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## *System of Disability*

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### **Abstract**

*The present article examines an enduring educational injustice- racial minority students' disproportionate representation in special education programs. From a historical materialist perspective, racial disproportionality forms a cyclical systemic crisis in the lives of students, families, educators, and society. It also offers a significant opportunity to examine and transform school systems from the ground-up with local school communities. I first provide a social-historical-spatial examination of racial disproportionality as a systemic outcome and disability classification process as a key process that reproduces that outcome. Then, I detail how formative intervention, an activity theory-based systemic intervention model, can be instrumental in capacity building in schools to examine and intervene marginalizing educational processes. Lastly, I present Learning Lab, a formative intervention methodology, aims to re-mediate complex ecologies of education systems by transforming exclusionary processes with local stakeholders who reproduce and are negatively affected by those unjust processes and outcomes.*



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*Today's catastrophes do not progress in a straight line but in cyclical crises.*

-Brecht, 1964

In the United States, race, ability, and education have been interlocked in complex ways that require complex conceptualizations and corrective actions in theory and practice. Educational outcome disparities faced by youth from nondominant communities have been grossly deepened in the United States since the 1980s (Darling-Hammond, 2010). A major contributor to this problem is the disproportionate placement of youth from nondominant communities into special education programs. Special education identification is meant to allocate appropriate services and additional resources for students with disabilities. However, a disability label stigmatizes those students, segregates them from their peers, exposes them to low expectations and weak curricula, and limits post-school outcomes (Harry & Klingner, 2014; U.S. Department of Education, 2014). As a result, disproportionality creates an unacceptable inequality as it further marginalizes nondominant students and their communities at large. Racial disproportionality is a cyclical crisis as Bertolt Brecht (1964), a Marxist dramaturgist, stated in the opening extract. The enduring existence of disproportionality forms a systemic contradiction not only for nondominant students, families, practitioners, and policy makers but for researchers as well because it challenges the liberal (individualistic, acontextualized, and outcome-oriented) theories and methodologies that dominate the fields of psychology and education in the United States.

The aim of this article is twofold: First, grounded in Marxist historical materialism and sociocultural theory and informed by interdisciplinary literature from special education, disability studies, cultural psychology, organization studies, and critical geography, the present article provides a social-historical-spatial conceptualization of disproportionality at the intersection of institutional, individual, and interpersonal factors. A historical materialist examination of disproportionality can provide a significant opportunity to intervene in school systems. In the climate of neoliberal educational reforms based on “standardization” and “accountability” ideals, a historical materialist examination is timely and necessary. Today the standardization and accountability-based, schoolwide educational programs of service delivery and disability identification (e.g., Positive Behavioral Interventions and Supports [PBIS] and Response to Intervention [RTI]) enjoy policy-level support and increasing popularity. Second, this article presents a sociocultural theory-based systemic intervention methodology called *formative intervention* for re-mediating the exclusionary educational processes in practice. A formative intervention methodology, called Learning Lab that I put forward here strives to facilitate a socially just, ecologically valid, and sustainable systemic transformation. Below I start my analysis with the outcome (disproportionality) and then move into a key process (the disability classification) that reproduces disproportionality. Lastly, I present activity theory, a new generation sociocultural theory, and formative intervention methodology.

### **The Outcome**

#### *Racial Disproportionality*

Special education disproportionality is defined as “the extent to which membership in a given [...] group affects the probability of being placed in a specific special education disability

category” (Oswald, Coutinho, Best, & Singh, 1999, p. 198). Nondominant students have been disproportionately placed in special education for high incidence disability categories (e.g., learning disabilities [LD], emotional disturbance [ED], and cognitive impairment (CI); U.S. Department of Education, 2014). The students diagnosed with high-incidence disabilities constitute almost 70% of all students receiving special education services. At the national level, African American and Native American students are the most affected groups: African American and Native American youth have been two to three times more likely to be identified with LD, CI, and ED compared to their White peers since the 1970s in the United States (Donovan & Cross, 2002). It is also an international phenomenon: In Spain, Romani and Moroccan students are disproportionately placed in special education, while Bangladeshi, Pakistani, and Black Caribbean students experience disproportionality in the United Kingdom (Artiles & Bal, 2008).

Racial disparities exist even within given disability designations. Once placed in special education, racial minority students are educated in more restrictive settings, spend more time outside of general education, and have less access to the general education curriculum compared to their White peers with the same disability label (U.S. Department of Education, 2014). Moreover, punitive and exclusionary control over nondominant youth with disability identification has been recorded in disciplinary practices for African American, Latino, and Native American students (Orfield, Siegel-Hawley, & Kucsera, 2014). National studies showed, for example, African American students with disabilities constituted 21% of the total numbers of students with disabilities, but 44 % of those with disabilities were subjected to mechanical restraints such as being strapped down (Office for Civil Rights, 2012).

Despite its long-term existence, the full complexity of disproportionality is only beginning to be understood (Waitoller, Artiles, & Cheney, 2010). In the literature, there were two prevalent explanations: (1) Teachers’ biases toward nondominant students and (2) Behavioral and academic risk factors that nondominant students bring to school (e.g., poverty, exposure to toxins, violence, and trauma). As a result of these essentialist explanations locating the problem within the minds of individuals, current interventions focus on changing cognitive properties of teachers or nondominant students and families (e.g., attitudes) or removing bias within identification by placing impartial professionals at the center of the standardized process.

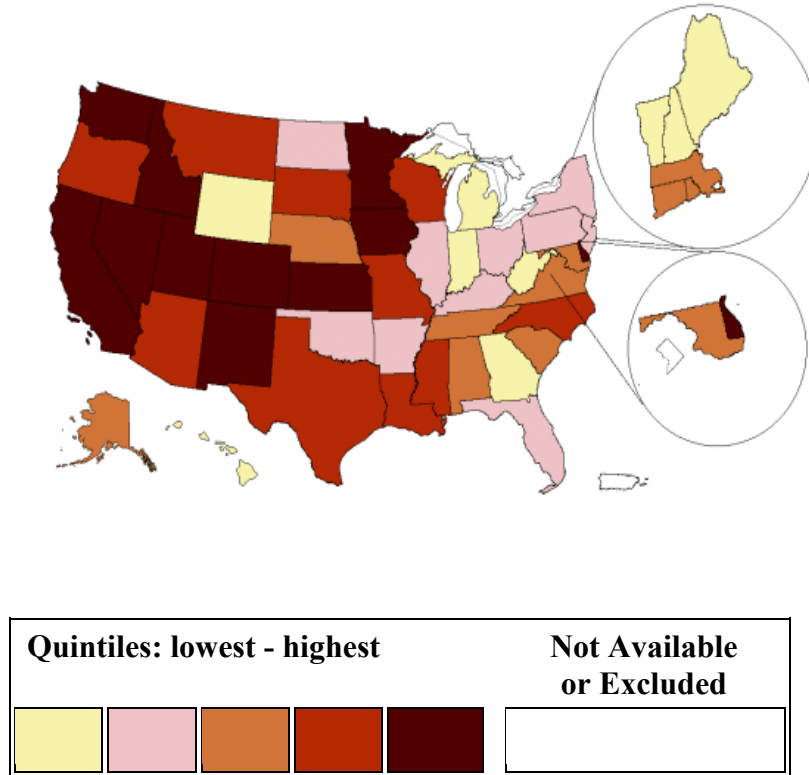
### *Spatiotemporal Dialectics of Racial Disproportionality*

Disproportionality is a fluid, multifaceted systemic problem that demands robust systemic analyses in order to be understood and effectively addressed in local contexts. The disproportionality literature demonstrates a vital need of examining how individual and institutional factors interact in local, educational, demographic, and policy contexts to create varying spatiotemporal patterns of disproportionality (Cavendish, Artiles, & Harry, 2014). Relative risk ratio (RRR) is the most widely used to measure the extent of disproportionality. RRR measures one group’s probability of identification relative to a comparison group’s risk in the same category. In disproportionality studies, White students are used as a comparison group in equity analyses because they are the dominant group who historically has disproportionately benefited from privileges in educational opportunities (Artiles, Rueda, Salazar, & Higuera, 2005). RRR values greater than 1 indicate greater risk (e.g., a value of 3 indicates that a group is three times as likely to be identified compared to the comparison group). Values less than 1 indicate a group is less likely than the comparison group to be identified with a disability.

