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Ripple Effects: How Teacher Action Research on Culturally Relevant Education Can Promote Systemic Change

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ABSTRACT

Teacher action research has been shown to both promote professional growth in teachers as well as produce gains for students. However, to date, little research has examined how action research might contribute to systemic changes in schools and school districts. This qualitative study of six teachers from various districts, subject areas, and grade levels, illustrates how action research can have simultaneous impacts on teachers, their students, and their schools and districts. The teacher action research projects all focused on culturally relevant education and the pursuit of equity. Impacts included teachers' deepened understandings of equity and inclusivity; students' diversity awareness, positive self-identities, and access to wider opportunities; and schools' adoption of equity-focused strategies. The findings suggest that action research on culturally relevant education serves not only as a powerful form of professional development but also as a means to potentially transform schools.

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In the United States, the current dual pandemics of longstanding racial oppression and the coronavirus, COVID-19, with its disproportionate toll on Black and Brown communities, are making it clearer than ever that pedagogical approaches are needed that can contribute to the dismantling of systemic injustices (Jones, 2020). Education cannot solve these problems alone; however, it can be part of the solution. Unfortunately, the education system is often part of the problem: Black and Brown students receive lower-quality education and disproportionately higher referrals to special education, lower-track courses, and the criminal justice system, on average, than their White peers (De Brey et al., 2019; Ladson-Billings, 2006; Love, 2019).

Culturally relevant teaching can play a role in addressing these inequities by challenging teachers to rethink their interpretations of student behaviors and using culturally-aware curriculum and pedagogies that increase the engagement and achievement of students. In addition to many small-scale studies documenting the impacts of culturally relevant education (see Aronson & Laughter, 2016 for a review of 37 such studies), two recent large-scale studies of ethnic studies programs grounded in culturally relevant pedagogy found that the programs improved attendance, grade point average (GPA), standardized test scores, and graduation rates (Cabrera et al., 2014; Dee & Penner, 2017). Despite the documented power of culturally relevant pedagogy, many teachers continue to feel that they lack a strong grounding in these approaches, both as beginning teachers and as they progress throughout their careers (Alismail, 2016; Hollins & Guzman, 2005; Sleeter & Owuor, 2011). Teachers often express difficulty in recognizing various cultural ways of knowing, diversifying curriculum and pedagogy, and guiding students' sociopolitical inquiry (Neri et al., 2019). This is especially problematic as the teacher workforce remains approximately 80% white, while only a minority of children currently entering public schools are white (De Brey et al., 2019). While teachers do not have to share the same backgrounds as their students to help them learn, they do need an awareness of how

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their own social positioning shapes their approach to professional practice, how schools reflect dominant cultural norms, and how students from nondominant cultures bring valuable funds of knowledge from their homes and cultures (Ladson-Billings, 1995; Moll et al., 1992; Paris, 2012).

Many factors hinder the implementation of culturally relevant pedagogies beyond teachers' lack of familiarity and preparation in these practices. High-stakes accountability policies pressure teachers to prioritize test results over making curricular connections to students' interests and cultural knowledge (Dorn, 2007; Nichols & Berliner, 2007). Additional constraints include lack of access to culturally relevant curriculum and professional development, and in some cases, skepticism among educators as to the validity and desirability of these approaches (Neri et al., 2019). Teachers need more individual and collaborative opportunities to explore beliefs about race and culture, request and obtain support, and experiment with new practices and approaches (Neri et al., 2019). Action research offers one promising avenue for teachers to experiment with new practices and reflect on both their practices and beliefs related to diversity and equity.

In this study, we followed six teachers as they designed and implemented inquiry-based action research projects in the pursuit of more culturally relevant and equitable education. The teachers—who worked in different grade levels, content areas, and community contexts—analyzed the data they collected as part of their research to assess the impacts of their actions. Although we began the study with an interest in the impacts of this action research professional development model on teachers and students, we (the teacher researchers and university-based researchers) ultimately found that this type of action research can have ripple effects outside the teacher's classroom context, enhancing equity across entire schools and school districts. This is a potential outcome of action research that has received relatively less attention in the scholarly literature.

This study thus expands the literature base on teacher professional development by exploring the extent to which (and means through which) action research on culturally relevant education might contribute to systemic, justice-oriented improvement of schools. Our research question was: What do teachers perceive as the impacts of conducting their own action research projects focused on culturally relevant education?

Literature Review

We begin this literature review with a brief description of culturally relevant education (CRE). We then define action research and synthesize the research on effective professional development (PD) to demonstrate how the action research model exemplifies the characteristics of high-quality and high-impact PD. We then explain how action research focused on CRE, in particular, has the potential to address disparities in opportunities and outcomes in schools. The few studies examining action research for CRE are also summarized.

Culturally Relevant Education

Culturally relevant education (CRE) is a term used to encompass Ladson-Billings's (1995) concept of culturally relevant pedagogy and Gay's (2002) concept of culturally responsive teaching (Aronson & Laughter, 2016). Both aim to eliminate educational inequities, particularly related to race and ethnicity, through teaching approaches that begin with an understanding of power and the ways in which the dominant culture positions cultural differences as deficits. Both also center on social justice and the belief that the classroom is a site for social change. While Ladson-Billings's (1995) formulation focuses on teacher dispositions and attitudes, Gay's (2002) focuses on teaching practices. We chose the umbrella term of CRE because the framework for the action research encompassed dispositions and practices. Although substantial research exists on CRE and its impacts (see Aronson & Laughter, 2016 for a review of 37 studies), relatively few studies have examined teacher development of CRE through action research. Those studies are summarized in the final section of this literature review.

