Critical Education

Critical Quantitative Research
Foreclosing Criticality within Education

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Abstract

The purpose of this conceptual paper is to engage with the idea of criticality, specifically as performed by higher education researchers that espouse a critical quantitative approach. We contend there are many inherent hazards, ethical commitments, and contradictions that come with engaging in critical quantitative inquiry. Chief among the hazards and contradictions is the outright foreclosure of criticality as theorized by the very foundational principles cited in the extant conceptualizations of critical quantitative inquiry. To date, and as we will demonstrate through our review of relevant research, critical quantitative inquiry in education has largely failed to establish these recognitions. After examining the primary works on the topic, we offer a discussion of ways to recapture some of the positive potential we find in the early writings on critical quantitative inquiry.

Criticality has been invoked in education research in a multitude of ways. Academic journals such as *Critical Education*, *Journal of Critical Scholarship on Higher Education* and *Student Affairs*, *Critical Studies in Education*, and the *Journal of Critical Education Policy Studies*, publications including *Critical Approaches to the Study of Higher Education: A Practical Guide* (Aleman, Pusser & Bensimon, 2015), *Critical Approaches to Women and Gender in Higher Education* (Eddy, Ward, & Khwaja, 2017), and *Critical Perspectives on Service Learning in Higher Education* (Deeley, 2014), and hundreds of articles claiming a critical approach all demonstrate how criticality has saturated the field of education. And rightly so, as the devastation created through neoliberal practices has resulted in increased economic inequality, a seemingly perpetual state of war, and the rise of political leaders that privilege the desires of the ultra-wealthy over the needs of the population. It behooves education researchers to engage with the world in a critical way.

One of the most interesting and controversial claims of *criticality* occurs when paired with quantitative analysis. As de Freitas (2016) discusses, quantitative analyses have a long history of being the foundation of subversive practices. Yet, as de Freitas notes, "the social sciences often enlist calculation in controlling rather than creative ways, to track and code behavior and predict the movement of human capital" (p. 462). It is against this backdrop of the problematic enlistment of quantitative research that Stage (2007) organized the initial writings on critical quantitative research in higher education in an issue of *New Directions for Institutional Research* (henceforth *NDIR*) that focused on asking critical questions while utilizing quantitative approaches.

Ten years after those initial writings, and at the time of our writing, an exact term search for "critical quantitative" within the *Academic Search Complete* database returned 44 scholarly publications, including chapters from two subsequent special issues of *NDIR*. More expressive of the influence and momentum of critical quantitative inquiry is the extent to which emerging scholars in education have begun to engage with it. Per a search of *ProQuest's Dissertation & Theses database*, 188 doctoral dissertations in education have been completed since 2007 that included the exact term "critical quantitative." In the previous decade, there were but seven. A closer look at these 188 dissertations from the last decade plus reveals that a substantial portion cite chapters published in *NDIR*. Clearly, Stage's initial special issue of *NDIR* and its progeny have spurred discussion in the field of higher education and has contributed meaningfully to the widespread emergence of critical education research. It would seem that many education researchers support de Freitas's (2016) hope that:

> We can consider the open and urgent question as to whether and how calculation becomes an inventive practice that doesn't simply serve the control society. This is a social and political project insofar as [we are] able to put the mathematical problematic to work in the study of social problems. (p.462)

Inspired by this hope for critical quantitative research, the purpose of this paper is to engage with the idea of *criticality* as performed through higher education researchers that have explicitly claimed a critical quantitative approach. We aim to engage with the poles that de Freitas (2016) identifies as the (1) dominant tradition of quantitative research as a controlling mechanism, and (2) the hope for calculations as inventive practices. Specifically, we ask: What are the relations among the discursive representations of critical quantitative research, normative technologies, and the goals of criticality within academic scholarship?