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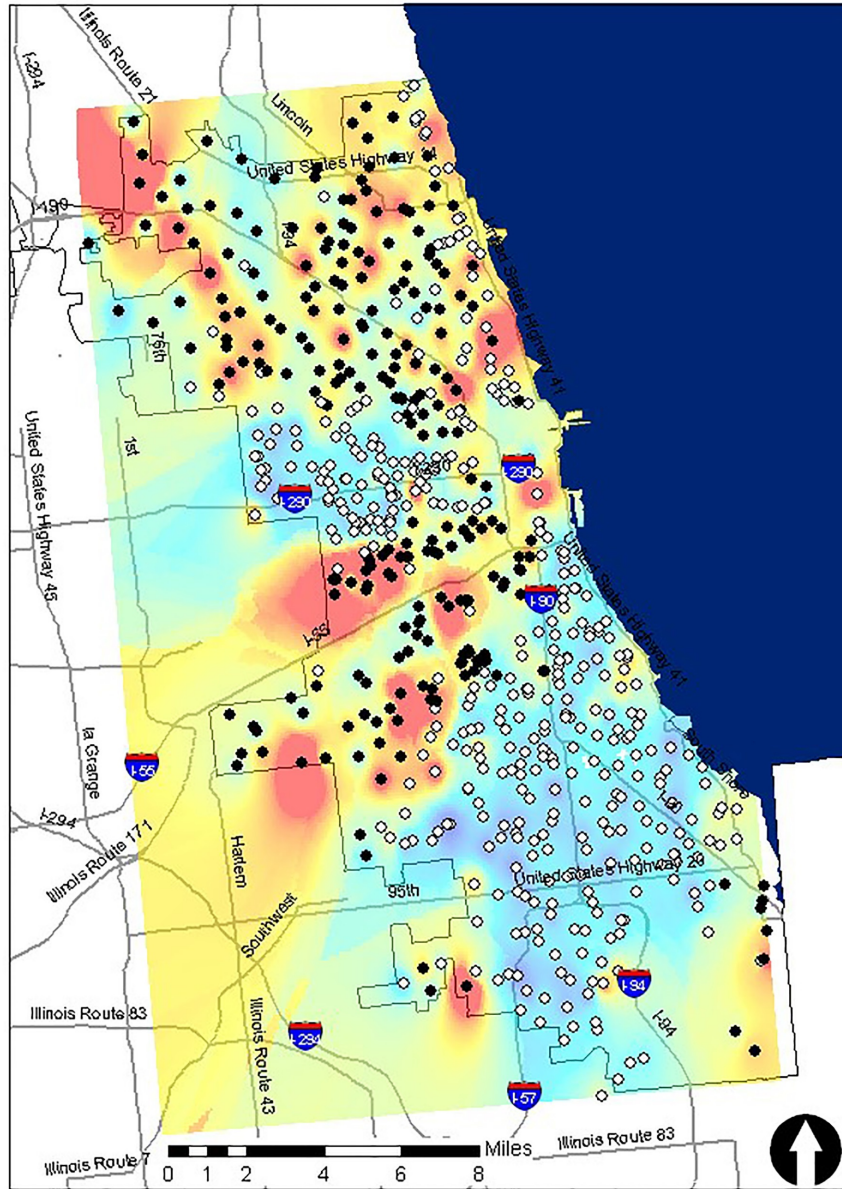
Although disproportionality has been a persistent problem nationally, its patterns and predictors change across multiple spatial and temporal contexts (Skiba et al., 2014; Sullivan & Bal, 2013).

Figures 1-3 visually represent the fluid yet tenacious nature of disproportionality via graphs and data maps. In Figure 1, the map shows the contrasted risk for African American students' identification with high incidence disabilities from one state to another (The National Center for Culturally Responsive Educational Systems [NCCRESt], 2012).



*Figure 1.* Relative risk ratio of special education identification for African American students (The National Center for Culturally Responsive Educational Systems [NCCRESt], 2012).

Further, marked disproportionality exists even within states that appear to be low RRR in aggregate. This point is illustrated in Figure 2. There are certain neighborhoods in Chicago where the schools have high risk ( $RRR > 3$ ) while other parts of the city the schools have neutral ( $RRR = 1$ ) or low risk ( $RRR < 1$ ) for African American students to be identified with high incidence disabilities. At the same time, we can find contradicting cases to this city-level pattern data map. There are schools located in very close proximity with similar and different student demographics that have high risk for African American students (NCCRESt, 2012b). If we further zoom in to investigate district-level disproportionality across multiple disability categories, the interaction of temporal context and special education placement demonstrates the adaptive and fluid localization of racial disproportionality within local education agencies.



Chicago City Schools 2005 - 2006 Comparative Risk School (AA)

"High-Incidence" Disabilities (AA)

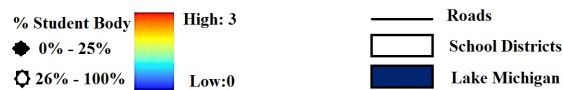
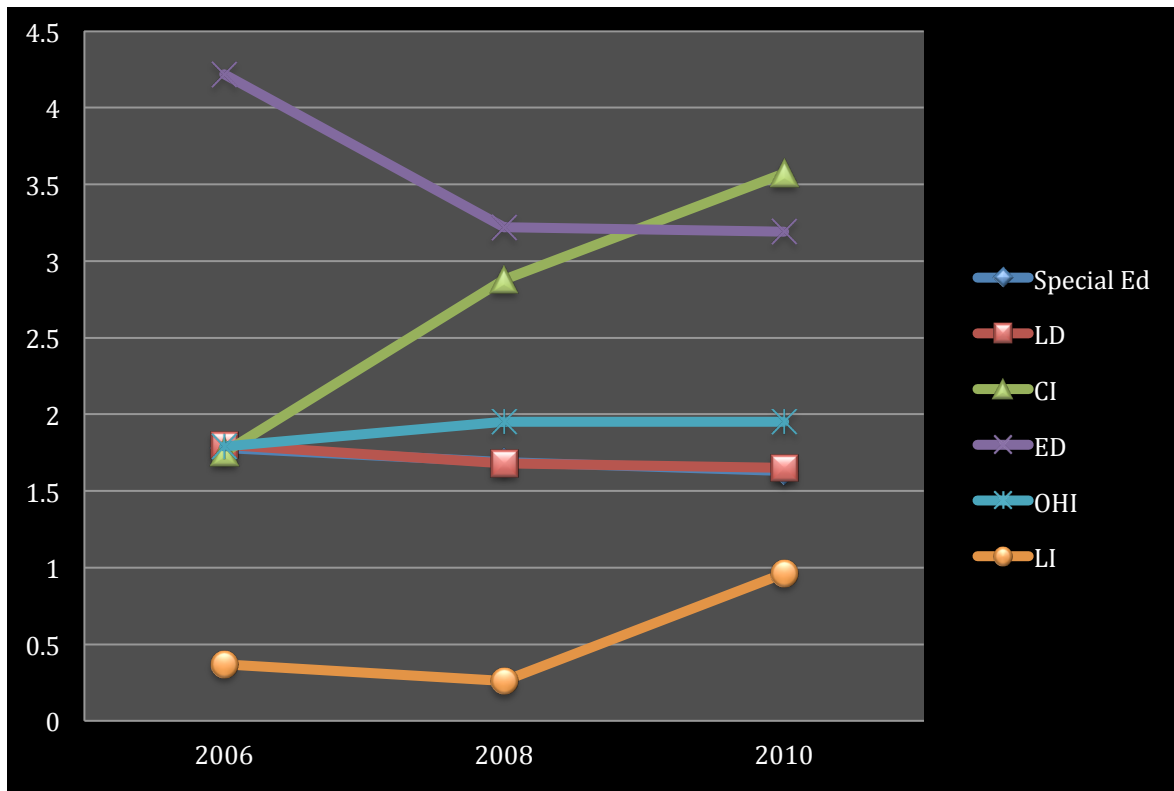


Figure 2. Data map of African American students' representation in high incidence disability categories and school population in Chicago Public Schools (NCCREST, 2012).