Action Research as High-Quality Professional Development

Teacher action research is systematic inquiry by practitioners into their work to improve the quality of life and learning conditions within their classrooms (Beaulieu, 2013; Mahani & Molki, 2012; Mills, 2003; Zeichner, 1993). Action research typically involves cycles of planning, followed by action and finally the collection and analysis of data to examine the impacts of that action (Stringer, 2007). A primary aim of action research is to enable teachers to take control of their own practice and improve upon it in a reflective manner alongside their students (Beaulieu, 2013; Berg, 2004).

Demonstrated impacts of action research on teachers include: greater confidence; deeper understanding of their practices, students, and theories of teaching; and development of a disposition toward continued study of their practices (Zeichner, 1993). Most action research studies have focused on impacts at the level of action researcher/teacher and student; however some have documented ways in which teachers disseminated their newfound knowledge to colleagues (e.g., Goodnough, 2011) and others have acknowledged the potential for action research to contribute to change across an entire organization (e.g., Kemmis et al., 2013; Messiou, 2019).

Although action research is a relatively rarer form of PD, it exemplifies many of the features that prominent PD researchers in education have identified as strongly associated with quality and impact. These include active learning, coherence, collective participation, intellectual engagement, and sufficient duration including follow-up reinforcement of learning (Desimone, 2009; Garet et al., 2001; Kennedy, 2016; Yoon et al., 2007). Moreover, action research is particularly well-suited for PD related to culturally relevant education.

A recent review found that these PD programs are unique in that they require attention to the sensitive and sometimes emotionally challenging nature of conversations about power, privilege, and sociopolitical issues (Parkhouse et al., 2019). For instance, teachers may refrain from full engagement because the content sparks cognitive dissonance, makes them feel defensive, or raises fears that something they say will sound racist (Aujla-Bhullar, 2011; Buehler et al., 2009). Facilitators of PD on CRE also must strike a balance between providing concrete strategies for working with particular student groups while also avoiding stereotypes or generalizations about these groups (Parkhouse et al., 2019). Action research can address these concerns by allowing participants to direct their own progress through emotionally challenging reflections and to tailor their practices to the particular students in their rooms, rather than to a generalized description of students from a given cultural background.

Action Research and System Change

After over twenty years of supporting and engaging in his own action research, Zeichner (1993) argued, "All action researchers should consider at some point along the way the social and political implications of their practices and act on them" (p. 213). Critical or emancipatory action research, in particular, is aimed at improving educational conditions through a self-reflective and collaborative process of revealing injustices and taking action in the classroom (Kemmis & McTaggart, 2005; Mills, 2003; Rearick & Feldman, 1999). This type of action research is particularly well-suited to the development of culturally relevant approaches because it allows for participants to reflect on, and then address, educational inequities stemming from the unequal distribution of power across cultural groups.

Action research focused on CRE addresses the need for empirical research in the two areas described by Sleeter (2012): developing a deeper understanding of what culturally relevant teaching practices look like in PK-12 classrooms and engaging in research that documents connections between culturally relevant teaching and student outcomes. In addition to the two areas Sleeter (2012) emphasized, we also investigated how culturally relevant education extends beyond the classroom to improve school-wide conditions.

Most studies of teacher action research have not focused directly on CRE; however, we were able to locate seven that have. Five of these seven primarily focused on the impacts of the action research on the participating teachers. For example, Young (2010) found that an eight-week action research project helped teachers redefine culturally relevant pedagogy in ways that "went beyond celebrating holidays and highlighting minority students' origins of birth but instead touched on addressing social and racial inequalities" (p. 259). Two studied early childhood teachers' action research projects that centered on developing lessons rooted in the sociocultural lives of their students (Brown & Weber, 2016; Souto-Manning & Mitchell, 2010). Another study of a 15-week action research program that was focused on distinctions between cultural differences and disabilities found that teachers felt more confident and prepared to address the educational needs of culturally diverse students after completing their individual projects (Voltz et al., 2003).

A few studies also examined the impacts of CRE-focused action research on the students of the participating teachers. García and García's (2016) action research project helped Spanish-speaking students to increase their cultural pride as well as their writing skills. Two other studies explored how teachers engaged their own students in action research, which ultimately increased students' self-efficacy and empowerment (Horn, 2014; Shahnazarian, 2017). Together, the body of research on CRE-focused teacher action research suggests that teachers can enhance their critical sociopolitical consciousness and potentially that of their students, as well as improve various other outcomes for their students. However, no studies we found analyzed how teacher action research might catalyze broader change throughout the school or school system.

Methods

This project used a constructivist, qualitative multi-case study design (Stake, 1995), designating the individual teachers participating in the program as the cases. Case study design was selected in recognition of complexity of the context (classroom, school, district) within which each teacher's work and individual development occurred. Using multiple sources of qualitative data allowed us to consider the cases of teachers and their professional work, while accounting for the ways in which teacher development and the ripple effects of their work were influenced by the context of practice.

Action Research Program and Participants

This action research project was part of a broader study by a research–practice partnership (Coburn & Penuel, 2016) focused on teacher professional development in the context of culturally diverse schools. The broader study sought both to understand the landscape of PD for cultural diversity in the partnership region as well as to design and implement a model of PD to support culturally responsive practices within classrooms and schools. The action research project, which served as the pilot professional development program, was led by a team that included both school-based practitioners and university faculty who had formerly been teachers.

To recruit the action research cohort, we developed an e-mail flyer with the lead line "Teacher Action Research Group: Exploring Culturally Relevant Teaching in Your Classroom." The flyer contained basic information about the project and a link to an application. From this outreach effort, we received 14 applications, and ultimately accepted eight teachers to the program. We selected teachers with a clear commitment to culturally relevant teaching who represented a range of grade levels, content expertise, and school/community settings.

