

APPLYING A RACE(ISM)-CONSCIOUS ADAPTATION OF THE CFIR FRAMEWORK TO UNDERSTAND IMPLEMENTATION OF A SCHOOL-BASED EQUITY-ORIENTED INTERVENTION

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Objectives: To use the Consolidated Framework for Implementation Research (CFIR) adapted to a race-conscious frame to understand ways that structural racism interacts with intervention implementation and uptake within an equity-oriented trial designed to enhance student-school connectedness.

Design: Secondary analysis of qualitative implementation data from Project TRUST (Training for Resiliency in Urban Students and Teachers), a hybrid effectiveness-implementation, community-based participatory intervention.

Setting: Ten schools across one urban school district.

Methods: We analyzed qualitative observational field notes, youth and parent researcher reflections, and semi-structured interviews with community-academic researchers and school-based partners within CFIR constructs based on framing questions using a Public Health Critical Race Praxis approach.

Results: Within most CFIR constructs and sub-constructs, we identified barriers to implementation uptake not previously recognized using standard race-neutral definitions. Themes that crossed constructs included: 1) Leaders' willingness to examine Black, Indigenous, People of Color (BIPOC) student and parent experiences of school discrimination and marginalization had a cascading influence on multiple factors related to implementation uptake; 2) The race/ethnicity of the principals was related to intervention engagement and intervention uptake, particularly at the extremes, but the relationship was complex; 3) External change agents from BIPOC communities facilitated intervention uptake in indirect

INTRODUCTION

Implementation science is an important field of study that aims to move effective interventions into routine and sustained use by evaluating contributors to intervention implementation.^{1,2} Analysis of factors impacting intervention uptake is often considered in dissemination of evidence-based interventions. Formative consideration of these factors, particularly in collaboration with end-users in what have been termed effectiveness-implementation hybrid designs, generates early refinement of implementation strategies.^{3,4} The conceptual frameworks that guide implementation science

consider systemic and ecological contributors to intervention uptake, and thus have been suggested to offer insight into understanding and reducing health disparities.⁵

One such tool is the Consolidated Framework for Implementation Research (CFIR), a comprehensive, theory-based approach to systematically evaluating intervention implementation.¹ Combining components from implementation theories spanning 13 disciplines, the CFIR was developed as a guiding framework that could be adapted to diverse implementation contexts to aid in the identification of facilitators and barriers to implementation.⁶⁻⁸ It includes 39 adaptable constructs that

but significant ways; 4) Highly networked implementation champions had the ability to enhance commitment to intervention uptake; however, perceptions of these individuals and the degree to which they were networked was highly racialized.

Conclusions: Equity-oriented interventions should consider structural racism within the CFIR model to better understand intervention uptake. *Ethn Dis.* 2021;31(Suppl 1):375-388; doi:10.18865/ed.31.S1.375

Keywords: School Connectedness; Implementation Science; Health Disparities

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may influence implementation success, organized into five multi-level domains: intervention characteristics (eg, complexity and organization), outer setting (eg, policy and economic context), inner setting (eg, organizational culture, orientation toward change), individual practitioner characteristics (eg, knowledge, efficacy, skills), and implementation process (eg, presence and orientation of opinion leaders and champions).⁵

While evidence-based interventions reduce health disparities, significant gaps between research and uptake have been identified.⁹ In an effort to bridge that gap, implementation science has begun to focus on health equity. CFIR guiding questions have been adapted to ask explicit questions about disparities, such as, “What characteristics of an intervention predict better success at reducing disparities?”⁵ These questions align with what has been termed second and third generation approaches to health disparities research focused on identifying contributors to disparities and generating solutions. However, such approaches have been insufficient to address health inequities, and theorists suggest that a Fourth Generation of health disparities research must explicitly consider racism as a fundamental cause of health disparities in order to produce effective solutions.^{10,11} A racism-conscious approach takes into account race-related factors at the individual, interpersonal, institutional, and structural levels. At the individual-level, race-related beliefs about in-group and out-group members, attributions for racial disparities, and racialized experiences may affect intervention uptake. At

the interpersonal level, teams are likely influenced by the other three levels, including organizational culture related to addressing issues of diversity, equity and inclusion. Institutional racism refers “specifically to racially adverse discriminatory policies and practices carried out... [within and between]...institutions on the basis of

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racialized group membership.”¹² Policies and practices in one sector often interlock with and support those of another to mutually reinforce White privilege or advantage. Structural racism therefore refers to the totality of ways in which systems, social forces, ideologies, processes and institutions generate and reinforce inequities among racial and ethnic groups.^{12,13}

