

Culturally Responsive Experimental Intervention Studies: The Development of a Rubric for Paradigm Expansion

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Neither legislative demand for evidence-based practices nor a focus on experimental designs for educational interventions has ameliorated the disparate educational opportunities and outcomes for youth from nondominant cultural and linguistic backgrounds. Recent initiatives to increase the rigor of intervention research in special education have largely ignored the implications of culture and its role in experimental research. The extent to which the experimental intervention studies are culturally responsive remains unexplored. We developed a rubric, modeled after prior rubrics for quality indicators of special education research, identifying criteria for culturally responsive research. Rubric items were created following a systematic review of literature and gathering feedback from experts. The 15-item rubric uses culture as a generative concept that mediates each aspect of experimental intervention research. Implications include expanding the field's dominant empirical paradigm and increasing reflexivity and responsiveness in knowledge production that may contribute to a paradigm expansion in special education research.

KEYWORDS: cultural responsiveness, experimental design, ecological validity, paradigm expansion, special education

The purpose of this article is to present a culturally responsive research (CRR) rubric for experimental intervention studies, its underlying theoretical framework, and the methodology of its development. We aim to operationalize culturally responsive experimental intervention research and to expand the conceptualization of methodological rigor to include the role of culture in special education research. Recently, special education scholars have called for increased attention to the cultural aspects of intervention studies, analyzing results, and disseminating

implications that address enduring disparities in educational opportunities and outcomes that youth from nondominant cultural and linguistic backgrounds experience in schools (Arzubiaga, Artiles, King, & Harris-Murri, 2008; Klingner et al., 2005; Ortiz & Yates, 2010; Sugai, O’Keeffe, & Fallon, 2012). Moreover, special education scholars explored the cultural responsiveness and ecological validity of special education interventions in diverse contexts of local education systems and for students from nondominant communities (Bal, 2011b; García & Ortiz, 2008; Klingner, Sorrells, & Barrera, 2007).

We examined experimental special education intervention research as a cultural activity system with its naturalized, taken-for-granted practices, artifacts, and assumptions. Our aim is for the CRR rubric to be used as a methodological tool for developing culturally responsive intervention research to augment the field’s understanding and ability to address the increasingly diverse strengths, needs, and goals of youth with ability differences as situated in the complex ecologies of education systems. Our intention was not to set indelible margins for culturally responsive intervention research. We see this rubric as a living artifact providing a set of principles in systematic and accessible ways, enhancing researchers’ reflexivity, and expanding experimental intervention research that is the most privileged methodology of knowledge production.

Experimental research must develop tools and methods that adequately and critically develop an empirical understanding of social realities such as structural reproduction of ideologies of race, ability, and class in the United States and how they matter in the lives of dominant and nondominant students to effectively address contemporary research questions (Apple, 2013; Giroux, 1983; Leonardo, 2010). We see this as a necessary step in addressing the enduring disparities in education opportunities and outcomes via ecologically valid and sustainable interventions.

Increasingly disparate outcomes by race, class, and ability in U.S. schools coexist with legislative directives for educators to use *evidence-based practices* in standardization-oriented, schoolwide intervention models, such as response to intervention and positive behavioral interventions and supports. The development of criteria for CRR addresses an identified gap in knowledge and practice: a dearth of studies designed to elicit such evidence that also include nondominant participants using CRR methods (Haager, Klingner, & Vaughn, 2007; Sugai et al., 2012; Vincent, Randall, Cartledge, Tobin, & Swain-Bradway, 2011). To illustrate, Lane, Kalberg, and Shepcaro (2009) conducted a comprehensive review of evidence in support of interventions aimed at changing challenging behaviors for youth identified with behavioral disorders (BDs). The authors used Horner et al.’s (2005) quality indicators and criteria that operationalized a study’s description of participants sufficient for replicability and generalizability as meeting two conditions: (a) identification of a specific disability and (b) a description of the method used to identify or diagnose the disability. In doing so, Lane and colleagues did not address participants’ sociodemographic factors outside of official disability labels. Furthermore, neither Horner et al.’s (2005) rubric nor Lane et al.’s (2009) application of these criteria for quality of evidence addresses multiple interpretations of the function of behaviors, a central tenet in intervention for behavioral modification and one that potentially

varies according to socially constructed notions of aberrant behaviors and explanations of their functions in different contexts.

Philosophical and empirical analyses of the regimes of truth and social movements such as the recent evidence-based practices movement in social sciences have been introduced (Sandler & Apple, 2010). The present work is informed by that extant critical literature on the culture of evidence in education and social science research. But its purpose is different: The CRR rubric joins the current discourse on epistemology in special education literature and extends earlier efforts to identify rigor or quality indicators of experimental research in special education (Gersten et al., 2005; Horner et al., 2005; Odom et al., 2005). Informed by an interdisciplinary literature from psychology, science studies, and special/education, we aimed to curate the rubric as a methodological tool to remediate the discourse on rigor in experimental interventions.

This work is timely. Special education literature has manifested an epistemological tension since 1990s as the field expands its unit of analysis from an individual subject to the whole school context via schoolwide interventions, such as response to intervention and positive behavioral interventions and supports (Bal, 2011b). Additionally, the CRR rubric fills a gap in special education scholarship regarding the cultural practices of research, including drawing conclusions from results and identifying implications (Arzubiaga et al., 2008). Neither the original rubrics detailing quality indicators for special education experiments nor subsequent applications of these earlier rubrics address this issue (Chard, Ketterlin-Geller, Baker, Doabler, & Apichatabutra, 2009; Lane et al., 2009). Finally, the CRR rubric emphasizes the critical role of *situated knowledge* in experimental research. Mainstream positivist and postpositivist conceptualizations of experimental studies in education and special education in the United States have privileged the so-called objective and culture-free knowledge over situated knowledge (Brantlinger, 1997; Milner, 2007). That is, the field engages in “the privileging of knowledge *about* poor people and racial and ethnically marginalized people over knowledge produced *within and by* these communities” (Sandler & Apple, 2010, p. 328). This rubric positions the situated knowledge, diverse cultural and linguistic practices, and experiences that nondominant students bring to schools as value-added construct within experimental design.

In the following sections, we first discuss the rationale for developing the present rubric in more detail. Next, we identify the theoretical foundations of the rubric that employ a dialectical, process-oriented view of culture. These theoretical perspectives frame knowledge production in education research as a socially, historically, and spatially constructed and culturally mediated process. We then review our method for development of the rubric, using existing quality indicators for special education research (Gersten et al., 2005; Horner et al., 2005) and principles of CRR in education and psychology (e.g., American Psychological Association [APA], 2003, 2005; Engeström, 2011; Klingner et al., 2007; Ladson-Billings & Tate, 2006; Rogoff, 2003; Sue, 1999) as models. Finally, we discuss specific rubric items and related implications.

Rationale for CRR

Researchers have recorded long-lasting disparities in academic, social, and economic opportunities and outcomes between nondominant youth from historically marginalized communities and their peers from dominant groups (e.g., Anyon, 2005; Darling-Hammond, 2010; Ferri & Connor, 2005; Losen & Orfield, 2002; Wagner, Newman, Cameto, & Levine, 2006). The U.S. Department of Education and Office for Civil Rights (2012) issued a report detailing how quality of educational opportunities were diminished based on race, gender, language, and disability status, thus contributing to the marginalization of nondominant communities. The findings of this report highlight several key affronts to equal access to education, including the ongoing obstacles to desegregate U.S. schools: limited access to college preparatory and advanced placement secondary courses, limited resources to instructional technology, and racial disproportionality in school disciplinary actions involving suspensions and expulsions (U.S. Department of Education & Office for Civil Rights, 2012).

For students who receive special education, these disparities are pronounced and complicated by disproportionate identification of disability and service delivery in restrictive settings. In what has been identified as a historical pattern, the most recent report to Congress on the implementation of the Individuals With Disabilities Education Improvement Act of 2004 documented an elevated risk of disability identification in what are considered judgmental disabilities such as learning disabilities (LDs) and BDs for Native American and African American students as compared to all other race/ethnicities combined. Furthermore, the risk of disability identification was 1.63 and 2.28 times higher, respectively, in the category of BD, a disability category with some of the lowest indicators of academic and postschool success, such as 56% rate of high school completion (U.S. Department of Education & Office of Special Education and Rehabilitation Services, 2011).

Additionally, minority students with disabilities have diminished access to inclusive education settings that are generally associated with positive outcomes, such as enrollment in postsecondary education (U.S. Department of Education & Office of Special Education and Rehabilitation Services, 2011). This problem is compounded by overrepresentation of Native Americans and African Americans when disability category is the focus of analysis because they are both overrepresented in BD. Only 35% of youth identified with BD are served in the most inclusive settings (i.e., spending 80% or more of the school day in a general education classroom). Fully 17% of youth identified with BD are in separate settings such as residential and treatment settings, the third highest percentage of students served in separate settings by disability category after students who are deaf and blind (30%) and those who have multiple disabilities (25%; U.S. Department of Education & Office of Special Education and Rehabilitation Services, 2011).

When students experience similar behavioral difficulties—with or without a disability label—those from nondominant backgrounds more often face exclusionary disciplinary actions. These outcomes also have a historically racialized presence in schools. Nearly 40 years ago, researchers found that African American students were up to 3 times more likely than their White peers to be suspended

(Children's Defense Fund, 1975). These disparities hold today, with African American, Latino, and Native American youth significantly more likely to experience exclusionary school discipline correlated with academic failure and involvement in juvenile justice system (Krezmien, Leone, & Achilles, 2006). Recent national data show that nondominant students are punished more often and more severely, for example, being subjected to mechanical restraints for less serious incidents, such as disrespectful behavior and dress code violations (for more detailed results, see Office for Civil Rights, 2012).