The program started with nine hours of workshop time spread over several meetings in the fall of 2017. The workshop sessions were designed to (1) develop a better understanding of cultural diversity and culturally relevant professional practices, (2) introduce the teachers to the theory and practice of teacher action research, and (3) develop an initial plan for the first action research cycle. During these

workshop sessions, teachers decided on a research question to guide their individual AR projects, based on the areas they wanted most to explore and improve in their pedagogy.

Following the sessions, each teacher implemented her plan within her school setting and collected data to document the impact of the action taken. Cycle meetings, which brought the eight action researchers together with the research team, were held every six to eight weeks throughout the school year. At the cycle meetings, teachers shared their projects and received critical feedback from project leaders and other cohort members. The four project leads worked closely with two action researchers each, visiting the schools and communicating with the teachers regularly to provide support and feedback between cycle meetings. Feedback was tailored to each teacher's particular interests, contexts, and needs. The project culminated with a research showcase event, which consisted of a structured poster session for guests from the partnering districts, the university, and the

Table 1. Participant Information and Project Title.

	Teacher Background			School Contexts		
	Grade Level/Subject	Ethno-racial back-ground	Years Teaching	Economically Disad-vantaged (%)	Racial Demographics Fall 2017 Enrollment	Project Title
Ana*	9–12th, Spanish and Spanish for Heritage Speakers	Puerto-Rican	11–20 years	20%	Black: 15.3% White: 56.7% Hispanic: 19.6% Asian: 4.5% American Indian: — Native Hawaiian: — Two or More Races: 3.9%	"Empowering Latino Students to Defy Societal Labels"
Carrie	6th Grade Language Arts	White	11–20 years	13%	Black: 7.6% White: 83.0% Hispanic: 3.2% Asian: 2.2% American Indian: 0.4% Native Hawaiian: — Two or More Races: 3.6%	"Measuring Prejudice and Promoting Allophilia in a Suburban, Middle-School Language Arts Classroom"
Diane	2nd Grade	White	11–20 years	62%	Black: 27.2% White: 54.4% Hispanic: 4.1% Asian: 2.6% American Indian: — Native Hawaiian: 0.3% Two or More Races: 11.4%	"Reading is a Critical Skill! Understand and Addressing the Factors Faced by Challenged Readers"
Karen	7th Honors Math-ematics	White	3–5 years	49%	Black: 30.8% White: 41.6% Hispanic: 21.8% Asian: 1.6% American Indian: — Native Hawaiian: 0.2% Two or More Races: 3.8%	"Diversity in Student Grouping and the Impact on Student Engagement and Achievement"
Paula	Elementary Gifted and Talented	Black	21 years or more	85%	Black: 89.4% White: 3.6% Hispanic: 5.1% Asian: 0.4% American Indian: — Native Hawaiian: — Two or More Races: 1.5%	"Talent Development in Gifted Education: The Road to Equity"
Sontia	Early Childhood Special Education	Black	11–20 years	54%	Black: 19.7% White: 55.4% Hispanic: 13.1% Asian: 1.3% American Indian: 1.0% Native Hawaiian: — Two or More Races: 9.5%	"Teachers Working Together for Early Childhood Transition into Special Education Self Contained Classes"

*Pseudonyms

community. This paper focuses on the projects of six of those teachers for whom we had the most complete data, and whose projects illustrate the variance in teacher identity, school setting, and grade level/subject area. While all eight action researchers' projects supported the findings, due to space limitations and a desire to provide "thick description" (Denzin & Lincoln, 2005), we chose to present the six that best illustrated these themes: Ana, Carrie, Diane, Karen, Paula, and Sontia. Details about those six and their project titles can be found in Table 1.

Data Collection and Analysis

Beyond the teachers' own data collection and analysis, a second level of data collection and analysis was carried out by the university-based researchers. To document the action research model and determine its possible impacts, we conducted a series of three interviews with each of the participants. We also collected audio recordings of workshop sessions and cycle meeting discussions, as well as artifacts from the teachers' projects including a final research poster developed by the teachers to share their work. The interviews explored participating teachers' evolving understandings of culturally responsive teaching, explanations of their projects, and experiences with the action research cohort model. All interviews were audio-recorded and transcribed for analysis, and most of them lasted between 25 and 80 minutes. Each round of interviews had a different purpose. For example, most of the questions in the first round of interviews concentrated on participants' teaching philosophy and their roles and teaching experiences at their schools. The second and third rounds of interviews focused on capturing the participants' action research experience and how their participation and the action research process influenced their teaching practices during and after the project.

A team of six researchers, including the four authors, as well as a practicing middle school teacher and a pre-service elementary teacher who were not part of the action research cohort, used thematic analysis (TA) techniques to analyze all data.[1] Thematic analysis was chosen because it is relatively accessible and therefore appropriate for school practitioners not trained in other qualitative analysis techniques, and, "through focusing on meaning *across* a data set, TA allows the researcher to see and make sense of collective or shared meanings and experiences" (Braun & Clarke, 2012, p. 57, emphasis original).

The analysis team alternated between individual analysis and collaborative analysis over the course of eight meetings from September to December 2018. We began each meeting by listening to a portion of audio from the workshops or cycle meetings, discussing our impressions and then linking these impressions to other themes that were emerging across the data. We developed an initial matrix of codes and supporting quotes that spanned areas not included in the present report, such as how the contexts of each teacher's work shaped their projects and how their projects shifted over time. Through this initial matrix, however, we began to notice the prevalence across data of the themes of "ripple effects" and "connecting classroom projects to larger social justice issues."

