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Disrupting Dis/abilization: A Critical Exploration of Research Methods to Combat White Supremacy and Ableism in Education

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Abstract

In this article, the authors explore the way scientific research, as it is commonly defined, has been used to continue the marginalization and subsequent dis/abilization of students based on racial, cultural, and linguistic identities. Starting with a historical perspective, we trace the role of scientific research in the support of white supremacist, ableist societal mechanisms, as well as the emphasis on scientifically-based research in educational policy and practice. We call for an expansion of the definition of scientific research to emphasize mixed and multiple methods guided by the principles of participatory, emancipatory, and decolonizing methodologies.

Keywords: *DisCrit, research methodologies, critical disability studies, critical race theory in education*

Introduction

Scientific research¹ is built on a white supremacist, ableist legacy which has dis/abled² people through pathologizing racial, linguistic, and cultural identities. This legacy has left an indelible mark on the U.S. education system, which continues to promote inequities through segregation and other oppressive institutional mechanisms supported by scientific research (Harry & Klingner, 2014; Powell, 2003). Historical analyses trace the development of these oppressive mechanisms and how they have been preserved—with arguably imperceptible disruptions—using the justification of scientific research (Harry & Klingner, 2014; Dudley-Marling & Gurn, 2010). Scholars across disciplines have illustrated how scientific developments, such as the eugenics movement, intelligence testing, and the adoption of the normal curve as a lens for quantifying and analyzing human difference, have been designed—or commandeered—to justify the marginalization of diverse groups (Ferri & Connor, 2006).

As an example, the development and application of new disability categories, such as the label “specific learning disability,” has created a legal mechanism for establishing

¹The authors use “scientific research” to refer to scholarship which has been accepted as reliable and valid by most academic communities. Historically, this has meant experimental, quantitative research. The authors propose a broadening of this distinction to include high-quality mixed and multiple methods research which implements qualitative investigation.

² Following the example of DisCrit, the / within this word represents dis/ability as a social construct based on contextual factors used to signify a difference from the accepted norm. When disability is part of a label, the / is omitted.

differences among racial groups in the provision of disability-related services and education placements in schools (Ferri, 2010; Ferri & Connor, 2006). Further, the continued use of norm-referenced assessments to identify students labeled with disabilities contributes to the dis/ablement of racial, linguistic, and cultural minority groups in U.S. schools (Shifrer et al., 2011). Another example is found in the prioritization of “scientific” establishment of evidence-based practices to support these students once they are in special education programs. Often, the findings and implications of this “scientifically-based research” (SBR) are in contention with evidence drawn from ethnographic and case study research (Artiles et al., 2012). Because such studies are contextualized and often rely on qualitative research methods, many scholars have suggested that they have limited appeal to policymakers who work within white supremacist systems in education (Christ, 2014; Cosier, 2012; Riehl, 2006; Smith, 2003).

This article focuses on the narrow definition of scientific research used by education policymakers and educational leadership, including the U.S. Department of Education (Hale, et al., 2016), and how it remains uncritical of its history of dis/abling policies of oppression and marginalization. Further, we examine how education policy’s emphasis on quantitative, scientific evidence continues to serve as a tool to support problematic understandings of race and ability difference despite the availability of participatory and emancipatory education research methods (Annamma et al., 2016; Annamma, Morrison, & Jackson, 2014; Ferri & Connor, 2006; Osher et al., 2002). However, because narrowly-defined scientific evidence is considered objective, generalizable, and “fundable,” it is often prioritized over qualitative interpretivist methods—even when the findings of such complement the other to provide more comprehensive perspectives of education that highlight inequity and possible solutions (Artiles et al., 2012).

We present a critique of research methods which have historically contributed to the dis/ablement of multiple marginalized students. To this end, we propose an expansion of the definition of scientific research to emphasize using mixed and multiple methods guided by the tenets of Disability Critical Race Theory (DisCrit) (Annamma, Connor, & Ferri, 2016). We argue that these methods have the potential to provide a comprehensive understanding of the ways in which educational institutions react to and reproduce white supremacist, ableist systems, especially when the data is interpreted using analytical frameworks such as DisCrit, which focus on systems and their individual impact rather than solely on the individuals themselves.

This discussion is organized into four sections. We begin with a critical analysis, situated in the work of interdisciplinary scholars, historical development, and the use of scientific research to dis/able minoritized groups. Our analysis links scientific research methods with oppressive institutional mechanisms in public schools. This includes the ways professionals both identify and “serve” students with disabilities, often based on a view guided by the pervasive values of white supremacy and ableism which justify their segregation (Annamma, Connor, & Ferri, 2016; Harry & Klingner, 2014).

