Equity in the Learning Sciences: Recent Themes and Pathways

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Abstract: Although efforts to critique deficit models of cognition and address educational inequity are foundational to the learning sciences, there has been particularly rich work done in this tradition in recent years. In this paper, I offer a set of pathways that characterize this work towards justice in the learning sciences, work which reflects a variety of means and ends. The pathways are: (1) Consider the goals of an equity-oriented framework for learning; (2) Theoretically, draw on existing critical social theory; (3) Methodologically, focus on collaborative change-making, and; (4) Support heterogeneity in knowing and doing. These pathways are neither exhaustive nor mutually exclusive, but rather provide an assessment of the current justice-oriented landscape in the learning sciences. I then argue that heterogeneity in means and ends towards addressing learning inequities is fruitful for the field and offer some open questions with which the critical learning sciences has yet to fully contend.

Keywords: equity, dignity, justice, heterogeneity

Introduction

At the 2014 ICLS Conference, Booker, Vossoughi, and Hooper (2014) advocated for a political theory of learning. They compellingly argued, "If we are interested in what the learning sciences can offer for how to democratize learning, we need our theoretical and methodological tools to help us wrestle with inequity and dehumanization" (p. 921). Although these ideas are not brand new to the learning sciences (LS), we as a field are at but the onset of our theorizing about the relationship between social (in)justice and learning (Politics of Learning Writing Collective, 2017; Nasir, Rosebery, Warren, & Lee, 2014). In the four years since Booker et al.'s call, a significant amount of LS work towards educational equity has emerged. This includes a special issue of the *Journal of the Learning Sciences* on social justice (Tabak & Radinsky, 2014), a special issue of *Cognition and Instruction* on participatory design research (Bang & Vossoughi, 2016), and a new volume on the intersection of critical social theory and sociocultural learning theories, *Power and Privilege in the Learning Sciences* (Esmonde & Booker, 2017). This work together recognizes the potential LS has to combat discriminatory social structures, empower *all* learners, and bring positive social changes.

In this paper, I review many of these recent contributions with the goal of understanding the nature of contemporary learning scholarship that focuses explicitly on issues of equity, justice, and learner dignity. As I will discuss, what equity-oriented research means has varied considerably, but in general this work shares a focus on broadening participation in learning and eliminating discrimination in educational environments. I explicate four pathways that characterize how LS scholars have thought through equity philosophically, theoretically, and methodologically. I offer the pathways as a heuristic for thinking through the flavor of LS research on equity to date. It is my hope that the pathways outlined here: (a) clarify the shape and form of equity-oriented research that informs the field broadly, and (b) provide a starting point for researchers new to such approaches to find resonances between their research and existing work.

Given space limitations, this paper is not meant to be a comprehensive review of the literature. The initial readings discussed above led me to new authors and new readings. As I engaged in identifying and reviewing the relevant literature, I employed a broad understanding of "learning sciences research" to include the general study of how people learn. In addition, I drew upon other literature when it seemed to inform the pathway being discussed. Of course, this resulted in the inclusion of some literature at the expense of other pieces. However, I do not mean for these pathways themselves to be exhaustive or mutually exclusive; rather they are incomplete and intersecting. The pathways are meant to call attention to the multiplicity of ways that learning sciences researchers have and might orient to scholarship in the service of equity. I conclude by discussing the importance of heterogeneity in our approaches to criticality and offer some open questions for the field to consider moving forward.

Pathway #1: Consider the goals of an equity-oriented framework for learning

Philip and Azevedo (2017) outlined four discourses in science education research that seeks equity. The first two discourses focus on helping students connect to and identify with science, and in so doing seek to make sure learners have "a seat at the table." The third discourse seeks to leverage out-of-school science to reconceptualize what is valued in in-school science, and so it focuses on changing the discipline to be less hostile to learners. The

fourth discourse focuses on how science is and is not used to achieve justice through activism on the larger social level, and so this research focuses on participation in work to dismantle oppressive social systems. The authors stress that the third and fourth discourses, which center the transformation of systems rather than focusing on individuals, are not necessarily better than the first two, which may make available more immediate material gains for learners. Likewise, in LS writ large, we need not make a hierarchy of equity-oriented research. While "big picture" research that thinks deeply about the transformation of social systems is necessary, so too is research that broadens participation even in unjust systems (e.g., helping minoritized learners access profitable career paths) that results in material gains for minoritized individuals. It is promising that heretofore LS research has supported a variety of definitions of what "equity" looks like and means.

