

Taking on the Task of Reimagining Teacher Education: Positioning Teachers as Emergent Learning Scientists Within Complex Political and Ethical Ecologies

Natalie Davis (co-chair), Georgia State University, ndavis67@gsu.edu
Paula Hooper (co-chair), Northwestern University, paula.hooper@northwestern.edu
Ruben Echevarria, Northwestern University, re@u.northwestern.edu
Arturo Muñoz, Northwestern University, ArturoMunoz2023@u.northwestern.edu
Shirin Vossoughi, Northwestern University, shirin.vossoughi@northwestern.edu
Arturo Cortez, University of Colorado-Boulder, arturo.cortez@colorado.edu
Meixi, University of Minnesota, meixi@umn.edu
Josephine Pham, California State-Fullerton, jopham@fullerton.edu
Mallika Scott, California State-Fullerton, mhscott@fullerton.edu
Tessa Sengupta-Irving, University of California-Berkeley, tsi@berkeley.edu
Jessica Tunney, TLC Public Charter Schools, jessica.tunney@tlccharter.org
Meghan Macias, University of California-Santa Barbara, meghanmacias@ucsb.edu

Session overview

The development of effective, culturally-sustaining educators (Ladson-Billings, 2014; Paris & Alim, 2014) has been conceptualized within teacher preparation programs as principally a problem of a practical nature. Consequently, many teacher education programs and policy centers have focused on building capacity around the core activities and practices thought to be impactful in leveraging student success gains (Ball & Forzani, 2009). Relatedly, we have seen the recent proliferation of practical, comprehensive innovations in teacher education designed to help novice and practicing teachers identify and isolate the mechanisms of high-quality, equity-oriented teaching (Dominguez, 2019; Zeichner, 2012). Teaching within this framework can be taken for granted to be a collection of tasks and curricular resources, rather than the relational, intellectual and political work of people within complex ecologies (Ellis et al, 2019). With the recent trends toward a centering of practice in teacher education programs, scholars have cautioned against a perceived devaluing of the explicit study of theories of learning, epistemologies and justice frameworks in teacher education and development (Philip et al, 2019). An exclusive focus on practice-based innovations in a decontextualized sense runs the risk of obscuring and advancing the very values (e.g. western, narrow, white supremacist, capitalist) that have contributed to the marginalization of students from non-dominant communities since the inception of U.S. public schools (Dominguez, 2019). The presumption that there are practices that can be understood as valuable without considering how these conceptions of value emerge from particular theoretical, epistemological and axiological traditions does little to intervene on the systems that have (and continue to) circumscribe notions of teaching (Biesta, 2012) and learning. In line with Dominguez's (2019) concept of decolonial innovation in teacher education we agree that:

The vital question we must be grappling with is not (only) how to better prepare educators to construct intellectually rigorous lesson plans, or leverage multicultural content to transmit learning that will register as neoliberal success, but how we might close ontological distance; for without narrowing this chasm between colonizer and colonized, no practice, strategy, or machination, however well-intentioned or well-planned, will ever serve historically marginalized youth in truly liberatory ways. (p. 52)

Therefore, in this symposium we examine efforts to design for and study teacher learning and teacher education that might close the ontological distance- by using the ethical and political turns within learning sciences to shape a socially, politically and epistemologically different lens than the one that systems of schooling often impose on mainstream teacher education. We explore how reimagining teachers as learning scientists can afford new visions and enactments of teacher learning and teacher education. Our studies also discuss potential reciprocal benefits for learning sciences of taking on the lenses of teachers who are negotiating the complex ecologies that form transformative teaching. The papers in this session will step outside of the rigid theories and practices that have shaped mainstream research and practice in teacher education given the opportunities that learning sciences through an ethical and political lens can offer (Philip et. al. 2019). Each paper takes up a piece of the puzzle for

how to progress toward new social futures in teacher education in light of what learning sciences has been and is becoming through developing and amplifying the ethical and political nature of learning and teaching.