The findings from this analysis were also shared with the action researchers to ensure we were making justifiable inferences from their data. We re-read all transcripts, memos, and research reports after determining final themes to seek disconfirming evidence and ensure our final conclusions were well-supported by the data.

Researcher Positionality

Important to the design of this study was the positionality of the team that coordinated the professional development and led the research efforts to understand the work of the teacher researchers. Researcher positionality, particularly in constructivist qualitative studies, requires reflection on intersubjective elements of researcher experience and identity that influence the design of a study, including frameworks used, questions posed, data collection, and analysis (Finlay, 2002). As mentioned earlier, team members facilitating this project were all former teachers. While this allowed for the

development of strong relationships with participating teachers and critical understandings of school context issues, it may also have led to a bias toward teacher perspectives.

Considering the focus on culturally relevant teaching practices, it is also important to note that all but one of the university-based research team members were white. Although this was considered as the team conducted its work, there are obvious limitations to the racial homogeneity of the research team, and this should be noted as a limitation of the work.

Findings

When we started this research, we were interested in the impacts of our CRE-focused action research model on the participating teachers as well as on the students, through potential changes to teacher practice or disposition. However, over the course of the project, we noticed that some of the projects had ripple effects on the schools and systems in which the teachers worked. The findings presented below are organized into these three levels: teacher, student, and system. For each specific finding, we highlight just two teachers to provide thick descriptions (Denzin & Lincoln, 2005) of their projects and related impacts.

Impacts on Teachers

All participants reported that their action research projects helped them grow professionally. The two primary benefits for teachers included (a) deepening their awareness of educational systems and the need for more culturally responsive and equitable policies and practices and (b) shifting their conceptualizations of the teacher's role(s) in advancing equity in these systems. These effects were a result of both their individual projects and their participation in the cohort and action research process itself.

Awareness of Educational Systems

Ana's project aimed to support positive cultural identity development among her Latinx students as well as increase their desire to pursue postsecondary education. Her actions included having students present research on notable people from Latin America and having a representative from a local community college speak to the students about admissions requirements, an automatic transfer program (to a four-year college), and opportunities for students of various immigration statuses.

Although Ana's actions were motivated by her knowledge of disparities in opportunities and outcomes for her Latinx students versus their non-Latinx classmates, it was not until Ana started collecting data for her project that she realized how vast the disparities were. The survey Ana administered to the students in her Heritage Spanish class (Spanish for Spanish-speakers) revealed that 90% were unaware of the benefits of advanced-level courses (Advanced Placement or Dual Enrollment) and were unaware of the process for enrolling in them. Students also reported being denied the opportunity to take the PSAT due to a perceived language barrier and 80% said they were never informed about the SAT or ACT. Ana was surprised to learn that so few students reported having been informed about college entrance exams, especially given that most of her focal class were proficient English speakers and therefore should not have been perceived as having a language barrier.

She was equally frustrated to learn that not a single student knew about the Seal of Biliteracy, which is an endorsement for high school diplomas that many states offer in recognition of proficiency in two or more languages. One attendee at the final poster showcase event (described in the method section) told Ana about a common misconception among local educators: that the seal was primarily or solely for native-English speaking students who have learned a foreign language. In other words, there appeared to be an implicit assumption that bilingualism is to be promoted and celebrated only in cases when a native-English speaker attains it, not when speakers of other languages acquire English. This misconception may have accounted for why Ana's students had not been told of their eligibility for the

seal and raises the question of how many other English learners are denied this opportunity as a result of biased notions of who/what counts as bilingual/ism.

Ana's heightened awareness of the inequities in information provided to Latinx students (which she believed was due to educators' low expectations of this group) led her to conclude the following:

> This study has taught me that I have to ensure that my students are receiving the necessary information regarding advanced-placement courses, college entrance exams, and are aware of the instructional and programmatic opportunities available in our school and in our county. I will share the results with my administration and my colleagues in an effort to ensure that all of our students are receiving equitable instructional opportunities. This study makes me feel energized to continue this work! (research poster)

Ana was planning to bring her findings to her administration in an effort to impact students beyond her own classroom. In addition, participating in the action research cohort helped Ana recognize that her school was not unique in encountering equity issues and that, in fact, all of the researchers' schools had room for improvement. In her final interview, Ana stated, "It was eye opening to see that my school was not the only one that was going through changes. My school was not the only one with cultural competency issues" (third interview).

Like Ana, Carrie began her participation in the project with a particular concern—in Carrie's case, the lack of teachers of color at her school—and ended the project with a deeper understanding of the magnitude of this problem both for students in her own school as well as students across the United States. Carrie's project focused on what she could do to help her students of color feel better represented in the curriculum and for all of her students to reduce stereotypical thinking and experience greater allophilia (i.e. love of otherness; Pittinsky, 2009). Carrie's actions consisted primarily of instructional activities such as reading multicultural literature and a characterization lesson in which students were prompted to notice how stereotypes were influencing the traits students had initially assigned to individuals of various social identities.

