suggested by Deiri (2018), we stayed close to the data to help guide what was emerging. In looking across the data, we traced back moments of tension that tied to sense making around personal and social histories across all four teachers. As we did this, we refined the framework to focus on the historical self to emphasise the ways teachers worked through tensions to understand their personal and social histories as informing their noticing.

We decided to select one case study, although patterns of understanding history, self, and noticing were found across group and individual discussions. Having one focal case enabled a deeper dive – both through the project data and follow-up interviews – into the vulnerability embedded in critical, reflective work of understanding the historical self in teaching. University scholars invited the teacher in the case-study to be a co-author and she accepted. Given her co-authorship, we collectively chose to not use pseudonyms for her. Further, when referring to one or two specific university scholars, we use their names.

To develop the case study, we leveraged data points from the first two years of the project, specifically SI1, to highlight tensions that served as entry points into the sense-making around personal and social histories and noticing. This sense-making process involved naming and theorising lived experiences, which eventually led to an explicit articulation of historical self, and is captured in more recent data points. Documenting data across SI1 and the articulation of the

experiences three years later point to the importance of conceptualising learning as a long term, non-linear process in professional development.

## Results

In the following sections, through the narrative of Shannon, a White female mathematics teacher with over ten years of experience, we highlight the unfolding of her awareness of historical self through her work in teacher noticing. With a focus on the double-sided nature of learning, we demonstrate the non-linearity and vulnerability in learning and the process of (re)learning and (re) engaging the question of 'Who am I as a teacher?'. First, we introduce Shannon and her understanding of history as it related to her classroom at the start of the project. Second, we illuminate Shannon's expression of vulnerability in (re)learning about her personal history and historical self. In doing so, we highlight how reflecting on her history and vulnerability helped her notice her students' vulnerability more centrally. Last, we articulate Shannon's recognition of her social history to underscore how what teachers notice – and do *not* notice – is tied to inherited systemic power and privilege that is enacted in everyday moments of noticing.

### *Introducing Shannon*

From the first recruitment meeting with her, Shannon told the university researchers, Liz and Beth, that she approached teaching math differently because of her experiences as a mathematics student. Shannon recalled being kicked out of class for having the wrong answers and feeling ashamed on multiple occasions. Thus, prior to the project, Shannon explicitly acknowledged the influence of her personal experiences on who she wanted to be, and not be, as a math teacher. In the following sections, we demonstrate how, over the course of the project, Shannon deepened her learning of her historical self – the ways personal and social history influenced who she was – and how she engaged in the classroom. In her reflection on the project she stated,

> The work that was ultimately the most important to me, and I think has made the largest impact on my teaching in the last two years, was the historical self work. Again, it wasn't that I didn't know my own history, but that I hadn't articulated it or made the connection with how my historical self really impacted my work as a teacher and how it had influenced some of those biases or just this implicit like, of course, this is the way that I do it. (Interview_011520)

Shannon articulated that learning, and theorising, historical self-revealed biases and actions that would have otherwise remained implicit. To illustrate this process for Shannon, we describe the learning, vulnerability, and rupture that occurred at different levels of Shannon's history over the course of the project, and how these experiences influenced her as a person and as a teacher, as well as what she noticed, how she noticed, and what she did not notice.

### *Vulnerability and rupture: personal history*

We begin by describing how Shannon began to unearth her personal history, and the personal histories of others, through particular project artefacts, and the ways that vulnerability and rupture drove her learning process. During the first summer institute, we engaged in a series of community-building activities embedded in building trust, self-reflection, embodied noticing activities (Valenzuela et al. 2019) and sharing our personal histories. One of these activities, 'River of Self', asked participants to narrate their lives through the analogy of a river, capturing places of growth and detours through images of trees, bushes, and rocks. Shannon recalled this activity as a central point of reflection:

> That one was really difficult for me because there were things in there that I didn't want to share. Yes, I knew they were a part of me, but they were not things that I shared openly with others at that point. So there was a

> point of vulnerability there for me. [Of me] going, oh . . . this matters to what I'm doing here. Having to make peace with the fact that I couldn't just keep my history private, which is kind of what I wanted to do. (Interview_01/2020)

