International Society of the Learning Sciences

Teachers as Transformational Agents of Change Inside and Outside Classrooms

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Abstract: This symposium brings together research aimed at better understanding how teachers and educators take on roles such as curriculum co-designers, reflective practitioners, and collaborators, bridging relationships across classroom walls while being transformational agents of change within and outside their classrooms. Each of the contributions considers teachers' work in relation to culturally responsive and/or critical pedagogies. We frame this work in the context of rising resistance to equity, diversity, and inclusion work, and continued deprofessionalization of teachers through "teacher-proof" approaches to curriculum and technological tool design. In this symposium, we bring together teams that have explored different roles teachers take on, their voices, and experiences, as world-making agents and as learners themselves.

Session overview

Learning sciences has long invested in examining the learning-teaching process and contextual factors that shape the work inside and outside classrooms. And yet, a focus on educators' practices, learning, experiences, and identities is only recently gaining momentum within the field. At the time when trans students and educators are attacked, increasing hate along the lines of race and religion–educators are tasked with working with students to go beyond disciplinary concepts but look at them as connected to peoples, communities, and societies around them (Philip et al., 2019). We aim to highlight how teachers and other educators can take on the roles of transformative agents of change in the face of resistance. We situate our work within the professional landscape for educators that has increasingly attempted to dictate and control their behavior—through banning books, handing over programs to be taught, imposing what language to use, staying within the walls of classrooms, and what should be taught (Giroux, 2012).

Adopting teacher solidarity lens (Philip et al., 2016) as the guiding framework, we will bring work together that resists the de-professionalization of educators and instead considers educators as agents "intellectually and pragmatically engaged in the continual (re)formation of democratic society" (Philip et al., 2019, p. 259), which we position as a form of professional learning. This session brings together work that examines teaching as a complex practice, that understands how teachers and educators grow over time across learning opportunities such as teacher endorsement and professional development (PD) programs, and that educators racialize students while constantly working in solidarity with parents and communities in order to not perpetuate inequities. The contributions to this session consider and examine teacher work across a wide variety of contexts, within and outside classrooms—including teacher-student and teacher-researcher interactions within co-design sessions, teacher learning within pre-service teacher education and PD sessions connecting informal and formal educators, and a veteran teachers' reflection on everyday classroom experiences.

Symposium agenda

In considering teachers and educators as intellectual partners in democratic world-making, we will see how our different approaches resist the de-professionalization of the teaching profession and instead elevate teacher voices through their work. This symposium brings together members from five university-based research teams and practicing educators to collectively answer three questions: (1) What is the intellectual and pragmatic work taken up by educators, and how is that work intertwined? (2) What dilemmas or tensions come from working within the politically contested landscape? (3) How does your work speak to the resistance of normative, de-professional, and deficit-orientations about teaching by working alongside teachers and educators? Through responses to questions, we will synthesize approaches for the learning sciences community to move towards ascribing educators the role of world-making, transformative agents.

The session will begin with a short 5-minute introduction including (a) establishing methods of interaction between in-person and virtual presenters/attendees and (b) problematizing the uptake of teachers' role within the learning sciences work. We then present 2-minute videos or quick presentations from each team allowing multiple co-researchers to share perspectives on the first shared question (intellectual and pragmatic work of educators) and the context they are working in.

After introductions, we will host breakout sessions for each of the contributions to share and discuss their work in connection to the second and third questions (dilemmas/tensions, resistance to dominant narratives about teaching). In particular, these breakout sessions will provide creative means to highlight the perspective of partnering educators, such as including their written or videotaped narratives on the work, and/or including them in the presentations or discussions. There will be 2 rounds of breakout sessions (20 minutes each) for attendees to deeply engage with multiple contributions.

The session will conclude with remarks and facilitated discussion (30 minutes) led by two discussants, one highlighting the perspective of research on professional learning (Enrique Suárez) and one highlighting the perspective of a practicing educator (John Smith). They will synthesize the contributions across the symposium's common questions, and pose additional questions or wonderings to advance a vision of educators as transformational agents.

Significance and synthesis

Together, the studies in this session contribute to our understanding of educators as learners and agents of change. We synthesize our work based on the organizing questions for the symposium.