Demographic projections show that students from nondominant backgrounds will make up more than half the student population nationwide in the near future. Each year, millions of U.S.-born cultural and linguistic minority students, as well as newly arrived immigrant and refugee youth, enter school with diverse strengths, needs, interests, and experiences. These youth attend predominantly urban schools that significantly lack adequate academic, linguistic, and social supports and fall short of providing positive social climates (Anyon, 2005; Suárez-Orozco & Suárez-Orozco, 2001). There is a critical need to generate valid knowledge to understand these challenges to educational equity and to design culturally relevant, academically rich, and sustainable education systems that disrupt and transform the inherent conditions reproducing inequalities in the United States (Ladson-Billings & Tate, 2006; Paris, 2012).

The increasing diversity in schools, the ever-widening outcome and opportunity gaps, and the historical marginalization of nondominant communities constitute a systemic tension and requires a paradigm expansion for developing new theoretical models and intervention methodologies considering dynamic contexts of education systems and goals, practices, histories, and political interests of participants and researchers (Artiles, 2011; Darling-Hammond, 2010; Klingner et al., 2005; Ladson-Billings, 2006).

Marginalization of Nondominant Communities and the Role of Research

For too long, nondominant communities have been excluded from educational and psychology research (Graham, 1992). In a meta-analysis of the 180 intervention studies of students identified with LDs, Swanson and Hoskyn (1998) found that the majority of the intervention studies did not report participants' race or ethnicity. In addition, the results are rarely disaggregated by race/ethnicity (Artiles, Trent, & Kuan, 1997; National Research Council, 2002a; Trainor & Bal, 2014). Students identified as English language learners, in particular, are often excluded from experimental studies to establish internal validity (Solano-Flores, 2008). Although this limits external validity or generalizability of the findings, the outcomes of intervention studies are often presented as objective or culture- or race-free and their results as evidence supporting practices for all students, including those from nondominant communities who were excluded from participation in research (Klingner et al., 2007).

When researchers focus on youth and families from nondominant backgrounds, representation of those participants is deficit in orientation. Deficit-oriented representations are associated with the study of participants' sociodemographic background based on acontextualized, static individual characteristics (e.g., individuals' social skills) or overly generalized categories and loosely identified group traits

such as learning styles (e.g., racial learning style; Gutiérrez & Rogoff, 2003). In education research, nondominant youth and families have long been positioned as being at risk for academic failure and behavioral problems via theories such as the culture of poverty or eugenics (Baker, 2002; Erickson, 2009; Gieryn, 1995; Snyder & Mitchell, 2010). Furthermore, research methodologies and training are culturally responsive to dominant cultural group practices (e.g., White males with able bodies) and have inherited biases and prejudice toward nondominant groups including racial minorities, people with disabilities, people living in poverty, and immigrants (Scheurich & Young, 1997).

In psychology and education research, complex constructs such as race, disability, and class are treated as independent variables and innate characteristics of individuals—often via problematic proxy indicators such as free or reduced-price meals for socioeconomic status. The historical misuse of race to study the effect of race, for example, has been promulgated as an explanation and justification of the racial hierarchy via culturally biased tools (e.g., IQ tests or behavioral checklists) and often-inadequate statistical analyses (e.g., using single-level models that did not allow to examine the nested structure of student-level and school-level determinants; Bonilla-Silva & Zuberi, 2008).

The privileged use of culturally biased research tools as objective and culture-free is exemplified by the founding figures of psychology in the West. Francis Galton, G. Stanley Hall, and others who developed personal trait measures such as intelligence and personality tests established psychology as a field of individual difference. These influential figures offered self-governing, isolated individuals whose abilities and disabilities were mainly determined by hereditary characteristics (e.g., race) as the unit of analysis. They were also strong supporters of White supremacy and the eugenics movement, which sought to improve genetic quality and purity of a society (i.e., dominant group) through the practices of selective breeding and sterilization (Baker, 2002). These ideologies and interests were embedded in the foundational constructs (e.g., intelligence, self-esteem, self-determination, motivation, and personality traits), measurements, and knowledge hierarchies (e.g., statistical analyses of individual differences) and became the dominant paradigm of psychology and education in the United States. And eventually, these ideologies and tools created a well-oiled machine in formal schooling and in education research that identify and “fix” deficits within individual children (Erickson, 2009).

To additionally complicate those issues, academies of higher education, responsible for research and its dissemination for the purpose of solving education’s greatest challenges, reflect their own history of marginalization of scholars from nondominant groups (Acker, Webber, & Smyth, 2012; Barclay, 2012; Diggs, Garrison-Wade, Estrada, & Galindo, 2009; Lather, 2004). First, research-intensive universities continue to struggle to support and retain scholars from historically marginalized groups (e.g., scholars of color and disabled scholars), thus contributing to marginalization of the work of nondominant scholars (Alex-Assensoh, 2003). Second, nondominant scholars are likely to have heavy service loads and function as resources for their peers and students from similarly marginalized backgrounds, thus facing obstacles to tenure and promotion in institutions that value productivity over collegiality (Jayakumar, Howard, Allen, & Han,

2009). Third, nondominant scholars who choose to pursue lines of research that investigate culture, race, or racial inequalities are often viewed negatively in academic settings where dominant-group scholars perceive such scholarly pursuits as racially motivated, biased, and unscientific (Barclay, 2012; Fenelon, 2003). In particular, methods used to critique and research questions that focus on power/privilege may be infrequently employed by researchers from dominant groups and lead to questions about, or defense of, rigor during the implementation and dissemination of research (DeCuir & Dixon, 2004; Milner, 2007; Stanley, 2007).

In short, the marginalization of students, families, and researchers from non-dominant groups contributes to the systemic tension in special education research and its inadequacy for addressing complex issues and inequalities, calling for paradigmatic expansion regarding the culture of knowledge production. Systemic tensions are a key to understand the sources of problems as well as the innovative and generative potential for systemic transformation in a scientific field (Engeström, 2008). The purpose of the CRR rubric is to expand current paradigms of knowledge-production and develop CRR, with a focus on experimental interventions because experimental design is privileged and touted as the most effective methodology of knowledge production in special education.

Paradigmatic Expansion

Kuhn (1962) noted, “Paradigms prove to be constitutive of science . . . [they] provide scientists not only with a map but also with some of the directions” (p. 22). According to Kuhn, progress in a scientific field takes place as dialectical episodes. The conceptualization of scientific truth is not universal but bounded by time and space. Scientific truth cannot be established solely by objective criteria; it is defined by a collective conceptual agreement of a given field as situated in specific social, historical, and spatial contexts (e.g., political interests; Gieryn, 1995). The relative continuity of foundational conceptual agreements in all scientific fields can be interrupted and challenged by fundamental changes in its content of the study, thus potentially creating systemic tensions (Kuhn, 1962). Each scientific discipline solves systemic tensions via paradigm expansion to establish a consensus about a more encompassing paradigm for understanding and addressing those tensions (Kuhn, 1962). For example, in the field of physics, moving from Newtonian mechanics to relativistic mechanics is an example of paradigm expansion. Such paradigm expansions require a discovery period and a revolutionary reconfiguration that lead to the expanded paradigm with an updated conceptual map directing new methodologies. Gieryn (1995) asserted expanded paradigms change the culture of scientific fields directing new inquiries and asking novel questions of existing data.

Experimental psychology, most specifically its behaviorist conceptualization, has been the main influence in the mainstream special education research paradigm in the United States (Kauffman & Landrum, 2006). This view takes the individual as the unit of analysis and looks for universal laws of human behaviors. Culture is often regarded as an extraneous variable associated with homogenous, static group characteristics (e.g., values, customs, or behaviors). Theories highlighting the complex nature of human learning and development and the role of culture in, for example, Bourdieu’s social reproduction theory (e.g., concept of

habitus), Erikson's developmental theory of identity, or Bronfenbrenner's ecological systems theory have been adapted by social scientists in accordance with the unit of analysis: self-governing, morally directed, rational selves in a universal time and stable spaces (Popkewitz, 1997).

Criticism of narrowly focused epistemologies and ontologies in psychology and education research is not new. Some have argued the current experimental studies employing highly controlled laboratory-based experimental methodology (stimulus-response) are overly deterministic and not well suited to understanding higher psychological processes that involve reasoning, language, and goal-oriented actions (M. Cole, 1996). Although highly controlled laboratory-based research contributes to the knowledge base of elementary (physiological) psychological functions, a developmental-historical methodology such as ethnological analyses of cultural group practices is necessary for understanding the higher psychological functions. Wilhelm Wundt, widely recognized as the founding figure of experimental psychology, acknowledged this limitation on the field's knowledge production, asserting, "Only through a synthesis of their respective insights could a full psychology be achieved" (M. Cole, 1996, p. 29). Against Wundt's explicit warnings, however, proponents of experimental methodology complemented a narrow view of epistemology with behaviorism, inferential statistics, and standardized aptitude and achievement tests to study both elementary and higher psychological functions.

Alternative conceptualizations of experimental methodology focusing on cultural mediation and dynamic interactions of human and context include Vygotsky and his followers, who developed sociocultural theory, a historical materialist theory of learning, and experimental methodology aligned with Wundt's earlier work and encompassed both the study of elementary and higher psychological functions. Vygotsky (1976) called this experimental methodology "the functional method of double stimulation" (p. 74). In double stimulation experiments, "The subject is put in a structured situation where a problem exists . . . and the subject is provided with active guidance towards the construction of a new means to the end of a solution to the problem" (van der Veer & Valsiner, 1991, p. 169). Sociocultural conceptualization of experimental psychology and its intervention methodology are increasingly used in education research, organizational studies, and learning sciences for designing expansive learning contexts inside and outside of schools (Sannino, Daniels, & Gutiérrez, 2009; for the use of the functional method of double stimulation in special education, see Bal, Kozleski, Schrader, Rodriguez, & Pelton, 2014).