Figure 3 shows the RRR for Native American students across multiple disability categories between 2006 and 2010 in an urban school district in the Midwestern United States (Bal, Sullivan, & Harper, 2014). Native-American students' identification with ED decreases

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drastically, specifically between 2006 and 2008. This might be seen as a positive change if we only looked at the ED category. When we added the other disability categories, Native American students' identification with CI increased significantly in the same time period. The district schools faced political and financial pressure due to the over identification of minority students. Instead of the ED label, the CI label might be used to place students in special education (Bal et al., 2014). In short, one way or another the system's default response is to label Native American students with either behavioral or cognitive disabilities.



*Note:* Special Ed = Special education identification; LD = Learning disability; CI = Cognitive impairment; ED = emotional disturbance; OHI = Other health impairment; LI = Low-incidence disabilities (e.g., deafness, visual impairment, and orthopedic impairment).

*Figure 3.* Relative Risk by Native American student group across Special Education identification and the Five Specific Disability Categories (Bal et al., 2014).

### *Racial Disproportionality as a Cumulative Mess Trajectory*

As seen, disproportionality is mediated by spatial and temporal contexts but it in turn dialectically affects or shapes those contexts. It engenders a force akin to what Bowker and Star (2000) called “*cumulative mess trajectory*” that describes instances when the medicine prescribed to cure a sickness produces serious side effects that are then treated with other medicines. In the U.S. education system, there have been numerous policy initiatives, litigations, and educational intervention programs (e.g., No Child Left Behind [NCLB], Race to the Top, RTI, and PBIS) that has striven to unscramble race and disability by equalizing the distribution

of access and opportunities. Within the larger policy context, these top-to-bottom reform initiatives and interventions, based on accountability and standardization, have been justified by the long-term existence of disproportionality. Those reform efforts have mainly targeted on-the-surface outcomes and offered increased standardization as well as individual performance-based accountability as solutions to academic and behavioral disparities.

I argue that those reform efforts may further contribute to the reproduction and justification of racial disparities. The cultural-historical analyses of educational reforms repeatedly demonstrated that interventions with an exclusive focus on outcome disparities have been inadequate, especially when applied to multifaceted systemic problems (Apple, 2013; Darling-Hammond, 2010). The outcome-oriented education reform initiatives and interventions do not challenge the inveterate and often invisible processes that maintain outcome disparities in the first place. Dealing with the distal outcome cannot change the sources of disparity. Indeed, an exclusive focus on outcomes shifts attention away from the proximal mechanisms that maintain oppressive acts. The standardization and accountability reforms informed by a capitalist vision of marketization, commodification, and competition have had damaging consequences for the very same groups expected to benefit from them. Therefore, racial disproportionality as a systemic outcome demands a process-oriented examination of marginalization and domination processes in order to disrupt those unjust processes and, in turn, outcomes in local contexts.

In the fields of special education and disability studies, there are critical analyses that explored the interlocking processes of construction of disability (e.g., Connor, Ferri, & Annamma, 2015; Harry & Klingner, 2014; Varenne & McDermott, 1998; Gallagher, Connor, & Ferri, 2014). The critical scholarship has provided the explorations of terrains of historiography and positionality and locates disproportionality within the larger historical, economic, and ideological discourses that impact opportunities, access, and outcomes. However, critical special education and disability studies have not been able to provide robust theories and methodologies for intervention. This article addresses this gap and contributes to the literature by merging critical special education and disability studies with a historical materialist approach to systemic intervention of racial disproportionality as a critical praxis in local school communities.

In an agreement with Giroux (1983) who stated that “the basis for a new radical pedagogy must be drawn from theoretically sophisticated understanding of how power, resistance, and human agency can become central elements in the struggle for critical thinking and learning” (p. 293), I now explore the possibilities for uniting critical education and radical pedagogies (Apple, 2013; Freire, 2000; Ladson-billings, 2009) with a Vygotskian sociocultural theory of learning and development (Cole, 1996; Gutiérrez, 2012; Engeström, 2008; Lave & McDermott, 2002; Rogoff, 2003) considering oppressive and emancipatory functions of schools and disability classification as the key process to understand and intervene the reproduction of disproportionality in everyday activities of education systems.

## **The Process**

### *Cultural-Historical Architecture of System of Disability Classification*

Classification is a prerequisite for special education services in the United States. In order to receive special education services, learners are to be classified with one of the thirteen disability categories specified by the *Individuals with Disabilities Education Act (IDEA, 2004)*. Classification is a spatial and temporal segmentation of the world (Bowker & Star, 2000). It is an

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object formation process used by states for collecting, organizing, prioritizing, processing, and communicating massive information flow. Nation states have functioned as colossal factories of information production and processing. The classification systems have been central infrastructures in formation and expansion of the nation states, which relentlessly collect, categorize, analyze, and disseminate information about the value of people, minerals, plants, and animals.

The rise of the nation states in the 19<sup>th</sup> century coincided with large-scale classification systems as well as formal schooling, modern social sciences (e.g., psychology), and their technologies such as maps, census forms, and IQ tests (Anderson, 2006). Modern classification systems such as the International Statistical Classification of Diseases and Related Health Problems [ICD], Diagnostic and Statistical Manual of Mental Disorders [DSM] and the IDEA form information infrastructures that determine policies and measure outcomes. Large classification systems have developed as situated in specific social-spatial contexts and bear traces of their contexts of origin. To illustrate, the first ICD included the diseases found in Europe that threatened national security (e.g., the tuberculosis; Bowker & Star, 2000).

Classification systems rely on prototypes and categories. Naming is a political act in the regimes of power/privilege (Leonardo, 2009). The classification categories encompass residues of multiple voices, histories, competing ideologies, negotiations, and struggles over power/privilege, recognition and participation that come together to form objects (e.g., kinds of people, disorders, minerals, and species). The movement of the information systems across multiple contexts hides multiple political interests, struggles, and their inescapable locality. As power apparatuses, schools have been the primary sociopolitical sites of classification within which children are clustered based on perceived and valued abilities. Formal schooling aims to govern diverse bodies and form naturalized objects. A student who fails to learn finds herself in a very well organized infrastructure of professionals, budget items, paperwork, procedures, and categories to label and disable where each student should justify his or her value (or lack thereof; Varenne & McDermott, 1998). Disability classification has been normalized through ideologies (e.g., eugenics), policies, institutional structures, and cultural models (e.g., individualism and ableism) deeply seated in U.S. society (Baker, 2002; Sleeter, 1986; Skrtic, 2005).

Achievement and aptitude tests and disability categories have been pivotal cultural artifacts in disability classification that historically reproduces the existing power relationships. Cultural practices and artifacts (e.g., narrative styles, participation frameworks, cultural models, and scripts) that students from nondominant groups bring to schools have been devalued and constructed as deficits (Erickson, 2009). Through such selective devaluation and privilege, the highly naturalized process of ability classification has created a destructive force for many nondominant students. Negative identification of nondominant groups coupled with stereotypes based on powerful social constructs (e.g., disability, race, gender, class) influence learners' participation, affect, and performance in academic activities (Varenne & McDermott, 1998).

How does the process of disability classification sort students and form them as objects of the education system? To understand the complexities of the disability classification and its relationship with technologies of the self (e.g., positionality, self-authoring, or resistance) and technologies of domination, Foucault's conceptualization of *governmentality* can be instrumental. Governmentality locates governing entities and individuals in a dynamic relational context: "Governing people is not a way to force people to do what the governor wants; it is always versatile equilibrium, the complementarity and conflicts between techniques which issue



coercion and process through which the self is constructive or modified by himself" (Foucault, 1993, pp. 203 -204).

A state of control comprises naming, disciplining, patrolling social boundaries, and normalization of power relationships for and by the oppressed as well as the oppressors. Lemke (2001) stated that capitalist system depends on the anatomy of the autonomous objects, not only individual bodies, but also the bodies of collectives and institutions (e.g., racialized groups). As such, learners need to be categorized as isolated, homogenous, and universal objects – as racialized, classed, gendered and disabled learners whose primary responsibility is to engage in more manageable and profitable productions of goods and information. “In a sense, the power of normalization imposes homogeneity; but it individualizes by making it possible to measure gaps, to determine levels, to fit specialties and to render the differences useful by fitting them one to another” (Foucault, 1977, p.184). In the persistent pursuit of homogeneity and universality, learners who have multiple identities to negotiate as participants of more than one central cultural world such as African American, males, refugees are formed as marginal objects by the system of disability classification (Bal, 2014).