Across each of the contributions, there is evidence of the integrated intellectual and pragmatic work involved in being an educator. The contributions surface a variety of intellectual work that teachers and educators are engaged in, such as making sense of systemic processes, discussing and articulating the complexities of justice and injustice, being curious and making sense of constraints of different systems, and connecting student thinking to abstract concepts of fairness. These examples of intellectual work were often situated in and deeply connected to practical work, including practicing empathy in making sense of systems, facilitating discussions, and designing for specific learners, systems, and communities. One theme across studies is the importance of communication and relational work, especially across different communities. This relational work highlights the importance of connections among teachers (Goode, Jayathirtha, & Chapman), between teachers and students (Philip & Chang), informal and formal educators (Lane & Tissenbaum), and educators with background in different disciplines (Everson & Ko). Furthermore, perspective taking, such as understanding students' point of view and thinking or perspectives of other educators and students, is positioned as both intellectual and pragmatic work.

Dilemmas and tensions were common across the studies as well, especially in relation to explicit recognition of power dynamics and inequities within systems. For example, systems were a common source of tension within teachers' and educators' work, including tensions in how students versus teachers experienced inequities in schooling or how informal versus formal educators experienced learners' needs differently in connection to systemic constraints or tensions in experienced teachers envisioning new forms of practice as co-designers of justice-oriented computing curriculum. There was also a theme across contributions about the tension raised that critical engagement with disciplines (e.g., computer science) can lead to discomfort for educators and open opportunities for teacher learning.

With the intertwined intellectual and pragmatic work, along with the inherent tensions surfaced, these studies also resist the deprofessionalization of teachers and educators as they demonstrate the different roles teachers take while contributing as world-making agents. However, they also contribute new visions to how this work can be accomplished in widening our scope beyond teachers. Specifically, building solidarity through co-design between teachers and students, PD connecting informal and formal educators, connecting teachers with different disciplinary backgrounds, and collective sensemaking among teachers and researchers.

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Multi-constituent co-design with teachers and students to re-imagine institutional possibilities

Thomas M. Philip, Michael Alan Chang

Objectives

Student voice is considered a critical means for transforming schools (Mitra, 2018). Most often, student voice is elicited through their evaluation of teachers, although the effectiveness of such feedback in supporting change has been shown to be minimal (Buurman et al., 2018). Finefter-Rosenbluh et al. (2023) suggest that incorporating students' surveys into teachers' participatory action research for professional learning can support teacher professional and growth. Others, such as Fine (2007), have demonstrated the transformative possibilities of youth participatory action research for school reform. Taking inspiration from these approaches that have demonstrated promise, and humanizing approaches to co-design (Potvin et al., 2024), we explore how teachers and students can work together to imagine new possibilities that allow each group to see each other as more fully human.

Theoretical framework

While conventional forms of student feedback can inform and improve practice (Swinglehurst et al., 2008; Visone, 2022), the onus is on the teacher to change within the existing institutional arrangements. Similarly, the preponderance of co-design efforts in the learning sciences has been done with a single group, mostly teachers focused on curriculum and practice. Thus, we take up a co-design effort involving teachers and students as co-equal participants as a humanizing approach that attends to the power relations between teachers and students inherent in schooling and schools.

Data sources and methods

The data we analyze in this paper come from a multi-week co-design workshop that included three teachers, who taught at the same high school, and fifteen of their students. The purpose of the workshop was for teachers and students to co-envision the institutional conditions for care in schools and role Artificial Intelligence tools might have, if any, in supporting such possibilities. Unlike models of teachers analyzing student feedback or students engaged in their own research project, our co-design space created a context for teachers and students to think together about the challenges they encounter within their school. Much of their deliberations focused on the care and compassion they experienced, or did not experience, across their everyday interactions at school.

Results

Identifying systemic processes Through a shared focus on care and compassion, the teachers and students were able to rearticulate seemingly individualistic characteristics and behaviors as embedded in systemic processes. As an example, in the eighth session of the workshop, teachers and students engaged in a series of interactive activities in which they fluidly moved between each other's perspectives. Through these engagements, students became aware of the unbeknownst ways in which their teachers were advocating for them. By the same token, teachers became profoundly aware of the institutional negligence and harm students experienced—dynamics they were certainly aware of but felt more acutely as students shared and acted out their experiences.

Teaching as more than teaching Teachers, similarly, experienced the significant level of empathy students had for them, especially in light of the competing demands and institutional constraints on teachers' work. Through the structured activities, teachers eventually shared the multiple roles and responsibilities they take on outside of typical notions of teaching. For instance, they shared the emotional labor they needed to engage in on a daily basis to support students. Within the context of labor negotiations and recent teacher union strikes, students deeply empathized with the invisibilized labor of teachers that teachers were expected to expend on their behalf.