An intended contribution of the CRR rubric as a research tool is to facilitate a paradigmatic expansion in special education interventions that involves examining the critical and generative role of culture and contexts to provide fuller and dynamic understanding of human learning, development, and ability. The focus on intervention experiments is deliberate because these designs are privileged and have a defined and peer-reviewed initial set of quality indicators. We use the term *culturally responsive research* to refer to scholarship that applies the tenets of cultural responsiveness in inquiry, communication, and interaction in education. Addressing persistent problems of equity requires critical attention to the cultural notion of knowledge production in the field of special education (Artiles, Kozleski,

Trent, Osher, & Ortiz, 2010; McDermott & Varenne, 1995; National Research Council, 2002b).

The Cultural Practice of Knowledge Production

All stages of intervention research, from question inception to dissemination, are “culturally and socially mediated and negotiated” (Arzubiaga et al., 2008, p. 310). Research tools mediate scientific processes of knowledge production. As cultural artifacts, those tools are heavily instantiated with constantly shifting cultural practices, ideologies, identities, and interests that evolve over time and are negotiated and orchestrated in local sociopolitical contexts (Scheurich, 1997). To illustrate, with its dominant conceptualization, intervention itself has been used as a linear, ableist tool to fix differences constructed as deficits within an individual or a cultural group such as newly arrived immigrant families or deaf people (Snyder & Mitchell, 2010). Grounded in sociocultural theory, CRR takes intervention as a cultural practice that is open for negotiation and adaptation:

An on-going transformational process that is constantly re-shaped by its own internal organizational and political dynamic and by the specific conditions it encounters or itself creates, including the responses and strategies of local and regional groups who may struggle to define and defend their own social spaces, cultural boundaries and positions within the wider power field. (Long, 2001, as cited in Engeström, 2011, p. 603)

In our view, universalist, culture-free perspectives that do not critically consider disabled, racialized, gendered, or classed experiences and enduring structural inequalities are products of culture and history through local performances of researchers, participants, and consumers of research. The significance and implications of research results can be fully understood if and when the specific contexts of the researchers, the participants, and scientific fields frame the work. Conceptualizing research as situated cultural practice acknowledges the regimes of power/knowledge as central players in the reproduction of disparities in access, influence, and thus, predictable variance in outcomes (Leonardo, 2009; Soja, 2010; Young, 1990).

Research requires a constellation of analytic tools as cultural artifacts—both ideal and material—for examining the individual and social processes of learning and development, including the examination of disparate education opportunities and outcomes. Researchers risk contributing to the reproduction and obfuscation of structural inequalities when only certain methodological tools are promoted as the most effective way to answer all research questions or when the quality indicators of any given methodology fail to acknowledge research as a situated practice, and both may also lead to routinized implementation and dissemination decisions (Trainor & Bal, 2014). The establishment of experimental designs as a “gold standard” and the development and application of quality indicator rubrics in special education without attention to diversity and equity have overlooked and continue to overlook complicated research questions and contributed to the persistence of inequalities.

Gutiérrez (2006) used the term *White innocence* to explain how researchers, including those from nondominant communities, may reproduce dominant models of racial hierarchy. White innocence is not a simplistic reference to the racial identification of researchers; rather, it refers to “the dominant subject position that preserves racial subordination and the differential benefits for the *innocent* who retains her own dominant position vis-à-vis the ‘objects’ of study” (Gutiérrez, 2006, p. 4). From this perspective, researchers are “all implicated in some way in maintaining *White innocence*” (p. 4). Bonilla-Silva and Zuberi (2008) expanded the conceptualization of White innocence to *White logic* and examined the taken-for-granted reasoning and methodologies about empirical reality: “White logic assumes a historical posture that grants eternal objectivity to the views of elite Whites and condemns the views of non-Whites to perpetual subjectivity” (p. 17). Gutiérrez (2006) and Bonilla-Silva and Zuberi (2008) used a dialectic view toward knowledge production and emphasized the role of structure (institutions), ideologies, individual factors, and race-based interests in scientific knowledge production.

Working with nondominant communities and the associated conceptualizing of culture and cultural difference play critical roles in understanding salient education problems and their solutions. Culturally responsive researchers should be reflexive toward mundane research activities and develop a critical understanding of research as a cultural practice that is loaded with deep struggles over power/privilege. Similar to practitioners who often struggle to identify how culture may shape their views and daily practices of teaching/learning (Craig, Hull, Haggart, & Perez-Selles, 2000), education researchers must interrogate the normalized, culturally situated practices and perspectives purported to be objective and culture-free.

Following Latour (1993), we posit that researchers using experimental design must examine what they are actually producing, that is, the amalgams of nature and culture instead of what has been conceptualized as “working within a purified realm of knowledge” (p. 48). As such, we include factors related to researchers (e.g., training, prior experiences, and positionality) and to research processes (e.g., negotiation of sites, methods of recruitment, and data collection) in the CRR rubric (see, e.g., the CRR Rubric Item 6 in the section “Design and Logic”). Attention to these details is critical to making visible the taken-for-granted processes of knowledge production, at times resulting in continued marginalization of nondominant people.

For the development of the rubric, we eschewed static and overly deterministic conceptualizations of culture such as those often associated with the inheritance of values, beliefs, traditions, norms, and interactional styles (e.g., making eye contact). Instead, we take culture as a dynamic, multifaceted, and generative process that cannot be reduced into a set of overgeneralized traits and outcomes that are frozen in time and space (Bal, 2011a). We employed sociocultural theory of culture, examining the dynamic interactions of individual, institutional, and interpersonal factors (Rogoff, 2003). The guiding principle of this view is that culture mediates all human activities: “Humans develop through their changing participation in the socio-cultural activities of their communities, which also change” (Rogoff, 2003, p. 11). A process-oriented model of culture can

[1] inform future research priorities and policy making in general and special education; [2] document how special education practice, research, and policy [are] enacted in racially and economically stratified schools and communities; and [3] lead to significantly improved educational outcomes for students from historically underserved groups. (Artiles et al., 2010, p. 296)

Conceptualizing Culture as a Dynamic Process

M. Cole (1996) aptly stated, “Culture is very difficult for humans to think about. Like fish in water, we fail to ‘see’ culture because it is the medium within which we exist” (p. 8). Because the study of culture is interdisciplinary, we focused the operationalization of CRR on recent and comprehensive scholarship relevant to learning, development, and collective knowledge production activities, drawing from work in education, psychology, and science studies (e.g., APA, 1990, 2003; Banks et al., 2007; Bonilla-Silva & Zuberi, 2008; M. Cole, 1996; Latour, 1993; Rogoff, 2003; Tillman, 2002). For the purposes of the CRR rubric, we operationalized culture as the residue of collective problem-solving activities and collections of cultural artifacts perfected over generations and through history that reflects a social group’s efforts to adapt, survive, and thrive in ever-changing local and global circumstances (Bal, 2011a; Gallego, Cole, & the Laboratory of Comparative Human Cognition, 2001). Four key considerations in our operationalization are *mediation through artifacts*, *cultural activity as unit of analysis*, *intersectionality*, and *ecological validity*.

Mediation Through Artifacts

Culture can be seen as a link between larger social and institutional factors to individual behaviors and thoughts. Culture is a mediator of everyday human activities via artifacts. “An artifact is an aspect of the material world that has been modified over the history in its incorporation into the goal-directed human action” (M. Cole, 1996, p. 117). Artifacts both enable and constrain individuals’ actions. As active social agents, people do not solely resist or passively internalize the culture; people do use and make cultures (Varenne & McDermott, 1998). Two interconnected processes regarding the reproduction and transformation of culture are internalization and externalization. In cyclical relationship, internalization processes are about membership and reproduction of a cultural system (e.g., family, academia, or a scientific field). Externalization is about production of new or revised artifacts assisting to transform systems such as the dissemination of standards by a state’s department of education or the development of a privacy policy articulated by medical organizations. New or revised artifacts are then internalized by group members and remediate collective activities.

All cultural artifacts—regardless of simplicity or complexity—are simultaneously ideal and material (e.g., a pen or a language): “Being manufactured for a *reason* and put into *use*—the neutral object acquires a significance. This significance is the ideal form of the object” (Bakhurst, 1990, as cited in M. Cole, 1996). In this sense, tools that mediate knowledge production activities in experimental research, such as the *Diagnostic and Statistical Manual of Mental Health Disorders* (American Psychiatric Association, 2013), IQ tests, behavioral questionnaires, and the APA style manual, have ideal and material components.

Culture and cultural mediation of scientific knowledge production via artifacts should be understood with their material and ideal underpinnings in the context of group interests such that “culture is not so much a product of sharing as a product of people hammering each other into shape with well-structured tools already available” (McDermott & Varenne, 1995, p. 326). To illustrate, Leonardo (2010) examined the concept of race as an artifact invented by White Europeans for achieving their economic and political interests, mediating human actions, perceptions, and institutions with its ideal (e.g., how individuals conceive race in their daily lives) and material (e.g., racialized relationships and institutions organized around race) foundations.

Cultural Activity as Unit of Analysis

The process-oriented conceptualization of culture offers a new unit of analysis for researchers. This unit is the artifact-mediated, goal-oriented collective activities in which individual, institutional, and interpersonal factors dynamically amalgamate in specific social, historical, and spatial contexts. This new unit of analysis requires developmental research perspectives that focus on the dynamic interactions and historical configurations of artifacts and on the unequal distribution of social strata, positions, and opportunities. The power/privilege differentiations are reproduced, mapping to social categories based on disability, race, class, and gender identities, as well as goals and institutional rules, roles, and division of labor (Engeström & Mietinen, 1999).