When describing the impacts of the project on her own conception of the teacher's role in promoting equity, Carrie explained,

> I went in concerned about the students of color that I had in my room–about 15% that I had in my classroom. And by the end of it, I realized that it was 100% of students that needed the impact, or that were feeling the impact of not having teachers of color, in addition—that those stereotypes were across the board, regardless of race. And I did learn that, as a white teacher, I had a much stronger impact on white students, and I could change their stereotypes. And it was a little bit more limited with the students of color, which, it kind of makes sense. I think that there's no substitute for having a teacher of color. (third interview)

Through this study, Carrie learned that greater diversity in the teacher population would influence the educational experiences of all students; in essence, the study expanded her understanding of how and why teacher diversity matters. While she acknowledged the limitations of her ability to influence the diversity of teachers in her school, she sought to find ways to minimize the impact of the lack of a teacher of color in her own classroom. Carrie's project taught her that equity pedagogies are relevant for all learners, including her white students. Drawing connections between individual classroom conditions and national issues like the racially homogenous teaching force enhances the potential for action research projects to contribute to systemic reform.

Shifting Conceptualizations of the Teacher's Role in Promoting Equity

One of the greatest impacts of Diane's project was the transformed perspective of her role as a reading teacher - particularly with regard to equity. She began her project with the goal of encouraging families to read more with their children at home in order to support the literacy lessons she provided at school. However, as she struggled to achieve results with several interventions, such as sending materials home with students, she shifted her focus toward what *she* could do differently, rather than what the parents could do differently. In her final interview, she explained,

> I realized, as a teacher, that, for some students, I have to do more than I do for others. There are students who get the reinforcement at home. Somebody reads with them, at least. Some may not read every night, but they repeat; they read with them; they review for tests and quizzes . . . And then I have students who have none of that. So as a teacher, I have to do the extra review. (third interview)

At first, Diane had been primarily focused on actions that could address disparities in reading skills; however, the process of engaging in research also prompted her to pause to ask some underlying questions:

> Where are my students coming from? What's happening in my room? What do I notice? What's going on maybe that's not noticeable, kind of behind the scenes? Either at home or things that are—things that in the past I may not have really keyed into as much as I have this year. (third interview)

Additionally, Diane's transformed understanding of the problem led to a shift in thinking about her role as a teacher. In response to an interview question about how reflecting on students' home situations impacted her thinking about her role as a teacher, Diane stated,

> I see my purpose as a teacher [is] to teach my students what they need to know according to the state, but also I need to make sure that they are getting what they need as far as nurturing, they need somebody to be proud of them for what they're doing, their progress, [and for] working. (third interview)

Initially, Diane's focus on the teacher's role had emphasized the need to provide academic support. As illustrated in the above quotation, Diane ultimately developed an appreciation of the importance of offering social and emotional support as well.

Karen's project developed her understanding of the teacher's role in fostering intergroup relationship-building among students. Karen believed these social and emotional lessons were as important for her students as was learning mathematics. Her project began with a survey that asked students to identify which peers they wished to sit with and why. Students were surprised by some of their own responses to the survey and began questioning their seating choices, particularly after several class discussions about the unique assets of peers from various social groups. Karen described the impacts of her project on her students and on herself:

> One of the most valuable things from this study I felt was the need to take the mystery of other students out of the classroom. As a teacher we often believe the students know all about one another. We know that they are tracking everything they do through social media, but what do they really know about each student's history? And more importantly how can we incorporate those things into our classroom? The direction this project took for me brought to light that students may think they know each other, but the acceptance of one another really does come from the details of each person. (Research poster)

Participating in the action research program also solidified Karen's perspective regarding the importance of teachers' role being lifelong learners who continue to engage in challenging educational opportunities. Learning about Paula's project (described below) inspired Karen to pursue her own endorsement as a Gifted and Talented teacher so that she could fight for more equitable identification and talent development processes in her own school district, as Paula was doing in hers. In this way, Karen began to consider whether she should expand her professional role so that she could better contribute to reducing opportunity gaps for students historically underrepresented in gifted programs.

Impacts on Students

Teacher professional development should ultimately yield a positive impact on students, whether through academic achievement, social-emotional growth, feelings of empowerment and self-efficacy, increased curiosity, or love of learning, or some other outcome. Carrie wanted her middle school students to develop *allophilia*, or love of the other (Pittinsky, 2009); Ana wanted her students to take pride in their heritage and set high expectations for themselves; and Diane wanted to boost her second graders' reading skills. In this section, we share two major domains through which the projects led to

benefits for students: (a) influences on academic identity and opportunity and (b) students' understandings of diversity and difference.

Impacts on Academic Identity and Opportunity

Paula's goal was to expand access to Gifted and Talented programs to historically underrepresented youth, particularly students of color attending high-poverty schools. She used two strategies to reach this aim. One was through what she called *talent development*, or pushing into general education classrooms to expose all students to the types of reasoning and other analytical skills that are tested in the placement exam. She recognized that the more economically privileged students had more exposure to these types of questions in both prior educational settings and outside of school, which seemed to account for some of the disparities she observed in identification. Teacher biases seemed to be another contributor to the disparities, as teachers overlooked signs of gifted potential due to unfavorable classroom behaviors, low reading skills, or other factors that are not necessarily associated with intellectual abilities. Through Paula's talent development program at the Title I school in which zero students had been identified the prior year, four students from the same cohort were identified the next year, and three of the four were in the classroom she had been pushing into. One of those three had already been tested by Paula, and he was not able to pass until he had more exposure to the types of analytical reasoning skills evaluated on the test. She concluded, "That was something that helped me see that we were moving in the right direction" (third interview). Although four may seem a small number, Paula thought in terms of the enormous impacts on the entire future trajectory of these four students' lives:

> If you are identified early as having the ability for high achievement or being gifted, doors open … There are programs that students can't even apply for if they're not on that gifted track … It's about presenting opportunities for students to operate at their optimal level. It is, to me, a right, just like special ed. They should have the opportunity to operate with peers who challenge them and who can get them to that next level. (Cyle 3 Meeting)