We focus our analysis of critical quantitative inquiry as expressed by higher education scholars because it is there that the term first emerged. Further, and in comparison to the other major areas of education scholarship (early-childhood, K-12, and adult), it is within only higher education that a substantive body of interrelated research concerning the definition of critical quantitative inquiry, specifically, and its tenets, has emerged. That is not to say that quantitative researchers in other fields of education are not engaging in "critical" ways or that a broader survey of existing literature is not currently emerging (e.g. "quantcrit" as forwarded in a recent special issue of *Race Ethnicity and Education*). For now, and specifically because we offer a critique of its theorization and practice, we believe it is important focus on a conceptualization of critical quantitative inquiry that has a demonstrable consensus and an established pattern of citation and discussion. At the same time, we have deliberately extended this established conceptualization beyond the field of higher education where the scholarly writings appear to speak to education research more broadly.

We want to be clear that we are not interested in engaging with the question: can quantitative methods be critical? The question problematically positions criticality as a characteristic of certain methods and/or methodologies. We do not believe that research *is* or *is not* critical in some categorical way, or that a study independently *has* criticality, as that suggests a general, de-historicized, and decontextualized understanding of criticality that reduces complex onto-epistemological questions to fetishized notions of method as technique. Instead, we embrace Baez's (2007) claim in the same special issue *NDIR* that "what we deem critical is a political construction" (p. 19). That is, something *becomes* critical in certain material conditions and through specific social and political projects.

This understanding of the contextual and temporal aspects of criticality does not, however, suggest that *anything* can perform critically at a specific time and for a particular emancipatory political project. Instead, it forces scholars to engage with the material practices of self-identified critical research to examine the ways in which those practices can be used to perform what Baez (2007) positioned as the dual goals of critical research: (1) the movement away from understandings of research as a process grounded in technical precision and the "proper" applications of method and towards an understanding of research as a process of opening up new ways of sense-making and becoming, and (2) not only to interpret the world, but in solidarity with the Frankfurt School tradition, also to change it. When understood this way, criticality has both an inward and outward focus; focusing inwards on the ways of knowing created by and reinforced through scholarly research, and outwards, toward the impact of that research beyond the confines of a particular academic field. Importantly, the dual inward/outward foci are in dynamic relations with each other, as the ways researchers come to know cannot be separated from the impact they hope to make with academic research (Kuntz, 2015).

Staying on the notion of the impact of research, and in addition to our purposeful avoidance of determining categorically whether quantitative methods can be critical, we wish to make clear that we do not deem ourselves fit to be arbiters of quality in research. In fact, claims of "quality" are intimately connected with the structures and processes critical research aims to disrupt and to invoke such determinations may undermine such research. We feel that positive impact, which can be defined in any number of meaningful ways, can come about from research stemming from a wide variety of epistemological approaches. Put another way, "good" can come from research that is critical, just as it can from research that does not have an explicit "critical" goal. We also recognize that educational malpractice ("bad") can stem from any and all forms of research,

regardless of epistemological orientation. The important point here is that if researchers are to raise the banner of criticality via quantitative means, it behooves them to recognize -at the outset- the inherent research hazards, ethical commitments, and contradictions that come with doing so. Chief amongst the hazards and contradictions is the outright foreclosure of criticality as theorized by the very foundational principles cited in the early conceptualizations of critical quantitative research. To date, and as we will demonstrate through our review, the critical quantitative literature has largely failed to establish these recognitions, further fueling our purpose in this paper.

We focus our conversation concerning critical quantitative research on three specific arguments within the aforementioned issues of *NDIR*. We begin by addressing Stage's (2007) initial articulation of critical quantitative research, and then move to Rios-Aguilar's (2014) extension of Stage's work, and end with a more recent articulation of the work of the quantitative criticalist by Hernández (2015). These articles focus explicitly on critical quantitative research as an approach to inquiry and attempt to articulate the dimensions, challenges, and potential paths forward for critical quantitative research in education. We believe that these arguments help demonstrate the messiness of criticality in quantitative research in education and the dynamic relations among the inward/outward foci of critical work. More specifically, we will think through these articles as attempts to embrace the hope de Freitas (2016) articulated as the potential of calculation as inventive practice, but within a field whose dominant use of quantitative methodology has been to serve the controlling, tracking, and predicting patterns that help support the status quo. We then conclude with a discussion of ways to recapture some of the potential we find in the initial writings on critical quantitative inquiry.