The CRR rubric requires researchers to go beyond cultural determinism as well as cultural neutralism that have dominated education research (Gallego et al., 2001). The rubric employs a robust theory of culture that takes into account complex interactions of individual, institutional, and interpersonal factors in a given context, such as conducting an experimental study of a direct instruction-based reading intervention for racial minority youth in a juvenile correctional facility in Arizona in 2014. From the CRR perspective, researchers’ tasks are to understand “the dynamic patterns of individuals’ participation in building on historical constellations of community practices, continuing and transforming across generations” (Gutiérrez & Rogoff, 2003, p. 23) and to specify the complexities of real life in which particular interventions are applied (M. Cole, Hood, & McDermott, 1997).

To conduct CRR, researchers must take into consideration “how people *assume*, but are also *given*, and *co-construct* multiple positions (e.g., insider, competent or engaged) across contexts, depending on a host of forces that include local communities’ practices and history, as well as a person’s biographical trajectory” (Arzubiaga et al., 2008, p. 319). To do this, education researchers must not only focus on cultural group categories and outcomes such as disproportionately higher special education identification and dropout rates among African American, Latino, and Native American students. Researchers must also include an examination of processes (e.g., the racialization of disability, the individualization of success and failure, special education referral, and the institutionalized acts of exclusion based on ability differences) and institutions (e.g., universities, local education agencies, testing services, publishers, grant funders, and clearinghouses

such as the Institute of Education Sciences or the National Science Foundation) that reproduce, regardless of intentionality, disparities.

This all-encompassing approach is necessary because culture is composed of processes that are deeply embedded in a cultural community such as the field of special education as *modus operandi*; thus, they are highly naturalized and strategically invisible. For example, examining the social-historical reproduction of disabilities, McDermott, Goldman, and Varenne (2006) stated that in the U.S. education system, the cultural notion of LD is embedded not in individual children with academic difficulties but in the concerted activities of professionals such as psychologists, teachers, and policymakers, among others, whose responsibilities include producing definitional evidence of LD. In such a well-organized system of disabling, it is not accidental that challenges nondominant students experience are largely explained by examining inherited qualities or assumed cultural group traits (e.g., collectivism or the culture of poverty).

Intersectionality

The third key consideration is intersectionality, a concept of from critical legal theory and feminist studies (Crenshaw, 1989), recently operationalized in the context of research methodologies in psychology and education (E. R. Cole, 2009; García, Ortiz, & Sorrells, 2012; Museus & Griffin, 2011). Simply put, intersectionality is a critical analytic framework that affords the simultaneous examination of multiple indicators of experiences and identities, some of which afford privilege whereas others act as signifiers of marginalization (Crenshaw, 1989). Intersectionality is complex and not only includes personal experiences but also allows for a focus on sociohistorical and structural context and activity systems. Intersectionality demonstrates how multiple political agendas interact and influence human experiences of privilege and marginalization in dynamic ways (Museus & Griffin, 2011). For example, special education labels can be considered both as conduits for receiving individualized education, largely by dominant-group parents, and as stigmatizing license for schools to blame identified youth for classroom disruptions, largely by parents from nondominant groups (Trainor, 2010).

Across epistemologies, the construct of intersectionality has been employed for the purpose of understanding dynamic notion of culture and its role in education. Shaw, Chan, and McMahan (2012) conducted a secondary analysis of the large-scale database to examine instances of harassment of people with disabilities, analyzing variables of disability, race, and gender. Shaw et al. thereby acknowledge that any one of these variables has variable potential and contribute to a collective indicator of disability harassment; still, their work centers on individual characteristics and diversity across groups rather than examining their contexts and activities. By contrast, Covarrubias (2011) examined academic attainment, citizenship, and income of people of Mexican descent who participated in the U.S census in 2009, and focused his analysis on access to educational opportunities and intragroup diversity.

The inclusion of intersectionality herein is used to complexify the treatment of what have traditionally been considered variables associated with culture (i.e., participants' race). Attempts to qualify and quantify intersectionality could be

considered as efforts to “discipline” research in ways that are overly simplistic and do not allow for dealing with what Lather (2013) called the “messy conceptual labor, difference, otherness and disparity, and incompleteness of the positive norm” (p. 642). Although this warning may be important to heed, our current conceptualization of culture and evidence without any nod to intersectionality is of priority concern here.

Ecological Validity

The last and most encompassing consideration in the CRR rubric is ecological validity, a foundational concept to experimental research (M. Cole et al., 1997). We see cultural responsiveness in experimental intervention research as an ongoing, negotiated, and contextually situated process in which ecological validity must be considered across multiple phases of an experimental study. Under the umbrella of ecological validity fall the familiar components of construct validity, interpretation validity, and population validity. Experimental psychologists entertained discussions of ecological validity in the early 20th century to expand the constricted locus of experiments “not representative of the larger patterns of life” (Brunswik, 1943, as cited in M Cole et al., 1997). Bronfenbrenner (1979, 2005) further elaborated the roles of psychological and social contexts, or participants’ ecologies that comprise research settings bridging real-life tasks, events, objects, and experimental conditions.

Ecological validity has been found to increase applications of neurological and cognitive assessments, interventions, and importantly, the design, and implementation of culturally responsive experimental research (Bernal, Bonilla, & Bellido, 1995). In the development of the CRR rubric, we followed three criteria for ecological validity: (a) congruency with participants’ real-life situations; (b) authenticity representative of participants’ larger social, economic, and political contexts; and (c) analytic and interpretive consistency between the data and participants’ goals, histories, activities, and understandings of the experimental conditions (M. Cole et al., 1997).

The Culture of Evidence

The relationship between evidence and education research has generally been one of legitimization. From Dewey and his contemporaries to present-day theorists, the need to strengthen the claims made about teaching and learning belies concerns about what counts as knowledge and what accurately depicts education (Lagemann, 2000). Special education scholars have invested in definitions of “science” and “evidence,” legitimizing and aligning with general education views about evidence-based practices. Evidence-based practices are a key component of federal legislations and reform efforts, including the Individuals With Disabilities Education Improvement Act of 2004, No Child Left Behind, and Race to the Top (Turnbull, 2005). The framing of evidence-based as a primary tool to increase standardization and accountability is a lever in shifting funding and research foci toward a narrow conceptualization of evidence. Borrowing from medical sciences, Bowker and Star (2000) called this process a *convergence principle* explaining the selective attention that takes place by changing the world such that the system’s description of reality becomes true:

For example, consider the case where all diseases are classified purely physiologically. Systems of medical observation and treatment are set up such that physical manifestations are the only manifestations recorded. Physical treatments are the only treatments available. Under these conditions, then, logically schizophrenia may only result purely and simply from a chemical imbalance in the brain. It will be impossible to think or act otherwise. (p. 49)

Leading special education scholars (Chard et al., 2009; Gersten et al., 2005; Odom et al., 2005) who outlined the quality indicators in special education research clearly suggested that evidence-based practices are defined through the implementation of experimental research. The establishment of evidence from experimental research, presumed by many to be rigorous, culture-free, objective, and effective (i.e., what works), is posited as a method for addressing persistent challenges to educating youth with disabilities through the design of intensive special education interventions. Nevertheless, at least two major problems emerge from the narrowing of education research. First, “what works” is not really working: Negative academic and postschool outcomes for youth with disabilities placed in special education system have persisted over decades (National Research Council, 2002a; Wagner et al., 2006). Second, evidence based on the conceptualization of randomization reduces the roles of culture, context, and researcher-participant interactions into static categories, disregarding the institutionalized practices of exclusion and marginalization and participants’ personal and collective histories such as experiences with racism, ableism, and sexism.

As a result, other relevant and perhaps more salient factors contributing to exclusion and marginalization are obscured. Scholarly work that offers critique of the dominant framework has been positioned outside of the evidence base. Because evidence established through randomized experiments is considered culture-free and generalizable across a variety of groups and contexts, its application is too restricted to encompass ontological and epistemological approaches used to address a multitude of research questions. This is problematic because paradigmatic expansion has been instrumental in solving complex questions in other scientific fields (Kuhn, 1962). In the development of this rubric, our intention was to curate an artifact to remediate experimental intervention research toward a paradigmatic expansion in special education.

We are aware that in social sciences the rubric format has been used as a tool of control for demarcation of constructed binaries (i.e., science/nonscience). By noting the limitation of the rubric format, and given its cultural-historical supposition, we acknowledge that the CRR rubric cannot and should not set the margins of research activities. Additionally, some of the principles that guided the development of the CRR rubric overlap with quality rubrics for single-subject design (Horner et al., 2005) and qualitative research methodologies (Brantlinger, Jimenez, Klingner, Pugach, & Richardson, 2005). Although the CRR rubric can inform researchers conducting descriptive, single-subject, or qualitative studies to engage in CRR, its focus is on experimental research, as reflected in the review of theoretical and empirical work on experimental methodology and cultural responsiveness. We see this rubric as a cultural artifact that provides set of principles and

considerations for cultural responsiveness in a systematic and practical format. In what follows, we discuss development and application of the CRR rubric.

CRR Rubric Development and Application

We aim to expand—not to replace—commonly accepted standards and quality indicators in special education experiential research. Although areas of overlap between the CRR rubric and existing quality indicator rubrics of experimental research (Chard et al., 2009; Gersten et al., 2005) exist, such as presenting sociodemographic information and prior training about interventionists, we have expanded issues in design and implementation, such as sampling, that have implications for generating evidence in addressing strengths, needs, interests, and experiences of youth identified with disabilities. Basing our argument and rubric items on the principle that research is itself a cultural practice, our ultimate goal is to provide a conceptual tool to enhance researchers' reflexivity and responsivity during conceptualization, design, implementation, and dissemination of research.