Within a Fourth Generation ap-

proach, CFIR’s deployment as a presumptively race-neutral tool may obscure the influences of race-related factors on the intervention implementation process that may limit understanding of barriers and facilitators specific to interventions addressing health disparities. Critical race theory suggests that when consideration of race is not at the forefront of analyses, our ability to identify social factors that determine study outcomes is limited.¹⁴ Racism is the *raison d’être* for much health equity work – and a barrier to intervention adoption, dissemination, and sustainability.¹¹

Here, we use one health equity intervention – Project TRUST (Training for Resiliency in Urban Students and Teachers), a community-based participatory intervention designed to enhance school connectedness for Black, Indigenous, People of Color (BIPOC) students, to explore the ways in which structural racism embedded within institutions such as schools can disrupt intervention implementation and impede efforts to promote health equity. Project TRUST is a pragmatic, non-randomized hybrid effectiveness-implementation trial that aims to improve school connectedness.

School connectedness, described as the quality of the social relationships or bonds a student feels within the school community and with adults in particular,^{15,16} is a key proximal social determinant of health that has been identified as a highly promising intervention target for improving adolescent health,¹⁷ (eg, decreased substance use and greater emotional well-being)¹⁸⁻²⁰ and academic outcomes.²¹ BIPOC (including African American, Somali

and other East African, Indigenous, Hmong, and Latinx) students constitute the majority of the student population in Minnesota urban school districts,²² where they experience particularly marked disparities in educational outcomes.²³ For example, in comparison to other states, Minnesota ranks 46th for Indigenous students and 50th for both African American and Latino students for on-time high school graduation.²³ Given the public health imperative to address educational disparities as a social determinant of health, developing effective interventions targeting contributors to connectedness are of high significance. However, interventions implemented within institutions such as schools, which have historically differentially benefited some groups over others in part by creating substantially different experiences for BIPOC communities, must consider how race(ism) interacts with intervention implementation to influence study outcomes.¹⁰

The current study therefore used an analytic approach known as Public Health Critical Race Praxis (PHCRP) to adapt the CFIR in order to elucidate the ways that structural racism interacts with intervention implementation and uptake within equity-oriented interventions.^{12,13} PHCRP applies critical race theory to public health.¹⁴ Critical race theory is a race(-ism) conscious approach that emphasizes race as a social construct, privileges the perspectives of members of marginalized communities, and “digs beneath the surface” to consider the ways in which practices, such as knowledge production, which appear to be “race-neutral”

actually uphold the racial status quo. We use PHCRP to re-examine the CFIR constructs and attend specifically to the influence of structural racism on implementation uptake. Our research questions are therefore: 1) Can CFIR be adapted using PHCRP to consider structural racism as a contributor to intervention implementation; and b) When using a race-conscious frame, how did structural racism influence intervention implementation in Project TRUST?

METHODS

Project TRUST

Project TRUST utilizes a community based participatory research approach (CBPR) that engages collaborators as full partners at all stages of the research process.²⁴ Team members include an academic co-PI, a community co-PI whose background is in public education, interdisciplinary academics, community researchers, and school district partners as well as a coalition made up of school, community, and policy advisors.

Based on the World Health Organization Health Promoting School model, Project TRUST includes three intervention components: 1) Teacher Professional Development training using a nine-session curricula focused on building trusting relationships with students and managing the classroom in a manner that promotes positive youth development;²⁵ 2) School uptake of connectedness promoting changes in school practices and procedures as defined by students through Youth Participatory Action Research (YPAR); and

3) School uptake of parent connectedness and community connectedness promoting changes in school practices and procedures as defined by parents through Parent Participatory Action Research (PPAR).

YPAR is an established approach that creates opportunities for youth to meaningfully participate in school and community policy formation and change to address educational inequities.²⁶⁻²⁸ PPAR acts similarly for parents.^{29,30} In Project TRUST, student and parent research teams within each school were trained and supported to conduct research on factors that impede school connectedness for all students, but BIPOC students in particular. Research outcomes were then translated to policy, practice, and procedure changes presented to school leadership. Participating school principals agreed at study outset to choose at least three student and parent recommendations to implement within their schools.

Employing an effectiveness-implementation hybrid design, Project TRUST aimed to first determine the effectiveness of the intervention as a means to promote school connectedness and secondarily to identify potential facilitators and barriers to the implementation strategies. Project TRUST has been implemented across 10 middle and high schools in one urban, public school district. The students in enrolled schools are on average, 80% BIPOC, 49% from non-English speaking homes, and 64% eligible to receive free and reduced lunch. Effectiveness outcomes were anticipated following the final data collection point in November 2020. The current analysis, ap-

proved by the University of Minnesota institutional review board, was conducted at the end of two study waves to provide early evaluation of implementation processes.