Any understanding of equity and learning must resist the belief that *more* learning is necessarily a means towards equity. Learning is not *a priori* a good thing; many people learn things like racist practice or ineffective folk theories of teaching. This knowledge is dangerous insofar as one person's learning of such knowledge has negative symbolic and material consequences for other people. This is summarized well by Biesta (2013):

> To suggest that learning is good or desirable – and thus to suggest that it is something which should go on throughout one's life or which should be promoted in schools – does therefore not really mean anything until it is specified what the content of the learning is and, more importantly, until it is specified what the purpose of the learning is. (p. 6).

Indeed, as Biesta notes, when we focus on learning-as-change, we – perhaps unconsciously – make an evaluative judgment that the temporally earlier state of affairs was bad or worse than the amorphous "after learning." It is possible that this focus on learning-as-change might cause us to approach an individual as damaged and the learning process as one of repair (a deficit orientation). That said, oppressive aspects of social systems must be challenged and subject to change. Therefore, equity-oriented work on learning might avoid deficit perceptions of individuals by choosing to focus on structural, social, and community entities.

Equity-oriented work that centers individuals might also ask how the learner and others are benefitting from the individual's engagement in learning practices. Undoubtedly, certain kinds of learning better position learners to perform well on standardized tests, be admitted to prestigious higher education institutions, and access particular career opportunities. Scholars may additionally believe there is something intrinsically powerful about the disciplinary skills and content we seek to help learners acquire. Contention with these *ends* of educational equity represents the first pathway of equity-oriented learning research. It asks: *why learning?*

Espinoza and Vossoughi (2014) conceptualize the learning process as one in which learners can realize their human dignity and potential. Grounding their analysis in a history of learning among African American people in the United States – who through slavery and its compatriots were violently and explicitly forbidden to learn – they write:

> Insofar as learning helps persons and selves flourish, it is dignity-conferring. Dignity can be derived from productive participation in the process of learning. Although perilous, it can also be acquired from resistance to the inaccessibility of the opportunity to learn. (p. 287).

A focus on human dignity challenges us to consider the relationship of learning to legally-sanctioned violations of human dignity (e.g., modern mass incarceration in the United States). With this in mind, scholars have asked what learning provides to the learner *that does not come at the cost of dehumanizing them* (e.g., by "pushing" learners through inequitable environments). For example, a career-oriented focus on STEM learning pushes women through the "STEM pipeline," at the end of which they still make significantly less money than their white male counterparts (Sengupta-Irving, 2015). Instead, Sengupta-Irving (2015) argues that math education can (but does not automatically) offer an opportunity for self-determination and for *becoming*. Vossoughi (2015) proposes the notion of *intellectual respect* as key to equitable environments. In practice, an example of such an approach is found in the work of Gutiérrez (2008), in which youth are empowered to learn sociocritical literacy, tools to support their individual and collective moves towards justice. The program is explicitly designed to support deep academic learning – that directly opens college and career pathways – *while* ensuring learners can engage in *social dreaming*, seeing themselves as cultural-historical actors with agency to create a better world. Bang (2017) points out that a decolonial and indigenous ethic towards sociocultural learning theory may offer great possibility for human and community collective continuance, that is, "a community's capacity to be adaptive in ways sufficient for the livelihoods of its members to flourish into the future" (Whyte, 2013, p. 518). Loaded with possibility, these approaches conceptualize learning as an endeavor that brings learners into contact with powerful tools and discourses that unseat their individual and collective social oppressions. This pathway thus disturbs a conception

of the learner as human capital in a fundamentally capitalist, unjust economic system (Sengupta-Irving, 2015), and troubles a conception of the learning sciences as moving people through such systems more efficiently. As Philip, Bang, and Jackson (2017) point out, thinking through equity involves asking not just *how* people learn but also "for what," "for whom," and "with whom" learning takes place.