Here, Shannon names the necessity and vulnerability involved in sharing private aspects of her personal history with the team. Data analysis that captured reflections on the activity of River of Self revealed shifts in Shannon's description of this activity, and her willingness to be vulnerable, across space (various types of gatherings) and over time (the span of the project). For example, during the Summer Institute 1, she recalled only sharing parts of her experiences with one other person. Over a year later, during a reflective interview with Liz (03/2019) she described how she felt 'uncomfortable' doing the activity. A year after that, during a whole group professional development planning session, Shannon explicitly said she 'hated the activity' (03/2020). Shannon confirmed that this shift in her language signified a progression towards increasing honesty to herself and others about how she felt regarding the activity. Further, it was an emerging acceptance and even embrace of the vulnerability involved in learning about the connection between her personal self and her present-day interactions. She also recalled the activity as a starting point in 'teas[ing] out that thinking to the point that [I] could articulate why I am doing what I am doing' in the classroom (Interview_05/2020).

Over a three-year span, analysis revealed that she shifted from the recognition that her personal history influenced her as a teacher, to a recognition that she could not omit parts of herself as a teacher, to a recognition that what she does in her classroom is inseparable from who she is as a historical being. This trajectory may seem like minor distinctions, however, we highlight them as reflections on points of deeper understanding that emerged from being presented with new information – that classroom interactions were not politically or historically neutral – and the rupture of old knowledge – that parts of herself could be fractured in the classroom. We highlight this to illuminate learning as not following a clear path, but one that entailed constant revisiting, reframing, and ultimately rupture of existing ideas to understand her self in a new and deeper way.

This fracturing of old understandings, and embracing her whole self as a teacher, we argue, points to the importance of vulnerability and emotional work as part of Shannon's learning process. During a discussion with Liz, Shannon defined vulnerability as,

> The ability to lay yourself bare . . . to be willing to be specific and lay [your experiences] all out, instead of just sort of generalising. So my willingness to be specific and share those specifics painful or not . . . and to just be open to that fear of acceptance or judgement or whatever happens . . . It is no longer up to you, and it's being okay to be okay with the unknown of how somebody is going to respond (Interview_05/2020) .

The example above demonstrates that the 'ability to lay yourself bare' was a process of rupture – of unlearning dominant ideas about who teachers could and should be in the classroom. Becoming her whole self also opened up the possibility of being met with an unknown response or potential judgement. Thus, the part of her vulnerability was the need to see and accept herself fully. Below, Shannon described why she persisted in doing this painful work.

> I recognised that I was hurting. And I wanted to figure out how to not hurt other people because I was hurting and to let go of my old old hurts and to finally deal with them, work through them, so that I didn't carry them around, you know, and damage other people (Interview_05/2020).

Here, Shannon embarked on an essential understanding in examining her personal history – if she were to remain fractured (and hurting), she could unintentionally hurt others.

Through Shannon's experience of vulnerability, she also grew in her understanding and intentional noticing of the vulnerability embedded in everyday acts. As Shannon described in an interview, with emerging understandings of her historical self, she started to recognise and name the ways her historical self is present and influencing her noticing even in mundane moments that she would have previously ignored (11/2020). Throughout the project, she drew parallels between being vulnerable and the vulnerability inherent in the artificial ways classrooms are organised, including,

seemingly banal acts such as 'sitting in rows, sitting in groups, wearing a uniform, being in a new school, having to talk with other people, or having to share your things' (03/2020).

To be certain, Shannon approached her teaching from a holistic perspective prior to the project, but reflecting on vulnerability in the learning process, she stated 'I'm way more sensitive to [their vulnerability] at the beginning of the year, as I'm getting to know kids, and I'm looking for those things probably a little more closely' (03/2020), both in ways students participate and do not participate in her classroom. In other words, Shannon more fully recognised that students are continuously asked to 'lay themselves bare' and face the fear of judgement during multiple requests of them through the school day.