Recognizing institutional dynamics and power relations By facilitating a space of teacher-student collaboration, both groups were able to jointly recognize and explore how common institutional systems and dynamics worked against their mutual interests but also, at least unintentionally, pitted them against each other. In particular, it became clear that the selective use of institutional urgency coupled with diminishing resources consistently put teachers and students at odds with each other. Our co-design effort involving teachers and students as co-equal participants allowed both groups to find common ground and re-imagine possibilities in schools that transcend the existing institutional limitations of schools.

Significance

Our teacher-student co-design context provided a space for teachers and students to jointly resist the de-professionalization of teaching and deficit orientations about teachers. By co-creating a space where teachers and students could humanize each other and better understand their respective hopes and frustrations within a common institutional context, both groups were able to see new possibilities for the institution of schooling. We outline the challenges to creating multi-group co-design space and their unique affordances, particularly how such approaches can be further utilized in the learning sciences to advance educational equity and justice.

Cross-disciplinary collaboration in a cohort of preservice computer science candidates

Jayne Everson and Amy J. Ko

Objectives

We seek to support pre-service candidates to be teachers acting as change agents who teach computer science (CS) to further justice. We do this in the context of a secondary CS endorsement. This add-on endorsement takes place as an additional quarter at the end of a justice-centered teacher prep program. The pre-service candidates spend the first 12 months of the program thinking about themselves as agents of change in their schools and roles. Pre-service candidates engage in identity caucusing (tough conversations about race, gender, and sexuality) weekly over the first three quarters of the program to examine their own positionality (Beitlers, 2019). Additionally as part of the coursework, they design and implement inclusive and liberatory lesson plans. The add-on CS endorsement is 3 additional months at the end of their program. The broader field of CS does not orient teachers as change agents, or computer scientists as change agents. CS is a center of power. It is a medium of expression. It is a power to be critiqued. To counter these field norms, we design discussions, assignments, placements, and studio time to support these candidates to think about themselves as change agents in CS.

In our third year of the cohort, we had a high proportion of candidates (7 of 13) who had humanities (social studies, English language arts, world languages) as their primary subject certification. Our objective in this study was to observe the interactions between these candidates, and notice how this affected our program.

Theoretical framework

The entire secondary teacher program is guided by the works of Freire (1970), hooks (1994), and Muhammad (2020). Throughout the program candidates engage in critical examinations of education, of their subjects, and of structures. The CS program uses *Critically Conscious Computing* (Ko et al., 2021) as its text. This text applies the critical framework of Freire to the field of CS, and offers educators a place to begin to critically examine CS as an academic subject.

Data sources and methods

Data sources for this paper include instructor notes after each class meeting over the quarter and weekly instructor check-ins and discussions. In addition, instructors have met monthly since, and continued the discussions. To triangulate instructor findings, we have the pre-service candidates reflections from each course. Candidates also had a reflection of the overall CS program that they completed in the final week of the course.

Results

We found that when we had a large part of our candidates from the humanities, the entire cohort was able to grapple with complex ideas quickly. Humanities students were comfortable leading discussions around complex ideas that dealt with justice and injustice and systems of oppression like racism, sexism, and ableism. We suspect this comes in part from the fact that humanities training includes grappling with complex ideas with students, and developing a level of comfort with that discomfort of no exact answers or no single way of arriving at the correct answer.

We also observed that humanities students were ‘loose’ with some technical content and would use metaphors that didn’t map correctly with some concepts of computing. This required clear and exact feedback to correct misconceptions, and build understanding. This feedback came from instructors as well as from peers with more CS and STEM backgrounds. All students shared that they were leaving the program excited to teach CS, while also holding in tension the responsibility of teaching CS as change agents.

Significance

We offer a method we found helpful for building skills and confidence in teaching CS from a just perspective. We found that the humanities and the humanities training are essential and helpful in our education. We found

that cross-disciplinary cohorts of CS pre-service candidates benefited all candidates. The STEM candidates brought and shared technical knowledge and were able to correct misconceptions about math or CS principles. The humanities candidates brough and shared complex grappling skills, techniques, confidence, pedagogies, and knowledge that all candidates adopted.