Review of the Literature

For developing the CRR rubric, we reviewed education and social science literatures to identify guidelines, rubrics, conceptual papers, empirical research articles, and research syntheses on cultural responsiveness in research and education interventions. We searched three electronic databases: ERIC, PsycINFO, and Google Scholar. The following combinations of keywords were used: *culturally responsive* or *culturally competent* or *culturally adequate* or *cultural competency* or *cultural adequacy* or *cultural responsiveness* and *research*. The searches included dates ranging from 2000 to 2010. We also manually searched reference lists from selected publications and contacted experts on equity and diversity in education and psychology, seeking information on existing rubrics and related sources. Our search revealed no published rubric or checklist for use in evaluating CRR. Next, we synthesized the resulting relevant conceptual papers, guidelines, and empirical studies that detailed the related tenets of cultural responsiveness in teaching, assessment, interventions, and research and highlighted strategies for conducting rigorous CRR.

Rubric Development

We created rubric items by reviewing the literature base, examining tenets associated with CRR, and identifying criteria from extant theoretical and empirical scholarship. Findings from the literature review were organized into domains for rubric item development following the American Education Research Association (AERA) standards for reporting on empirical research (AERA, 2006). These domains are (a) problem formulation, (b) design and logic, (c) sources of evidence, (d) measurement/assessment process, (e) analysis and interpretation, and (f) dissemination. We created ratings for the levels of rigor for each criterion (Chard et al., 2009).

We used a 3-point Likert-type scale (0–2) to represent the variance in cultural responsiveness ratings for each criterion. Ratings of 0 are indicative of an absence of documentation of the role of culture, employing a culturally neutral approach. Ratings of 1 are indicative of documentation that culture was viewed merely as a

categorical, static variable via proxy indicators (e.g., race) determining participants' perceptions and behaviors. Ratings of 2 are indicative of documentation that an approach focusing on the affordances and constraints of the contexts in which individual, institutional, and interpersonal factors intersect. Following an iterative process, we sent the original rubric to two experts in the area of measurement and evaluation and four experts in the areas of special education, culturally relevant pedagogy, and education research. We revised rubric items based on those experts' feedback. The final 15-item rubric is included in Table 1. We then applied the rubric to a set of experimental studies identified by Test et al. (2009) as rigorous of evidence-based practices in special education transition (see Trainor & Bal, 2014, for a detailed account of this application). We made minor modifications in this final version of the CRR rubric.

Below we provide a discussion of each rubric item and rating to illustrate the relationship between extant literature, rubric criteria, and rating schema in six domains of the AERA (2006) standards for reporting on research: problem formulation, design and logic, sources of evidence, measurement/assessment process, analysis and interpretation, and dissemination.

Problem Formulation

Cultural artifacts and contextual factors such as the dominant individualistic behaviorist paradigms of learning and experiential intervention studies in the era of accountability and standardization shape researchers' thinking and planning as they develop investigations. Social, historical, and spatial contexts (e.g., location, demographics, ideologies, languages, and a groups' history with discrimination and power/privilege), at both group and individual levels, relative to both researchers and participants, all play some role in the way we conceptualize problems and design research questions (Ashing-Giwa, 2005; Goodley & Runswick-Cole, 2010).

In the development of this rubric, we used disability studies, specifically with relation to the problem formulation phase. Research in the field of disability studies in education emerged in the past two decades has opened the door to the understanding of factors regarding education and dis/ability. Scholars in disability studies have provided critical examinations of social and historical constructions of dis/ability through the analyses of historicity and positionality (Connor & Ferri, 2013; for an extensive review of disability studies in education, see Danforth & Gabel, 2007). Disability studies scholars suggest that disability is a social and political construct that becomes meaningful and consequential in the specific cultural contexts. They reject the idea that disability is a problem within the person that must be fixed (Ferri & Connor, 2005). Therefore, special education intervention research has remained distinct from this perspective. Ontological and epistemological differences have continued to act as a gulf between the mainstream special education and disability studies (Barnes & Sheldon, 2007).

People with disabilities are experts in their experiences and should be instrumental in research and practice (Connor, 2009). As will become clear in the ensuing discussion of the rubric, insider perspectives are central to CRR. Insiders in this conceptualization go beyond a single identity of either participants or researchers, speak to intersectionality, and are further differentiated from disability studies' conceptualizations by sharing importance with the key considerations

TABLE 1
Rubric for culturally responsive experimental intervention research

Rubric Item	0	1	2
1. Foundational construct(s) of the study	The construct under examination (e.g., learning disabilities, social skills, intelligence, self-determination, and at-risk behaviors) is implied but not explicitly discussed.	The construct under examination is explicitly discussed as universal. It is based on a norm-referenced sample representative of people from dominant backgrounds. Evidence of alternative conceptualizations of the construct is not presented based on the studies with nondominant groups.	The construct under examination is addressed comprehensively and critically; multiple perspectives and/or competing ideas are discussed with evidence of alternative conceptualizations.
2. Relevancy of the research problem	The relevancy of the research problem to the interests and needs of participants and local communities or to the researchers and the research field is not explicitly discussed.	The relevancy of the research problem is discussed, as it relates to the research field and/or the researcher's interests or line of inquiry.	The relevancy of the research problem addresses the research field and/or the researcher's interests or line of inquiry and the participants' and local communities' strengths, needs, and interests.
3. Critical and comprehensive review of the relevant literature	The review of extant literature results in a narrow rationale for the study that does not address what is known with multiple and/or conflicting views about the concept(s) under investigation and research problem.	The review of extant literature includes scholarship as it relates only to the concept(s) under investigation and research problem.	The review of extant literature is critical and creates a dialogue with studies employing alternative methodologies and perspectives on the concept(s) under investigation and research problem.
4. Justification of the theoretical framework	The theoretical framework of the study (e.g., behaviorism, cognitivism, or social constructivism) is not discussed explicitly. It is taken for granted.	The theoretical framework of the study is discussed abstractly, only as it relates to the construct under examination.	The theoretical framework is discussed comprehensively and critically as it relates to material, social, and historical contexts of the study and participants' lives, experiences, and preferences. The framework is justified with its limitations and strengths to study the topic, participants, and the specific context of the study.

(continued)

TABLE 1 (CONTINUED)

Rubric Item	0	1	2
5. Description of participants	Description of participants' sociodemographic characteristics includes two or fewer characteristics (e.g., gender, race, income level, education, gender, and disability).	Description of participants includes more than two individual characteristics (e.g., gender, race, income level, formal education, and disability).	Description of participants includes both individual characteristics and the institutional and social dimensions (e.g., institutional and cultural group histories, rules, and power differentiations) as related to the context of the intervention for both the control and intervention groups.
6. Description of researchers and interventionists	Description of researchers and interventionists (e.g., teacher, translator) includes two or fewer individual characteristics (e.g., gender, race, and language)	Description of researchers and interventionists includes more than two individual characteristics (e.g., race, economic background, gender, and disability); however, the description is limited to the dimension of the individual.	Description of researchers and interventionists includes individual characteristics and the contextualized institutional dimensions and relational positions among and between the participants and interventionists (e.g., status and insider/outsider positions).
7. Description of sampling procedures	Recruitment and sampling methods are not discussed.	Recruitment and sampling methods are discussed but lack detail about the rationale for the inclusionary criteria (e.g., exclusion of English language learners) and the congruency between recruitment methods and participants' experiences and preferences (e.g., language preference or method of contact).	Recruitment and sampling methods include differentiation based on participants' living conditions, experiences, and preferences and maximizing the potential to include nondominant communities (e.g., people with disabilities or English language learners) into intervention studies as participants and/or researchers.
8. Description of research setting	Description of the research setting is not discussed.	Description of the research setting includes the school and community characteristics relevant to the construct under examination.	Description of the setting includes political, material, social, and historical factors and their interaction within the context of the intervention process.

(continued)

TABLE 1 (CONTINUED)

Rubric Item	0	1	2
9. Description of data collection strategies	A rationale for the data collection strategies is not discussed.	A rationale for the data collection strategies is provided; however, it is limited to a technical discussion of the methodology.	A rationale for the data collection strategies includes consideration of participants' preferences, needs, strengths and interests. Multiple methods of data collection are used and maximize accessibility (e.g., providing interviews and measurement tools in participants' language, using participant-selected locales). Description of evidence includes interactions between the researchers, interventionists, and participants. The intervention is aligned with participants' experiences and preferences in nonresearch contexts (i.e., real life). The integrity of the participants' experiences and contexts is balanced with the intervention.
10. Ecology of the intervention	The intervention includes a contrived context, task, and control for variables to the extent that its application in outside of the research contexts (i.e., real life) is unlikely.	The intervention includes controlled variables and experimental conditions and that generally represent participants' experiences and preferences in nonresearch contexts, yet the properties of the intervention align more closely with those of the interventionists.	The intervention is aligned with participants' experiences and preferences in nonresearch contexts (i.e., real life). The integrity of the participants' experiences and contexts is balanced with the intervention.
11. Intervention design	<i>Culture-free approach:</i> The intervention does not consider fundamental aspects of cultural and linguistic diversity that participants, interventionists, and researchers bring to the study. The diversity of the material, social and historical contexts, is not discussed.	<i>Culturally sensitive approach:</i> The intervention incorporates methods and procedures to integrate individual and within-group diversity. These include a combination of the following: Researchers' and interventionists' training for working with historically marginalized groups, including participants' interests, perspectives, and practices; inviting community representation; ensuring availability and accuracy of translation of intervention materials and procedures; considering the implications of legal issues (e.g., citizenship status); and/or examining the applicability of interventions to participants' lives.	<i>Culturally relevant approach:</i> The intervention study incorporates methods and procedures to address diversity but also meets all three fundamental criteria for culturally responsive interventions: to improve academic achievement, skills and knowledge, and social outcomes; to affirm participants' cultural group and personal identities; and to facilitate the development of participants' critical perspectives to develop both an awareness of and the capacity to challenge inequities that they experience.