Taking the aforementioned into account, we invite ICLS attendees to participate in dialogue around the ideational, ethical and practical frameworks for engaging practicing and preservice teachers as learning scientists in schools. Moreover, we situate the work of teacher learning and teacher education as a viable pathway for exploring the ethical and political dimensions of learning and teaching within learning sciences. *What opens up in the field of education when we take seriously the minds and personhood of teachers as learners who are simultaneously theorists, practitioners and political actors within complex ecologies? How might we leverage, at once, the generative tools of the learning sciences and the everyday, embodied and professional knowledge brought to bear by teachers? And finally, what tensions emerge within this work as we seek to expand conceptions of teaching and desettle narrow, dehistoricized definitions of learning* (Bang et al, 2012; Philip et al, 2019)? Each paper proposed for this symposium responds to these question prompts with social design experiments (Gutiérrez & Vossoughi, 2010) that meld critical theories within the learning sciences with ideas about how to reimagine teacher learning and teacher professional development toward more just social futures.

Symposium structure: Audience as discussant

We propose a symposium structure that is designed to facilitate the audience having an in-depth discussion rooted in the presentations. Our intention is to situate each of the papers in the symposium as tools for our collective thinking around a reimagining of teacher education rooted in political and ethical conceptions of learning. We will begin the session with a brief opening by the session organizers. Each attendee will receive a handout with anchoring themes and question prompts that can encourage reflection and discussion. The six paper presentations, organized by thematic focus will then proceed in succession. Slides will serve as guideposts between talks to help make explicit how each paper (or set of papers) coincides with the overarching symposium goals. We have allotted 10 minutes for the individual presentations. The final 20 minutes of the session is reserved for facilitated discussion around the prompts specified on the handout. The abstracts for the six papers are below.

Magic circles, the pedagogical imagination, and teacher learning: Designing toward the fusion of the everyday and the academic

Arturo Cortez

Teacher learning ecologies tend to be organized to deprivilege everyday forms of knowledge, owing to a long history of inequality in schools of which the knowledge and cultural practices of non-dominant people is not made central. At the same time, novice teachers are rarely provided sufficient opportunities to develop deep understandings of consequential and robust forms of learning and the importance of leveraging students' repertoires of practice in learning activity and to design for such learning in their classrooms. The design of novice teacher learning environments tends to privilege the transmission of a set of core practices that teachers are expected to emulate in their own classrooms, rather than to support teachers in developing a professional vision that foregrounds expansive and transformative forms of learning of which youths' everyday life experiences are fundamental (Philip, 2019). In this design-based study (Gutiérrez, 2018), I argue that teachers can learn to appropriate and leverage theories of cultural-historical learning and development and design for expansive forms of learning and equity, in the context of joint-reflection on their interactions with youth.

Based on a cultural-historical approach (Engeström, 2004) to learning that foregrounds teachers' agency in identifying and resolving everyday dilemmas, this analysis draws from a semester-long teacher education course designed to support teachers in their sensemaking and the development of pedagogical practices that aimed to combine young people's everyday cultural practices with academic genres (Gutiérrez, 2008). During the course, novice teachers engaged in mediated praxis (Gutiérrez & Vossoughi, 2010) as they discussed their own classroom interactions and reflections on practice with their peers. The discussions were designed to support teachers in examining the social organization of learning, as well as how course theories animated and historicized their understanding of classroom dilemmas. This analysis focuses on two teachers and their discussions on leveraging young people's cultural practices. I chose these discussions because they illustrate how teachers collectively name and resolve tensions in their pedagogical practices and conceptual understandings.