This study highlighted the intellectual and pragmatic work that candidates from the humanities took up, specifically grappling with complex ideas about justice and systems of oppression and leading discussions around these topics. Tensions arose in this work in terms of the technical content related to concepts of computing that humanities students were 'loose' with that was approached with clear and exact feedback in comparison to the complex ideas around justice that had more flexibility in answers and ways of arriving at answers. Finally, this study provides an opportunity to consider how multiple perspectives and modes of expertise, in this case humanities and CS or STEM, can be important in resisting deficit orientations about teacher candidates and the field norm of CS being the center of power.

Incorporating formal and informal educators' assets and interests into the design of a professional development program about culturally responsive pedagogy

McKenna L. Lane, Catherine Dornfeld Tissenbaum

Objectives

This study reports on a pilot PD program aimed to support culturally responsive pedagogical practices for PreK-12 classroom teachers and informal learning educators. Our goals were to introduce culturally responsive pedagogy (CRP); identify existing practices, programs, and spaces that support CRP, along with barriers to implementing CRP; and collaboratively develop culturally responsive lessons/programs. We employed Participatory Design principles to adjust or swap planned topics to fit participating educators' needs and interests. Here, we share specific assets that educators held with regards to CRP, including unconscious ones, and program shifts meant to accommodate our educators.

Theoretical framework

Culturally responsive pedagogy (CRP) challenges deficit views of students by directly addressing cultural, racial, linguistic, gendered, and classed identities during classroom teaching. CRP belongs to a family of "resource pedagogies" (Paris, 2012) that collectively focus on multicultural and multilinguistic identities as assets to be represented, expressed, and discussed in learning spaces (Ladson-Billings, 2014; Paris, 2012). Resource pedagogies empower students academically and emotionally by creating meaningful connections to learning tasks and generating intrinsic motivation to solve personally relevant problems (Esposito et al., 2012; Sleeter, 2012). In this study, we draw on resource pedagogies to guide both the design and analysis of the PD program.

Data sources and methods

We held eight professional learning sessions in July 2023, meeting two times a week over the course of four weeks. Sessions were primarily online, with one in-person session, and included collaborative exploration of resource pedagogies (Paris, 2012) by participants. Participants included three facilitators and six educators: two based in informal environments, three based in formal learning environments, and one participant with roles in both formal and informal learning. Data includes video recordings of all eight sessions. We conducted thematic analysis (Braun & Clarke, 2006) of recordings to identify educators' assets with regards to CRP, along with shifts in programming designed to accommodate educators' assets, needs, and questions.

Results

We noted similarities and differences in knowledge and practices amongst formal and informal educators' settings, leading to conversations about designing for specific audiences and the benefits and barriers to doing so. Primary concerns centered on meeting the needs of educators' respective audiences (e.g., middle-school students, patrons of historical archives) and pushing back against being "programmed to death" (Jennifer, Meeting 1, 22:44) by "prescribed pedagogy" (Janelle, Meeting 1, 20:58). Educators noted that small-group discussions allowed them to explore critical concepts in more depth and in community with others who are also curious about incorporating resource pedagogies. They also talked frequently about the importance of building relationships with the communities they serve and building community amongst learners. Future analysis will describe these themes in greater detail.

Significance

PD opportunities that include educators from informal and formal contexts can enhance the depth of critical conversations by examining similarities and differences of contexts and approaches to teaching and learning. These opportunities also provided a space for conversations that integrated intellectual and pragmatic work of education, such as developing familiarity of and designing for specific audiences. Centering PDs around critical resource pedagogies provides opportunities for educators to probe how they create space for communities to identify strengths while supporting cross-cultural connections. It also raised tensions between different goals and audiences that can vary greatly between formal and informal contexts.

Teacher perspectives as co-designers of a justice-oriented introductory high school computing curriculum

Joanna Goode, Gayithri Jayathirtha, Gail Chapman

Objectives

Co-designing with teachers is vital for sustaining curricular design efforts (Penuel, 2019). However, with increasing need to center justice within STEM education, nuances around involving teachers to redesign existing programs are ripe for exploration (Jayathirtha et al., 2024). Such design partnerships have potential for teachers to integrate their expertise while also pushing disciplinary boundaries for what is valued within their classrooms and how to make their classrooms inclusive (Philip et al., 2022). Our work involved a partnership with twelve high school teachers to co-design an existing introductory high school program to explicitly center topics of justice within computing classrooms. Through this symposium contribution, we answer two questions: how did the computer science high school teachers experience the co-design effort? And, how did they center justice in the redesigned program?