Then, we offer a critique of the conceptualization of scientific knowledge, as well as a critique scientific research as it is often defined by researchers, policymakers, and education professionals, highlighting critical issues related to this narrow conceptualization. Next, we discuss mixed and multiple methods research, focusing on the potential in these methodologies as forms of research which provide “hard numbers” data that legislators and policymakers seek, while providing context for data and results which include important counter-narratives, thereby minimizing the essentializing of participants. We explain that these methods could ensure that important information is not lost in the application of research to practice and can serve as a mechanism for disrupting the narrative which allows segregation and inequity to continue for certain groups. We then briefly explore participatory, emancipatory, and decolonizing research, using examples with which educational

researchers can build. To this end, this article proposes a new, expansive definition of scientific research to be considered by educational policymakers and leadership which includes mixed- and multiple-methods designs which incorporate high-quality inductive investigation through varied forms of qualitative research.

Theoretical Framework

In this section, we elaborate on the theoretical orientations which informed the critical exploration of research methods and dis/ablement. We base our analysis in DisCrit, which has its roots in both Disability Studies in Education (DSE) and Critical Race Theory (CRT). Most scientific research relating to dis/ability views ability and disability as a binary wherein the individual is positioned as the site of either deviance or normalcy. In other words, an individual demonstrates qualities in fixed alignment with being considered able *or* dis/abled. This individualized deficit model of disability has provided justification for denying opportunities to many students who perform—or are positioned—beyond the limits of the “norm.” DSE scholars have broadened academic perspectives of dis/ability to examine ability labeling as a scientific, social, and discursive issue which creates barriers and labels that are dis/abling for people. DSE scholars strive to “[bring] diversity in thought and plurality of perspectives about disability into the educational arena long dominated by traditional conceptualizations of disability that continue to justify and thus provide consent to the current field of special education” (Connor, et al., 2008, p. 447). That is, the very purpose of DSE is to promote and provide opportunities for educational inclusion.

In a similar vein, CRT in education has broadened the lens used to examine issues of race and its impact on education in the United States. This, in part, emerges from the longstanding inequities in educational expectations and opportunities for students of color in the U.S. in the wake of problematic social construction and regulation of race and humanity. CRT scholars use counter-narratives as method to disrupt the social construction of people of color in schools and society. Using these methods, rather than quantitative methods, helps capture context and illustrate concepts such as “civil rights advances for blacks always seemed to coincide with changing economic conditions and the self-interest of elite whites” (Delgado & Stefaniec, 2017, p. 22).

One critique of CRT scholars is that they often neglect issues of dis/ability and special education. Likewise, race is often ignored or overlooked by DSE scholars. Issues of race, culture, language, and ability are inextricably linked in our education system and in society, yet the interactions of how these identity markers impact people’s lives are often overlooked. In the past 15 years, however, scholars such as Erevelles & Minear (2016), Ferri (2010), and Harry & Klingner (2014) have begun making connections between the two fields to examine the interactions between race and ability as they relate to educational experiences of children. This has contributed to a deeper understanding of the implications of the power structures that influence individual students’ experiences in education settings. One outcome of this deeper understanding is the theory of DisCrit, an emerging theoretical framework that combines tenets of CRT and DSE and calls for a wider intersectional look at systems based on race and ability, among other factors, particularly in education (Annamma, et al., 2016).

DisCrit is built on the premise that, “both race and ability are socially constructed and interdependent” (Annamma et al., 2013, p. 5 in Annamma et al., 2014, p.55). In their foundational publication on Dis/Crit, Annamma, Ferri, and Connor claim that, “racism and ableism are normalizing processes that are interconnected and collusive” (Annamma, et al., 2016, p. 14). These scholars drew upon “research that relies upon the statistical categories of ability and race because these categories result in socially constructed inequities, not because [they] believe they are necessarily biological realities” (Annamma,

et al., 2016, p. 17). The tenets of DisCrit, as seen in Table 1, guide our analysis of scientific research throughout history and how it has been used to “other” people by defining the norm based on a white supremacist, ableist perspective of the world. Whiteness and ability are property, and the way these power systems play out in the field of education creates our inequitable, oppressive system. We refer to these tenets throughout the following discussion with the intent of disrupting the power structures that govern education and educational research.

Table 1. Tenets of DisCrit

Tenet 1	DisCrit is focused on ways that the forces of racism and ableism circulate interdependently, often in neutralized and invisible ways, to uphold notions of normalcy.
Tenet 2	DisCrit values multidimensional identities and troubles singular notions of identity such as race <i>or</i> dis/ability <i>or</i> class <i>or</i> gender <i>or</i> sexuality, and so on.
Tenet 3	DisCrit emphasizes the social constructions of race and ability, yet recognizes the material and psychological impacts of being labeled as raced or dis/abled, which sets one outside of the Western cultural norms.
Tenet 4	DisCrit privileges voices of marginalized populations, traditionally not acknowledged within research.
Tenet 5	DisCrit considers legal and historical aspects of dis/ability and race and how both have been used separately and together to deny the rights of some citizens.
Tenet 6:	DisCrit recognizes whiteness and ability as property and that gains for people labeled with dis/abilities have largely been made as the result of interest convergence of white, middle-class citizens.
Tenet 7:	DisCrit requires activism and supports all forms of resistance.