Tracing the Origins of Critical Quantitative Research

Much of the way we the authors think through criticality in education research is informed by Kuntz's (2015) writings on the relations among method, methodology, and critique. For Kuntz, the ways scholars come to know are in relation to that which they are trying to change. Kuntz states, "unjust social structures are never static but manifest through their incessant reproduction within daily practices of meaning-making and relation" (p. 24), practices which include those undergirding academic research. Given the dynamic relationship between the ways scholars come to know and the aims of their research, Kuntz argued that critical scholars have "two interwoven tasks: (1) to understand the means by which otherwise common-sensical rationales develop, producing a host of legitimated practices; and (2) to imagine or enable new practices that extend from newly possible forms of knowing" (p. 25). These tasks are necessary if critical scholars are to be successful in their desired social and political change.

Kuntz's (2015) writings are consistent with the dual foci of criticality Baez (2007) articulated, as 1) the opening up of new ways of knowing and coming to know that Baez positions as part of critical research require scholars to understand the ways in which commonsensical onto-epistemological rationales have produced a host of subsequently commonsensical methodological practices; and 2) the ultimate goal of research is to create practices that enable and extend forms of knowing that are at the heart of Baez's discussion of social and political change. Yet, just as de Freitas (2016) acknowledged as the problematic history of the social sciences and quantitative inquiry, Kuntz discusses the ways in which social science researchers utilize *normative technologies* in their attempt to control, track, and code behaviors.

Normative technologies are those that "find justification in appeals to common-sensical means of knowing and coming to know" (Kuntz, 2015, p. 32). Accordingly, such technologies are

normative both in their commonsensical justifications and through their support of the broader social relations and structures that undergird dominant formations and relations of power. For Kuntz, critical scholars "need to question the very rationalities and logic systems that grant traditional approaches their normative visibility, their consistent deployment as a matter of course and without the risk of critical engagement" (p. 42). As the inward and outward foci of criticality are in dynamic relation with each other, it seems that engaging with normative technologies (and thus not embracing the inward focus of criticality) could inhibit the achievement of the outward focus of criticality, namely, social and political change. As we will soon demonstrate, the underestimation of this tension - one that is inherent to the very idea of critical quantitative inquiry - is an essential problem in the existing theorization on the work of the quantitative criticalist.

The potential for critical quantitative inquiry in education to engage with calculation as inventive practice pushes against the momentum of the normative technologies that have largely shaped the field. We see the power of those technologies within Stage's (2007) early writings on critical quantitative research in the field. Initially positioned within Kincheloe and McLaren's (1994) understanding of criticality and critical research as exploration "in order to uncover the contradictions and negations embodied in any objective description" (p. 144), Stage makes a stark departure from the dominant conceptual foundations of quantitative research in the field. Yet, after stating that quantitative researchers are best situated to find the "contradictions and negative assumptions that exist in quantitative research frames" (p. 6), the normative power of quantitative technologies shines through in her statement: "If we focus solely on research methods—arguably the less interesting of a researcher's concerns [compared to motivations]—we see little difference between the positivistic approach and the critical quantitative approach" (p. 9).

There is a tension between the initial positioning of critical quantitative research as uncovering contradictions and negative assumptions and its initial performances as being extremely similar to the positivistic approach that relies on normative technologies and masks its contradictions and negative assumptions. For Stage, that tension is resolved through the questions the researchers ask; that is "the quantitative criticalist, rather than confirming conventional wisdoms and seeking consensus, adapts a proactive stance by consciously choosing questions that seek to challenge" (p. 8).