Pathway #1 supports a deep fundamental reflection on what equitable learning moments, contexts, and systems look and feel like. This reflection is philosophical, cultural, social, and historical, but it has immediate implications for learning theory, design, and method, as discussed next. Scholars traversing this pathway help us tease out our evolving goals in justice-oriented learning sciences research. They also invite us to critique shallow conceptions of equity that stop at minoritized learners getting access to the otherwise-unaltered factory-model classroom. Instead, we too can engage in social dreaming about what an equitable world looks like and how supporting learning can help us get there.

Pathway #2: Theoretically, draw on existing critical social theory

Inequitable educational practices take place and are reified at multiple levels: some are societal, national, and cultural while others are quite local, happening in the classroom or out-of-school learning environment. The dimensions along which inequitable practices are organized of course varies from context to context. In the United States, for example, inequities persist towards individuals based on their race, religion, sexual orientation, gender, age, immigration status, dis/ability status, and other characteristics that should not be grounds for closing off learning possibilities. Critical social theories include general theorizations of power and oppression as well as feminist theories, critical theories of race, queer theory, critical dis/ability studies, decolonial studies, and others. Drawing on extant critical social theory is fruitful for at least three reasons. Firstly, understanding the complex cultural-historical roots of particular oppressed and power positions is necessary to create equitable learning environments that recognize the shared histories of particular groups without essentializing or stereotyping learners. Secondly, while pluralism, multiculturalism, and diversity are key values, they are abstract; drawing on critical social theory helps scholars explicitly name the kinds of injustice they are targeting (e.g., racism). Finally, employing specific social theory can be a way to address inequities across cultures, as discrimination does not take equivalent forms with equal salience across contexts.

LS has long theorized learning as a contextually-influenced activity. From a hierarchical understanding of context, critical social theory reveals that learners are not positioned by macro-contexts to have equal access to or be equally successful in learning micro-contexts. Moreover, a dialectical notion of context (e.g., Cole, 1996) reveals that inequitable learning moments are not merely *consequences* of societal injustice; such moments are also *constitutive* of societal injustice.

Critical social theories are seeing increased use in our field. McWilliams (2015) explicitly drew on queer theory to understand how fourth- and fifth-grade students engaged with understandings of gender beyond a simplistic binary. Curnow (2016) used feminist standpoint theory to make sense of how individuals of color participated in an activist community and to critique the notion of "legitimate peripheral" participation when factors such as gender and race create discriminatory membership boundaries. Philip, Gupta, Elby, and Turpen (2017) draw upon Butler's (2009) notion of the ungrievability of lives and Ahmed's (2004) notion of "stickiness" to understand the participation patterns in a higher education classroom discussion on the ethics of drone warfare. Critical Race Theory (CRT; e.g., Ladson-Billings, 1998) has recently seen productive use in teacher education scholarship in the learning and cognitive sciences (Larkin, Maloney, & Perry-Ryder, 2016), although its potential has yet to be fully leveraged in LS (Parsons, 2017). Pathways forward also exist that draw on poststructural race theory (e.g., Shah & Leonardo, 2017), critical dis/ability studies (e.g., Smagorinsky, Cole, & Braga, 2017), and critical theories of race (Nasir & Hand, 2006).

In general, this pathway is characterized by explicit use of critical social theory to understand power and oppression at local and systemic levels (Esmonde & Booker, 2017). This scholarship appears particularly productive when it seeks to understand power generally as well as specifically with regard to particular demographic identities. Pathway #2 clarifies our understanding of how people learn while carefully avoiding cultural stereotypes, opting instead for a robust treatment of identity that considers historical, legal, and contemporary dehumanizations and discriminations towards particular groups. This pathway also offers potential to "speak back" to the development of these critical social theories by advancing their rich theorizations of learning and knowing processes.