Race(ism)-neutral CFIR Approach

Using a consensus process consistent with CFIR approaches, we adapted CFIR constructs and added new constructs to more closely align with our study's CBPR approach and health equity framing.^{31,32} To better understand contributors to anticipated variation in intervention uptake, we collected longitudinal qualitative data between July 2017 and October 2019 including observational field notes, youth and parent researcher reflections, and semi-structured interviews with community-academic researchers and school-based partners that ranged in frequency from weekly to monthly based on the individual's level of involvement with implementation. Semi-structured interview questions probed for barriers and facilitators to implementation activities.

The CFIR framework guided an initial race-neutral content analysis at the end of the first of two study waves to provide formative, early evaluation of implementation success that could inform wave two implementation.³³ Our results allowed us to identify distinguishing characteristics of low relative to high implementation sites as previously described.³⁴ We found that 10 constructs from four of five domains (with the exception of intervention characteristics) distinguished high and low implementation schools

(Tables 1-5). Five of these – participant needs and resources, cosmopolitanism, tension for change, leadership engagement, and reflecting and evaluating – were “strongly distinguishing,” meaning that varying levels of these constructs differentially influenced implementation efforts and work processes across multiple implementation sites.³²

Public Health Critical Race Praxis (PHCRP) Analysis of Data

The current study builds on our previous analysis using a PHCRP approach. Our community-academic team examined those constructs that were distinguishing by CFIR approaches as described above and those chosen by consensus within the team as having likely sensitivity to racialized facilitators and barriers based on our experiences. As a result, 23 constructs and sub-constructs within four domains (outer setting, inner setting, characteristics of individuals, implementation process) were included in this analysis (Tables 1-5).

Although we were attuned to all principles of PHCRP, we focused on race consciousness, the social production of knowledge, critical approaches, and disciplinary self-critique, as well as their emergence across different school contexts given their ability to add explanatory information to facilitators and barriers to intervention uptake.^{10,35} We developed PHCRP grounded questions within each CFIR construct to guide content analysis (Tables 1-5). Using the PHCRP model, we defined four overarching presumptions that framed our analytic approach:

1. Race consciousness: Our CBPR collaborations and the resulting studies are premised on the assumptions that racialization is inherent in social structures in the United States and that our racialized lenses influence our lived experiences and perspectives as community and academic researchers. In our analysis, we intentionally consider our positionality to identify racialized facilitators and barriers.

2. Knowledge production: Given our hypothesis (that analytical tools such as CFIR will miss essential findings and interpretations unless antiracism modes of analysis are included), we considered presuppositions innate to race-neutral approaches such as CFIR and the alternative implications of prioritizing experiential knowledge and marginalized voices.

3. Critical approaches: Our team, composed of one Latinx man, one African American woman, one Black biracial woman, and three White women, three of whom are academics, and three of whom are from community and partner organizations. We identified and named the ways in which traditional approaches uphold the status quo and overlook power dynamics.

4. Disciplinary self-critique: We recognize race-neutral tools such as CFIR undermine our ability to understand how structural racism plays out within interventions designed to address health disparities.

In both CBPR and PHCRP, academic and community researchers are thought to bring unique perspectives and experiential knowledge that contribute to the construction of knowledge.^{14,25} Based on that presumption, data analysis proceeded as previously described within this study.³⁶ Each author reviewed data previously coded within each CFIR construct as part of the initial race-neutral implementation evaluation and proposed interpretations based on the PHCRP principles and guiding questions. Preliminary findings were returned to the group and discussed until consensus was reached regarding key interpretations of findings and exemplars of implications for intervention implementation within each construct. Two authors (MA and BC) then reviewed findings and examples to identify preliminary overarching themes that emerged across the constructs based on the above PHCRP principles, and through continuously questioning what was missing. Preliminary themes were returned to the group for discussion until consensus regarding the meaning of themes was reached.

RESULTS

As detailed in Tables 1-5, we identified examples of ways structural racism

related to intervention uptake within each CFIR construct included in the analysis. While all distinguishing constructs from our initial race(ism) neutral analysis remained impactful, examining contributors to implementation using PHCRP identified several additional constructs that impacted Project TRUST's implementation, including communication, social capital, relative priority, and engaging roles. Furthermore, our race conscious analysis offered a more nuanced understanding of how institutionalized racism manifests in the implementation of an equity-promoting intervention in schools as detailed in these four overarching themes spanning multiple CFIR constructs.

First, school leaders' willingness to examine BIPOC student and parent experiences of discrimination and marginalization within their schools had a cascading influence on multiple factors related to implementation uptake. Principal openness to these issues within the Outer Setting domain (Table 1) related to enhanced cosmopolitanism was exemplified by connection to school district level equity work. School participation in trainings offered by district equity practitioners supported a common language that made uptake of equity-oriented intervention components more feasible.