With an eye towards professional development, we insert here a note on design of the project. Shannon's engagement with vulnerability and rupture, she articulated, was motivated by her rapport with the researchers and alignment with the project's long-term goals. She trusted that 'because you were asking me to do it that it had a value or an importance that I didn't quite see yet, right . . . And because I really valued our long term ideals and goals' (Interview_05/2020). She went on to further explain that during the early stages of the project, the university-research used 'mentor texts', and demonstrated a reciprocal sense of vulnerability. For example, during the activity of the River of Self, the activity was facilitated through the personal example of Miguel, one of the university-researchers. Throughout the activity all participants shared, including each university-researcher participant. This both set the tone of the kind of conversations that were invited into the gathering, as well as established reciprocity in what was being shared. As Shannon recalled, '[t]his pushed me, and also gave me permission to think deeply and examine details and nuance in my personal history' (Interview_11/2020).

### *Vulnerability and rupture: social history*

We foreground Shannon's personal history in the previous section for ease of communicating ideas, however, recall that the interpretation of moment-to-moment interactions and noticing involves the process of image in the making – the simultaneity of all levels of history. Understanding the historical self also requires an examination of social histories to understand how dominant ideologies are reified in everyday moments of interaction. We turn our attention to consider how participation in the project supported Shannon in growing her awareness of social histories, dominant ideologies, and the way these often do *not* get noticed.

To do so, we trace the evolution in Shannon's conversations and reflections on issues of race and racialised systems, and a deeper critical consciousness over time. Shannon's entry into ideas about systemic racism is illustrated through an activity that took place during the second day of the SI1. University researchers showed a five-minute student art video of a Black male youth, an elderly White female and an Asian American male store clerk, and their interactions in a convenience store. Without words and set to musical rhythms, the video flashed assumptions each person held about the other – including the wrongful suspicion of the Black youth for potentially not paying for his merchandise. The video concluded with the elderly White woman stealing a candy bar.

After watching the video, small groups made explicit the assumed stereotypes. As Shannon's small group reported out to the large group, Shannon said,

> I was uncomfortable with all of it. If there had been people put in different scenarios, it would have similar outcomes . . . I have interactions with people that are different all day long, every single day, and by and large, they are totally normal beautiful interactions . . . we [society] put so much of our energy into talking about the negatives and less energy talking about the positives (SI1_07/2018).

Here, Shannon was 'uncomfortable' with what she viewed as the deficit stereotypes perpetuated by the media and broader society, instead of centring the 'positive' aspects of our differences. The perspective of working to highlight the *positives* of all people regardless of the body they inhabit is a common move theorised as a color-evasive approach (Annamma et al. 2017). Research documents

how this approach to making sense of human interactions is counter productive because it does not recognise the racialised histories and realities of people of colour (Bonilla-Silva, 2006).

Francisco, a Latinx community leader, followed Shannon's comment by making visible the reality of the policing of Brown and Black bodies and the broader histories involved in this system. Francisco explained,

> I have spent a lot of time in the juvenile halls in Los Angeles, and I notice all the Black and Brown boys, for me, I get in there and I am like, this is the end result of something. I had a White teacher, who bought me a printer and who was there for me throughout big transitions in my life. So for me, I will never say oh, all White people are horrible because of that interaction. But because a lot of men in my life are incarcerated or not present, I always think about: Why is this the case? … Even here, though we may live in a liberal state, or whatever you want to call it, our jails are full of Black and Brown boys, and like why is that the case? And I feel like it's a conversation we have inherited. I don't feel like it's our fault necessarily one by one, but we have inherited this nation, this colonised land right, that we have inherited. I feel like we have a responsibility to be real to these historical inheritances that we have. But I do feel like we should be centring ourselves more around solutions and love … our experiences around that guide us to that solutions … (SI1_07/2018).

Here, Francisco provided the reality of his experiences – the Black and Brown bodies he saw in juvenile halls, and the absence of men of colour due to imprisonment. He underscored the social and structural histories involved, when he referred to the conversations we, as a society, have inherited, the colonised land, and the way we need to hold this together to have real conversations. Francisco made explicit the necessary tension of acknowledging the inherited, power-laden history, and possibility of imagining solutions. Through these connections, Francisco highlighted the importance of looking back and forth across personal and social histories to attend to and interpret daily phenomena, like the demographics of prison populations. The interaction between Shannon and Francisco also highlights the ways that in a White body, Shannon had not yet what she later described as 'bumped into the system' of racism in ways that Francisco in a Brown body had lived and endured (Planning session_10/2020). This conversation over time evolved into a discussion of the school to prison pipeline, and the laws, practices, and histories that contribute to the over-representation of Black and Brown youth in the prison system.