Through video-based microanalyses, I explore how the teachers made sense of and leveraged each other's reflections on classroom practices to create new meanings and heuristics about expansive forms of learning. An emergent focus in this analysis examined how the two teachers re-imagined their conceptions about the purpose of classroom dialogue, as they centralized the role of equity and the socio-political histories of their students. In particular, they developed a concept called magic circles which describes dialogue that combines youths'

everyday practices with academic genres. This analysis has implications for the study of teacher learning: (1) providing teachers opportunities to reflect on their own practices and generate pedagogical concepts about what they see and observe will support them in developing deeper understandings of learning and how to design for learning and (2) attending analytically to teachers' processes of generating new pedagogical concepts will make visible how teachers come to see how learning in school becomes bounded from the broader repertoires of non-dominant youths.

Stories, social dreaming, and collectivizing teacher education towards family futures

Meixi

Schools and teachers exist with sociopolitical entanglements of power that operate at various scales – it is ideological, structural, and socially-constructed in micro-interactions, in how teachers hear, talk, and treat students' ideas and cultural practices (Erickson, 2004; Vossoughi & Booker, 2017; Nesper, 1997). They grapple with pedagogical choices in the face of constant demands of the nation-state and global agendas and yet can be the ones to imagine new possibilities for the purposes of school. This paper explores the creation of teacher collectives in one urban Indigenous school in Thailand called Sahasat school through the stories teachers told to each other. It illustrates how collective storywork opens up more humanizing and equitable forms of teaching and learning, not just with students, but with each other (Archibald, 2008). Million (2014) writes that “[Stories] are a felt knowledge that accumulates and becomes a force that empowers stories that are otherwise separate to become a focus, a potential for movement” (p. 31-32). Through bringing “otherwise separate” stories of teachers together, I ask: *How and in what ways did the politics and ethics of our participatory design research shift over time through stories?*

I follow two sets of 17 teacher stories from two design events (three years apart), where teachers told stories of their life and reflected on their work with each other. These stories exist within a larger participatory design research where teachers were implementing a pedagogy called *Tutoria* to intervene in powered expertise student-teacher relationships in their classrooms (Cámara et al, 2018; Rincón-Gallardo & Elmore, 2012; Bang & Vossoughi, 2016). Taking children's full lives in teaching often runs against the backdrop of Thai national education policies and global education reforms that continue to uphold colonial, neoliberal, and capitalistic agendas that require the assimilation of children to a singular set of criteria and control the bounds of permissible sense-making (Bang et al., 2013; Rogoff, 2003; Buadaeng & Leepreecha, 2009).

I find that teachers' storywork both seemed to (1) surface multi-voiced or heteroglossic (Bakhtin, 1984) alternate imaginaries of learning in ways that resonated with them *and* (2) strengthened a collective resolve to design towards families' futures at school. Teachers' reflective sense-making of our designs also made visible the ethical and political deliberations of pedagogical choices that come with attempting to challenge formal constraints of colonizing and homogenizing school practices. Teachers making sense of their own roles and responsibilities to state-directives, young people, families, and tribes in increasingly heterogeneous ways mattered for collective sense-making and social dreaming at school (Espinoza, 2008). This paper further theorizes the role of stories in teacher education (Marin & Bang, 2015; Sengupta, Redman & Enyedy, 2013) and underscores its relational implications in creating and carrying diverse collectives in schools that have the potential to shift the purposes of school towards family and community ends, and ultimately destabilize educational hegemonies.

The multi-faceted nature of racially transformative practices: How teachers of color experience, navigate, and transform racialized educational spaces

Josephine Pham

A growing body of scholarship has suggested that Teachers of Color are uniquely positioned to enact instructional and institutional changes in schools that expand educational opportunities for Students of Color (Villegas & Irvine, 2010). Yet, a holistic understanding of the situational dynamics in which social change occurs remains insufficiently theorized, examined, and realized. Furthermore, essentialized conceptions of Teachers of Color as change agents (e.g. Philip, Rocha, & Olivares, 2017) often lead to monolithic approaches of supporting the diverse learning needs of Teachers of Color in teacher education. Aimed at addressing these gaps, the following research question guide my study: *What are the micro-level interactional processes through which racially transformative practices enacted by Teachers of Color emerge?*