Like Paula, Ana was interested in reshaping dominant narratives about the capabilities of youth from historically marginalized communities. In Ana's case, she wanted to challenge society's expectations for Latinx youth, as well as their own expectations for themselves, which may have been shaped by the internalization of messages they received at school and via the media and political discourse. Ana explained that Latinx youth are "not recognized as having the potential to be in advanced level classes. [They are] always kind of looked upon like the problem child, not necessarily an enhance[ment] to, or an asset to, the school climate, school environment" (third interview). Through her project, Ana found that students lacked information about the requirements and processes of various post-secondary options. Ana reported that most students were inspired to apply to community colleges and transfer, or to apply directly to four-year institutions, after the presentation from the community college representative. Through raising students' awareness of various opportunities within the school and post-graduation, Ana's project also resulted in more English learners and former English learners participating in the PSAT, statewide Seal of Biliteracy program, and schoolwide senior-freshman mentoring program. On her final research poster, Ana described the findings from the final survey she administered to students to evaluate the impacts of her project:

> Students reported to have learned a lot in the class. Students also reported having gained an understanding and an appreciation of their culture and to value what it has to offer. They also reported having high expectations for themselves and that their vocabulary skills have improved.

Additional support for these student self-reported gains was obtained through Ana's observations of students' actions, including a greater number of students applying to serve as senior mentors to incoming freshmen.

Impacts on Diversity Awareness

Some of the researchers' projects were aimed at helping students to reflect on stereotypes they may hold, develop a greater appreciation for diversity, and build stronger relationships with peers from different backgrounds. Although equity work requires more than prejudice reduction among students in that systems must be restructured to redress power imbalances, prejudice reduction nevertheless plays a role. The idea for Karen's project emerged from her realization that her students tended to seat themselves with peers of similar ethnic backgrounds. After asking students to reflect on their reasons for sitting with particular peers (i.e. whether they had academic or friendship-related reasons), and facilitating classroom discussions about how working with students from different backgrounds may expand one's thinking, Karen noticed that students began to choose to sit with new peers. She explained,

> They're becoming more open about discussing their diversities, and being able to work with [their diversities]. So, I'm seeing more and more that they're starting to co-mingle amongst themselves, which was my whole purpose of this—to get them to break out of their groups. (first interview)

In her final interview, Karen explained why she believed this approach to diversity would be vastly more beneficial than the current focus on so-called "achievement gaps":

> We all hear about "the gap group, the gap group, the gap group." And I get it, for testing purposes. But these are also students. And we need to start talking about, "How do we bring everybody in and really start looking at what they bring to the table?" And incorporating it in with other students. And that's the way we're going to move forward with the diversity—being able to celebrate it and not separate it. (third interview)

Carrie similarly sought to open up spaces for her students to have conversations about race, ethnicity, and culture, because she recognized that students rarely had opportunities while in school to discuss these important matters in their lives:

> The kids are already experiencing, or they're having these conversations with each other, they're hearing it in music, they see it on TV and in movies. It's everywhere. But then you come to school, and we don't talk about it. So just being able to say, "Hey, let's talk about it. Let's talk about the Black Panther movie, the superhero … I think so many kids have a conception that if they say anything about color at all, that they're racist. Just being able to define what that is, and that they're kids. That they're too young to be [racist], hopefully. That their ideas are still forming. And that it's probably always better to ask questions than to let things simmer inside. Just making a safe place for that for all people. For all of the people who are minorities to feel safe about that. (third interview)

Carrie's students completed a characterization activity in which they were given photos of people of different ethnoracial identities and were asked to ascribe attributes such as strengths, concerns, employment aspirations, and family members. After several lessons designed to reduce prejudice and promote allophilia, Carrie asked students to repeat this exercise. The number of students assigning a sports-related career to the Black male decreased by two-thirds, and the number linking him with a professional job jumped from 10 to 26 students. When she re-administered a survey on their comfort and engagement at school, she found that a number of her students shifted from "agree" to "strongly agree" on the statement: "*I feel comfortable discussing race/religion/gender*" (research poster). She was encouraged by the increase in students' abilities to talk about and critically examine their own understandings of cultural difference.

System-Level Impacts

In addition to enhancing teacher practice and promoting student academic and social growth, some of the projects had unexpected impacts across the researchers' schools or even school systems. Sontia's project strengthened both general education teachers' capacities for effectively teaching students with special needs, as well as the entire school culture around collaboration between special education and general education teachers. Sontia's action consisted of speaking with Encore teachers (i.e. teachers of art, music, library, and physical education) about their

perceptions of how well PreK students with special needs are prepared for the transition into kindergarten and Encore classes. These conversations—which allowed Encore teachers to share their observations, needs, and suggestions–"tremendously empowered the teachers to talk about areas they could improve upon, with the proper supports in place" and helped them recognize they were not the only ones "who need help in working with students with special needs" (research poster). Sontia reported that, after their conversations, these teachers would often come up to her and say, "Mrs. [Sontia's last name], after we spoke, I thought about this . . . " or "I had never thought about that, but this is what I think I can do. What do you think?" (research poster). Sontia described how the project transformed her school's culture of collaboration and preparation for transition into kindergarten:

> Encore teachers are helping to take the lead in implementing the use of visual schedules at the start of every class. . . . Currently, all teachers are working together to prepare pictures for all visual schedules; discussing ways to utilize pictures of substitute teachers; planning to meet quarterly to discuss any changes in current IEPs; reviewing helpful strategies; continuing the dialogue on ways to support all students and are being more mindful to better support students with special needs. (research poster)

Paula's project had school- and system-wide impacts on the process used to identify students for Gifted and Talented services. When Paula pushed into the general education teacher's classroom, she had two goals. One, described above, was to expose all students to the reasoning skills measured on the gifted identification assessment. The other was to raise the general education teacher's awareness of how to identify students who may be gifted. For instance, some behaviors often viewed as disruptive—such as being argumentative or restless—can actually be signs of giftedness. Paula explained that their collaboration "encouraged and empowered [the general education teacher] to reframe her ideation of giftedness and how to differentiate activities to allow various critical thinking skills to be observed" (research poster).