(continued)

TABLE 1 (CONTINUED)

Rubric Item	0	1	2
12. Assessment of intervention efficacy	The validity, reliability, and language of the measurement(s) are not discussed.	The validity, reliability, and language of the measurement(s) are discussed, but the measurements are standardized and norm-referenced for a population other than the sample.	The validity, reliability, and language of the measurement(s) are inclusive of the range of populations representative of participants, or the limitations of the measurement(s) and the lack of availability of normed-referenced tools for use with the sample is explicitly discussed.
13. Presentation of findings	The results are not disaggregated according to the participant sociodemographic characteristics.	The results are disaggregated according to participant characteristics between and within the intervention and control groups, but are limited to gender, race, income level, or language or disability.	The results are disaggregated according to participant between and within the intervention and control groups and include intersections of participants' sociodemographic characteristics (e.g., race, class, and disability identification).
14. Analysis and interpretation	<i>Culture-free approach:</i> Participant's cultural, linguistic, and economic backgrounds and contextual factors are not included in data analysis and interpretation.	<i>Cultural deterministic approach:</i> Participant's backgrounds and contextual factors are analyzed as categorical and static variables. Differences among the participants are interpreted based on the dis/advantages associated with living conditions, sociodemographic characteristics, or participants' lack of competencies in mainstream skills and knowledge.	<i>Cultural instrumentalist approach:</i> Participant's backgrounds and contextual factors are analyzed as dynamic, complex, and dialogical. Differences within the participants are interpreted as situated in affordances and constraints of the physical, social, and historical relations of the context. Factors under consideration include organizational structures, power distribution, and participants' identities and preferences.
15. Discussion of dissemination	Dissemination strategies are limited to the presentation of data in the article.	Dissemination strategies extending beyond the article are discussed.	Dissemination strategies are strategically selected to maximize sharing of knowledge (e.g., the data were shared with practitioners, policymakers, and nondominant families) with clear practical benefits to participants' communities writ large.

in the CRR rubric, sociocultural theorists' formulation of the cultural activity as the unit of analysis.

Theorizing inquiry requires researchers to formulate questions and hypotheses and to design experimental studies, inseparable from their views and values about inquiry, dominant practices in their fields, and available funding opportunities and priorities (Arzubiaga et al., 2008). If experimental designs are considered a gold standard and among policymakers and funding agencies, scholars may be inclined to formulate research questions prior to preliminarily examining the complexity of the problem from multiple perspectives as experienced by local stakeholders that include surveying gaps in knowledge (Sandler & Apple, 2010). This sequence violates the tenet that scientific inquiry and its design be question-driven (Phillips, 2006).

Theorizing content is embedded with the privileged ideologies and practices from the researchers' fields. Therefore, constructs under examination may reflect a limited, researcher-centric operationalization of a process that lacks ecological validity (Bernal et al., 1995). To avoid these potential pitfalls at the stage of conceptualization of constructs, research methodologies, and their underlying theories, CRR positions rigorous research as that which attends to the experiences, cultural practices, and ideologies of researchers and participants as members of cultural communities and institutions (Ashing-Giwa, 2005).

Item 1: Foundational Constructs of the Study

Although literature reviews typically discuss the constructs of interest, a score of 2 on this rubric item requires researchers to include in this discussion multiple perspectives of and competing ideas about the construct under investigation (e.g., LD, literacy, social skills, or at-risk behaviors). Lesser scores reflect a lack of such discussion or treatment of the constructs of interest as universal and ahistorical. Such discussion is an acknowledgement that researchers' conceptualizations are themselves the result of specific contexts that include the rules and traditions of academia (Bernal et al., 1995). To illustrate, the identification of LD is historically based on social constructs of intellectual capacity and achievement measured by artifacts such as aptitude and achievement tests and, more recently, on the conceptualization of how students respond to academic instruction and tiered interventions available in their local schools (Trainor, 2010). Although all research about LD does not need to restate the trajectory of the label, acknowledgement of the lack of consensus and ongoing issues of epidemiology and identification accuracy is pertinent to LD research, especially in studies that include samples of youth from nondominant backgrounds (National Research Council, 2002a). Research warranting a score of 2 on this item would include studies that both acknowledge that a disability label is marked by disagreements and provide an operationalized definition contextualized by the original research being presented.

Item 2: Relevancy of the Research Problem

Here, relevancy of the research problem extends beyond researchers' interests to include relevancy to participants' lives and interests. This item is parallel to culturally responsive practices that require both the validation of a diversity of life experiences and goals and the understanding of prejudice, institutionalized

ableism, racism, and the historical marginalization of nondominant communities that affect researchers' and participants' actions in abstruse ways (Gopaul-McNicol, 1998; Scheurich & Young, 1997; Tyson, 1998). An optimal score of 2, therefore, exceeds merely situating the description of the problem in the context of a scientific field through the presentation of extant findings. A score of 2 is an indication that the relevancy of the research problem addresses both the researcher's line of inquiry and the participants' and local communities' interests, strengths, and needs. Culturally responsive researchers ascertain the ways in which experimental study and the results are potentially of benefit to a research field and to participating communities.

Item 3: Critical and Comprehensive Review of the Relevant Literature

Such a review includes extant literature documenting the researchers' complex understandings of the constructs of interest, including multiple and competing perspectives representative of the literature. Researchers should use a critical lens and pose questions that expose what is not known relevant to nondominant communities, as well as the theories and methodologies developed in those communities (Graham, 1992; Scheurich, 1997; Tillman, 2002). Critical examination of a body of inquiry is recognized as an essential process for effective education researchers using experimental design and quantitative analysis (Floden, 2009) and as an essential skill in the study of problems with diversity and equity foci (Castagno & Brayboy, 2008).

A score of 2 on Item 3, therefore, is reserved for those reviews that not only include sufficient depth on the construct of interest but also include the scope of research that addresses points of controversy and dissent framed by the review. For example, if a review of postsecondary transition research framing an experimental study on parent involvement characterizes parents of nondominant youth with disabilities as having low expectations, an effective critical review would also include a synthesis of literature that addresses the historical exclusion of nondominant parents in postsecondary transition decision-making processes and how those parents have been represented over decades of research through a deficit-oriented lenses asserting that parents' lack of resources limits their children's success (Trainor & Bal, 2014). Moreover, a comprehensive review scoring a 2 on this rubric is illustrated by exhaustive and critical literature reviews that include trends and outlier results, particularly when the construct of interest is linked with learning and development of nondominant youth (Castagno & Brayboy, 2008; Ladson-Billings & Tate, 2006).

Item 4: Justification of the Theoretical Framework

Results of an experimental intervention study confirm the quantitative relationships between a set of variables in a given study. Theoretical frameworks guide researchers' interpretations of the connection and meaning of the findings in the real world (Bonilla-Silva & Zuberi, 2008). The explicit identification of underlying theories in the mainstream special education (e.g., behaviorism or cognitive-behaviorism), medical-based definition of disability, and discussions of the possibilities and constraints of those theoretical frameworks have been neglected (Brantlinger, 1997). In the absence of such

reflexivity, certain theoretical assumptions and constructs are treated as objective: The naturalized theoretical positions such as ableism, individualism, and universalism undergird many studies examining disproportionate representation of nondominant students in special education (Harry & Klingner, 2006). To illustrate, in the disproportionality literature, race has been used as a proxy indicator of culture that determines individuals' actions, perceptions, and performances. The conceptualization of race and disability as objective, unchangeable individual attributes is a theoretical assumption. As such, researchers commonly present their findings on the effect of race, such as disproportionate representation of African-American students in office discipline referrals, and interpret the findings causally.

The biological conceptualization of race is informed by ableism and eugenics and has been challenged by critical special education scholars, largely from nondominant communities, as it legitimized racial stratification and the racialization of deviance (Artiles, 2011; Harry & Klingner, 2006). Similarly, disability studies scholars have challenged singular biological conceptualizations of disability and forwarded the culturally mediated and socially constructed notion of disability (Ferri & Connor, 2005; Florian, 2007; Snyder & Mitchell, 2010).

In education research, critical theorists conceptualize race as an ever-evolving relational construct that has a central role in the formation of individual selves and national identity in the United States: Race relationships should be "articulated in the specificities of their historical conditions. Race may shift and morph in its relative significance to racialized groups, but its centrality in U.S. society is absolute insofar it represents a central axis of self and social understanding" (Leonardo, 2009, p. 129). Thus, discussion and justification of the theoretical framework, as it relates to material and ideological contexts of the study, the unit of analysis, and the constructs under examination, are warranted. A score of 2 indicates that the underlying theoretical framework is revealed and comprehensively discussed regarding its affordances and constraints.

Design and Logic

Although the unit of analysis is centrally important to decisions made at each stage of research, it is an overarching consideration during study design. Researchers use the unit of analysis as the point of reference when selecting who will be included as participants and identifying appropriate methods for answering the research questions. Contextual factors such as those that influence relationships among and between researchers and participants (Fine, Weis, Weseen, & Wong, 2003; Merriam et al., 2001) have the potential to shape the research landscape and the logic used in research design. Ashing-Giwa (2005) cited the maltreatment of African American men in the Tuskegee syphilis experiment, a sociohistorical factor that not only damaged the lives of individual participants but also eroded trust between researchers and the African American community in difficult-to-measure ways. Legislation regulating research may address humane treatment and begin to restore working relationships; however, the distal effects of prior discriminatory practices are difficult to gauge. Members of some groups may have greater reservations about participating in research. Similarly, researchers may anticipate mistrust and avoid attempts to include nondominant communities.