I propose place-based raciolinguistics as a theoretical and methodological framework to examine racialized places and the everyday interactions that happen in them as inextricably linked processes of social

reproduction and social transformation (Author, 2019). Acknowledging that U.S. contemporary racism often operates through systemic processes that are seemingly “colorblind” and “normal and natural” (Bonilla-Silva, 2006; Ladson-Billings, 1998), I argue that a place-based examination of everyday practices through an analytic lens of race, language, the body, and the material environment are critical for teacher learning about how race relations are constructed, maintained, transformed, and experienced in social space (Alim, Rickford, & Ball, 2016; Delaney, 2002). Through a humanizing approach to inquiry (Paris & Winn, 2014), I drew upon 110 hours of video and audio recording, ethnographic field notes, interviews, and artifacts as data to examine the micro-interactional processes of four Teachers of Color engaged in racially transformative practices across various social spaces, including classrooms, teacher union meetings, professional development spaces, school-wide events, and teacher-led organizations.

My analysis revealed that the geographical and institutional contexts in which Teachers of Color were situated influenced how they engaged in and experienced racially transformative practices across spatial and temporal orders. Place-based dynamics shaped how Teachers of Color strategically foregrounded particular aspects of their social identities to co-construct collective identity and mobilize students, families, teachers, and/or community members towards collective action. My analysis also demonstrated the fluidity and constructed nature of “leadership” by documenting how power structures and relations influenced their processes of racialization at the intersections of multiple identities and oppression, shaping the extent to which their enactment of racially transformative practices positioned them as “leaders” and “antagonists” within and across social spaces.

Considering the embodied and place-based dimensions of racially transformative practices, I argue that approaches to developing teachers’ learning must attend to dynamic meanings of how race and intersecting social identities are produced in social space. The more Teachers of Color know about the moment-to-moment unfolding of social change, and how these processes are linked to dynamic constructions of positionality, power, and place, the more likely they are to understand the skillsets, approaches, and sensibilities needed to realize their potential as change agents engaging in strategic racial justice work within and beyond schooling contexts.

Supporting beginning teachers to re-imagine mathematics classrooms through engaging with mathematics as learners

Mallika Scott

Justice-oriented teacher preparation programs are increasingly working to prepare novice teachers to create more humanizing learning communities in which each student can bring their full selves to learning (e.g. Andrews et al, 2019). Creating these types of caring and rigorous communities in the mathematics classroom requires expanding the valued ways of knowing and doing mathematics to draw on the diverse resources each student brings to mathematical learning (e.g. Featherstone et al., 2011). However, many pre-service teachers have never had the opportunity to participate in expansive mathematics communities as mathematical learners. Here, I present an analysis of the learning that can become possible when beginning teachers engage in ongoing mathematical learning as a resource for critical reflection on classroom teaching and, to imagine new possibilities for their students.

This study was informed by social approaches to design grounded in a sociocultural view of learning that emphasize designing *systems* to afford new forms of activity (Gutierrez & Vossoughi, 2010). Three principles that guided design were: 1) Involving participants in designing the supports they need, 2) Experiencing mathematics as learners to critically reflect on teaching, 3) Taking an expansive view of mathematics. The author served as facilitator, co-designer, and researcher of a learning community of six first-year elementary school teachers. Teachers participated in monthly meetings where they collectively investigated mathematical content to make connections to students’ experiences as mathematical learners and to their teaching practice. Data sources include video recordings of meetings and recordings of interviews with participants. Data were analyzed to examine the ways teachers drew on their own experiences as mathematical learners as a resource to deepen their reasoning about the teaching decisions they made in their classrooms.

Findings indicate that engaging in mathematics as learners supported teachers to align themselves *with* their students and to critically reflect on their teaching and on systems of schooling. Over the course of the year, teachers came to more deeply relate to why students’ mathematical actions might be sensible within a given learning ecology by drawing on their own experiences as learners. As participants came to connect with their students as mathematical learners, they began to examine the ways particular teaching practices, curricular materials, assessments, and dominant narratives about mathematics might be constraining student engagement with mathematics. This led to shifts in participants’ teaching practice toward disrupting narrow definitions of mathematics and of mathematical competence to foster communities in which each student meaningfully contributed to collective mathematical learning. These findings suggest that when teachers engage deeply with an

expansive view of mathematics *as learners*, this collective activity can support teachers to critically reflect on what currently exists, and to imagine new possibilities for rich mathematical learning.