Pathway #3: Methodologically, focus on collaborative change-making

Given the field's methodological diversity and the damage-centered harmful methods that have characterized much social science research (Tuck, 2009), methodology is a productive area around which to organize equitable scholarship. While by no means the only organizing framework for LS research, a hallmark of the field is design-

based research (DBR; Design Based Research Collective, 2003). DBR draws on design experiments (Brown, 1992) to understand the efficacy – and potential efficacy – of well-constructed learning activities and environments. Extending and modifying DBR has been a fruitful starting point for scholars seeking to develop robust methodologies that are explicitly focused on understanding how people learn while also centering sustainable change-making and seeking equity. LS methodologies in service of justice need to fulfill at least two criteria: they must (a) inform our study of how participants learn about or through equitable practice and (b) must themselves be equitable research practices. Although we can never disregard the importance of the researcher in enacting research that is just towards and directly benefits participants, these approaches may be particularly effective at fostering critical reflection on the part of the researchers and provide some ethical guidance.

A focus on sustainable, systemic change-making characterizes methodologies that involve relevant stakeholders who have particular authority to influence learning environments. Design-based implementation research (DBIR) is one way to do this, as it focuses on bringing together insights from implementation research and organizational change with those of the learning sciences (Penuel, Fishman, Cheng, & Sabelli, 2011). Related is the conceptualization of research-practice partnerships (RPPs; Coburn, Penuel, & Geil, 2013), which are "long-term, mutualistic collaborations between practitioners and researchers that are intentionally organized to investigate problems of practice and solutions for improving district outcomes" (p. 2). DBIR and RPPs have seen notable success by working towards change through sustainability in formal schooling settings; as approaches, they bring together those who are accorded power in educational settings (e.g., teachers, superintendents) with researchers to support these changes in organizational cultures.

In some contrast, another common approach to change-making in education research focuses specifically on youth as stakeholders. Participatory action research (PAR; e.g., Cammarota & Fine, 2010) is an approach to research that foregrounds participants' involvement in the research process, including questions asked, data collected, and resultant action. For example, Kirshner, Pozzoboni, and Jones (2011) took up youth participatory action research to study how youth learn to manage bias (conceptualized as openness to disconfirming evidence) in a collaborative way. PAR can be a tool to ensure that research participants are represented in and benefit from the research. Clearly, participatory approaches are not a panacea – they do not by themselves equate to just practices (Huf & Dennis, 2016). However, when PAR approaches focus on youth as agentic and reimagine systems to empower them, PAR may be a compelling pathway to more equitable research practices.

These values have emerged in other related approaches to DBR. Some scholars have focused on social design experiments (e.g., Gutiérrez & Vossoughi, 2010), which employ DBR approaches while also explicitly seeking social transformation by "creating a significant reorganization of systems of activity in which participants becoming designers of their own futures is an essential aim" (Gutiérrez & Jurow, 2016, p. 566). Still others have focused on an adaption of "participatory design" as used in human-centered computing scholarship (DiSalvo, Yip, Bonsignore, & DiSalvo, 2017). Bang, Faber, Gurneau, Marin, and Soto (2016) conceptualized their work as community-based design research, "a reworking of design-based research methods because it privileges and centers the work in community, engages broad ranges of community members, and is driven by community members in key project staff positions" (p. 31). These approaches focus on research as collaborative and empowering.

A coalescing of these approaches is represented by the emergent conceptualization of such research as participatory design research (PDR). PDR draws on PAR, community-based design research, social design experiments, DBIR, and more. PDR ultimately "maintains a commitment to advancing fundamental insights about human learning and development through explicit attention to what forms of knowledge are generated, how, why, where and by whom" (Bang & Vossoughi, 2016, p. 175). PDR is an emergent "big tent" for methodologies that seek equity through sustainable social change and learning that is collaboratively constructed and so collaboratively meaningful. PDR may be one of many potential pathways to counteract the harmful, damage-centered research that characterizes much social sciences research and particularly social science research on marginalized populations (Tuck, 2009). How to conceptualize these commitments is still a work in progress for this scholarship. Indeed, "It might be more appropriate to characterize PDR in its current state of development as an emerging field of research rather than a methodology (not to speak of method)" (Gutiérrez, Engeström, & Sannino, 2016, p. 281).