From inception and design, the CRR rubric attempts to minimize and address contradictions associated with contextual factors by expanding the purpose of research and thus the research questions themselves, beyond the concerns of the researchers, their field, and the private and governmental agencies they often serve. Researchers employing CRR promote both the interests of members of the investigatory community and members of the participating communities. To attain this goal, a culturally responsive intervention study ideally includes members of participant communities at all stages of research (e.g., people with disabilities; Arzubiaga et al., 2008; Tillman, 2002). When this is not possible, engaging in CRR requires formal and informal efforts to gain understanding of the range of participant perspectives and to acknowledge existing gaps (Wells, Merritt, & Briggs, 2009). The items in this section are framed as *descriptions* to accommodate flexibility in evaluation. We are aware that researchers often make pragmatic decisions during the study. Therefore, the rubric items in this section highlight the importance of providing details about the logic of the design so that consumers of research can evaluate the extent to which the work represents cultural responsiveness.

Item 5: Description of the Participants

Experimental methodology demands that researchers define their sample, thoroughly providing information about participants' sociodemographic backgrounds such as disability identification, race, gender, age, immigration status, education, and income as minimally required for publication (AERA, 2006; APA, 1990, 2005). However, in the special education literature, experimental studies include limited information about the participants, reporting only gender and/or disability identification of the participants (Swanson & Hoskyn, 1998; Trainor & Bal, 2014). In this rubric, we ask intervention researchers to provide a detailed account of participants' sociodemographic characteristics and histories. We also ask researchers to go beyond this surface, providing the institutional and social contexts within which the participants learn and work. For instance, living in a Southwestern border state with institutionalized racism and anti-immigrant attitudes is an important factor for refugee students of color whose performances are the foci of an intervention (Bal & Arzubiaga, 2014).

Sociodemographic descriptors such as race and disability status, however, have multiple uses. Some researchers intend to use demographic information as fixed individual traits that can function as a control variable when comparing data across groups (James, 2008). An important distinction is that studies of race and disability as constructed variables indicative of dynamic and situated processes help explain social phenomena. Language used in experimental studies describing sociodemographic characteristics also constitutes frames of reference related to the study of the construct of interest. Racial terminology, for example, is instantiated with power vis-à-vis historical and spatial variation, muddling their meanings, at best, or, at worst, inaccurate (Fisher et al., 2002; James, 2008).

Description of participants reveals researchers' sampling methods. In relation to experimental research designs, in particular, either the samples have not been described in such a way that facilitates replication, or the samples themselves are not representative of the cultural and linguistic diversity of U.S. classrooms

(Padilla, 2004). Calls for the inclusion of diverse groups of participants abound (Fisher et al., 2002; Graham, 1992; Whiting, Ford, Grantham, & Moore, 2008). Furthermore, researchers' conceptualizations of cultural diversity and homogeneity are critical to both the description of participants and to the study's sampling design. Including diverse groups, such as not only people who share a common experience (e.g., having been identified with an LD) but also those who hail from a range of backgrounds (e.g., being at various points on a continuum of bilingualism), is possible. Another conceptualization of *diversity*, albeit common but less straightforward in our view, is that the term means people not included in the dominant group. We align Item 5 to definitions of diversity allowing for consideration of within-group diversity that is centrally important to CRR practices (Gelman, 2004). Identifying sociodemographic characteristics in relation to the constructs of interest is necessary but deceptively simplistic. A score of 2 is meant to reflect the complexities inherent in discussions of participant characteristics such as the intersection of two variables (e.g., disability identification and race) and the institutional dimensions that contribute to the context of the research setting (McDermott et al., 2006).

Item 6: Description of the Researchers and Interventionists

This rubric item acknowledges that participants are not alone in enacting identities relative to experiencing learning, development, and research. The same issues that surface in the description of participants are apparent in the description of researchers and interventionists. Researchers and interventionists also embody and are embodied by professional and other historical and interpersonal factors, including prejudices or selective attention. Extant work in the field of psychology has demonstrated the importance of interventionists' background and efficacy of psychotherapy (Fisher et al., 2002; Pope-Davis, Liu, Toporek, & Brittan-Powell, 2001). Additionally, prior rubrics for quality indicators of special education experimental research include an item for the provision of information about the interventionists and the researchers themselves (e.g., training in the intervention and experience with participating communities) as a key quality indicator (Chard et al., 2009). This has a critical importance for intervention studies in terms of replication and fidelity of implementation. Hence, on Item 6, scoring a 2 requires that the same components present in Item 5 be discussed in similar depth, with the researchers as the key referents.

Item 7: Description of the Sampling Procedures

Intervention researchers should include nondominant youth as participants if the intervention may be used with that population. When participants from nondominant backgrounds, such as students identified as English language learners, are omitted or included in insufficient numbers, narrow findings may be interpreted too broadly and generalized inadequately (Graham, 1992; Klingner et al., 2007). Furthermore, replication, one affordance of randomized experiments, cannot be widely implemented to test hypotheses with specific subgroups (Padilla, 2004). Additionally, sampling diverse populations in sufficient numbers for generalization has been posited as one way to augment the implementation experimental designs to align with cultural responsiveness (Calamaro, 2008).

In CRR, sampling necessarily includes the establishment of personal relationships within the communities where the participants learn, live, and go to school (APA, 2003; Banks et al., 2007; Whiting et al., 2008). Initial efforts to build trust by increasing presence in research settings and including members of diverse communities on the research team are two strategies (Ashing-Giwa, 2005). The intervention researchers should specifically attempt to include people with disabilities into the project as researchers, consultants, and advisory board members. This will challenge the exclusionary practices in research and maintain participatory social justice (Bal, 2012). The participatory social justice perspective requires all local stakeholders (e.g., family members and students), specifically those who are historically marginalized, to be included in decision-making activities (Bal, 2012). A score of 2 incorporates researchers' documentation of congruency between recruitment methods, participants' experiences, and study design. Researchers need to increase their ability and tolerance for spending adequate time in the field among the participating communities prior to intervention and transparently documenting limitations that lacking such contact may impose on the design.

Item 8: Description of the Research Setting

A fundamental premise of CRR is that activities related to the construct of interest are, as is the research itself, an object of inquiry. The description of setting (e.g., social and institutional contexts of the experiments), therefore, must be sufficiently comprehensive, providing information about the activity setting and the extent to which the research mediated that setting. To illustrate, there are several studies that have shown that lack of material and financial resources in schools is a better predictor of students' academic achievement problems than student-level factors such as family income or early phonemic awareness (Klingner et al., 2007). A score of 2 incorporates in-depth descriptions of contextual factors, their interactions, and the ways in which the research setting is representative of participants' everyday contexts (Pope-Davis et al., 2001).

Sources of Evidence

Building participants' trust and responsiveness through researchers' consideration of the strengths, needs, interests, and experiences of a diverse population requires transparency not only in sampling but also in intervention design and data collection (Wells et al., 2009). Of particular concern is the design of instruments and other intervention components that yield "reliable, valid, and culturally consonant" scores (Ashing-Giwa, 2005, p. 134). This outcome entails paying careful attention to intervention components' relevancy, measurement techniques, and language (Bernal et al., 1995; Padilla, 2004). Intervention research is implicitly and explicitly connected to the researchers' aim to understand outcomes. In CRR, researchers consider the community-level outcomes, in addition to individual-level outcomes, expanding the unit of analysis (Chouinard & Cousins, 2007). These considerations may be conceptualized as contextual—that is, they include the analysis of the locale in which the intervention is likely to be implemented, beyond the implementation of research as well as the larger societal factors (Pope-Davis et al., 2001).

Item 9: Description of the Data Collection Activities

Measurement and observational tools and practices mediate data collection. Such tools and activities are typically planned for uses that meet the interests, strengths, and experiences of researchers. Generating data in alignment with CRR requires researchers to use diverse methods of data collection that reflect participants' real life experiences and contexts (APA, 2003; Chouinard & Cousins, 2007; Whiting et al., 2008). In CRR, data collection should be informed by the research literature on culturally relevant pedagogies. This body of evidence, over time, demonstrated that improved classroom performance follows lessons and tasks that reflect multiple ways of learning, knowing, and performing (García & Guerra, 2004; Lee & Slaughter-Defoe, 2004). A score of 2 on the CRR rubric is reserved for studies employing data collection activities and instruments that are transparent about efforts to meet participants' everyday practices and discuss the interactions between researchers, interventionists, and participants.

Item 10: Ecology of the Intervention

We developed this rubric item following current conceptualizations of ecological validity in experimental research studies, specifically in developmental psychology and neuropsychology (Bronfenbrenner, 1979; Spooner & Pachana, 2006). Experimental conditions should be congruent with participants' perceptions and real-life situations outside of the experimental conditions. Furthermore, interpretive consistency between the data and participants' understandings of conditions should be maintained. Studies receiving a score of 2 reflect alignment between the intervention and participants' experiences and/or preferences in non-research contexts (i.e., real life). The integrity of the participants' real life and perspectives is balanced with the experimental design (M. Cole et al., 1997).

Item 11: Intervention Design

Consideration for honing procedures, measurements, and interventions that are specific to the shared goals and needs of a community is prioritized (Banks et al., 2007; Coard, Wallace, Stevenson, & Brotman, 2004; Ladson-Billings, 1995). As the rubric score of 2 indicates, optimal intervention design accounts for diversity within groups, ensuring that the design is not based on stereotypes or static conceptualizations of participants' identities and experiences. Furthermore, a score of 2 encompasses tools for critique so that researchers and participants are in positions to interrogate and challenge inequity conceptualized as culturally relevant pedagogy by Ladson-Billings (1995). These aspects of the highest evaluation mark are parallel to extant research in culturally responsive practices in health sciences, sometimes referred to as elements of empowerment among people with medical problems (e.g., Garrett, Dickson, Young, Whelan, & Forero, 2008; Jackson, 2009).

Measurement Process

Measurement tools and process are culturally mediated: "Culture-free tests cannot be constructed because tests are inevitably cultural devices" (Solano-Flores & Trumbull, 2003, p. 7). Despite tacit agreement among researchers and practitioners that measurements must be congruent with students' preferences and individual and group experiences (e.g., racial discrimination), appropriate use of

culturally responsive tools continues to be problematic in the identification of disability, preferences, strengths, and needs for youth from historically marginalized groups as situated in specific local context (Figueroa & Newsome, 2006; Solano-Flores, 2008). Thus, the selection of culturally responsive measurement tools and methods continues to be an explicitly stated tenet and criterion for CRR (AERA, 2006; APA, 2003, 2005; Frierson, Hood, Hughes, & Thomas, 2010).