Note: Table adapted from Annamma, Connor, and Ferri (2016, p.19)

Historical Development

Because DisCrit emphasizes the “legal and historical aspects” of disability and race in the U.S. (Annamma, Connor, & Ferri, 2016, p. 19), we focus on the historical developments of dis/ability and race as co-constructed social identities, starting with the 19th century. Although the use of scientific research by white Americans to dehumanize people of color preceded the 19th century, this period in U.S. history provides the most compelling evidence of the co-construction of race and disability through science, medicine, and immigration policy (Dolmage, 2018). This historical context contributes to the foundation of a critical perspective of contemporary issues related to scientific research in education because, as DisCrit affirms, ableism and racism circulate interdependently and “have been used separately and together to deny the rights of some citizens” (p. 19).

Within the U.S., scientific, medical research in the 19th century reified the racialization and otherness of non-whites and provided justification for the preservation of enslavement

and oppression of racial, linguistic, and other minority groups. As Glenn (2015) states, “Racializing certain groups as insufficiently human serves to justify subjecting them to oppression, subordination, and super-exploitation” (p. 68). This includes the conceptualization of immigration status, language, and ethnicity as proxies for race (Moran, 2005). For example, proponents of polygeny, the theory that humans evolved from many independent groups of ancestors, used data, such as inaccurate skull measurements, to “scientifically prove” that Africans and African Americans were members of a different, inferior species than Europeans were and, therefore, uneducable. This denial of education was in the economic interest of the whites in power. It was illegal in many places to educate an enslaved person, thereby reifying white supremacy and power.

After the abolition of slavery, the structural upheaval in the U.S. led to dominant white groups feeling challenged by the newly freed African Americans, as well as a wave of immigrants from Europe. As a response, Paul Broca and other scientists who studied craniology and phrenology made claims that differences in size and shape of the brain or skull meant that people of color were inferior to white men. Such claims held “true” in the 19th century, since the publications contained numerical data and supported the power structures as they were (Gould, 1996). During the period of Reconstruction following the abolition of slavery Black Americans in the South developed their own schools. Some scholars argue that for a time, these schools were somewhat equitable in terms of funding and other measures, but when Black knowledge and political power began to threaten the white supremacy that ruled, the government began to systematically restrict voting rights; subsequently, this loss of political power led to disenfranchisement in all areas of life, including education (Anderson, 2014; Du Bois, 1962; Glenn, 2015).

Out of this history came a movement pushing for eugenics, a term coined by Francis Galton, who appropriated the normal curve for analyzing human difference, in 1883. Eugenics promoted the elimination of inferior genes in society through selective and restricted breeding. Reproduction was encouraged for those who “fit” normative values of whiteness, socio-economic status, education, language, and ability. For others, sterilization, incarceration, lynching, and institutionalization were encouraged—and, in some cases, mandated by legal action based on subjective evidence. These actions limited the reproductive capabilities of those deemed undesirable. In the work of eugenicists, we again observe ableism and white supremacy in the creation of a narrative about who deserves the right to be human and live a full life and the denial of full personhood to those deemed inferior due to language, ethnicity, and perceived ability. While we can study eugenics from a historical standpoint, the fact is that “these eugenic ideas about the value of [certain] bodies have never gone away” (Dolmage, 2018, p. 4).

The effects of eugenics and the normal curve in social science persisted in the 20th century with Alfred Binet’s development of an Intelligence Quotient (IQ) test and still continues today. Binet sought to design a test to help teachers determine which students needed the most academic assistance, and what kind of assistance was needed. Although he did not intend for the test to show static, innate ability or intelligence, it was adopted by scientists like H. H. Goddard, who used it to further the eugenics movement and deny personhood to individuals who did not possess desired characteristics (Gould, 1996). Much of Goddard’s work focused on using scientific methods to justify the labeling of some groups as “others.” Using an English translation of Binet’s test, Goddard posited that the idea of intelligence was stable and hereditary and governed by a single gene which determined not only educability, but also moral character. In addition to institutionalizing those Americans whom he deemed “defective,” Goddard felt that certain immigrants were defective and must not enter the country if the United States was to breed out “feeble-mindedness.” As an example, Goddard began testing immigrants who were hand-selected by his own assistants at Ellis Island. Although many of the descendants of these

immigrants are seen as white today, at this time in history, many of these groups were constructed as “non-white others” (Dolmage, 2018; Glenn, 2015).

Based on tenet one of DisCrit, which asserts that racism and ableism work interdependently to establish and reinforce categories of difference, it is clear that Goddard’s test was entirely subjective. As further evidence of this, Goddard triumphantly reported “that deportations for mental deficiency increased 350% in 1913 and 570% in 1914 over the preceding five years,” (Gould, 1996, p. 198). Although whiteness was later consolidated to include formerly excluded ethnic groups originally marginalized by this testing, such as the Irish and Italians, this historical moment supports the notion that race and ability have been socially (re)constructed to secure space at the table of white supremacy (Dolmage, 2018).