Within the Inner Setting domain (Tables 2,3), principal influence was present for most constructs, but was particularly notable in establishing a school culture, the quality of communication, and facilitating or hindering the connection between team members and internal leadership who moved implementation forward (social capital) among par-

ticipants. Similarly, within the implementation environment, principal attitudes, and orientation to "doing the work" of equity played out strongly in intervention uptake with the tension for change, compatibility, and relative priority constructs.

In addition, the race/ethnicity of principals was related to intervention engagement and intervention uptake, particularly at the extremes, but the relationship was complex. The principals who were most highly engaged tended to be BIPOC while those who were notably disengaged were White; however, there were important exceptions. Two White leaders identified Project TRUST as being able to address unmet needs in their schools related to engaging BIPOC parents and responding to school climate issues that surfaced after an incident of racism at the school. These leaders prioritized work related to Project TRUST and moved the intervention outcomes toward institutionalization. In contrast, one BIPOC leader within a school where district practices contributed to tensions between BIPOC communities did not engage with Project TRUST activities, perhaps due to perceived consequences from parent constituencies or district leadership.

Next, external change agents from BIPOC communities facilitated intervention uptake in indirect but important ways. This influence was seen most clearly when communities were strongly supportive of BIPOC leaders. In those cases, leaders seemed willing to take risks regarding intervention implementation. For example, one BIPOC leader with significant ethnic concordant

Table 1. Project TRUST (TRUST) Consolidated Framework for Implementation Research (CFIR) definitions, questions related to Public Health Critical Race Practice (PHCRP) and findings for CFIR construct: outer setting

CFIR Domain ^a	TRUST Definition	PHCRP Questions	Sample Findings	Example Implication for Implementation
Participant needs and resources ^b	Extent to which school understands and is oriented to the needs and preferences of students and families	What mechanisms were in place in schools to identify needs and preferences of BIPOC students/families and whether they were being met? Did school leaders and staff respect, recognize, and attend to needs?	1) School leaders expressed a lack of resources or lack of parent interest as challenges engaging BIPOC parents. 2) Leader willingness to consider racialized experiences of BIPOC students to understand needs and resources and how the intervention may be helpful in addressing concerns. 3) Leader personal experiences, orientations, and background – including race/ethnicity – contributed to how they approach understanding needs and resources and their commitment to finding ways to address needs.	The presumption of BIPOC parent low interest in school engagement contributed to lack of investment in working with parents. One principal resisted implementing a parent recommendation because they did not perceive the tensions between ethnic communities that the parents wanted to address as a school issue despite parent perceptions of contribution to the school climate.
Cosmopolitanism	Degree to which school leadership is networked with other schools and/or community organizations	To what degree and how are schools networked to support equity initiatives and how are race relations/racism a barrier to connection? To what degree and how are schools networked to community organizations?	High engagement in district-sponsored equity projects, which was primarily determined by principals, facilitated TRUST implementation. Highly engaging principals were closely connected to and supported by communities and community organizations, particularly when leaders were of the same race/ethnic background.	Schools more highly engaged with professional development and coaching offered by the district equity team had a shared set of competencies and language for discussing race/racism, facilitating the implementation process. Reputation in the community and/or community pressure influenced particular principals to encourage implementation.
External policies and incentives	External pressure on schools to participate in TRUST (eg, school improvement status)	How is achieving or failing to achieve racial equity rewarded, or sanctioned by the school district? How does the history of racial equity issues in the district relate to TRUST?	The district-level equity climate and emphasis changed with a switch in district-level leadership. The change impacted TRUST as key equity and TRUST champions departed, and the decreased emphasis on equity initiatives compounded implementation challenges.	Without the external district-level emphasis on equity initiatives and the key collaborating personnel supporting those initiatives, the utility of TRUST intervention was more challenging to sell to school leadership.

TRUST, Training for Resiliency in Urban Students and Teachers; BIPOC, Black, Indigenous, People of Color.

a. Adapted from original CFIR construct definitions developed by Damschroder et al.¹

b. Represents a distinguishing construct in the initial, race-neutral analysis.