Collaborative research and professional development within making settings as an expansive context for teacher learning

Ruben Echevarria, Arturo Muñoz, and Shirin Vossoughi

Within the Learning Sciences, there is a growing interest in making and tinkering as cognitively and materially rich forms of STEAM learning (Martin, 2015; Martinez & Stager, 2013). Research on making has emphasized activity design, individual learning experiences and trajectories, and increasingly, the role of facilitation. In prior work, we argued that in order for the maker movement to advance equity in substantive ways, close attention to the pedagogies that shape making environments is crucial (Vossoughi et al; 2016). This argument stems in part from our observation that educators and researchers committed to developing more authentic, liberatory forms of learning wrestle with what Paradise et. al. (2014) call the “pendulum swing” between adult-centered and child-centered pedagogies. Though grappling with when to be “hands on” or “hands off” as a facilitator, or when to offer versus withhold an explanation, are important aspects of teacher learning, we argue that the terms through which we interpret and develop alternative pedagogical models are often overly constrained by a persistent form of binaristic thinking (Vossoughi et al, under review). We are particularly concerned with the ways the binary of adult- versus child-centered learning sets educators up to avoid—or under-design—generative forms of pedagogical assistance and joint activity.

This paper therefore foregrounds pedagogies that have sought to theorize teaching and learning beyond the binary of adult vs. child centered education (e.g. Dewey, 1938; Freire & Macedo, 1995; Gutiérrez, 2008; Rogoff, 2003). More specifically, we offer analyses of what it can look like to develop such third-way pedagogical models in the context of professional development sessions informed by collaborative research on learning. Our analysis is grounded in the FabYouth program (a museum setting serving high school students in a large urban area) and the Maker program (a non-profit educational organization serving middle school youth in a suburban setting). Both programs were driven by equity goals and served children and youth historically marginalized in STEM fields. Drawing on collaborative ethnography (Erickson, 2012), social design methodologies (Gutiérrez & Vossoughi, 2010) and participatory design research (Bang & Vossoughi, 2016) we look closely at 5 PD sessions designed to support educators to closely examine their pedagogical practice using ethnographic material drawn from ongoing research.

Our findings trace the emergence of locally meaningful “third-way” vocabularies, and illustrate the new orientations towards young people and pedagogical practice such discourse supported. We analyze the *how* of these PD sessions, including ethical commitments to sharing research with partners in a timely and generative manner, and the specific ways researchers and educators were mutually positioned as co-analysts and theorists of learning.

Finally, we examine new tensions that can arise through collaborative work, including the need to shift common perceptions of research as purely experimental or objective. In both our settings, re-mediating (Gutiérrez, Hunter & Arzubigaga, 2009) normative understandings of research was necessary for supporting the rich forms of praxis documented here. We conclude by considering the specific role of collaborative research with educators in supporting deeper connections across the Learning Sciences and Teacher Education.

Stories of garlic, butter, and ceviche: The slippage between microcontestations and microaggressions in a case of STEM teacher learning