In later years, Stanford University psychologist Lewis Terman adapted Binet’s test and gave us the equally biased Stanford-Binet scale to test for “feeble-mindedness.” This and similar tests are still used today to provide “science-based” evidence for assigning dis/ability labels which often result in segregation and inferior educational opportunities. According to Ferri and Connor, “[t]hrough ostensibly designed to provide appropriate services to children with disabilities, special education was, from its inception, a holding place for society’s deviants who no one wanted to teach” (Ferri & Connor, 2006 as cited by Crawford & Bartolomé, 2010).

By the 1920s, special education settings had grown in use, and research was used to demonstrate that students in regular education settings had benefited from the removal of those who had scored at least two standard deviations from the mean on the Stanford-Binet. This demonstrates how the outcomes of research reified ableism and white supremacy; these forces worked together to create a context which ensured that power stayed in the hands of the powerful, and the voices and rights of those deemed as deviant were marginalized and minimized.

During the 1950s and 1960s, many white Americans felt their power threatened by integrated public spaces—especially schools—as mandated by court cases and legislation. We see here another link between power, ability, and race and the scientific justification for segregation. While many see this shift in schools as a positive, in most integrated schools the majority of the Black professional educators lost their jobs (Anderson, 2014). This took even more power away from the Black community with regards to education, thereby allowing for the in-school segregation of many students through the use of disability labeling; this exemplifies the first tenet of DisCrit as we see situations where the “forces of racism and ableism circulate interdependently...to uphold notions of normalcy” (Annamma, et al., 2016, p. 19). Without the support of the law, many members of the research community increased their focus on research which justified the segregation of “other” students for the benefit of the normal (read: white, middle class, nondisabled) student majority. That is, since there was no longer legal recourse for segregating students based on race, other methods were found to remove those who did not fit normative definitions of membership and respectability. As Ferri and Connor explain, “[t]echnologies of exclusion, including ability testing, tracking, labeling, and special education have all played a major part in re-segregating schools after *Brown*” (2007, p. 176). Because special education entailed separate classrooms or school settings, labeling racially and linguistically minoritized students with disabilities became the new way to re-segregate schools, reifying the conflation of race and ability difference.

In Search of the Gold Star

In educational policy and scholarship, research is typified by traditional notions of scientific research and evidence, especially those exemplified in clinical models utilized

throughout the history of Western medicine (Christ, 2014; Riehl, 2006). Many research communities and consumers prioritize research designs utilized in the field of medicine, primarily quantitative designs (Riehl, 2006), which, under a DisCrit lens, is deeply connected to the traditions of eugenicist anti-immigration policy and science (Dolmage, 2018).

In the wake of neoliberal school reform, values enshrined in policy, practice, and regulatory guidance reify white supremacy and ableism by controlling access and opportunity for research funding. Giroux (2014) wrote about the impact of neoliberal values on systems in higher education. Using the president of the University of Texas at Austin as an example, he identifies the impact of neoliberal austerity policies on the kind of research that is conducted at the university. Giroux wrote:

Under the dictates of neoliberal austerity policies, he is changing the nature of education at UT by arguing that research initiatives will be evaluated and deemed most profitable in terms of their benefits to various industries. Those academic courses and departments that are aligned with and provide potential profits for industry will receive the most funding. (p. 133)

Giroux continued to relate these phenomena to the bigger issues surrounding the resurgence of authoritarianism and the ways in which white supremacy is enacted to benefit the preservation of the white research institution.

In education discourse around the future directions of policy and practice, many educators and policymakers call for “scientific research” to establish evidence-based practices for effective instruction and other institutional mechanisms. In recent discussions focused on policy and interventions for specific populations of students, including English learners and students with disabilities, there is evidence of contention among scholars regarding what counts as evidence and what counts as scientific research, as well as the consequences of privileging some research over others (Kauffman & Sasso, 2006; Skiba et al., 2016). Historically, scientific research in education and related fields seems to have been characterized by clinical trial research designs yielding hard-numbers data and presumed sterile objectivity. Although there surely are several clinical trial design studies in medicine which have creatively or effectively addressed important questions, many scholars in the medical field are moving away from traditional notions of scientific research, opting instead for interpretive, analytical, or single-case study approaches (Riehl, 2006). Nonetheless, many education researchers and policymakers insist on the implementation of clinical methods to ensure scientific research and analyses are conducted and published. Additionally, scholars who challenge this implementation or who call for more diversity in research methodologies, specifically the use of mixed methods research, often find their perspectives in contention with others in the field (Teddlie & Tashakkori, 2012).