Table 2. Project TRUST (TRUST) Consolidated Framework for Implementation Research (CFIR) definitions, questions related to Public Health Critical Race Practice (PHCRP) and findings for CFIR construct: inner setting, Part 1

CFIR Domain ^a	TRUST Definition	PHCRP Questions	Sample Findings	Example Implication for Implementation
Social structural characteristics ^c	School contextual and social organizational components, such as demographics, turnover	How did the race/ethnicity of school leaders and composition of the school impact engagement with TRUST?	A combination of leadership, demographics of the student and teachers, and the larger culture influences intervention uptake. Leadership turnover significantly affected intervention uptake.	In multiple schools, principal turnover influenced intervention uptake. Losing or gaining a BIPOC leader was the most influential on changes in engagement.
Networks and communication				
Quality of formal communication ^b	Open feedback	Are there avenues to recognize when things are going well OR poorly? Do leaders say racial equity is a goal?	In schools with strong communication, staff and internal leaders looped TRUST team into school's scheduling and work flow. The quality of communication was strongly related to commitment to the project.	A highly engaged internal BIPOC lead facilitated communication between leadership, TRUST staff, and students which increased the quality of student research and the uptake of intervention components.
Social capital ^b	Degree to which people involved in TRUST had strong working relationships /The quality and the extent of relationships within schools and across partnering organizations	How are team members connected to each other and to champions? How are the champions connected to one another? How were positive relationships "across difference" promoted?	Marginalization of the perspectives of BIPOC participants undermined implementation. Conversely, implementation was deeper when champions and leadership were aligned in support of BIPOC students. Students or parents who were networked with leadership and champions were effective. Networking was dependent on leader and champion perceptions which were race- and class-based.	In one school team, the White internal champion and White student changed direction of conversation with the other student who was AA. The research team intervened to support the BIPOC student to move their work forward as intended. At one school two BIPOC students had developed skills to discuss race(ism) through a racial equity leadership group. A White champion moved implementation of their recommendations forward.
Culture ^c	School culture regarding student and parent voice	In what ways does culture support or undermine innovation toward racial equity? How does leaders' ability to employ self-reflection about their own biases influence engagement?	Openness to change or resistance to change in terms of "doing the work" of racial equity influenced TRUST intervention uptake. Action was pushed by leadership, but the larger school culture in terms of orientation to equity was highly influential. Culture was influenced by outside forces such as district approaches or policies.	At one school a history of leadership inability to address issues of racism was an impediment to teachers and leaders taking student research findings seriously. In one school, led by a highly engaged BIPOC principal, a White teacher questioned the methodology of student researchers as a way to dismiss their conclusions and intervention implementation.

TRUST, Training for Resiliency in Urban Students and Teachers; BIPOC, Black, Indigenous, People of Color.

a. Adapted from original CFIR construct definitions developed by Damschroder et al.¹

b. Sub-construct developed from original framework construct definition.

c. Represents a distinguishing construct in the initial, race-neutral analysis.

Table 3. Project TRUST (TRUST) Consolidated Framework for Implementation Research (CFIR) definitions, questions related to Public Health Critical Race Practice (PHCRP) and findings for CFIR construct: inner setting, Part 2

CFIR Domain	TRUST definition	PHCRP Questions	Sample Findings	Example Implication for Implementation
Implementation climate				
Tension for change ^e	Degree to which leaders see the identified issues from youth and parent research as problematic and their openness to address them	What are signs that people support or are resistant to change? Are there consequences if change doesn't occur?	Tension for change was felt differently by different people, but action depended on leaders' perceptions of racism as a prevalent problem they would take on. Tension for change was enhanced through a component of the intervention that elevated BIPOC parent voices.	Parent sharing through "Intentional Social Interactions" increased tension for change. A principal's sense that their own actions had improved school climate, decreased tension for change and contributed to shift from supportive of implementation to opposing.
Compatibility ^e	Alignment with leadership beliefs about how to address recommendation and how TRUST fits with school workflows and systems	In what ways was there alignment between the TRUST team, students, leaders and the district?	In schools where racial tensions were prevalent, reactions to TRUST were strongly polarized as either positive or negative with regard to alignment with school needs.	Uptake in schools with equity concerns led by White principals differed. At one school the principal engaged and leveraged students in teacher training to address concerns. At the other, the principal dismissed TRUST as unhelpful and did not engage.
Relative priority	Importance of TRUST in comparison to other initiatives	What school language showed TRUST was important? What priorities was TRUST compared to?	Intervention implementation was more likely where there was alignment between school leader priorities and intervention priorities --there was a racialized aspect to perceived feasibility.	In one low implementing school many student suggestions were ignored as they were not aligned with leader priorities and not considered feasible.
Organization incentives and rewards	Extrinsic incentives that TRUST offered for participants (eg, awards, performance reviews, stature, respect)	What messages do students, parents, schools receive that racial equity and positive racial climates are valued?	TRUST's commitment to honoring student, parent, school, and district staff time conveyed respect for their expertise. The places where TRUST could meet an explicit need for leadership were most successful.	The use of an "Intentional Social Interaction" to bring parents together was valuable where principals had difficulty with parent engagement. One school perceived TRUST as a liability due to concern about how data would be perceived.
Readiness for implementation				
Leadership engagement ^e	Commitment, involvement, and accountability of those in school leadership roles with TRUST components	In what ways does the tendency to uphold racial status quo limit commitment and accountability? In what ways do leaders' ability to employ self-reflection about biases influence engagement?	BIPOC principals were generally more receptive to student voice, taking up recommendations and including students in the process. Leaders open to self-reflection regarding structural racism and the experiences of BIPOC students and parents engaged more with the intervention whether through their own actions or committing staff.	One BIPOC principal, engaged highly with TRUST despite resistance from other leaders. This principal had strong community support. One principal made a number of assumptions about BIPOC parents' reasons for low engagement, but was reflective about these assumptions making them open to intervention implementation.
Available resources	Level of resources within the schools dedicated for TRUST implementation and ongoing operations	What contributed to schools committing resources to TRUST? How were resources prioritized?	Within resource-poor schools, scarcity framed priorities and limited creativity and innovation. Resources that facilitated less central, though prioritized outcomes, such as parent engagement are often vulnerable to cuts.	Across years of TRUST, multiple schools were unable to rehire key staff, such as parent liaisons, who supported TRUST implementation, while other staff maintained their positions.
Access to information and knowledge ^e	Ease of access of school members to information about TRUST and how to incorporate it into work tasks	How culturally relevant, acceptable, impactful were avenues for community sharing about TRUST?	Leadership determined the quality of communication about TRUST. The avenues that students and parents were given to present their research findings was indicative of leadership support of the project.	Low implementing schools often made it challenging for student and parent researchers to present their findings back to leadership and staff. High implementing schools often made attendance mandatory or institutionalized.
<p>TRUST, Training for Resiliency in Urban Students and Teachers; BIPOC, Black, Indigenous, People of Color a. Adapted from original CFIR construct definitions developed by Damschroder et al.¹ b. Represents a distinguishing construct in the initial, race-neutral analysis.</p>				