In the third year of the project, Liz asked Shannon to recollect what she remembered from this interaction. Shannon described, "We were talking about systemic racism. I was trying to understand more about what that as a definition meant not just, you know … White versus Black but like the systemic racism" (Interview_05/2020). She explained that she was not aware of, for example, 'the loitering laws that created crimes that previously did not exist' and how this kinds of laws 'correlated to the school to prison pipeline'. She continued in her reflection on the interaction at SI1,

> My understanding of school to prison pipeline was just about the rigidity that we were expecting in terms of behaviour … I did not understand some of those deeper social, political issues that had happened in America's, you know, relatively recent history … those are things that were not covered in my A.P. history classes … So it made me aware that I have some gaping holes in my knowledge of how America was established, and it made me aware that there were and are motivations behind legislation or other actions on the surface might seem one way but or really enacted because of a different agenda (Interview_05/2020).

Again, Shannon admitted that she did *not* notice racism as a lived experience in her life and recognised the omission of it in her educational training. This learning unfolded as Shannon was witness to the racialised histories of her colleagues and was willing to sit with her discomfort. She had to rupture ideas that forced her to move away from her reality at the time, which was that in different racial scenarios (grocery stories and prisons), the outcomes would be the same. Shannon was 'grateful for that conversation because it gave me a place to look. I am not done learning' (Interview_05/2020).

Centering the double-sided nature of learning recognises that we, as people, are products of our histories and identifying our biases and preconceived notions are difficult because it is part of our

history, and thus part of our identities. Shannon posed questions on which she reflected on throughout her process. 'Who was I?, Who do I think I am?, Who do I want to be?, How do I get there?, How do I get these things to align?' (Interview_05/2020). Shannon's questions illustrate that the acquisition of new knowledge does not explain learning; rather, it is a process of rupturing parts of selves towards new social imaginaries of self and society.

### *Historical self as tied to learning to noticing*

As we have described above, learning about historical self – and the ways personal and social interactions contribute to what and how we notice – involves an awareness of self, acquisition and rupture of knowledge, and vulnerability. It is a nonlinear process that involves continually re-examining mundane and everyday phenomenon through 'fresh eyes'. The awareness of Shannon's historical self, and consequently the collective theorising of it, emerged as we, the research collective, were attempting to unearth the *why* behind classroom interaction in and through noticing classroom activity.

When prompted to explain how her historical self was tied to what and how she noticed, Shannon replied that 'they are inseparable' (Interview_11/2020). In other words, Shannon connected what and how she noticed in her classroom to her personal and social histories. With this awareness, she was also attuned to what is not noticed as a point of growth. Towards this end, she has herself sought out resources on systems that are rendered invisible to her through her privilege. Further, in working with a new cohort of teachers, Shannon connected noticing issues of equity and encouraged the other teachers to 'notice the ways your students might be bumping into systems that you cannot see' (Group Discussion_11/2020). In this way, Shannon became attuned to the ways her historical self profoundly inhibited her ability to notice in ways that humanised her students' experiences and consequently encouraged her colleagues to try to notice differently.

## Discussion

We are careful not to paint a picture here as if critical consciousness was achieved, but rather to document it as a process of becoming (Gutiérrez et al. 2019). As we described above, this process involves vulnerability, additional information seeking, rupturing old ideas, asking questions, and a willingness to be honest with each other and ourselves. In the case of Shannon, it involved being invited in by the project team members, viewing the process as difficult while trusting that it had value, having a willingness to stay involved across space and time, and recognising and publicly acknowledging that vulnerability was critical for her growth personally and as a teacher. Part of how the project held space for Shannon's learning was the sustained conversation around history over time, a focus on the 'why' behind her noticing versus the noticings of other members, and vulnerability from all participants.