Theoretical framework

Our partnership with teachers is informed by previous studies that have highlighted the need for co-designing with teachers in ways that attend to and address the power imbalances in such partnerships between teachers and university-based researchers, and ways to achieve equitable design spaces (Bang & Vossoughi, 2016; Philip et al., 2022). Further, drawing from sociocultural theories of learning, our work has historically been situated within the development and sustenance of the teacher community for professional learning and growth. Launched in 2008, the program under study has developed the teacher PD model in which teachers from across the country have not only taken up PD but have moved from being new teachers to facilitating teacher PDs for new teachers (Goode et al., 2014). Teachers read and lead discussions around texts such as *Stuck in the Shallow End* and engage in race-conscious conversations for multiple years, leading to the development of politicized trust within many members of this teacher community. As an extension of these relationships, twelve of the experienced teacher-facilitators from across the country volunteered to co-design the program to center justice.

Data sources and methods

Audio recording (~ an hour) from an in-person facilitator workshop in Summer 2024 is the primary data for this analysis. Twenty teachers, experienced in teaching the program and who were slated to facilitate teacher PD sessions in their local contexts from across the US, participated in it. Seven of these twenty teachers were also co-design teachers. The particular session analyzed for this symposium was in the context of the teachers discussing the four redesigned units, particularly teachers new to the program summarizing their noticings and wonderings about the justice-oriented program in interaction with the co-design teachers. The authors were a part of the session as participant researchers and we brought to the analysis our experiences from the session and also from the existing relationships with the teachers. Inspired by interaction analysis, we jointly analyzed the transcript of the recordings to generate themes to better understand teachers' role in the co-design process.

Results

Co-design as imagining new practices Co-designing an existing program meant that teachers were challenged to critically examine their existing practices and imagine new ones while charting pathways which may not be readily visible at the very beginning. Taghrid, a co-design teacher, shared her experience as "it was hard to tell bye-bye to parts that I was very familiar with and have been teaching," while Don, a veteran computing teacher shared how it was challenging to let go of what was known and brainstorm the unknown as he described his experience as: "I wasn't sure of destination and not knowing where I was going." Tangela, yet another experienced teacher shared how she was challenged during the co-design, particularly to "change to [center

justice] is really hard, especially when you are taught not like this," pointing at the struggles of teachers to dream new lessons and activities that do not look like anything they have previously experienced as learners.

Centering students, their identities, and communities as justice The co-design teachers, in interaction with the new teachers, emphasized on centering students, their identities, their cultural backgrounds, and their communities and creating opportunities for students to bring their fuller selves into classrooms and celebrate who they are as ways of working towards justice within computing classrooms. While theoretical and pedagogical frameworks exist for what it means to center justice within STEM classrooms (e.g., Vakil, 2018), teachers articulated justice as supporting learner identity formation and enabling opportunities to connect communities with computing. As teachers shared, a justice-oriented computing classroom has to validate learners' presence and allow opportunities to own their own education and reflect on their relationship with the discipline. Further, teachers discussed mathematical and computing approaches as tools to solve problems in communities that matter to students–opportunities to examine their own decision-making through problem-solving and decision-making as connected to cultures and identities.

Significance

Involving teachers as curriculum co-designers is gathering momentum within the field. And yet what it means for teachers, beyond implications on their immediate professional practice, is under studied. Particularly, what it means for teachers to contribute as co-designers of justice-centered teaching and learning needs examination for it may require teachers to push existing dominant notions and boundaries to imagine the unknown. While teachers took on the pragmatic work of revising existing curricular units, they engaged as intellectual agents reflecting on their practices while imagining new ones, particularly as they work towards furthering justice within their and others' classrooms. In envisioning new lessons and activities, not only did teachers push the disciplinary boundaries but also resisted the normative, de-professional, and deficit-orientations about teachers' role as transformational world-making agents.

Teachers' relational and critical lesson reflections toward culturally responsive-sustaining teaching in computational thinking activities

Elizabeth B. Dyer, Bethany Parker, Nafisa Ibrahim

Objectives

This study explores teachers' relational and critical reflection empirically within the context of a teacher recently working to incorporate culturally responsive and sustaining teaching (CR-ST) with computer science learning in an elementary grade classroom. Computer science education has recognized the need to support teachers to take up CR-ST (Madkins et al., 2020). Scholars have hypothesized that teachers' relational and critical reflection in everyday practice is essential for engaging in CR-ST (Milner, 2006). Thus, we investigate the following research question: How can teachers make sense of culturally responsive and sustaining teaching in reflecting on their classroom lessons?