Table 4. Project TRUST (TRUST) Consolidated Framework for Implementation Research (CFIR) definitions, questions related to Public Health Critical Race Practice (PHCRP) and findings for CFIR construct: characteristics of individuals

CFIR Domain	TRUST definition	PHCRP Questions	Sample Findings	Example Implication for Implementation
Knowledge and beliefs about the intervention	School familiarity with, attitudes toward, and value placed on TRUST	What were the prevailing narratives around BIPOC student and parent connectedness and student achievement recognized prior to TRUST?	School leaders often appropriately contextualized challenges with BIPOC achievement or connectedness as related to social factors, but some failed to take responsibility for the school contribution.	Principals who were less responsive to parent and student perspectives around inequities tended to react defensively and engage less deeply with TRUST intervention components.
Agency ^b	School leadership and staff socioculturally-mediated capacity to implement TRUST components	a) How was participant agency increased through the project and how was it undermined? b) What have students/parents who participated gone on to do that demonstrates their agency “in spite” of structural racism?	Lack of agency was used as an excuse for principals to not act on intervention components. Perceived policies, particularly around teacher unions, impacted agency or ability to act such as mandating training or participation of teachers in events where students shared research outcomes and priorities. Student and parent agency was an intended outcome of the project, but the degree to which they had agency was dependent on leadership perceptions based on race and class.	A number of principals described their hands tied by district around issues that required resources such as teacher training or parent engagement. In one low implementation school, where the culture reinforced (White) teacher control, the methodology and premise of student presentations of research findings were criticized as a way to dismiss policy change proposals.
Individual stage of change ^c	Stage of change of school as they progress toward skilled, enthusiastic, and sustained use of the intervention	In what ways does implementation of TRUST require the development of new knowledge, skills, motivation? What motivated or impeded individuals from taking on new skills and activities?	TRUST required that school leadership and staff build new skills in the ways they consider student decision making. Intervention uptake was dependent on an ability of school leadership and staff to be self-reflective about issues of equity and racism – where they were in this process greatly influenced engagement with the project.	One principal was pre-contemplative regarding student concern about how racism shaped their experiences. One student recommendation was to improve teacher comfort level in talking about race with their students. The principal did not support as enthusiastically as other recommendations.
Individual identification with the organization	How school staff, students, parents perceive their school	Can teachers, youth and parents realize their goals within the current school context? Do they trust the organization?	Parents and students had complex relationships with schools. In some cases, frustrating experiences contributed to increased motivation to engage with intervention activities.	Parents continued to work with TRUST after they had pulled their BIPOC children from schools due to frustration with how their children were treated.

TRUST, Training for Resiliency in Urban Students and Teachers; BIPOC, Black, Indigenous, People of Color.

a. Adapted from original CFIR construct definitions developed by Damschroder et al.¹ b. Construct significantly altered from initial definition to fit a participatory intervention context. c. Represents a distinguishing construct in the initial, race-neutral analysis.