All of us are marginal in the sense that we all participate in multiple cultural group memberships in interest groups (e.g., soccer fans) as well as far-reaching race, class, religious, or gender affiliations. Whose marginality, then, is made visible and serves the basis for the exclusion from privileged spaces and positions? The answer to this question depends on the cultural-historical construction of boundaries between multiple communities of practice. Thus, I turn to Haraway’s (1992) conceptualization of marginal personhood, *Monsters and Cyborgs*, to characterize this dynamic relationship between marginal and naturalized objects and the technologies of self and domination.

### *Monsters, Cyborgs, and Disabled Students*

Monsters as archetypal others have always captured imaginations of people as exceptions to natural ordinary life (Bowker & Star, 2000). A monster arises when an object refuses to be ordinary. In schools, certain individual and group differences are constructed as cultural borders. The monsters known as cyborgs live in cultural borderlands. A cyborg is defined as “the intermingling of people, things (including information technologies), representations, and politics in a way that challenges both the romance of essentialism and the hype about what is technologically possible. Cyborgs show how blurry the interdependence of people and things and their boundaries have become” (Bowker & Star, 2000, p. 304).

Under the current system of disability classification as organized in the United States, special education identification functions as a process of *cyborgization* that transmutes bodies and discourses into numbers and labels. The system of disability classification operates as a process of filtering, concentrating, professionalizing, and circumscribing a disabling milieu. This system offers joint mores and layers of technical integrations that are designed to govern and reproduce its objects (i.e., *disabled students*). The disability classification process transforms learners into budget lines, paperwork, and professional knowledge in research, teaching, and administration across several communities (e.g., teachers, psychologists, test developers, publishers, and politicians).

The institutional disability classification work for the high-incidence disability categories (e.g., ED) usually starts in the classroom, moves into psychological assessment and ends in

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evaluation and decision-making by the school or district-based teams. In this cyborgization process, “these texts become divorced from the social interaction that created them as they move through the system, institutionally isolated from the interactional practices that generated them in the preceding events” (Mehan, 1993, p.246). On the surface, the classification is a dry and overly technical process. However, it is full of tensions as it is about ordering a cluttered flow of experiences of its objects against tidy categories. IDEA (2004) dictates that in the process of disability classification, “cultural factors”, “environmental or economic disadvantage” and “limited English proficiency” should be considered as exclusionary criteria. Accordingly, special education is imagined as a culture-free space. Once learners enter this space they are stripped from their cultural cloths (e.g., race, class, and language). When an African American learner is labeled as disabled, culture is made irrelevant by the system, because the causes of his difficulties are officially deemed as innate and natural not cultural. The hyper visibility of behavioral and linguistic differences of minority students in U.S. schools and the society in general are made invisible in special education: “*To enforce its invisibility through silence is to allow the black body a shadowless participation in the dominant cultural body*”(Morrison, 1992, pp. 9-10). As a result, racial minority students with a disability label melt into the cultural body of the disabled students and live a shadowless existence against the white walls of special education.

While education systems constantly struggle to naturalize or subvert what are constructed as marginal students, those students provide opportunities for each system to transform itself and to maintain its adaptability and livelihood. In addition, marginal students present an analytical opening for practitioners and researchers to grasp boundaries of a system with its affordances and confines. In the system of disability, a monster makes the taken for granted assumptions, practices, and cultural artifacts (e.g., models, scripts) more ostensible. For example, refugee students who had lived in multiple nation states and could speak multiple languages were identified with learning disability or a social adjustment problem in a Southwestern border state (Bal, 2014). Monster experience may also provide a motivation and guidance for designers and users to change the system. Still, systemic change does not always mean expansion toward inclusivity and social justice. It may mean further marginalization of the oppressed groups. This marginalization currently may present itself in current individual accountability- and standardization-based educational reforms and programmatic responses of special education to disproportionality, namely PBIS and RTI (Ferri, 2012).

Much effort in special education goes to create efficient, timely, accurate, and universally valid classification of individual learners--avoiding false positives and false negatives (Kauffman & Landrum, 2006). Special education scholars suggested that the ambiguity among different disability categories in the IDEA is a result of faulty design, and that ambiguous categories should be replaced with more precisely defined categories via highly standardized identification methods (Merrel & Walker, 2004). Multi-tier intervention and prevention models offer alternative classification processes and engineer alternative objects (e.g., “tier-two students”) to the object of special education (disabled object). In so doing, the multi-tier intervention models significantly redesign systems making them more accessible for and open to nondominant students, allowing such students to avoid a monster experience. Despite the positive intentions, RTI and PBIS may be co-opted by the existing power structure and used for further domination of minority students (Artiles, 2011). There is a strong possibility those models turn into massive monster factories as RTI and PBIS monitor and regulate non-dominant students’ naturalization

processes into newly engineered spaces (tiers) while ignoring those students' constant movements across multiple borderlands.

From the classification perspective, this danger has already been reported (Bowker & Star, 2000). The large-scale classification systems such as the IDEA carry inherited tensions between the attempts to universally standardize artifacts (e.g., disability categories) and the variations of their users' ad hoc interpretations (Bowker & Star, 2000). This danger cannot be solved by the top-to-bottom standardization efforts aiming to terminate interpretations and innovations of local users of a classification system. Any top-to-bottom standardization efforts generate work-around methods (Engeström, 2008). Local interpretations, innovations and tensions can be used as rich learning sources to understand local circumstances and how and why larger processes (e.g., the racialization of educational opportunities) are reproduced or challenged by stakeholders. Researchers studying disproportionality ought to “develop designs that track how local actors and ideologies embedded in policies and institutional procedures use these ideal types of boundary objects (i.e., disabilities) to reify the stratifying force of the interlocking of race and ability” (Artiles, 2009, p. 34). Anyon (2005) and Soja (2010) strikingly demonstrated how the standardized supposedly “color-blind, race natural and rational” policies and “technical” procedures such as urban planning (e.g., construction of highways or water systems) or finance (e.g., mortgage) contributed to the reproduction of disabling milieus for nondominant communities. For example, the water system in Flint, Michigan was contaminated by lead. If the city had been taking the necessary actions (using an anticorrosion agent like orthophosphate minerals to coat pipes), the lead poisoning cases that disproportionately impacted African American residents of the city might have been prevented (Lovell, 2016). The more invisible the contingent and cultural-historical contexts of the disability classification with its objects and practices determined as logical, the more it sinks into the society's routinely forgotten memory. In what follows, I present activity theory and the formative intervention methodology intended to transform this marginalizing system. Formative intervention has a potential to open up and transform the black-boxed classification. Lastly, I present an adaptation of formative intervention in a statewide study of disproportionality.

## **The Intervention**

### *Activity Theory and Formative Intervention for Systemic Expansion*

Activity theory, also known as cultural-historical activity theory, is the third generation of Vygotskian (1978) sociocultural theory. Informed by Marxist dialectical materialism, Lev Vygotsky is known as the first psychologist to suggest the means and processes for the role of culture in learning, development, and the social organization of cognition (Cole, 1996). In this theory, culture is at the center of the human-context interaction. Culture mediates all learning and development activities through cultural artifacts (tools and signs). Individuals make and use cultural artifacts to break away from constraints of their immediate environments that become the basis of a superior form of activity. Cultural mediation implies that the entire social and organizational structure of the activity produce behaviors (Vygotsky, 1978).

By putting culture in the middle of the relationship of subject and object, Vygotsky and his followers offered a biocultural model going beyond Cartesian dualism of nature and society. Sociocultural theorists located mind in society (e.g., playgrounds, schools, marketplaces, and factories) and took psychological experiments outside of the laboratories. In this formula,

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individuals are active social agents who act within constraints and possibilities of the specific activity settings that they do not always choose (Cole, 1996). Vygotsky developed a method of experimental-historical based on the work of Hegel, Marx, Engels, and Darwin. The key tenet of this method was that a psychological phenomenon should be examined as *a process* always in motion – not a fixed product (Vygotsky, 1978). The method aims to investigate the history of psychological functions for creating expansive learning contexts.