Tesha Sengupta-Irving, Jessica Tunney, and Meghan Macias

A well-established body of research on learning attests to mathematics and science as heterogeneous cultural practices of daily living that children engage in and out of school (Bricker & Bell, 2014; Nasir & Hand, 2008). In the U.S., however, disciplinary teaching often reflects a normative canon of white western cultural knowledge and practices (Medin & Bang, 2014; Powell & Frankenstein, 1997). This ideological fundamentalism risks the degradation of teaching into a form of racial combat between teachers and minoritized children or their families. Developing teacher learning opportunities that integrate understandings of race/racism with discipline-specific pedagogy – i.e., designing opportunities to see disciplinary learning as also ideological - is a formidable challenge. In fact, prior research on teacher learning often parses this endeavor where, for example, professional development to promote teachers’ sociopolitical consciousness stands apart from efforts to promote ambitious mathematics instruction. Drawing on theories of ideology as involving contestation and rearticulation (Philip, 2011) this

analysis concerns a nine-day professional development seminar for secondary STEM teachers of racially minoritized students that integrated teachers' sociopolitical sensemaking about race/racism and disciplinary teaching. One element of the seminar was daily discussions of case study research on teachers implementing curricula to amplify epistemic and cultural diversity in mathematics and science. These discussions were designed to invite conflicts of interpretation among teachers, a process by which they could potentially rearticulate understandings of science that strengthened its association with cultural heterogeneity. This analysis focuses on four teachers discussing a case of cultural plurality in health science : one endorsed the idea of cultural plurality in science, while three did not. This case was chosen for the richness of contestations that surfaced – an empirical window into the epistemic, political, and ethical tensions that arose from teachers grappling with the relationship between disciplinary teaching and racial enculturation. Through video-based microanalyses of their interactions (Powell, Francisco & Maher, 2003), we explore the teachers' use of stories to contest or assert positions, their reasoning about the needs of minoritized learners, and what they understood as constituting viable and valid science learning. An emergent focus of analysis involved a Pilipina teacher who experienced racial and gendered microaggressions in the group when she asserted the value of cultural and epistemic diversity, defended the epistemic authority of racially minoritized families in science, and invoked experiences of science as a nonwhite immigrant woman. This analysis makes three important contributions to the study of teacher learning: (1) It evidences how micro-contestations about science teaching conjure race/racism; (2) It demonstrates how the sociopolitical positioning of teachers and their storied knowledge opens or forecloses on the rearticulation of science as a heterogeneous cultural practice; and (3) It surfaces the easy slippage between racial-ideological microcontestations (Philip et al., 2016) and racial microaggressions. The case raises important ideas for the ethical and political dimensions of designing for teacher learning, including the significance of facilitation, competing logics of colorblind and politicized care as socio-political positions on teaching, and the unique vulnerabilities minoritized teachers can experience within such efforts.

References:

- Alim, H.S., Rickford, J.R., Ball, A.F. (2016). *Raciolinguistics: How language shapes our ideas about race*. Oxford University Press.
- Andrews, D. J. C., Brown, T., Castillo, B. M., Jackson, D., & Vellanki, V. (2019). Beyond Damage-Centered Teacher Education: Humanizing Pedagogy for Teacher Educators and Preservice Teachers. *Teachers College Record*, 28.
- Archibald, J. "Q'um Q. X. (2008). *Indigenous Storywork: Educating the Heart, Mind, Body, and Spirit*. Vancouver: UBC Press.
- Ball, D. L., & Forzani, F. M. (2009). The work of teaching and the challenge for teacher education. *Journal of Teacher Education*, 60(5), 497-511.
- Bang, M., Warren, B., Rosebery, A. S., & Medin, D. (2012). Desettling Expectations in Science Education. *Human Development*, 55, 302–318.
- Bang, M., & Vossoughi, S. (2016). Participatory design research and educational justice: Studying learning and relations within social change making. *Cognition & Instruction*, 34(3), 173–193.
- Beltramo, J. L., Stillman, J., & Ahmed, K. S. (2019). From Approximations of Practice to Transformative Possibilities: Using Theatre of the Oppressed as Rehearsals for Facilitating Critical Teacher Education. *The New Educator*, 1-20.
- Biesta, G. J. (2013). Giving teaching back to education: Responding to the disappearance of the teacher. *Phenomenology & Practice*, 6(2), 35-49.
- Bonilla-Silva, E. (2006). *Racism without racists: Color-blind racism and the persistence of racial inequality in the United States*. New York: Rowman and Littlefield Publications.
- Bricker, L. A., & Bell, P. (2014). "What comes to mind when you think of science? The Perfumery!": Documenting science-related cultural learning pathways across contexts and timescales. *Journal of Research in Science Teaching*, 51(3), 260-285.
- Buadaeng, K., & Leepreecha, P. (2009). Modern education systems and impact on ethnic minorities. In A. Baron-Gutty & S. Chupradit (Eds.), *Education, economy and identity: Ten years of educational reform in Thailand* (pp. 37–53). Chiang Mai, Thailand: IRASEC - Research Institute on Contemporary Southeast Asia.
- Cámara, G. (2003). *Learning for life in Mexican rural communities: The Conafe post-primary centers*. Ciudad de México, México: CONAFE.
- Delany, D. (2002). The space that race makes. *The Professional Geographer*, 54(1), 6-14.
- Dewey, J. (1938). *Experience and education* (Kappa Delta Pi lecture series). New York: Macmillan.