Table 5. Project TRUST (TRUST) Consolidated Framework for Implementation Research (CFIR) definitions, questions related to Public Health Critical Race Practice (PHCRP) and findings for CFIR construct: implementation process

CFIR Domain ^a	TRUST definition	PHCRP Questions	Sample Findings	Example Implication for Implementation
Engaging				
Opinion leaders	Individuals in the school who had influence on the attitudes and beliefs of their colleagues relative to TRUST implementation.	Who were the formal or informal opinion leaders? Did they support the project? Why or why not? How did their racial worldviews affect implementation?	Opinion leaders who didn't see race/cultural contribution to how needs and priorities were defined were not likely to be on board. Having BIPOC opinion leaders, particularly those who spanned roles, generated deeper school support and contributed to uptake.	Two BIPOC parent researchers at one school also had official roles within the school and served as a bridge between parents and school leaders.
Formally appointed internal implementation leaders	Individuals, usually staff, within the school who were formally appointed for implementing TRUST	Who was formally appointed to work with TRUST? Did they act as a barrier or facilitator? How so?	Formally appointed, paid leaders approach the work within TRUST in different ways. Staff who supported the work were willing to use their institutional knowledge to help address challenges. Some staff undermined implementation due to discomfort around addressing structural racism.	Some BIPOC staff engaged deeply with the students to facilitate their ability to connect with decision makers and complete their projects. In contrast, one White staff attempted to reframe students' questions away from discrimination and marginalization experienced by BIPOC students.
Champions	Individuals who dedicated themselves to supporting, and driving through TRUST implementation; mostly parents and students.	Who were the champions? Were they well-positioned to champion the project – why or why not?	Internal champions can be strong, but if they are not well-situated and connected with leadership they are limited in what they are able to do with the intervention. Champions of different races and backgrounds were received differently within schools and this influenced their ability to move the program forward.	One BIPOC parent who did not present as wealthy or educated had difficulty moving intervention components forward. In contrast, a highly networked White professional parent was more easily able to circumvent unsupportive leadership to implement a similar component.
External change agents	Individuals affiliated with an outside entity that formally (and positively) influenced or facilitated TRUST implementation decisions	Were there trusted outsiders who supported TRUST? How were they able to be effective in the schools/with the project?	BIPOC community members could sometimes exert particular pressure that assisted in facilitating aspects of TRUST implementation. District-level staff, both those formally and informally participating on the project were highly influential on decision-making.	School principals who were race/ethnic concordant with the student population and who had community support were able to push TRUST implementation. District staff who knew school leaders and their orientations to equity work were effective in enhancing uptake of TRUST.
Reflecting and evaluating ^b	Degree to which participants debriefed to promoting learning and improvements	How do you make processes of racism visible in data interpretation and dissemination of findings?	In some cases, principals used district level or parent and student generated data to selectively support their priorities or actively discount student or parent concerns.	One principal gave parent researchers inaccurate information regarding school-specific numbers related to attrition of BIPOC students.

TRUST, Training for Resiliency in Urban Students and Teachers; BIPOC, Black, Indigenous, People of Color.

a. Adapted from original CFIR construct definitions developed by Damschroder et al.¹ b. Represents a distinguishing construct in the initial, race-neutral analysis

community support implemented mandatory professional development training for all teachers facilitated by Project TRUST students based on their research findings. This direct feedback of student voice to teachers was present at other schools but less extensive or formalized than in this particular school.

Next, highly networked implementation champions, typically parents and students, had the ability to enhance commitment to uptake of the intervention; however, perceptions of these individuals and the degree to which they were networked was highly racialized. Within the Inner Setting domains (Tables 2,3), internal champions with high levels of social capital facilitated implementation. The limit of disenfranchised champions was strongly evidenced within the communication, access to information, and agency constructs. For example, in two schools where leadership engagement was low, parent researchers were received differently by White leaders. In one case, a highly educated and well-connected White parent was able to bring together White and BIPOC parents to hold a large meeting, which was one component of their implementation priorities. In contrast, a BIPOC parent struggled to establish connections with school leadership or assistance in planning for a similar event, though was eventually successful with support from the TRUST research team.

Finally, school district-level equity-oriented focus and prioritization established a context that influenced intervention uptake in multiple ways. First, a change of district-level leadership brought a decreased focus on

equity initiatives which resulted in key equity and TRUST champions leaving the district (external policies and incentives) (Table 1). This dually challenged TRUST implementation as neither the external incentive, nor the powerful internal allies were available to push implementation. Next, as above, district equity-promoting resources such as trainings, coaching, and professional development were more often utilized by higher implementing school leaders (cosmopolitanism) (Table 1). In contrast, district practices, such as assigning students to schools where there was a mismatch between the students' cultural orientation with that of a culturally specific magnet school, created tensions within the school, in turn challenging intervention uptake.