Shannon's definition of vulnerability prompts us to consider the vulnerability we, as teachers, expect from our students. Educators continuously ask students 'to lay themselves bare' and face the fear of judgement during multiple requests of them through the school day, including common acts of public sense-making that can make a (mis)take visible and open for ridicule by the broader classroom public (Kalinec-Craig 2017). It is important to recognise that learning requires (mis) takes, and thus, vulnerability. Imagine the possibilities if we defined the success of a student by their willingness to be vulnerable.

Moreover, increasingly, researchers are documenting the ways schools should attend to students' trauma both from home and community (Chafouleas et al. 2016), as well as the trauma created by schooling systems that create violence against marginalised students (Gutiérrez 2018a). In response, multiple fields are calling for socio-emotional learning (Plumb et al. 2016), trauma-informed learning (Cole et al. 2005), and healing-informed learning (Ginwright 2016, Kokka 2019). However, what is imperative to the success of any of these efforts is the critical self-examination

of the educators in relation to their histories and traumas that should be made visible to prevent or minimise the unnecessary retraumatization of our students. Although beyond the scope of this paper, we argue that drawing on the work of Anzaldúa (2015) and Chicana feminist perspectives more broadly who have deeply theorised an embodied pedagogy might help advance this space of rupture – of unlearning – to help move mathematics education, and education broadly, towards a larger sense of healing.

## Designing for vulnerability

Shannon's shifts in understanding are not isolated from the context and interactions of the project. Below, we briefly consider elements of the design that emerged as salient points of consideration for professional development in fostering the awareness of historical self in teacher noticing.

### Saturation of tools and artefacts across time

Recall, Shannon referred to the River of Self activity as 'a doorway' to look at her personal history. She also stated that the project 'pointed' her to a direction of what she did not know existed. These activities and discussions were entry points into her learning. We highlight that to 'hold space' for critical reflection rested in sustained conversation over time. From a design perspective, we could not have predicted which activities, ideas or conversations created opportunities for learning and relearning of ideas, but instead, it was the consistency of points of reflection and discussions that elicited a reflection on both personal and social histories.

### History as a point of entry to 'why'

To be able to create change in action in the classrooms that intentionally works to rupture ways that classrooms reproduce structures of power (Philip et al. 2019), professional development has to move from centring tools and practice to examining the 'why' behind the use of tools or enactment of practices. Shannon's case illuminates that exploration of the historical self can help teachers make explicit the 'why' behind their instructional decisions. Shannon's narrative reveals that in these moments of critical self-reflection, teachers become empowered to interrogate what experiences, histories, and narratives are being drawn on to inform the decisions they make. Of import, as discussed in the project overview, the notion of a historical self was discussed in conjunction with other concepts central to noticing for re-humanising including positionality, positioning in interaction, power, and learning as a cultural practice.

### Vulnerability in design

Shannon discussed her willingness to engage in the process of reconciling vulnerable aspects of who she was because of 'mentor texts', which set the example of encouraging all participants to share deeply. She also spoke to the alignment and trust of the longer-term vision of the project. Through attention to the double-sided nature of learning, the rupture and the vulnerability involved, we make explicit the need to intentionally design learning ecologies that both act as a 'doorway' to reflection and also hold space for sense-making. This includes not only tools and activities but attention to the ways the facilitation is enacted. Embedded in the ability to hold space is the need for the teacher education and research design teams also to do similar work of critical reflections of systems of power, and be willing to be vulnerable alongside participants (Gutiérrez and Vossoughi 2010).

## Conclusion

Through the example of Shannon, we have documented the non-linearity in learning as happening over time and occurring in multiple spaces. We argue that attention to the non-linearity of learning, as characterised by the double-sided nature of learning and vulnerability, can engage teacher development towards equity-oriented pedagogies. With attention to historical selves in noticing, teachers and teacher educators can understand themselves as products of their histories. They can be generous with themselves and generous to others for what they have learned, and not learned, up to this point. It is a reminder that awareness of privilege can also have a developmental trajectory, while at the same time serving as a call to action and responsibility to engage in ongoing critical self-reflections to counteract the normalcy from the point of awareness of oppressive actions that are situated in everyday dominant ideologies.

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