In the second generation of sociocultural theory, Leont'ev and Luria expanded the unit of analysis to object-oriented collective activity. They conceptualize activity as a process that mediates a reciprocal adaptation between a subject and an object: Individual's activity and its related situations, goals, and mediating artifacts is the middle link (Leont'ev, 1974). In an activity, multiple social histories, rules, perspectives, practices, goals, and power/privilege amalgamate. In 1990s, activity theory emerged as the third generation of sociocultural theory focusing on the interaction of multiple systems (Engeström, 1987). In the age of capitalist globalization, activity theory provides offers “a new framework for analyzing the interplay of the *object* under construction, the mediating *artifacts*, and the different *perspectives* of the participants in a progression of collectively achieved action” (Engeström, 2015, p. 168). Activity theory-based studies aim at identifying contradictions in the workings of organizations facing crises or major changes. Such analyses have successfully worked with complex processes of social and institutional change, where the participants of an activity system transformed themselves and their social and material surroundings (Sannino, Daniels, & Gutiérrez, 2009).

Engeström (2015) developed an activity theory-based systemic transformation methodology called, *formative intervention*, as a method of facilitating expansive learning. Expansive learning is “a historically new type of learning, which emerges as practitioners struggle through developmental transformations in their systems, moving across collective zones of proximal development” (p. xvi). Formative intervention has been used for designing open and adaptive systems to examine and engage in problem solving historically accumulated systemic contradictions (Sannino et al., 2009). Originated from Finland, formative intervention has been adopted in various national contexts (e.g., Brazil, Taiwan, Japan, South Africa, Australia, and the United States; Engeström et al., 2016). It has four tenets: (a) *activity system as the unit of analysis*, (b) *transformation of practice as a form of expansive object formation* (c) *contradictions as a source of change*, and (d) *agency as a layer of causality* (Engeström, 2008). Below I discuss these tenets in detail with their implications for disproportionality studies.

***Activity system as the unit of analysis.*** Activity theory proposes culturally mediated object-oriented activity systems (e.g., classroom, school, neighborhood, and PBIS leadership team) as the unit of analysis. An activity system constitutes object, subject, mediating cultural artifacts, rules, community, and division of labor (Engeström, 1987). The traditional unit of analysis in the dominant theories in psychology and education (i.e., behaviorism and cognitive-behaviorism) is a self-governing, morally directed, rational “democratic self” and his/her actions in a universal time and stable spaces (Popkewitz, 1997). In this conceptualization, an action is “a response of a passive subject to an external influence, depending on the subject's innate structure and learning history” (Leont'ev, 1974, p. 5).

Whereas programmatic responses to academic and behavioral problems and racial disproportionality (PBIS and RTI) strive to focus on the whole school context, they still exclusively focus on the discrete actions behaviors of autonomous individuals that deviate from social and developmental norms such as an abnormal ability to listen, talk, act, think, read, write,

or do mathematical calculations and outcomes (e.g., office discipline referrals). Activity theory provides robust tools for the task of understanding the whole school context as it moves from analyzing actions of single students or teachers to the process-oriented analyses of those actions as situated in activity systems: “Actions are not fully predictable, rational, and machine-like. The most well-planned and streamlined actions involve failures, disruptions, and unexpected innovations. These are very difficult to explain if one stays at the level of actions” (Engeström & Miettinen, 1999, p.32).

Therefore, an activity theory-based analysis of racial disproportionality begins with the idea that *disability is a cultural system* that produces and depends on its object, the disabled child. Disability is not just about individuals’ ability differences; rather it is about the construction of certain differences and cultural boundaries to be moral, political, scientific, and medical borderlands (Erickson, 2009). Certain behavioral, linguistic, and physical differences are made more visible and consequential by degrading people and preventing their access to spaces, positions, and activities across formal and informal learning environments. As an illustrative example, Varenne and McDermott (1998) described the difference between deafness as a mere biological fact and deafness as a biocultural phenomenon. It is one kind of problem not to be able to hear; it is another kind of problem to be in a culture in which one’s inability to hear is used by others to degrade and exclude them from full participation. The question is then how to make those key processes visible with their consequences for dominant and nondominant participants of activity systems. How do we uncover those deeply institutionalized; thus fossilized processes?

Activity theory-based analyses can help recast the naturalized and invisible social and structural processes as strange and visible, and thus creating potential for change. With this, disproportionality studies can explore dynamic spatiotemporal patterns and predictors of disproportionality in local educational settings where multiple activity systems engage in the classification of learners as objects. Activity theory opens up the possibilities for researchers and practitioners to generate an instrumental account of the subtle yet consequential everyday collective interpretation and orchestration of activities (e.g., the implementation of a schoolwide multitier intervention) and their objects as constructed and thus capable of being transformed.

***Transformation of practice as a form of expansive object formation.*** Facilitating transformation consists of three elements. Deconstructing the object, an expanded pattern of activity, and a new type of agency among stakeholders. In formative interventions, participants collectively construct an expanded object (e.g., patient, student, or customer) for coordinating their activity and implementing the new object (Engeström & Sannino, 2010). In a formative intervention of disproportionality, this means local stakeholders must commit to praxis, a continuous cycle of reflection and action in a critical dialogue to create a consciousness of the oppressive conditions, which they both reproduce and suffer from (Freire, 2000).

A successfully transformative experience depends on the expansion of the shared objects. The object of an activity system is a historical arrangement of signs, spaces, tools, biographies, biopolitics, and practices that determines the activity system: “The object of activity...is both a projection of human mind onto the objective world and a projection of the world onto human mind” (Kaptelinin, 2005, p. 5). Identifying the historical evolution of an object can serve as a basis for reaching a deeper understanding of otherwise fragmented pieces of empirical data to make what is conceptual more operational (Kaptelinin, 2005). Recognizing the socially constructed culturally mediated object opens up the possibilities to include the complex existence of people as active social agents in our analysis and interventions. In short, for disproportionality

studies, this necessitates an expansive movement from the conventional object, *the disabled child*, to culturally mediated, expanded object, *the historical child*.

***Contradictions as a source of change.*** Systemic contradictions are defined as historically accumulated tensions within and between activity systems (Engeström, 2008). Activity systems are constantly changing and involve multiple voices, goals, and practices. Each system has inherited historical contradictions in the mutually constituting dialectic relationship among production, distribution, exchange, and consumption. Marx (1998) described this relationship as follows: “By production, the members of society appropriate (produce and shape) the products of nature to human wants; distribution determines the proportion in which the individual participates in this production; exchange brings him the particular products into which he wishes to turn the quantity secured by him through distribution; finally through consumption, products become objects of use and enjoyment, of individual appropriation” (p. 6).

Contradictions are the driving force of individual and social transformation and the starting points in formative interventions. Lave and McDermott (2002) interpreted Marx’s formulation for today’s education system and suggested that the capitalist production of formal learning is “by its very essence, about the production and distribution of assessed knowledge. The learner produces not for himself, but his or her place in the system...The only learner who is productive who produces test scores for the school...contributes towards the self-valorization and redistribution of the educational hierarchy” (p. 44). Contradictions in education systems manifest themselves through daily disturbances, the actions deviated from the institutionalized scripts. Disturbances can be examined against a historical analysis of a given activity system. Examining contradictions provide a key to understanding the root causes of disturbances as well as the potentials for systemic expansion and innovations (Engeström, 2015).

As state apparatus, schools serve as political institutions where race, a cultural artifact, is materialized (Leonardo, 2009). Students are constructed as racialized objects through tracking practices, resource allocations and the institutional acts of inclusion/exclusion. A systemic contradiction with transformative potential can be found in the double bind as experienced by the local stakeholders. Special education identification creates a double bind for teachers and families. According to IDEA (2004), a label is necessary to provide accommodations and modifications for students struggling academically and behaviorally. On the other hand, a label may mean further marginalization of minority students (U.S. Department of Education, 2014).

Activity theory assumes that analysis of all behaviors should be situated in everyday activities (Cole, 1996). Marx (1998) placed the notion of “everyday” at the hearth of social and philosophical analyses: “[Men] daily remake their own life, begin to make other men, to propagate their kind: the relation between men and women, parents and children, the *family*” (p. 49, emphasis in original). Lefebvre (1988) further submitted, “the everyday is ambiguous and contradictory. On the one hand, it provides satisfactions; it satisfies the very needs it produces. On the other hand, the everyday provokes a malaise, a profound dissatisfaction, an aspiration for something else...everyday is modifiable and transformable, and its transformation must be an important part of a “project society” (p. 80). Therefore, the starting point of formative intervention for disproportionality is the contradictory object and disturbances as experienced by the subjects within everyday activities, what I called the *Here and Now* (Bal, 2011).