DISCUSSION

Results of this study showcase how inclusion of PHCRP as an analytic approach that explicitly considers structural racism influences outcomes of the CFIR, a purportedly race-neutral research tool. Results highlight distinct facilitators and barriers to implementation not previously identified and added an important dimension to our understanding of how these contributors influenced implementation. Scholars have recognized the potential benefit of implementation science to address health disparities, and thus are using the CFIR as well as REAIM and other established frameworks to examine whether key determinants of uptake resulted in equitable outcomes.^{5,37} Yet these efforts con-

tinue to ask race-neutral questions and thus obscure the influences of structural racism on the intervention implementation process. Presumptions of race-neutrality are faulty in our society where racism shapes institutional processes; PHCRP calls us to make explicit how racism influences all aspects of science including intervention implementation.

Our results highlighted distinct facilitators and barriers to implementation not previously identified and added an important dimension to our understanding of how these contributors influenced implementation.

Early, proactive application of CFIR within pre-implementation planning is useful to identify and address relevant modifiable factors that can promote or undermine adoption.³⁸ Our results suggest that within equity-oriented interventions, evaluation of study implementers' understanding of racism may be a key potentially modifiable factor for early consideration. Project TRUST was not explicitly focused on educational equity, but rather on student-

school connectedness where equity is an implicit contributor. This tension makes it an interesting case study, as implementers at the school leadership, staff, student, and parent levels were not asked to explicitly consider racism; however their willingness to “go there” emerged as a key factor in intervention uptake. In complex interventions aiming to reduce disparities, the within and between group heterogeneity in preparation, capacity, as well as willingness of participants to consider structural racism are linked to intervention uptake.

Across studies using CFIR, leadership engagement is a consistent influence on intervention uptake.^{4,39} However, a race-conscious CFIR frame provides a more nuanced cross-construct understanding of how leadership orientation to multiple equity-related factors facilitates or undermines implementation. In the present study, although our initial race-neutral analysis identified leadership engagement and tension for change as contributors to Project TRUST’s implementation, the PHCRP analysis provided insights into how leaders’ orientation to equity influenced uptake across multiple domains including tension for change, cosmopolitanism, and participant needs and resources. Results indicated that, although leaders may support equity in principle, they may not truly understand what equity promoting interventions aim to do (ie, knowledge and beliefs about the intervention) given the prevailing narratives and racial legacies within their institutions, or they may not be fully comfortable with the ultimate intention of these interven-

tions (ie, tension for change), which may be to disrupt the status quo.

Finally, for equity-oriented interventions, the broader political and policy environment establishes a racialized backdrop to implementation. The CFIR construct “external policies and incentives” often captures policies explicitly incentivizing or encouraging use of the intervention, however in equity-oriented interventions, the broader institutional orientation to equity policies, practices, and initiatives establishes a context facilitating or undermining the work. In our initial race-neutral analysis, this construct was not found to be important as no policies were identified in relation to the intervention. However, within the PHCRP analysis, we identified that the decrease in the district-level focus on structural inequities due to a change in leadership during the study had a cascade of effects including the departure of equity-oriented collaborating champions and a decreased incentive for deep engagement on the part of the schools. These factors presented a broad challenge to implementation that was only overcome when other facilitators were in place.

Study Limitations

This study has limitations. It focused on only 10 schools within one school district, so our results may not be generalizable to other institutional or geographic settings. Furthermore, the study does not link determinants to outcomes.⁴ However, our analysis within a hybrid effectiveness-implementation trial served the purpose of identifying early and unique contributors to implementation.

CONCLUSIONS

While racism may be ubiquitous within our institutions, a better understanding of specific points of resistance to equity-oriented interventions will enhance intervention planning, implementation, and uptake. Achieving this goal will require that we move from race-neutral to race(ism)-conscious tools that consider how institutional racism interacts with intervention implementation to enhance or undermine intended outcomes. This adaptation of a widely used implementation science framework integrating public health critical race praxis offers a new approach to better consider and refine interventions intended to address health equity.

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CONFLICT OF INTEREST

No conflicts of interest to report.

AUTHOR CONTRIBUTIONS

Research concept and design: Allen, Wilhelm, Pergament, Bates, Cunningham; Acquisition of data: Allen, Wilhelm, Ortega, Pergament, Bates; Data analysis and interpretation: Allen, Wilhelm, Ortega, Pergament, Bates, Cunningham; Manuscript draft: Allen, Wilhelm, Pergament, Cunningham; Statistical expertise: Cunningham; Acquisition of funding: Ortega, Pergament; Administrative: Allen, Ortega, Pergament, Bates, Cunningham

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