- Ellis, V., Souto-Manning, M., & Turvey, K. (2019). Innovation in teacher education: towards a critical re-examination. *Journal of Education for Teaching*, 45(1), 2-14.
- Engeström, Y. (2004). New forms of learning in co-configuration work. *Journal of Workplace Learning*, 16, 11–21.
- Erickson, F. (2004). *Talk and Social Theory: Ecologies of Speaking and Listening in Everyday Life* (1 edition). Cambridge ; Malden, MA: Polity.
- Espinoza, M. L. (2008). *Humanization and social dreaming: A case study of changing social relations in a summer migrant educational program* (University of California, Los Angeles).
- Featherstone, H., Crespo, S., Jilk, L., Oslund, J., Parks, A., & Wood, M. (2011). Smarter together. *Collaboration and Equity in the Elementary Classroom*. Reston, VA: National Council of Teachers of Mathematics.
- Freire, P., & Macedo, D. (1995). A Dialogue: Culture, Language, and Race. *Harvard Educational Review*, 65(3), 377–403. <https://doi.org/10.17763/haer.65.3.12g1923330p1xhj8>
- Gutiérrez, K. D. (2008). Developing a sociocritical literacy in the third space. *Reading Research Quarterly*, 43(2), 148-164.
- Gutiérrez, K. D. (2018). *Social design-based experiments: A proleptic approach to literacy*. *Literacy Research: Theory, Method, and Practice*, 67(1), 86-108.
- Gutiérrez, K. D., Hunter, J. D., & Arzubíaga, A. (2009). Re-mediating the university: Learning through sociocritical literacies. *Pedagogies: An international journal*, 4(1), 1-23.
- Gutiérrez, K. D., & Vossoughi, S. (2010). Lifting off the ground to return anew: Mediated praxis, transformative learning, and social design experiments. *Journal of Teacher Education*, 61(1-2), 100-117.
- Ladson-Billings, G. (1998). Just what is critical race theory and what's it doing in a nice field like education?. *International Journal of Qualitative Studies in Education*, 11(1), 7-24.
- Ladson-Billings, G. (2014). Culturally relevant pedagogy 2.0: aka the remix. *Harvard Educational Review*, 84(1), 74-84.
- Marin, A., & Bang, M. E. (2015). Designing Pedagogies for Indigenous Science Education: Finding Our Way to Storywork. *Journal of American Indian Education*, 54(2), 29–51.
- Million, D. (2014). There is a river in me: Theory from life. In A. Simpson & A. Smith (Eds.), *Theorizing Native studies* (pp. 31–42). Duke University Press.
- Martin, L. (2015). The Promise of the Maker Movement for Education. *Journal of Pre-College Engineering Education Research (J-PEER)*, 5(1), 1–11.
- Martinez, S.L., & Stager, G.S. (2013). Invent to learn: Makers in the classroom. *Education Digest*, 79(4), 11-15.
- Medin, D. L., & Bang, M. (2014). *Who's asking?: Native science, western science, and science education*. MIT Press.
- Nasir, N. S., & Hand, V. (2008). From the court to the classroom: Opportunities for engagement, learning, and identity in basketball and classroom mathematics. *Journal of the Learning Sciences*, 17(2), 143-179.
- Nespor, J. (1997). *Tangled Up in School*. Mahwah, N.J: Routledge.
- Paradise, R., Mejía-Arauz, R., Silva, K. G., Dexter, A. L., & Rogoff, B. (2014). One, Two, Three, Eyes on Me! Adults Attempting Control versus Guiding in Support of Initiative. *Human Development*, 57(2–3), 131–149.
- Paris, D., & Alim, H. S. (2014). What are we seeking to sustain through culturally sustaining pedagogy? A loving critique forward. *Harvard Educational Review*, 84(1), 85-100.
- Paris, D. & Winn, M.T. (2014). *Humanizing Research: Decolonizing Qualitative Inquiry with Youth and Communities*. Thousand Oaks, CA: Sage Publications.
- Philip, T. M. (2011). An “ideology in pieces” approach to studying change in teachers’ Sensemaking about race, racism, and racial justice. *Cognition and Instruction*, 29(3), 297-329.
- Philip, T. M. (2019). Principled improvisation to support novice teacher learning. *Teachers College Record*, 121(6), 1-32.
- Philip, T. M., Olivares-Pasillas, M. C., & Rocha, J. (2016). Becoming racially literate about data and data-literate about race: Data visualizations in the classroom as a site of racial-ideological micro-contestations. *Cognition and Instruction*, 34(4), 361-388.
- Philip, T.M., Rocha, J. & Olivares-Pasillas, M.C. (2017). Supporting teachers of color as they negotiate classroom pedagogies of race: A study of a teacher’s struggle with “friendly- fire” racism. *Teacher Education Quarterly*, 59-79.
- Philip, T. M., Souto-Manning, M., Anderson, L., Horn, I., J. Carter Andrews, D., Stillman, J., & Varghese, M. (2019). Making justice peripheral by constructing practice as “core”: How the increasing prominence of core practices challenges teacher education. *Journal of Teacher Education*, 70(3), 251-264.