In current multitier intervention models, interventionists attempt to control all variables, including contextually situated factors and practitioners’ multiple interpretations, to develop

highly standardized and controlled learning environments so that the right “dose” of evidence-based instructions that are culture- or context-free can be delivered. As a result, it is believed that true cases of disability are classified accurately and efficiently. In this process, families and community members from nondominant backgrounds have been historically neglected as incapable of the productive and serious work of analyzing and improving the behavioral support system (Harry & Klingner, 2014). Participation of and collaboration with parents and students has remained an elusive goal. Parents and students are often positioned as the passive objects of change within PBIS such as monitoring and reinforcing schoolwide behavioral expectations determined by schools’ PBIS teams that are exclusively made up of school staff who are from dominant group (Bal, 2016). In contrast, the central focus in formative interventions should be opening up the decision-making activities to nondominant communities in order to facilitate collective agency among the participants who will re-mediate their social contexts by reconstructing the object and subsequent activity (Bal, 2012).

The process of developing and implementing a formative intervention are subject to negotiation, appropriation, and resistance. The goals of formative interventions are determined and revised by stakeholders to facilitate the development of locally meaningful solutions, compatible with the complex, interacting ecologies. The intended outcome is generating expanded objects that may be used in other settings as frames for the design on ecologically valid solutions such as new forms of division of labor or artifacts in addressing diverse needs, strengths, and interests of students and adults (Engeström & Sannino, 2010). Accordingly, formative interventions of disproportionality requires commitment from all stakeholders to join forces and engage in a continuous cycle of praxis that creates critical consciousness of the marginalizing institutional practices and develops solutions from the ground up.

***Collective agency as a layer of causality.*** The key outcome of a formative intervention is developing a new, expanded object and collective agency among stakeholders (Engeström, 2008). Scholars developing and implementing these models work on eliminating the local appropriations and innovations via highly controlled implementation models (Sugai & Horner, 2006). Resistance, subversions and innovations are inevitable when a system appropriates a new initiative or reform effort. Activity theory looks at implementation of a macro level-policy via meso- and micro-level appropriations where the weight of structural forces meets local contextual contingencies. When implementing top-to bottom education programs, local agents adapt, augment, and work around those general models responding to their practices, organizational culture, and needs. In a formative intervention, participants of multiple communities of practices serve as boundary crossing agents carrying innovative ideas between activity systems. Not all innovations result in socially justice, nonetheless. Innovations of the neoliberal system are characterized as creative destructions (Harvey, 2003): The capitalist system constantly creates new tools and spaces to produce and absorb capital surplus and to maintain the status quo. It has addressed contradictions (e.g., devaluation and limitation of capital surplus) via innovations (e.g., credit default swaps and deregulation of the financial system) at the expense of nondominant groups.

Activity theory provides a systemic approach that guide effective socially just systemic transformation led and owned by local stakeholders. In an activity system (e.g., a school), transformation is a movement in the zone of proximal development; a lived space already loaded with tensions, heavy histories, and struggles of power and privilege in global and local contexts. Lived space is dynamically involved in creating and maintaining inequality, economic, and

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social exploitation, racism, ableism, discrimination, and social control via colonization or urbanization (Harvey, 2003). Space is also made up of the *possibility for emancipation* (Lefebvre, 1988; Soja, 2010). Expansive transformation in the system of disability should be understood as a historical question via contradictions and solutions: “When we ask historical questions about the deeply and heterogeneously structured space of classification systems and standards, we are dealing with a four-dimensional archeology. The systems move in time, space, and process” (Bowker & Star, 2000, p. 42). Oppression is a daily event. Everyday people, institutions, policies, and artifacts (e.g., test, labels, bullets, hegemonic cultural narratives) are at work to maintain and justify an unjust system. While there are powerful structural forces and ideologies that find creative ways to oppress nondominant groups, there are always spaces for resistance and emancipation. Collective struggles for social justice should focus on local problems with a critical global outlook; thus they require a global engagement.

Finally, formative interventions and any other transformation efforts that attempt to address disproportionality should take a form of a local coalition-building activity. This effort includes a unifying effort on the democratization of the sociopolitical processes as an analytical tool and moral purpose in a systemic expansion (Soja, 2010; Young, 1990). Local interpretations, resistance, innovations and multiple perspectives in systems are central tenets of formative interventions. Formative interventions can be used for the expansion of new objects and activity systems that are not only contingent upon the individual histories of the actors, but also upon the immediate circumstances of practices as well as social, historical, and spatial forces. A systemic expansion requires sustained, daily, and strategically coordinated struggle by proliferating diversity of experiences, practices, goals, and interests within the coalition. Below I provide an overview of a statewide formative intervention study, the Culturally Responsive Positive Behavioral Interventions and Supports (CRPBIS) Project.

### *Learning Lab*

Between 2012 and 2015, I have led the CRPBIS Project a multisite, mixed method formative intervention study. To my knowledge, CRPBIS is the first formative intervention study in U.S. schools. The CRPBIS Project aimed at addressing racial disproportionality in school discipline and special education placement in the state of Wisconsin. CRPBIS built a-justice oriented coalition among local policy makers, administrators, families, students, civic organizations, and a local university. *Participatory social justice* was the moral purpose of the Learning Lab. Participatory social justice is about nondominant communities’ equal access and influence on decision-making and problem solving activities in practice and research (Bal, 2012).

In the first phase, the CRPBIS research team conducted cross-sectional and longitudinal analyses to understand the extent and patterns of racial disproportionality in the state of Wisconsin. We used the state’s entire student- and school-level data between 2006 and 2015. In the second phase, Learning Lab, an inclusive problem-solving process, was implanted at three public schools (one elementary school, one middle school, and one high school). I developed the Learning Lab methodology (Bal, 2011). Learning Lab was adopted from the Change Laboratory methodology (Engeström, 2008) and informed by critical and culturally relevant pedagogies, information science, learning sciences, and cultural psychology. The fourth school (an elementary school) served as comparison site where we studied the work of school’s PBIS team without a Learning Lab. Learning Labs brought together educators, families, students, and community representatives, specifically those who had been historically excluded from schools’



decision making activities. We also observed the PBIS team meetings at the Learning Lab schools to study cross-pollination between Learning Lab and PBIS teams (Bal, 2011). A Learning Lab functioned as an activity generating activity system. Its goal was to create a culturally responsive system. To build an inclusive schoolwide system, members engaged in various actions for problem identification and solution development. Those actions were guided by the cycle of expansive learning (Engeström, 2008). Seven expansive actions identified: *Forming the group, questioning, analyzing, modeling, examining, implementing, and reflecting on the Learning Lab process* (Bal, 2016).

Learning Labs informed each other. The first Learning Lab was at Cole Elementary School in the 2012-2013 academic year. The school was facing racial disproportionality and undergoing multiple systemic change initiatives (RTI, PBIS, cultural responsiveness). The school formed a Learning Lab representing the school's racial, linguistic, and economic diversity and sustained the group (Bal, Kozleski, Schrader, Rodriguez, & Pelton, 2014). Based on the school leadership's desire and in line with the school's systemic change effort to uniting the school's existing PBIS and RTI programs and the district-wide "cultural responsiveness" initiative, the staff members of Learning Lab included PBIS, RTI, and building leadership team members such as principal, PBIS internal coach who served school liaison for the CRPBIS project, social worker, classroom teachers, special education teachers, English as a second language program coordinators, librarian, playground attendant and music teacher. The family members included African American, Latino, and immigrant and refugee parents from Africa and South America, the president of the parent teacher organization, and the parents experiencing homelessness (Bal et al., 2014). Cole had significantly more participants (n=36) than the other Learning Labs.