On a system-level, Paula's findings inspired the entire school district to make changes to its gifted services. Paula invited her school district's Gifted and Talented Program Coordinator to the final showcase event to see the impact that Paula's use of push-in talent development could have on ensuring equitable access to this program. Paula explained, "as opposed to trying to just identify talent, [push-in talent development] is removing the barriers and actually creating justice in the system, not just equity, but justice, where there are no barriers" (third interview). Paula's project provided the coordinator with data she could use to advocate for hiring more Gifted teachers so that push-in talent development, which is more resource-intensive, could be accomplished at more schools, particularly Title I schools. Paula added in her final interview,

> We're looking to do some universal testing also at the end of second grade or near the end of second grade [instead of testing only students who are referred by their teachers], which hopefully will show the fruits of our labor have not been in vain. That we have developed some talent, because we will yield a higher percentage of students who are not only referred [for Gifted evaluation] out of the classroom, but also who are then identified.

Since that final interview, Paula has reported in personal conversations that universal second-grade testing is now being implemented in her school district to reduce the impact of teacher bias on the identification process. With the hiring of additional teachers and adoption of Paula's push-in approach to talent development, the coming years may see a reduction in disparities across race and socioeconomic status for participants in the Gifted program.

Discussion

Study findings illustrate the power of equity-focused action research as a form of professional development that has immediate and significant impact on, not only the participating teachers and their students, but often, their entire school communities. In terms of impacts on teachers, we found that the action research project promoted professional growth in ways that deepened participants' understandings of root causes of educational inequalities. Diane, for instance, began to examine her

assumptions around her students' family dynamics and the relationship between pedagogical approaches and family supports. These projects also offered potential for transformation through the opportunities they created for collaborative professionalism, defined as a condition in which

> educators actively care for and have solidarity with each other as fellow-professionals as they pursue their challenging work together, and where they collaborate professionally in ways that are responsive to and inclusive of the cultures of their students, themselves, the community, and the society. (Hargreaves & O'Connor, 2017, p. 1)

Through the use of a collaborative professionalism model, these teachers took on the role of leaders in equity within their schools and districts, thus enhancing their capacity to effect system-level change.

Whereas most studies of action research on CRE have focused primarily on its impacts on teachers (e.g., Brown & Weber, 2016; Souto-Manning & Mitchell, 2010; Voltz et al., 2003), this study demonstrates potential impacts on students as well. As the examples from Paula and Karen indicate, the projects enhanced students' academic opportunities and identities, as well as their understanding of diversity and difference. Ultimately, all PD is intended to promote student gains, through enhancing teacher effectiveness (Desimone, 2009). This study contributes to growing evidence that teachers' implementation of CRE can improve outcomes—both academic and beyond academic—particularly for historically marginalized groups (Aronson & Laughter, 2016; Dee & Penner, 2017). However, addressing the education debt that has accumulated over the history of American public schools to disadvantage students of color will require more than changes to individual teachers (Ladson-Billings, 2006). That is why it is crucial for educators and researchers to attend to the ways in which teacher actions may contribute to structural changes.

While prior research has found that professional development can have indirect benefits on the colleagues of those who participate (Goodnough, 2011; Penuel et al., 2012), this study reveals that the impacts of the action research projects can ripple out not just to individual colleagues, but to whole systems. The possibility for systemic change was cultivated by organizing action research projects around the concepts of equity and culturally responsive pedagogies—aims that led organically to questions around the structural changes necessary for the pursuit of educational justice.

We have a few hypotheses about why some projects led to ripple effects, while others did not, but these would have to be tested through additional research. One possible explanation is that some teachers are drawn more to the potential for action research to improve their own practice while others may be more drawn to its potential for effecting larger system change. In this particular study, the three Black teachers (Sontia, Paula, and another not included in this paper) were characterized by the latter, which may not be a coincidence. Drawing on African American intellectual traditions such as the "lifting as we climb" motto, education scholars have described how Black women educators approach their work through a Black humanist vision of care (Knight, 2004) and womanist subversive empowerment (Beauboeuf-Lafontant, 2005). Such approaches position teaching as part of a collective effort to challenge social injustices. Future research might explore the degree to which cultural traditions and epistemologies influence teachers' use of action research and how theories and structures of action research might be reimagined from these epistemological standpoints.

One framework for understanding systemic change in education, *coherence theory of change*, posits that such change is generated by a shared depth of understanding among teachers about their pedagogical practices and the dynamic contexts in which these practices occur (Quinn & Fullan, 2017). Through their focus on pedagogies, these action research projects illuminated assumptions and beliefs that undergird practice, thus leading to greater understandings of root causes of inequities and how they can be interrupted. The idea that teaching is an essential element of systemic change was less obvious in the beginning, but emerged as participants drew connections among projects, and began to see how their action research was related to broader societal issues.

Through facilitated, collaborative action research, the teachers were able to direct their growth and produce their own insights, but perhaps even more importantly, they ultimately felt empowered to continue engaging in cycles of inquiry. Most reported during the final poster showcase that they had already put in place plans to continue their work the following year. When these teachers recognize an

area of concern in the future, they will have the tools and self-efficacy to design an intervention, collect appropriate data, and draw conclusions from that data to help them address the issue. In other words, participation in action research may have a compound interest effect in which the returns expand exponentially.