Stated differently, there is a tension between the momentum of normative technologies and both the inward and outward foci of criticality. Given the power of normative technologies in the field of education, that tension was initially alleviated by prioritizing the outward focus of critical research. This prioritization was an important movement within the social and political projects of which Stage and the initial quantitative criticalists were a part, and, as demonstrated by the 100+ dissertations engaging with these initial writings, the publication of *NDIR* was a watershed moment for quantitative researchers, particularly young and emerging scholars, in the field. Yet, because the inward and outward foci of criticality are in relation with each other, and because the initial writings on and practices of critical quantitative researchers embraced the normative technologies of positivist research, these approaches were not positioned to meet the conditions of criticality Baez (2007) put forth.

From Questions to Methods: Criticality as Dynamic

Rios-Aguilar (2014) sought to engage with the tensions within Stage's (2007) initial elaboration of critical quantitative inquiry in education and provide a complementary framework

upon which quantitative criticalists can build. Rios-Aguilar's framework explicitly acknowledged the need to extend critical quantitative inquiry beyond only the questions asked: "Indeed, the research questions quantitative criticalists ask matter, but the way they go about answering [them], the theories they use to interpret findings, and what they do with the findings matter too" (p. 95). Rios-Aguilar's approach was "based on the premise that the interplay between research questions, theory, method/research practices, and policy/advocacy makes quantitative criticalists' scholarship relevant and meaningful" (p. 96) and called for "education scholars [to] more closely examine their research practices and the factors that influence those practices… [as well as] be more intentional about the uses of their scholarship" (p. 96). This call for advocacy is an important aspect of Rios-Aguilar's contributions, and one that we will revisit in later sections of the paper.

Rios-Aguilar (2014) rightly positions quantitative research as a human activity that can be influenced by social forces, some of which are the "methodological communities" (p. 97) in which researchers exists. Because of the influence of these communities, Rios-Aguilar calls upon scholars to engage in methodological self-reflection in which they more closely scrutinize their own practices and the forces that may be influencing their research approaches. Such self-reflection can enable the inward focus of critical research, which Rios-Aguilar tightly couples with the outward focus of prioritizing research that influences educational practices.

Yet, Rios-Aguilar's (2014) call for methodological self-reflection revolves around the claim that "much research suffers from an ineffective application of complex methods, limited knowledge of applicable methods, and a noncritical perspective" (p. 98). While we agree with Rios-Aguilar's understanding of these problematic characteristics of quantitative research, this approach appears to endorse self-reflection on *method* rather than *methodological* self-reflection. For instance, Rios-Aguilar calls for researchers to ask themselves how statistical approaches can be used to unmask inequalities, calling upon researchers "to consider both statistical significance and potential effect size to assess what studies actually show" and to "engage in a dialogue about what coefficients and effect sizes mean practically for underrepresented and marginalized groups" (p. 99). Here, the creeping power of "method as technique" that largely influences educational research (Kuntz, 2015) comes to bear on critical quantitative inquiry by framing methodological self-reflection within the established norms of statistical significance and effect sizes.

Within such a self-reflective space, effort toward criticality can very easily go astray and become a manifestation of proper techniques and the effective application of particular methods. In doing so, the critical quantitative researcher cedes autonomy over their inquiry to the authority of the field and its determination of properness and effectiveness. Further, the opening of new ways of knowing and the potential for disrupting the normative processes of quantitative inquiry, which are both essential aspects of critical research, become foreclosed upon by the very power of the methodological communities that Rios-Aguilar identifies as potentially problematic.

Haunted by Normative Technologies: Criticality as Rigor

We read Stage (2007) and Rios-Aguilar (2014) as attempting to create new space for critical inquiry within education, arguing that quantitative research is not inherently conservative and can indeed support critical scholarship. As part of this attempt, they focus on the need for quantitative researchers to ask different questions and engage in methodological self-reflection that challenges traditional practices within quantitative research communities. Such an approach is consistent with Baez's (2007) claim that criticality is focused on new ways of knowing and

becoming, as well as Baez's challenge concerning thinking about ways that educational research can be critically transformative. Yet, as we have outlined, the approaches proposed by both Stage (2007) and Rios-Aguilar (2014) may not fully realize the goal of providing researchers with a foundation upon which they can build critical inquiries that satisfy the charge of criticality that Baez initially articulated. Indeed, both Stage and Rios-Aguilar demonstrate the power of normative processes within quantitative methodological communities, particularly the reduction of method to technique and the use of normative technologies to ground criticality. Such grounding appears to become ossified in the more recent articulation of critical quantitative inquiry by Hernández (2015).