This group met once a month during an academic year. Before each meeting, the CRPBIS team met with the principal and PBIS coach for an agenda meeting. Members examined school's discipline and special education data disaggregated by race. The CRPBIS research team also shared the findings of the analyses of racial disproportionality in the district and state from the Phase 1 of the CRPBIS study (Bal, Betters-Bubon, & Fish, 2016). We utilized the interactive data maps that our team developed based on our analysis (<http://crpbis.apl.wisc.edu/>). The interactive data map, called *the map of risk*, showed the extent of disproportionality in exclusionary disciplinary actions (i.e., suspensions and expulsions) and special education identification with ED across the state of Wisconsin. *The map of opportunity* showed the school level disproportionality along with social service organizations and programs in two school districts. Members also shared their personal experiences and perspectives regarding the racialization of school discipline, school climate, and other daily disturbances they had experienced.

Learning Labs have created new, innovative methods and tools that can contribute to the formative intervention design. We created parent/school staff dyads that kept contact with each other and completed an equity walkthrough at the school to examine the everyday work of the behavioral support system and recorded their reflections and shared the photos and artifacts regarding academic and social climate. This gave them an opportunity to make a familiar context strange through a critical yet constructive lens to deconstruct the object of their activity system Learning Lab, school's behavioral support system. These qualitative data along with quantitative data (e.g., anecdotes, tables, charts, photos, documents) served as mirror artifacts that depict disturbances in questioning the existing system (Engeström, 2015).

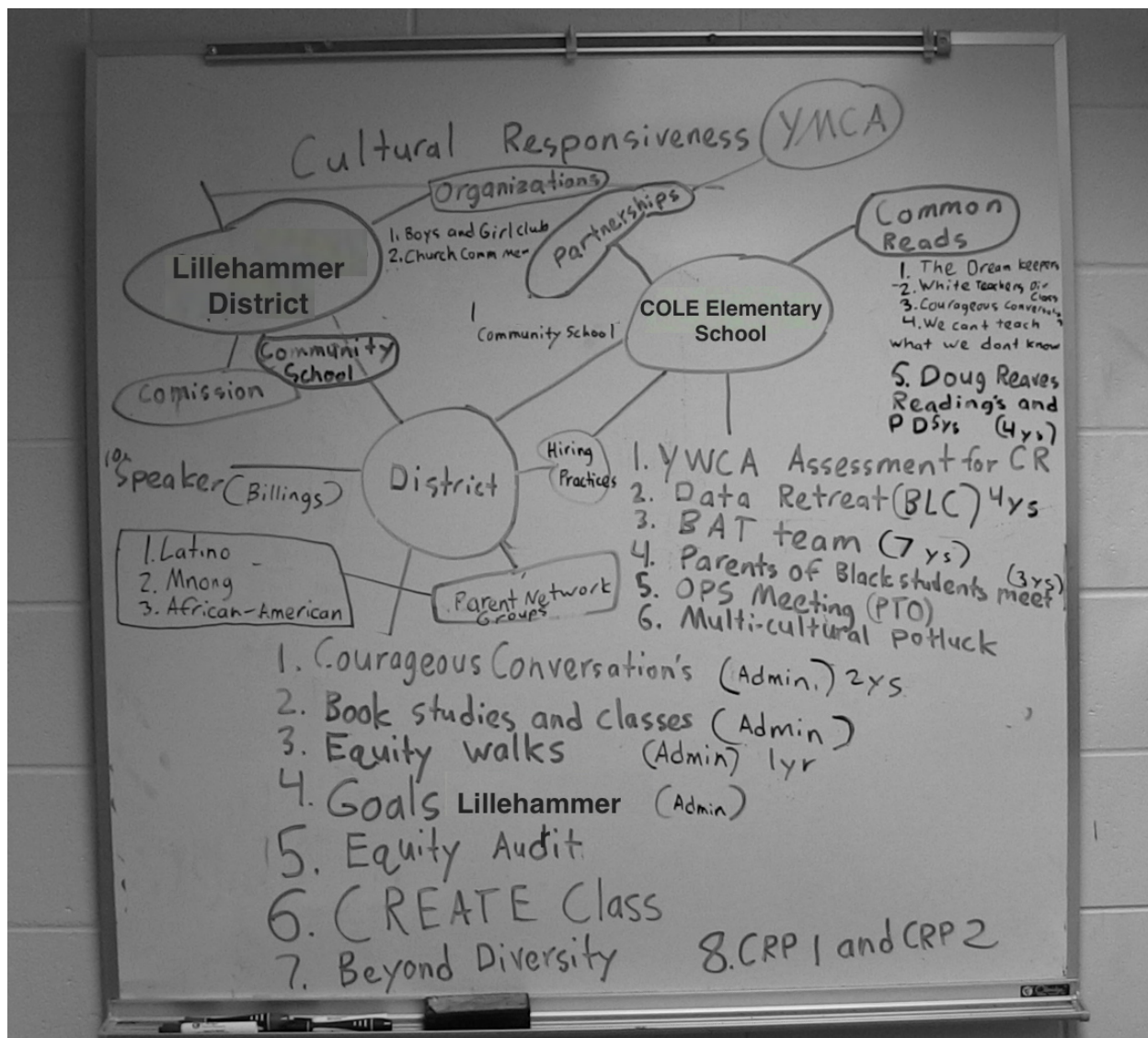


Figure 4. The collective map of cultural responsiveness initiatives at Cole Elementary School and in the district (03/05/2013).

In addition, for the CRPBIS Learning Lab, I appropriated *collective mapping* into the formative intervention methodology in order to facilitate members' collective analysis of schools' existing initiatives and systems, following critical geographers (Soja, 2010). At a subcommittee meeting as a part of empirical and historical analysis of the existing system, the principal, PBIS coach, and the director of the local YMCA that runs an after school program at the school met and collectively mapped out the school's existing and past parent-school-community partnership and outreach initiatives. Figure 4 shows a whiteboard used during the collective mapping meeting. The resultant map was presented to the whole group. Overall, the Learning Lab engaged in problem identification (questioning and empirical and historical analysis) and started to generate corrective actions in modeling. However, they did not complete the entire cycle of change and develop a culturally responsive system at the end of the school

year. The school leadership decided to discontinue the CRPBIS Project. For more information about the Cole Learning Lab, see Bal et al. (2014).

The second Learning Lab started at Rogoff Middle School. What we learned from Cole informed the Rogoff Learning Lab. The Learning Lab at Rogoff included 13 members including the principal, assistant principal, the dean of students, PBIS coach, classroom and special education teachers, parents, and a paraprofessional/parent who was a part of the school's behavioral support team. This Lab took place between November 2012 and May 2014. Members completed the cycle of change and developed a new behavioral support system. Figure 5 shows a photo take from the second Learning Lab session as members engaged in *forming the groups and questioning*. The group in Figure 5 includes the school principles, dean of students, PBIS coach, special education teacher, special education assistant, parents, and two researchers who facilitated the session.

Based on the desire of the school leadership and in response to the school data showing that African American students were disproportionately placed in special education for ED and received office discipline referrals, suspension, and expulsion as compared to all other racial groups, Rogoff Learning Lab exclusively focused on racial disproportionality in school discipline and behavioral problems, specifically for African American students. Through the expansive learning actions, members formed and sustained a diverse work group, engaged in critical dialogue, examined their existing system and outcomes, expanded the object, and designed a new behavioral system that was placed in action in the next school year. To solve the problem that the prior Learning Lab faced at Cole and move from problem identification to developing a new system, I created a new process, called *mapping out the system* (Bal, 2016). This expansive learning action was tested and refined at this and next Learning Labs. Mapping out the system became the most instrumental action of this and the following Learning Labs. It successfully facilitated productive family-school-community partnerships to move beyond the problem identification stage and engage in problem solving that lacks significantly in the literature.

As a methodological innovation, the mapping out the system involved three consecutive actions: 1. Mapping out the existing system (e.g., school discipline) in place; 2. Mapping out an ideal system; 3. Combining the existing system and the ideal system maps into a new culturally responsive system. The mapping out was used in modeling, examining, and implementing in Learning Labs. The maps collectively served as stabilizing artifacts. The participating schools had not had any artifact (a flow chart or another document) showing school's discipline system before the Learning Lab. Schools' behavioral support team members (e.g., principals and PBIS coaches) and classroom teachers had different understanding of disciplinary actions. Mapping out allowed members to create a mediating artifact in order to collectively construct and expand the discipline system (the object of the Learning Lab) from multiple perspectives.