Clinical Research and Evidence-Based Practices

The Every Student Succeeds Act (ESSA, formerly the No Child Left Behind Act of 2001) clearly promotes scientifically-based research (SBR), privileging certain methods and degrees of evidence (U.S. Department of Education, 2016) to promote school and educator accountability, as well as limited notions of student achievement and success (Christ, 2014; Creswell & Plano Clark, 2011; Teddlie & Tashakkori, 2009). For example, ESSA defines evidence-based practices (EBPs) using a four-tier system of evidence, ranging from practices demonstrating a rationale (Tier IV), being the least reliable, to practices supported by strong evidence from one or more randomized control experimental design studies (Tier I), being the most reliable (U.S. Department of Education, 2016).

Despite numerous publications and guidance documents stipulating exactly what the federal government accepts as evidence and scientific research, the application of education research to schools—including district-, building-, and classroom-level interventions and policy implementation—ranges from muddled to chaotic, particularly in special education contexts (Cook et al., 2015). Although this is due in part to shortcomings in teacher and administrator education, training, and professional development, this can also be attributed to the difficulty of conducting relevant research in real-world education contexts—even when striving to meet the “gold star” standards of scientific research and evidence-based practices (Christ, 2014). The articulation of student identities is so highly contextualized that the quantitative methodologies touted as best practices do not adequately address the needs and experiences of many students, particularly those with marginalized identities.

Although frequently lauded as objective and precise, clinical methods used in the medical field—perceived by many to be more reliable than inductive, qualitative designs—are subject to human error and bias like any other type of research. Problems found with these studies in the medical field are also present in the field of education. At the design level, poor sampling and treatment methods can compromise the quality of a study. At the procedural level, treatment errors and inaccurate documentation of results and procedures—intentional or unintentional human blunders—affect reliability and validity of findings, despite claims of precision and objectivity. Additionally, clinical trial studies cannot be effectively used to examine social origins and implications of several issues in medicine, including physician behavior, large-group trends in disease prevention and treatment, social origins and implications of healthcare problems, and the arrangement of institutional mechanisms in healthcare (Riehl, 2006). Such scholarship has important implications on the development, provision, and future direction of interventions and services for marginalized populations, as well as training and professional development for professionals. Multidimensionality of identities, which is an important component of DisCrit, is lost in these clinical trials (Annamma et al., 2016). Purely clinical research, as it is defined and used today, cannot capture these cross-sections of healthcare issues, nor those of education issues.

Since education scholars and policymakers continue to refer to the historic use of clinical research in the field of medicine as justification for SBR and EBPs—such as they are—it is unlikely that critical issues in education, such as the social origins and implications of the overrepresentation of students of color in special education, will ever be addressed with the same level of importance as other issues as long as we are reliant on these types of clinical trials as evidence of what works. This preferential treatment of certain kinds of research seems to effectively privilege not only certain kinds of research and evidence, but also seems to limit the issues and experiences represented by education research (Erevelles & Minear, 2016). This has potential implications on students and families whose history of marginalization has often been justified by the findings of scientific research, or by the procedures and practices therein (Crawford & Bartolomé, 2010; Ferri & Connor, 2007; Gould, 1996).

Essentializing Difference: Quantitative Research

Many aspects of quantitative research present or promote problematic narratives of difference among students. Education researchers often investigate issues regarding specific groups of students, whose definitions are typically rigid and “partly embedded in assumptions about identity purportedly framed by biological differences” (Artiles 2011, p. 436). Although participants in quantitative studies might claim or demonstrate multiple and/or intersecting identity markers, the inflexible context of quantitative studies only presents singular or concentrated characteristics. The consequence of this approach to research can be essentializing of particular groups, as well as the erasure of historical

complexity. As an example, investigations of the fluidity of disability require varied situated perspectives in order to be fully understood. Traditional scientific research is ill-equipped to provide such contexts (Artiles & Kozleski, 2016; Trainor & Bal, 2014). Additionally, many education researchers use quantitative methods to analyze differences between groups, as opposed to conducting research which investigates diversity within cultural or linguistic groups and the ways such groups measure and mediate difference (Artiles, 2015).

Aside from the broader issues of clinical research, there are many statistical tests frequently utilized in education research which have the potential to essentialize characteristics of participants, including ethnicity, race, culture, and language. When situated in a DisCrit perspective, this becomes problematic; essentializing characteristics or group membership devalues multidimensional identities and has the potential to promote (or create new) singular notions of identity (Annamma et al., 2016; Erevelles & Minear, 2016).