Hernández (2015) seeks to engage with the "challenges and tensions" within critical quantitative inquiry by focusing on the question of what is "good" research and giving attention to "mastering the rules" of research (p. 93). We are immediately struck by how this approach reflects a broader onto-epistemological discussion often associated with Lorde (1984): "For the master's tools will never dismantle the master's house. They may allow us temporarily to beat him at his own game, but they will never enable us to bring about genuine change" (p. 112). Hernández argues otherwise, and appears to embrace the normative understandings that research is primarily concerned with technique, that there is an objective "good" characterization of research, and that "good" research is contingent upon appropriately following a set of established methods in a rigorous way. By constantly referring to *using* theory and *mastering* methods, Hernández suggests both are fixed objects through which the researcher must apply in specific, pre-determined ways in order to achieve the pinnacle of research, which is *rigor*. Within such an understanding, the purposes of critical research are not found in opening new ways of knowing or contributing to meaningful social transformations, but instead the means of research (methods, techniques, etc.) become ends unto themselves. Again, we seem to be presented with the power of normative technologies and the broader quantitative methodological community within the field of education and the ways in which that power attempts to pull critical quantitative inquiry back to understanding it as a process grounded in technical precision and "proper" applications of method.

Generally, Hernández (2015) argues that conversations concerning critical quantitative research should move "toward a focus on grappling with paradigmatic concerns that require attention in order to ensure rigor and appropriate training for the application of quantitative criticalism" (p. 94) and focus on "gaining recognition as a legitimate methodology" (p. 95) through remedying the lack of texts and widespread citations utilizing the approach. Yet, Hernández (2015) describes being drawn to critical quantitative research because it validated their "agenda to challenge the normative, analytic processes used for institutional survey data" (p. 94). We believe there is a tension between challenging normative processes undergirding knowledge creation in a field and attempting to gain methodological legitimacy within that field. This is not to say that the field of education is closed from having new methodologies gain legitimacy, but to prioritize the goal of legitimation in a methodologically conservative field such as higher education (Tight, 2007) is to necessarily influence the ways in which an alternative methodology can challenge the established normative practices. As such, prioritizing methodological legitimation may work to foreclose the pathways to realizing the dual goals of criticality: opening new ways of knowing and working to make meaningful social change.

Moving Forward: Opening the Foreclosed

As criticality is not a static characteristic of research and that it is always in relation with specific discursive and material conditions, scholars engaging with critical inquiry must always be

in motion, and always be aware of the possibility that performances of criticality at one time may become part of the normalizing technologies and understandings they were created to contest. Our previous discussion has focused on three articulations of critical quantitative inquiry that we read as snapshots located within the field of higher education and connected to broader discourses of criticality within the social sciences. We now turn to how future scholars may be able to navigate the tensions within these previous articulations and resist the slow creep of normativity that can threaten their critical goals.

As the field moves to capitalize on the momentum of critical quantitative inquiry, we believe that aspiring quantitative criticalists must acknowledge that, despite their best intentions, it may often be the case that their work will privilege normative technologies. For many projects, it may be impossible to effect criticality by utilizing technologies associated with the logic of extraction that displace and disembody people, reinforce a hierarchical relationship between the researcher and the objectified "researched," and that reduce complex social relations to manipulatable data points. This is not to say that such technologies have no place in any scholarly research, as even Kuntz (2015) acknowledges that traditional approaches to inquiry can be helpful in certain circumstances. Further, as criticality is not a static characteristic of any particularly method or methodology, thinking that specific methodological performances necessarily destroys any critical potential is misguided. Instead, we rearticulate Rios-Aguilar's (2014) call for methodological self-reflection and urge scholars to recognize that the ways they go about answering research questions is in relation to the social, cultural, and political conditions that research is aiming to influence. If conditions are such that normalizing technologies appear unavoidable, scholars need to acknowledge the problematic assumptions therein and not treat them as limitations that can be acknowledged and moved beyond in a simplistic way. Instead, such technologies and their associated assumptions serve as the foundation of these projects, and scholars must interrogate the ways in which their research may be simultaneously reinforcing specific formations of power that the broader project is aiming to resist.