The vastness of these approaches can be overwhelming. A focus on their differences, while important in conceptualization and practices, may obscure what they have in common: equity-oriented research cannot be done alone. Our research should be *with* rather than *on* folks (O'Kane, 2000), should take seriously the people it purports to benefit, and requires a significant emotional and temporal investment on the part of multiple parties. This pathway has potential for supporting equitable practices and simultaneously adding to our knowledge about how people learn through scholarship that is deliberate, reflective, and slow (Mountz et al., 2015).

Pathway #4: Support heterogeneity in ways of knowing and doing

LS has long supported a multiplicity of ways of knowing and doing. For example, constructionist theory, rooted in a feminist critique of objectivity in science, focuses on facilitating learning environments that promote epistemological pluralism, "accepting the validity of multiple ways of knowing and thinking" (Turkle & Papert, 1990, p. 129). Recent work continues to value these ideas, suggesting that cultural and epistemological heterogeneity grows possibilities to learn and that such heterogeneity is a foundational consideration in learning theory and design (Rosebery, Ogonowski, DiSchino, & Warren, 2010).

This approach to criticality focuses on broadening participation by thinking about the ways, tools, and participation patterns of knowing in dominant discourse, and working to unseat that dominant discourse by creating counter-narratives. This line of work seems particularly promising in STEM education, as scholars work towards projects in which access to ideas is mediated by thoughtfully-designed cultural tools that critique existing biases. For example, Pinkard, Erete, Martin, and McKinney de Roysten (2017) created the Digital Youth Divas project, in which youth co-designed new narratives about science and technology that facilitated the engagement of girls from non-dominant backgrounds in digital making. Similarly, Beuchley, Peppler, Eisinberg, and Kafai (2013) illustrate that the use of electronic textiles introduced conductive thread and fabric to circuitry learning in a way that broadened access for women and improved conceptual understanding for all genders. These approaches work in productive conversation with conceptions of identity as a joint accomplishment between a learner and their interaction with situated factors such as cultural tools (Hand & Gresalfi, 2015) and might support more equitable disciplinary identification (e.g., Bell, Van Horne, & Cheng, 2017).

In a related line of work, Medin and Bang (2014) have pointed out that a diversity of perspectives, approaches, and scientists results in higher-quality science across the field. However, "Underrepresentation in science will never be remedied by better schools, better curricula, better teachers, and all other betters that leave science itself as pure and beyond examination" (p. 240). Indeed, these approaches may be most effective when they focus on heterogeneity in people, tools, and discourses that are productive for learning *in addition to* fundamentally reexamining and broadening our understandings of disciplinary fields. This means encouraging the peer-supported and interest-driven practices that youth engage in and making visible the connection between these spheres and academic knowledge, as the connected learning initiative seeks to do (Ito et al., 2013). These connections must be dialectical, involving shifts in how we think about individual interest and how we think about academic knowledge.

This pathway is particularly promising for the proximal goals of increasing learner participation in disciplines that have historically been hostile to them, which may in turn benefit the learner materially through more robust college and career prospects. A reconceptualization of tools and narratives is helpful because such an approach tends to avoid deficit perspectives by focusing on factors that push out or limit participation. These approaches are consonant with the larger projects of the learning sciences, which views learners' prior social and cultural experiences as *assets* that themselves constitute learning practices and in turn can be leveraged to promote academic and institutional learning if this is the desired goal (Gutiérrez & Rogoff, 2003; Lee, 2001; Rose, 2004). Despite this, it is easy to stereotype large groups of people by assuming their presence in a space by itself creates heterogeneity without attending to the participation structures that also circulate in that space. Further, effective work on reconceptualizing dominant tools, discourses, and practices must avoid assuming the same ways of thinking, being, and doing are familiar or appealing to each member of a minoritized group, as this erases the vibrant heterogeneity *within* groups. Indeed, as Esmonde (2011) warns, even nuanced academic research risks this essentialism if it fails to understand at a deep level how these social categories of interest are constructed and performed. Focusing on specific critical social theory (Pathway #2) and designing with learners (Pathway #3) may help mitigate some of these risks.