T-tests, z-tests, and other basic statistical analyses utilized in education testing rely on the central limit theorem. Central limit theorem is based on the bell curve used by eugenicists and others to categorize some as falling within the boundaries of normal and others as outliers. Beyond these approaches, many statistical applications promote and preserve limited or problematic narratives of human experiences and identities. For example, there is a large body of education research which utilizes regression and logistic regression tests. These address research questions regarding drop-out rates, retention, and incarceration rates based on various “risk factors” and other characteristics. Although regression and, especially, logistic regression tests purportedly account for many different characteristics, researchers cannot possibly accommodate for every component of a person’s life or experience which could result in dropping out of school or being retained for one or more academic years. Similarly, statistical tests such as hierarchical (or sequential) regression and path analysis provide inflexible, linear models for understanding human differences as predictors of various outcomes. In the case of path analysis, direct and indirect effects might be identified and discussed, but the results still contribute to a narrow, static perspective of participants’ experiences. Similar to the clinical trials used in medicine, in using only these methods, researchers are losing essential parts of the human experience in their erasure of context.

$$\text{Equation: } Y = a + b_1x_1 + b_2x_2 + b_3x_3 \dots$$

Y = Projected Outcome b₁; b₂; b₃ = slope of line for each variable, respectively

x₁ = variable 1; x₂ = variable 2; x₃ = variable 3

Figure 1. Logistic Regression

As seen in Figure 1, logistic regression allows researchers to analyze the relationship between a projected outcome (such as dropping out of high school) and a multitude of variables, which are usually identity markers such as binary disability status, disability label, English learner status, gender, or race. Because this statistical test seemingly examines the interaction of multiple variables in relation to a focus outcome, it is likely considered by proponents of quantitative methods as the gold standard in education research. That is, applying logistic regression tests to a random sample to predict an outcome of interest seemingly accounts for multiple identity markers, thereby promoting the multiplicity of human experiences. However, such tests provide a narrow view of

human difference. Even when researchers are using measurements which account for various identity markers and/or forms of difference which yield hard-numbers data, those individual measurements are flawed. This is because the data do not provide researchers and consumers with information about *how* these identity markers interact (or *how* they are assigned) across time and space. While these measurements and statistical methods are seen to be objective, we argue that no research is truly objective. The measurements and data points are selected by the investigators conducting the study. Such selection is informed by the cultural and scholarly context of the investigators, which diminishes the objectivity of any statistical analysis. The use of statistical tests to analyze difference and assign problematic, rigid identity markers to students works against the tenets of DisCrit, where multidimensional identities are valued and singular notions of identity are troublesome.

Randomized sampling methods are another aspect of quantitative research which work against the tenets of DisCrit, wherein the voices of marginalized groups are given privilege and acknowledgement over dominant narratives. Randomized sampling assumes a level playing field for identity markers. That is, it assumes that categories based on dis/ability, race, or language affect individuals in the same way, regardless of context or intersection. Additionally, randomly sampling from a target population allows researchers to select desired numbers of participants based on categories they select, which is in contention with claims of objectivity in randomized sampling.

In addition to the reduction of complexity of the human experience to numbers and categories through quantitative research, psychological evaluations—upon which much quantitative research of dis/ability relies—lead to mislabeling of many racial and linguistic minorities. According to Codrington and Fairchild (2012), this mislabeling is a “byproduct of culturally biased referral, testing, and placement processes, which perpetuate the ideology that Blacks are innately inferior and chip away at the self-concept of African American children” (p. 6). The effects of cultural bias in testing go beyond the overrepresentation of minority students in special education—for students of color, disproportionate outcomes, such as the School- to-Prison Pipeline, are a direct result of institutional mechanisms founded on white supremacist, ableist thinking which informs the research context—directly and indirectly—for many education scholars.

Expanding the Definition of “Scientific Research”: Possibilities in Other Methods

Presumably, many scholars and policy makers tend to associate quantitative research with scientific research because quantitative methods have the potential to yield results using supposed objective, generalizable designs. There is a history behind the use of these methods which Quigley and Beeman-Cadwallader argue is embedded with “deep colonial consciousness” to influence “whose knowledge is legitimized in the scientific community (Harding, 1991)”, and “from *where* knowledge can be legitimized” (Quigley & Beeman-Cadwallader, 2014, p. 153). In this section, we offer perspectives and examples of other research methods which expand the narrow definition of scientific research used in educational policy. We begin with an argument made by Sonia Nieto (2012), who challenges the values undergirding scientific objectivity.

Nieto argues for advocacy and activism in research rather than objectivity when she states, “to be neutral is both foolhardy and disingenuous because it flies in the face of what our work is about, that is, using research for the improvement of the human condition through education” (2012). This follows tenet 7 of DisCrit which calls for “activism and supports all forms of resistance” (Annamma et al., 2016, p. 19). However, the potential in research methods outside of quantitative data analysis is often ignored by scholars in

education and related fields due to the push from policy makers for what they consider “The Gold Standard.”