- Powell, A. B., Francisco, J. M., & Maher, C. A. (2003). An analytical model for studying the development of learners' mathematical ideas and reasoning using videotape data. *The Journal of Mathematical Behavior*, 22(4), 405-435.
- Powell, A. B., & Frankenstein, M. (Eds.). (1997). *Ethnomathematics: Challenging Eurocentrism in mathematics education*. Albany, NY: State University of New York Press.
- Rincón-Gallardo, S., & Elmore, R. (2012). Transforming teaching and learning through social movement in Mexican public middle schools. *Harvard Educational Review*, 82(4), 471-490.
- Rogoff, B. (2003). *The cultural nature of human development*. Oxford ; New York: Oxford University Press.
- Sengupta-Irving, T., Redman, E., & Enyedy, N. (2013). Re-Storying Practice: Using Stories about Students to Advance Mathematics Education Reform. *Teaching and Teacher Education: An International Journal of Research and Studies*, 31, 1-12. <https://doi.org/10.1016/j.tate.2012.10.007>
- Vossoughi, S., & Booker, A. (2017). Transcultural Prefigurations: Reflections on Dynamic Relations between Local Movements and Social Movements. *Anthropology & Education Quarterly*, 48(3), 225-228. <https://doi.org/10.1111/aeq.12209>
- Vossoughi, S., Hooper, P. K., & Escudé, M. (2016). Making through the lens of culture and power: Toward transformative visions for educational equity. *Harvard Educational Review*, 86(2), 206-232.
- Villegas, A. M., & Irvine, J. J. (2010). Diversifying the Teaching Force: An Examination of Major Arguments. *Urban Review*, 42(3), 175-192.
- Zeichner, K. (2012). The turn once again toward practice-based teacher education. *Journal of Teacher Education*, 63, 376-382.