Item 12: Assessment of Intervention Efficacy

Experimental research often employs instruments that purport to measure changes in participants' aptitude and performance, and yet these data collection instruments are perhaps among the most fervently critiqued tools. In psychology, the use of norm-referenced instruments illustrative of specific aspects of reliability and validity has been prioritized in research (APA, 2003; Fisher et al., 2002). Yet the underrepresentation of some samples of participants continues to set the stage for legal challenges to the identification of linguistic and racial minority youth as disabled. In both research and practice, the use of inappropriate instruments continues to be documented (Figueroa & Newsome, 2006; Wilkinson, Ortiz, Robertson, & Kushner, 2006).

The significance of this criterion has long been acknowledged in experimental research. Assessment tools are cultural artifacts whose constructs, concepts, and language inherently exemplify material and ideal components of these artifacts (Frierson et al., 2010; Solano-Flores, 2008). The ratings indicate the extent to which the detailed description of assessments and measurements explicated validity, reliability, and cultural congruence with participants. When documentation of validity and reliability of the tools included the range of populations in the study's sample, or when the lack of such instrumentation constituted an acknowledged limitation, a score of 2 is warranted.

Analysis and Interpretation

Making sense of data and drawing conclusions about the implications of the findings, congruent with the tenets of CRR, entails avoiding the reification of broad generalizations of people from historically marginalized groups and deficit-oriented conclusions that fail to expand the possibility for social change (APA, 2003; Fisher et al., 2002). Several scholars have argued that education research, even when claiming to take aim at inequity, has failed to address enduring affronts to equal opportunities and outcomes (Apple, 2013; Ladson-Billings, 2006). The related conceptualizations of socially just research, science for the sake of the public good, and inquiry that aims for emancipation and transformation are embedded in, as well as embed, CRR. As such, analysis and interpretation must be contextually situated and must include multiple perspectives with their historical materiality (Justice for whom? What public? Whose interest?) and acknowledge and entertain issues of power in knowledge production (Leonardo, 2009).

Item 13: Presentation of Findings

Klingner et al. (2007) stated, "Unfortunately, the results from control-group, randomized or quasi-experimental designs tend to be overgeneralized . . . without

a close-enough look at variance and possible treatment X attribute interactions or school or teacher effects” (p. 227). Combined with the inherited belief about universality of scientific truth, this tendency, Klingner et al. suggested, may result in misidentification of students from nondominant racial and linguistic backgrounds as “nonresponders” to evidence-based practices. The presentation of results in CRR adheres to both the tenets of experimental designs by avoiding generalizations where they are not warranted based on the failure to meet design criteria expressed in the CRR rubric (e.g., acknowledgement that insufficient participation by linguistic minority students makes the results not generalizable to this group). A score of 2 indicates that intersecting sociodemographic variables and the contextual variables are presented in close proximity to one another, so that they can be considered in tandem and so that results can be disaggregated based on sociodemographic characteristics of the participants in both experiment and control groups.

Item 14: Analysis and Interpretation

In CRR, the conceptualization of culture throughout the analysis and interpretation of data must be transparent and explicit. We anchored this criterion to arguments for the expansion and importance of culture as pertains to teaching and learning (Erickson, 2009; Ford, Grantham, & Whiting, 2008; Gutiérrez & Rogoff, 2003) and professional guidelines for research (AERA, 2006; APA, 2003). Therefore, the role of culture as contextual and activity-oriented is interrogated as a method of identifying the relevant individual, institutional, and interpersonal factors. A score of 2 on this criterion indicates that the researchers anchor culture to an instrumental theoretical frame that expands the potential for this analysis, tackling the intersectionality of sociodemographic factors (e.g., the interactions of race, class, and disability among Latino immigrant communities) and the interpersonal contexts of research and practice (Artiles et al., 2008). To the greatest extent possible, then, analysis and interpretation are situated in their specific social, historical, and spatial contexts (Gutiérrez & Rogoff, 2003; Soja, 2010).

Dissemination

Dissemination of research should translate into its local uses and practical applications (National Center for the Dissemination of Disability Research, 1999). For researchers, one typical use is to augment or sharpen the precision and reach of policy and to support organizational change. Attention to use in CRR requires that researchers understand the contexts in which people live, work, and learn so that research implications for the broader society address local issues (APA, 2003; Banks et al., 2007). As schools are becoming more diverse, dissemination of research findings must include consideration of this issue.

Item 15: Discussion of Dissemination

In CRR, dissemination of implications for practice and further research should be contextually framed and any limitations in generalizability need to be acknowledged. In addition to publishing results in scholarly journals, presenting results to participants’ communities via multiple media, using accessible language (e.g., in braille or in participating community’ language), and focusing on the practical

implications are essential (APA, 2003; Ashing-Giwa, 2005). A score of 2 is assigned to studies when dissemination strategies are strategically selected to maximize knowledge sharing with clear, practical benefits to participants' immediate communities writ large.

Discussion

In the present article, we explore the cultural responsiveness of experimental intervention research and its significant implications, specifically for working with nondominant youth experiencing academic and behavioral difficulties in schools. Conducting intervention research employing methodologies that are culturally responsive is a priority posited by scholars concerned with the enduring problems of inequity in special education identification and service delivery such as disproportionate representation of nondominant students (e.g., Artiles et al., 2010; Haager et al., 2007; Vincent et al., 2011). At the same time, special education scholars have published several seminal works operationalizing rigor in research methodologies, tethering ongoing problems to a lack of a strong empirical knowledge base (Brantlinger et al., 2005; Chard et al., 2009; Gersten et al., 2005; Lane et al., 2009; Odom et al., 2005). Operationalizing CRR, however, has received less attention than the operationalization of rigor in experimental research, often conceptualized as culture-free or largely absent consideration of race, class, and gender.

The development of this rubric addresses the knowledge gap resulting from definitions of rigor operationalized without attention to cultural practices embedded in and resulting from scientific inquiry. The application of this rubric for the purposes of ascertaining the extent to which evidence is culturally responsive can be found in other publications (Trainor & Bal, 2014). Our review of the literature did not evidence a rubric for the consideration of CRR. However, criteria for the concept of cultural responsiveness in research did surface. Our work was to identify these criteria and to bring them together in the form of a rubric, a commonly used format in our field, special education, for the purpose of examining rigor as pertains to operationalizing CRR.

We recognize some of our rubric items may challenge the dominant applications of positivistic and postpositivistic methodologies. We value experimental designs and have conducted intervention research. Hence, our aim is to contribute to the development of culture-conscious experimental research by paying closer attention to contextual factors and interaction effects producing ecologically valid and sustainable interventions that address complex issues. We support CRR, even if doing so necessitates decisions in design, implementation, and dissemination that may not strictly adhere to historically privileged approaches to experimental research. Our work essentially blends notions of responsivity and reflexivity, a construct typically associated with qualitative methods, into experimental research. This may require researchers to be open and critical and to report limitations more transparently than is currently common practice. This rubric may make an important contribution through the expansion of identified criteria for rigor and broader notions of what counts as evidence.

We also acknowledge that the dominant conceptual framework of special education intervention research may presuppose a deficit in need of fixing, and that

this position is ableist (Campbell, 2008; Ferri & Connor, 2005). The tension between intervening and efforts to normalize people with disabilities illustrates yet another dialogue about oppression and equity. Viewing disability through a scope focused on measurement and intervention is foundational to special education rarely interrogating and challenging the underpinnings of ableism as addressed by disability studies and critical special education scholars who examine historical and structural manifestations of dominant views of normalcy and dis/ability. Dialogue about how interventions may be beneficial for all has an important role in CRR, and we acknowledge that our rubric only opens the door to such a discussion for a paradigm expansion. Working within experimental design, this rubric highlights the importance of people with disabilities as decision makers and their situated knowledge in design, implementation, and dissemination. We invite intervention researchers and disability studies scholars to further this dialogue.

In agreement with Bonilla-Silva and Zuberi (2008), we think a research field is at its best when it is reflexive via continuous critical examination of its tools and methods. Without such examination, perspectives, experiences, and goals of dominant social groups are accepted as natural, logical, and normal. The rubric is our continuing effort in responding to the call for strengthening rigor, applicability, and effectiveness of experimental intervention research in special education (Chard et al., 2009; Odom et al., 2005; Ortiz & Yates, 2010) and for creating race-conscious, culturally responsive practices in education research in general (Erickson & Gutiérrez, 2002; Ladson-Billings, 2006; Leonardo, 2009).

Science “is not about certainty, but about uncertainty” (Erickson & Gutiérrez, 2002, p. 22). Our hope is that the rubric as a living artifact will be negotiated and adapted by practitioners in and through the cultural activity of education research that is complex, ever-shifting, and ambiguous in nature. One goal of the CRR rubric is to increase our potential as researchers to address the disparities in access, outcome, and opportunity. Another goal is to address dialectical tensions within education research because the dominant research paradigm for knowledge production has not been able to adequately address and perhaps even reproduce the status quo inadvertently increasing the disparities.

The use of the CRR rubric can facilitate praxis, a continuous critical reflection and action, to challenge naturalized and thus taken-for-granted practices and ideologies of knowledge production and to design culturally responsive intervention studies. Our hope is that this rubric will be instrumental in the necessary paradigm expansion in special education to understand the cultural nature of learning and development and constructs such as race, class, gender, and disability. Doing so will provide additional ways to explore and address the historical exclusion and marginalization of nondominant communities in knowledge production activities and the widening and deepening inequalities.

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