Scholars in education have started reexamining qualitative research as an important tool for understanding existing trends in education, as well as a perspective for grounding scholarly practices and research consumption (Kozleski, 2017; Trainor & Bal, 2014). However, Quigley and Beeman-Cadwallader (2014) suggest that persisting norms in qualitative research do not sufficiently question, “the dominant view that science is objective, value neutral, and placeless,” suggesting a need for a shift in qualitative methods as well (p. 153). With thoughtful implementation, the use of qualitative research methods can support the collection of counter narratives so sought after in the work of CRT and DisCrit scholars, specifically tenet number 4 which includes a focus on privileging marginalized voices over the more common discourse. Milner and Howard (2013) write about the use of counter-narratives to capture “experiences which directly refute hegemony” (p. 542). They state,

Such narratives need to be told but often have been dismissed, trivialized, or misrepresented in education research. A counter-narrative provides space for researchers to *reinterpret*, *disrupt* or to *interrupt* pervasive discourses that may paint communities and people, particularly communities and people of color, in grim, dismal ways. (p. 542)

In other words, broadening the definition of scientific research would hold space to acknowledge and legitimize a wider array of knowledges. In addition to the inclusion of counter-narratives in research, the work of scholars utilizing geographic information systems (GIS) and decolonizing methodologies has yielded numerous models for participatory and emancipatory research.

Mixed and Multiple Methods

Mixed methods and multiple methods provide options for bringing all of these ideas about broadening what counts as scientific research. Quigley and Beeman-Cadwallader (2014) suggest that we must, “value the scientific knowledge that emerges from interactions between the sociocultural, biophysical, political/economic, and psychological dimensions of specific places” (p. 153). Recently, researchers across various fields have demonstrated increased interest in mixed method designs, primarily because they widen the scope of deductive investigations by incorporating meaning and quantity in solving the same problem. A mixed method design consists of a core project using a complete method (quantitative or qualitative) along with a supplemental project using a different type of data or analysis which are incomplete without the core project. That is, the core project consists of a complete method and can stand alone as a research publication. The supplemental project answers one part of the research question being addressed and could not stand alone as its own publication (Morse, 2010). A multiple methods design consists of multiple studies which address the same research questions—or different components of the same research question. The studies in a multiple methods design project are conducted using different methods (quantitative and qualitative), and each study is complete and publishable on its own (Morse, 2010).

Using a different method to support a core project question or using multiple kinds of data and analyses to answer multiple questions or components of a larger project goal, allows researchers to bring human experiences to large data sets. Besides the tandem or supplemental use of different research methods, using mixed or multiple methods requires researchers to think more deliberately about their research questions, pacing (sequential or simultaneous), sampling and data collection mechanisms, and the way they present their results. Additionally, the use of mixed or multiple methods provides a platform for qualitative inquiry and perspectives in policy and practice in education, since many

policymakers tend to privilege the findings of purely quantitative research. This has important implications on the future directions of education research, especially for students labeled with significant cognitive disabilities and other medicalized ability differences (Christ, 2014; Cosier, 2012; Riehl, 2006; Smith, 2003).

Participatory, Emancipatory, and Decolonizing Methodologies

With the call from Nieto (2012) in mind, we look to emancipatory and participatory research as having potential to promote activism. Emancipatory research refers to the production of knowledge which could benefit disadvantaged people, whereas participatory research engages communities in collective inquiry and is grounded in the experiences and social histories of the community where data are being created and collected. We call on researchers to look at examples of research outside of the medical field and build a new standard for scientific educational research. Many qualitative scholars claim that qualitative research provides more opportunities for emancipatory and/or participatory research. According to Kozleski (2017), qualitative research facilitates the achievement of social validity and measurements of sustainability when investigating the impact of evidence-based practices in education. Kozleski points out the utility of qualitative research, especially in privileging the lived experiences of participants, which is essential when researchers aim to conduct emancipatory or participatory research. “Narrative analysis [one form of qualitative research] provides a means to analyze the cultural, social, and contextual features of shared activity while attempting to include the voices and insights of all participants (Collins, 2013, p. xvi). This type of analysis is important in disrupting systems of marginalization. However, since purely qualitative research is often dismissed by leaders and policymakers in education and other social institutions, some researchers are turning to mixed and multiple methods to facilitate empowerment and to enact change.

One strong example of community-based participatory research using a multiple methods design is demonstrated by Elder and Oduyo (2018), who conducted a study focused on a sustainable inclusive education system in Kenya. The authors used multiple types of analyses to examine three cycles of interview data in addition to student enrollment data, photos, notes, letters, memoranda, and dictated participant feedback. Due to the nature of the study, the authors provided an in-depth reflection focused on the limitations and challenges of conducting the study and communicating their results to the community engaged in the project. Further, although the results of this study might not be generalizable across contexts, the authors established a goal for identifying and understanding local meanings and discourses of inclusion and disability.

A consortium of schools in and around New York City invited Michelle Fine and a team of researchers to investigate the so-called “Opportunity Gap” believed to exist between urban and suburban schools in that region. In their study, students from schools which fit in both categories and who ranged in academic achievement attended research training, collaborated with university faculty and teachers on research, design, questions, methodology, and analysis. They created a survey completed by over 9,000 students and then purposefully chose 32 interview participants and conducted 24 focus groups. It is important to note that these participants were purposively sampled to accurately represent the schools’ demographics.