*Figure 5. Learning Lab session #2 at Rogoff Middle School (12/13/2012)*

By mapping out the existing system, members developed an understanding of constraints, possibilities, and breakdowns of their system. Once a map for the existing system was created, we formed small groups within the Learning Lab and asked members to “think outside of the box” and imagine an ideal behavioral support system without thinking about feasibility. Small groups created their ideal systems. Then, a subcommittee combined these ideal systems into one ideal system map. In the third action, Learning Lab members combined the existing system map with the ideal system map and developed the final artifact- culturally responsive behavioral support system. That was the outcome of the Learning Lab. See Figure 6 for the culturally responsive behavioral support system. Members then examined the culturally responsive system to make sure the new system would be functional in daily life of their school (meeting school’s vision and required functions), viable, and adaptive –not rigid or static.

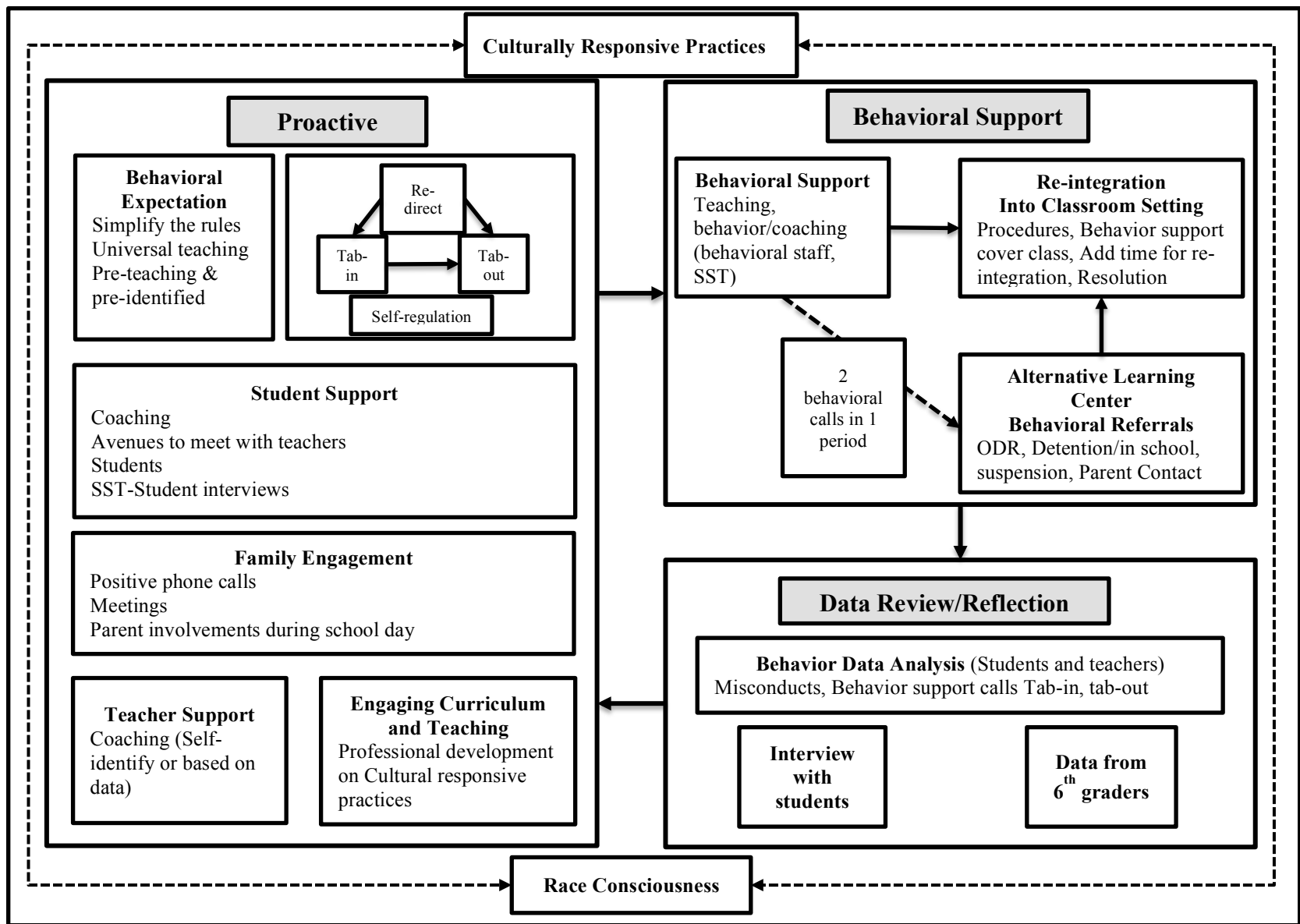


Figure 6. Rogoff Middle School Culturally Responsive Behavior Support System (May, 2014)

The third and last Learning Lab in the CRPBIS study took place at MLK High School. We followed the principal tenets (e.g., forming a diverse group) and the effective learning actions (e.g., *mapping out*) that had been refined, innovated, and tested at the two prior Learning Labs. MLK Learning Lab included 13 members (e.g., a Latino student, the director of Centro Hispano, and a Hmong refugee parent). Members completed the full cycle of change and collectively designed a culturally responsive behavioral support system. Detailed analyses of Learning Labs are beyond the scope of this paper. For an analysis of the expansive learning actions in MLK Learning Lab (see Bal, Afacan, & Cakir, 2015).

After the CRPBIS Project ended in 2015, one of the participating school districts where Rogoff and MLK are located decided to implement Learning Labs at other schools. In the 2015-2016 academic year, Learning Lab was implemented at two additional schools (an elementary school and a middle school). The schools completed the full cycle of change and developed their own new system. In the 2016-2017 academic year, the CRPBIS team will study the implementation of the culturally responsive behavioral support systems and the impact of these systems (e.g., office discipline referrals, school climate) at the four Learning Lab schools.

### *Implications of Learning Labs for Research and Practice*

Since 2012, Learning Lab has been implemented at five public schools. Four of five schools have successfully completed the full cycle with having a concrete outcome and a process of inclusive problem solving. The aim of Learning Labs was to build capacity in schools to open up problem solving and decision-making processes to the whole school community, develop reciprocal and productive family-school-community partnerships, and generate adaptive, locally meaningful systemic solutions to racial disproportionality. The Learning Lab schools established an institutional memory of the possibilities and challenges of having an inclusive problem solving team. Learning Labs functioned as innovation sites for us, researchers. During the study, New methodological tools were developed, such as mapping out the system, and tested and refined in practice within the possibilities and constraints of local education systems.

PBIS is becoming the primary means of providing behavioral support in the United States. Today, more than 20% of all schools have used PBIS and in several states including Wisconsin almost 40% of schools are using PBIS (Horner, 2015) There is an urgent need identified in the literature regarding culturally responsive, locally meaningful implementation of PBIS (Vincent, Randall, Cartledge, Tobin, & Swain-Bradway, 2011). Formative intervention methodology has been mostly used in single programs, classrooms, and schools. Levering PBIS, a federally sanctioned program, may increase the impact of formative intervention.

Future formative interventions and other systemic transformation studies can adopt expansive actions and tools developed in Learning Labs such as the interactive data maps, parent/staff dyads, and collective mapping. More specifically, the Learning Lab methodology can be instrumental in implementing culturally responsive, contextually fit multitier intervention models (RTI, PBIS) and facilitating productive and sustainable family-school-community partnerships. The Learning Lab process may also be utilized at the classroom level such as the development and implementation of a literacy or math intervention for students with disabilities in a reciprocal collaboration between teachers, family members, and students.

## Conclusion

Karl Marx (1998) stated that “The philosophers have only interpreted the world in various ways; the point is to change it” (p. 571). Racial disproportionality is a complex and fluid outcome of a system of disability that constantly moves between multiple spatial and temporal scales. The system of disability classification is a key object producing process that provides an empirical lens and foundation for understanding and addressing disproportionality. This article presents that activity theory and formative interventions offer new possibilities to critically examine and change the system of disability classification and the racialization of disability within everyday cultural-historical materiality.

A transformation cannot solely change organizational structure and personnel’s perceptions; it must change everyday life of schools colonized by capitalism, racism, and ableism (Lefabvre, 1988). The theoretical and empirical tools offered by activity theory and formative interventions can provide a springboard for transformative movements to disrupt and restore unjust geographies of opportunity, recognition, and participation for building and sustaining democratic schools with the people who reproduce and suffer from those unjust geographies.

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