This call for acknowledgement is essentially absent in the existing conceptual work concerning critical quantitative research that we have surveyed here. We contend that the friction between critical aims and the reification of normative technologies is, in fact, a defining and inextricable characteristic of critical quantitative research. Accordingly, there is little hope for quantitative criticalists to disrupt the destructive, reifying power of normative technologies without serious intentionality toward acknowledging this tension at the outset. Again, such a relationship should not be positioned as a limitation *within* that research, but as a necessary aspect *of* that research. Indeed, recognizing two contradictory forces existing simultaneously within a research study might itself be a more apropos performance of the inward focus of criticality, as it pushes back against the linear, progressive ideals that support normative technologies in the field.

Conclusion

We believe the field needs to return to Baez's (2007) initial challenge asking how research "is or can be *critically transformative* — that is, to what extent educational research can offer critiques of our world that allow us to transform it" (p. 18). That conversation, to borrow from much of Lather's work, is "messy." The idea of messiness brings us back to Rios-Aguilar's call for advocacy. Whereas some qualitative methodologies, particularly those that are participatory, necessarily effect change during data collection and analysis, quantitative work can be entirely retrospective, devoid of participation from its "subjects", and executed by an individual with neither "skin in the game" nor legitimate desire to effect change.

But what of those aspiring quantitative criticalists with a strong allegiance to the broader critical movement? They too may be likely to reproduce problematic performances of post-positivism. An aspiring quantitative criticalist could craft a highly regarded article that is replete with a clearly articulated and well-referenced explication of criticality, a thorough and flawless execution of a cutting-edge technique, and theoretically grounded interpretation of results paired with thoughtful, social justice-oriented discussion of a variety of implications, and it still remain non-critical. That is to say, work under the banner of criticality can be all for naught if it is uncoupled from change. Further, scholars who do not invoke the label of "critical" in their research may be achieving the goals of criticality articulated in this article. Exactly what that process of bringing about change actually looks like for critical quantitative education scholars is difficult to say, and something that all critically-minded scholars should feel urged to grapple with.

Many critical educators in the field of education have felt the force of this uncertainty, and as we the authors face it, we find ourselves drawn to the words of Bonilla-Silva and Embrick (2008) who have a similar warning for aspiring antiracist educators about the likely impact of their work. They suggest that antiracist educators "…must remember that they work inside a racialized social structure that they are likely to reproduce" (p. 335). The by now obvious parallel here is that quantitative criticalists work inside a positivistic research structure they are likely to reproduce. Inspired by Bonilla-Silva and Embrick's comments, we have two suggestions for combatting this likelihood of reproduction.

First, quantitative criticalists must acknowledge their work is part of a broader effort that opposes a seemingly immovable force. Even minimal progress toward realizing the potential of critical quantitative inquiry as envisioned by Stage, Rios-Aguilar, and Hernández will take time. Again, this is messy work that will forever be without the clarity of instructions or obvious decisions. Second, quantitative criticalists should assess what efforts they are undertaking, beyond their own research activities, to forward the legitimacy of critical quantitative inquiry. This is to say that the critical agenda should not be located solely within scholarly research, and there is much to be done in classrooms, professional associations, promotion and tenure committees, and other faculty/research work that can support the goals of criticality.

We do not profess to know how to be critical quantitative researchers. But we want to. We very easily identify the reproduction of positivism in our own actions and publications, even those we once felt convinced were critical. What lies ahead for critical quantitative inquiry is not clear, but we remind those wishing to take up the mantle to remain mindful of Baez's (2007) clear call for the inward and outward foci of criticality: mindfulness to how knowledge is created paired with intentionality in how it is utilized for change.

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ISSN 1920-4175

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