Additional data collection methods used included participant observation, transcript analysis, and interviews with elders in the communities. The findings from this data collection led to more questions from these youth and more data collection. The research group paired quantitative data with qualitative data to see the pervasiveness of inequities both between schools and within school, as well the impact of that pervasiveness on individuals. The youths who participated in this were able to grow as researchers and also

begin to problem solve around struggles in their own community. As Fine and colleagues (2005) stated,

These young women and men have, indeed, learned to appreciate the complexity of race and class in America, to identify cracks in the opportunity structure where justice may breathe, and to develop their own intellectual and organizing capacities to repaint the canvas for the future. (p. 523)

These findings relate to the notion that the structures of ableism and white supremacy continue to oppress others in varied iterations. Rather than being passive, studies such as this encourage active disruption and questioning. Important findings, such as the change in the individual youth in Fine's study, could be lost or dismissed without the multiple means of data collection and analytic approaches used in this example.

Another strong example of participatory and/or emancipatory research using mixed and multiple methods can be found in GIS research focused on community mapping. In community mapping studies, participants who are typically labeled non-experts in map making and GIS scholars engage in research as co-investigators to create maps and tools which preserve and promote local, often ancestral, knowledge of land formations, resources, and boundaries. These information systems are then used by the community to settle disputes within the community and provide a platform for agency when land rights are contended by outsiders. Using compilations of artifacts, oral tradition, focus groups, interviews, and other forms of information and knowledge from participants to inform the creation of geographic information systems, scholars and local groups effectively disrupt historically privileged notions of landmarks, boundaries, and ownership, thereby redefining spaces and empowering communities. In so doing, such scholarship holds space for the (re)production of marginalized and/or forcibly erased knowledges which resist the scientific hegemony of white supremacy and settler colonialism (Simpson, 2017). In other words, these approaches have the potential for decolonizing scientific knowledge and academic spaces. This approach to the construction and dissemination of information, knowledge, and experience of different communities has the potential to transform education and related social science research and policy development and implementation.

As an example, Annamma (2018) used a mediated learning experience that she called "cartographer's clinic," wherein both participants and researchers create and share education journey maps (EJM). "Cartographer's clinic" could also be further adapted to include more cooperative mapping activities, wherein students from similar backgrounds or shared cultural, linguistic, or disabled identities could work together to co-construct EJMs to present collective cultural knowledge or experiences. This example of qualitative GIS affords flexibility and cultural responsiveness to researchers, but it also presents the opportunity for culturally sustaining research practices through the adaptation and authentic commitment to "cartographer's clinics" and other considerations as described by Annamma (2018). This data collection and analytical research method presents important possibilities for understanding how educational systems and spaces shape and sustain the experiences of multiply marginalized students, including ELLs with disabilities. Although effective communication is critical to the successful and ethical implementation of this method, qualitative GIS does not necessarily rely on discourse to transmit information. As such, it could be an ideal method for researchers who are concerned with the ecological factors related to educational inequity for culturally and linguistically diverse students with and without disabilities, particularly when they do not share a common language with their participants or have access to a qualified interpreter.

Conclusion

Throughout history, scientific research has been defined in ways which further the agenda of ableist, white supremacist power systems. At the same time, traditional notions of what constitutes scientific research has been reified by policymakers and scholars in education, who equate “science” with clinical methods and hard-numbers data. Using the framework of DisCrit, we provided a brief critical analysis of the use of science by dominant groups to label minorities as “others” throughout U.S. history. This scientific research is strongly linked to education policy, which inexorably functions to separate white, non-dis/abled students from students who are constructed as deficient and/or dis/abled because of the articulation of their linguistic, cultural, and racial identities.

The pervasive acceptance of the dis/abling scientific studies was (and is) largely due to what counts as scientific research, and what does not. The authors identified some of the current notions of what is considered “evidence” in research and education policy; despite progressive trends in modern medical research, traditional clinical and/or quantitative studies continue to serve as the “gold star” in education research and testing. Although scholars claim quantitative research is more objective and reliable, there are many opportunities for human error and subjectivity at the design and procedural level of research, which trouble these assertions of a fixed truth. In quantifying and parsing elements of the human experience, this type of research results in a loss of multidimensionality. In reality, this kind of research only serves to uphold the values of white supremacy and ableism.

We propose an expanded definition of scientific research focused on educational change to include mixed and multiple methods guided by the values of participatory, emancipatory, and decolonizing methodologies. The answer to the widespread failure of schools and other institutions to provide equitable opportunities by supporting students’ differences, requires scholarly engagement with marginalized communities in research focused on school transformation. Although patterns throughout history have succeeded in dis/abling countless numbers of children and families through testing and scientific research, broadening the scope and application of insular research methodologies can privilege other notions of knowledge, competence, and normative views. Further, mixed and multiple methods research has the potential to serve as a conduit of resistance. In ensuring creativity, responsiveness, and community engagement, by adhering to the values of participatory, emancipatory, and decolonizing methodologies, in future research practices, there is the potential to yield dis/ruptive results.

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