Theoretical framework

We conceptualize teachers' reflection in everyday practice drawing on the FAIR framework for anti-deficit teacher noticing (Louie et al., 2021). In particular, this framework fits within an "ideology in pieces" perspective (Philip, 2011) that has been used in recent work on teacher thinking, reasoning and sensemaking with respect to critical pedagogies (Morales-Doyle et al., 2021).

Data sources and methods

The study is part of a research practice partnership working with K-8 teachers in Eastern Tennessee. Teachers attended ongoing professional learning, led by teacher leaders, during the summer and school year focused on integrating computational thinking and culturally responsive pedagogy. Teachers also used at least two K-8 computational thinking activities from the professional learning sessions with students in their classroom. The study focuses on one teacher participant, Clara. Clara is a Black woman with 17 years of teaching experience, who expressed particular interest in culturally responsive teaching with STEM learning. She taught 3rd grade in a suburban elementary school with students from a variety of racial and socioeconomic backgrounds.

This paper reports on the early construction of an exploratory case study of the teacher's development of culturally responsive-sustaining teaching, focusing on a videotaped post-lesson teacher interview. The interview focused on interesting lesson moments, including moments of student thinking, informed by the FAIR framework. We used the FAIR framework (framing, attending, interpreting, responding) for anti-deficit teacher

noticing as an analytic framework to examine the teacher's relational and critical reflection in the interview, focusing on the episode about culturally responsive teaching.

Results

The classroom lesson, which the interview focused on, was a computational thinking lesson (also used in the professional learning) that had students use algorithmic thinking to create a seating arrangement for their class on their reading rug. Students created their arrangements on a printed image of the rug, using unifix cubes for students. The focal episode, coming from the end of the post-lesson interview, includes the conversation about how the lesson reflected culturally responsive teaching, which had not been mentioned previously in the interview. Clara initially responded that for this lesson "I never even thought about that [culturally responsive teaching]. Honestly, I just thought [about] classroom culture."

After framing the lesson in terms of cultural responsiveness, the teacher began to make connections between the lesson and culturally responsive teaching. After the interviewer wondered aloud how students might have considered where to place different students in their seating arrangement, Clara identified moments she attended to where a few students shared their reasoning. In particular, she brought up students making arrangements that considered gender as an example. She also stated that all students "probably [had] a deeper reason as to why they decided to arrange students," which reflects an ideological framing of students' reasoning from an asset-based perspective, despite only noticing this reasoning in a few students. In addition, Clara made connections between her student's thinking and how she creates seating arrangements as a teacher that considers fairness, such as where students who wear glasses sit, but students "don't know why they've been arranged that way." This led Clara to propose a new follow-up lesson for students to create new arrangements and explain why they grouped students in that way, which she saw as a way to better understand students' reasoning and an opportunity to learn from students about what she could consider in creating seating arrangements as a teacher.

Significance

This episode provides an example for how reflection on moments in a lesson can be collectively taken up by a teacher and researcher, and focused toward making connections to culturally responsive-sustaining teaching. Specifically, the episode highlights how re-framing (by the interviewer) focused on specific attention to and interpretation of student thinking about contextual features of computational tasks can highlight connections to critical dimensions of computation (i.e., how a seating arrangement algorithm can account for student differences). In addition, it suggests that setting computational tasks within the school context, and connected to fairness, may be a promising strategy for drawing on elementary students' understanding of social and ethical relationships in ways that are connected to the computational concepts. This mirrors work in elementary mathematics education which has found that young students can engage in sophisticated mathematical reasoning when drawing on intuitive conceptions of fairness (Sawatzki et al., 2019). Finally, this episode provides an example of personal reflection connected to reflection on moments from the lesson, when the teacher considers her methods for creating seating arrangements in comparison to students' methods. Together, these findings suggest that relational and critical reflection about moments of students' reasoning can provide opportunities for reconsidering teaching practice in relation to culturally responsive-sustaining teaching, and re-framing or guiding noticing may be a strategy to take up this relational and critical reflection collectively with teachers.

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