Implications for Practice and Policy: Action Research for PD and School Improvement

Whereas most PD continues to be characterized by short-term workshops with pre-determined knowledge to be transmitted unidirectionally to school personnel (Flint et al., 2011), this action research model allowed teachers to construct their own knowledge after posing self-determined inquiries and reflecting on the particular contexts of their classrooms and pedagogical growth areas. In doing so, this model exemplifies not only tenets of the coherence theory of change, but also core features of effective PD: active learning, collaborative participation, extended duration, and coherence (Desimone, 2009; Garet et al., 2001).

The model also reflects the key features that have been identified as particularly promising for professional development related to cultural diversity. Because such PD often involves sensitive and sometimes uncomfortable reflections and insights on power and privilege, it is important that the varying baselines of participants' critical consciousness are honored and that they can devote focused attention on the specific students they serve (Parkhouse et al., 2019).

These action research projects illustrate how structural change can occur from the ground up, as opposed to top-down approaches such as those mandated through No Child Left Behind (NCLB, 2002) and the Every Student Succeeds Act (ESSA, 2015). While the federal and state policies have aspired to promote equity, they have often led to a narrowing of the curriculum and replacement of instructional time with test-taking and test preparation (Au, 2007). This has, in effect, widened the very gaps they were purported to close (Nichols et al., 2005). Conversely, many of the most successful, lasting school reforms from Massachusetts to Texas have shared a grassroots-up approach grounded in democratic collaboration (Gabor, 2018). Policymakers should enlist greater educator participation in conversations about solutions to educational inequalities.

Those reform movements have also shared an appreciation of data alongside recognition that many of the most important factors are not revealed through tests (Gabor, 2018). In our study, the teachers' focus on equity and diversity led them to look at student outcomes beyond narrow measures of academic achievement (e.g., test scores) and toward those aims of education that are often neglected in our current high-stakes standardized testing regime. These include stronger feelings of self-worth, cultural pride and expectations for the future (Ana), expanded intellectual opportunities and enrichment (Paula), and greater appreciation for peers of different backgrounds (Karen, Carrie). Some of these outcomes may indeed contribute to higher academic achievement, but they are all also worthy goals in their own right. Involving teachers (and, ideally, students) in policy decisions may help ensure these goals are not overlooked in the hyperfocus on indicators such as standardized test scores.

Implications for Research

When considering the broader literature on CRE PD, beyond action research studies, most have measured impacts on participating teachers, with a handful also measuring impacts on the students of those teachers (Parkhouse et al., 2019). Some found increases in test scores (Johnson & Fargo, 2014; Mette et al., 2016; Powell et al., 2016) or students' written work and feelings of connectedness to school (García & García, 2016; Sleeter, 2011), while others found limited or no effects on students (Grimberg & Gummer, 2013). None of the 40 studies reviewed by Parkhouse et al. (2019), however, examined impacts on students beyond those in the participating teachers' classrooms. This may be because none of the studies considered potential system-level impacts of the PD interventions.

The present study serves as a call to future researchers of CRE PD to think more broadly about its ripple effects and potential to influence long-term, sustainable improvement. Given that U.S. schools

continue to display dramatic inequalities along the lines of race, socioeconomic status, language, and ability/disability, researchers and practitioners must direct their attention toward the types of structural changes that offer more substantial and sustainable improvement than the small-scale and short-term fixes of many education interventions. We encourage the formation of more research–practice partnerships (Coburn & Penuel, 2016) to explore the types of teacher development that may help address the persistent problem of inequalities in educational opportunities and outcomes. The research–practice partnership that served as the backbone of this study may have contributed to the ripple effects because the teachers' discoveries were shared with district-level administrators through the end-of-the-year showcase event organized by the university-based researchers. However, school districts could also coordinate similar AR PD programs that culminate in an opportunity for district leaders to learn from the teachers' projects. Such opportunities for ground-up knowledge development should be built into education systems; change should not be left to chance.

Conclusion

This case study reveals what is possible when teachers engage in action research to enhance their culturally relevant instruction—in particular, what systemic changes are possible toward equalizing educational opportunities. Action research focused on culturally relevant education allowed teachers to closely examine contexts and structural underpinnings of educational inequality, and then make changes to their practices based on this awareness. These practices, in turn, enhanced students' academic opportunities, efficacy, and understandings of diversity. Finally, teachers' action research in some cases prompted equity-oriented reforms in the school or even school district.

These findings held true across the different grade levels, schools, and community contexts within which the teachers worked, suggesting that these effects of action research are not limited to contexts that are most conducive to progressive reform. Researchers and policymakers should take care not to underestimate the role teachers can play both in identifying persistent problems in education and addressing them. This work cannot fall on teachers alone, of course—major changes are also needed in school funding and accountability systems, as well as broader societal inequalities that undergird disparities in educational outcomes. However, this study lends support to a growing call for professional development (PD) to be more teacher-directed, adaptive, generative (versus pre-determined), reflective, and tailored to the particular contexts and needs of each participant (Ende, 2016; Flint et al., 2011; Koellner & Jacobs, 2015; Rodman, 2019). When PD is designed with these principles in mind, we may encounter greater potential for significant teacher and student growth, as well as improvement of their schools as a whole.

Note

1. The two research team members who were also practicing teachers were invited to coauthor this paper. Both declined due to limited time availability but remain involved in the ongoing work resulting from this study.

Disclosure Statement

No potential conflict of interest was reported by the authors.

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