Discussion: Heterogeneity and quality in the critical Learning Sciences

It is my view that the support of epistemological and practical heterogeneity (Pathway #4) must apply not only to the learners with whom we work, but to our own research and to the field of the learning sciences. Medin and Bang (2014) argue, "Assuming that scientist diversity is correlated with diversity in methods and theoretical orientations, we have a compelling reason to believe that scientist diversity makes for better science" (p. 234). I believe this claim extends to the learning sciences, which surely benefit from heterogeneity in theory, method, and participants. As this paper has tried to show, there is not one "right" way to do equity-oriented learning research. Rather, there exist multiple pathways that have proximal and distal implications for unseating dehumanizing power structures. I believe it is possible to traverse all four pathways simultaneously in a research project or program in its theory, method, and designs; it is an open question if the pathways can be meaningfully disentangled, and the advantages and disadvantages of traversing one without the others remain unknown.

This said, traversing these pathways is not a guarantee that research is equitable or in service of justice. There is always a risk of reifying the very structures we seek to challenge if we are not reflexive about who is benefiting from our research and what high-quality equity-oriented research looks and feels like. Calling for heterogeneity is "not advocating an anything goes approach. To the contrary, this perspective advocates for intentional engagement of the heterogeneity that is ubiquitous in classrooms" (Rosebery et al., 2010, p. 327) and in our research. Quality always matters, and an attention to equity is by no means the only way, let alone a guarantee of, research quality.

We have yet to fully conceptualize validity and quality across these threads. In my view, the general validity criteria from our specific methods can sometimes still be applied to equity-oriented learning research. In other places, openly ideological research may require ideas less frequently discussed in the field, such as what Lather (1986) and others refer to as *catalytic validity*, or "the degree to which the research process re-orients, focusses, and energizes participants in what Freire (1973) terms 'conscientization,' knowing reality in order to better transform it" (p. 67). Productive conversations across perspectives *within* equity-oriented learning research will surely be helpful for thinking about the quality of the work, just as it has been in educational research more generally (e.g., Moss et al., 2009). I conjecture that the language of "quality" will help us clarify what we as a field believe our trajectory should be. As Philip and Azevedo (2017) argue, "While all equity-oriented work is important, not all equity-oriented work is equal" (p. 525). Much more needs to be done to support how we think through effective critical learning sciences scholarship. What need it do for participants? What need it contribute to our knowledge of how people learn? How should it account for researcher positionality? A diversity of approaches and researchers will surely deepen this conversation.

Conclusion

Given the growth of critical learning sciences research in recent years, it is possible to read this paper as a critique of work in the field that does not fit into these pathways. To some degree this is reasonable, but I do not intend these pathways to be an exhaustive taxonomy of such research; indeed, much high-quality equity-oriented research does not (and should not) fit neatly into one of these dimensions. Furthermore, a focus on criticality and justice is not a critique of the learning sciences writ large. Indeed, scholars who do equity-oriented work have used core ideas from the learning sciences to develop their approaches. Thus, the learning sciences has a role to play in lending something quite fruitful to equity-oriented goals. With this in mind, a focus by many on equity should not be interpreted as an indictment but rather as a *generative critique* (J. Lester, personal communication, November 14, 2017) of the field.

As I have demonstrated, the study of injustice and learning is being done robustly and is even foundational to the learning sciences. But it is my hope that LS has only just begun to contend with the role of justice in the learning process. For example, more work should be done to test if our theoretical infrastructure is robust enough to account for the deep historical injustices that surely color learning contexts. For the moment "it is not clear what the affordances are in shifting from a sociocultural to a sociopolitical analysis of learning […] versus employing a more expansive sociocultural analysis that attends to the sociopolitical as well" (Gutiérrez, Engeström, & Sannino, 2016, p. 278). We might also continue our conversations about quality and heterogeneity in equity-oriented learning research. As scholars continue to tread these pathways and as they increasingly intersect, we may indeed develop newer theorizations of not only when and where people learn, but the very mechanisms of *how* people learn. These pathways forward are promising, for, just as in the early days of the field, "The failures are sure to outnumber the successes by a goodly margin, making it certain that [we] will never run out of interesting things to do" (Cole, 1996, p. 350).

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