Collaborative Complexity in Community-Based Research and Evaluation

By

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Abstract

Collaboration in community-based research and evaluation (CBRE) coalesces scientific tools of knowing with local knowledge, creating potential for legitimizing democratic inquiry. These ambitions drive most CBRE researchers and scholars to collaborate across space, time, and with stakeholders and local residents who represent diverse interests, backgrounds, and desires. And it is because of this heterogeneity among and between agents in CBRE collaborations that creates a complex system of emergent interactions and nonlinear group dynamics. The multitude of discordant collaborative structures and dynamics and its resulting effect on CBRE participants, projects, and outcomes is at the heart of this dissertation. Researchers who examine collaboration in CBRE mainly study group dynamics (Fawcett et al., 2010; Johnson & Johnson, 1982) community-academic relationships (Dave et al., 2018), and, more recently, community movement (Tremblay et al., 2017). The conceptual model of community-based participatory research (Wallerstein et al., 2008) provides a useful starting point, but ultimately highlights the need for more comprehensive research on how their identified constructs influence one another. In this dissertation, I ask broader questions about collaboration. What kind of culture do agents within CBRE collaborations create and what does that say about the nature of civil society? What are the salient social structures, dynamics, and motivations apparent in CBRE practices? And how can we use systems thinking and complexity to understand the emergent behavioral patterns found in CBRE collaborations? Utilizing four articles, I provide a framework synthesis of community coalitions in the context of complex systems science; a review of social structure and dynamics in and motivations for collaboration in CBRE; an applied systems modeling project to examine the role collaboration plays in whole-of-community health change; and a study on the influence of gatekeeping in CBRE. Taken together, I hope to expand what researchers mean by collaboration so that CBRE projects facilitate equitable partnerships in all phases of research and evaluation, involving and empowering a power-sharing process that attends to health and social inequities.

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Collaborative Complexity in Community-Based Research and Evaluation

This project began with a simple assertion: the type of relationship between two or more individuals drives their capacity to accomplish a shared outcome. Fundamental to this assertion are questions about collaboration, cooperation, leadership, and social evolution. What are the most salient inter- and intra-relational dynamics that give rise to successful collective efforts? For how long do these collaborations exist in order that their effects diffuse outward to other actors within a system? Why do so many research and evaluation projects tout the importance of interdisciplinary collaboration, partnering with academics and community institutions and members alike, but often find their ambitions stymied?

In my experience with those involved in collaborative projects in community-based research and evaluation (CBRE), these questions arise due to the complexity of engaging project stakeholders across a project's lifespan. How do personal relationships influence the ways in which community-based researchers and evaluators think about their scientific method, their epistemology, or their methodology? How do power, control, and trust shape the maximal effect a CBRE project can have on project participants? Can we understand these inter-relational dynamics at the group level, and can we take this understanding to scale?

In part, the focus of my dissertation is in reaction to and experience with collective impact (CI). CI, neither a model nor a framework, is defined by its progenitors, Kania and Kramer (2011), as "the commitment of a group of important actors from different sectors to a common agenda for solving a specific social problem" (p.36). That is, CI provides guidelines for key stakeholders to tackle complex social problems in specific geographic communities by unifying major institutions to help fund and solve the issue. It includes five core conditions that must be upheld simultaneously for collective success: a common agenda, shared measurement systems, mutually reinforcing activities, continuous communication, and backbone support.

In principle the CI definition and core conditions for successful collective efforts seem ideal, and that it should be the standard across multi-sector organizing. In practice, however, I have seen CI largely

fall short in providing collaborations with the guidance necessary to achieve desired outcomes. Instead of being used to foster cross-sector collaborations to increase capacity for solving complex social issues, I have seen CI used the shape projects in a way that that reified institutions of higher education's role and proclaimed responsibility to engage in social change through a tripartite mission of research, education, and outreach, specifically with the goal of increasing civic engagement through the democratization of engaged scholarship. For scholars, practitioners, and residents with familiarity in the Freirean participatory approach to outreach and engagement, this implicit appropriation raises serious questions about the approaches, impact, and empowerment ostensibly achieved through CI. While CI is just one of the more recent doctrines readily absorbed across an array of sectors and institutions, the approach is reminiscent of other approaches with the same problems: the inability to effectively engage, collaborate, adapt, and empower for the purposes of effective, sustained transformative change.

In this dissertation, I interrogate the effects and deterrents of social relationships in CBRE. Each included article approaches this topic differently. In Article 1, I demarcate collaborative life in CBRE into the social structure, dynamics, and motivations, informed by an array of theorists, and offer a complexity perspective in each category. In Article 2, I develop an a priori conceptual model of collaboration in community coalitions using a complex systems lens and deploy a framework synthesis to refine this model. In Article 3, I use a grounded theory approach to explore the influence of gatekeeping, often a form of discordant collaboration, to investigate group dynamics in CBRE. In Article 4, I examine the role of networked coalition action, a form of scaled collaboration, on helping community-based organizations achieve changes in healthy policies, practices, and environments. Taken together, I explore collaboration in CBRE at the individual, group, and community levels for the purposes of studying the structure, effects, and deterrents of social relationships in CBRE.

Taking a plurality of perspectives will allow me to inspect what it means to navigate CBRE social life, whether between community and academic partners or among competing cultures within community systems. Often, I focus on community-academic partnerships as the nexus of complex social life primarily due to my experience participating in them. In these cases, I have seen that the complexity in collaboration

is due to emergent and fluctuating relationship dynamics such as trust and respect, failed communication and consensus around collaboration processes and outcomes (*e.g.*, roles and responsibilities within the project), compromise and feedback, capacity, allocation of resources, and community ownership (Wolff & Maurana, 2001). In my experience, without a clear understanding of these dynamics, community-academic partnerships run the risk of perpetuating top-down business models of social change rather than a community building and development approach; they lack a social and racial justice core as essential to the goals of the work; they omit grassroot stakeholders as equal partners, sometimes throughout the entire project; if shared metrics can be agreed upon, they are often imposed on community partners; and they rarely consider previous research and literature on community action and organizing (Christens et al., 2019; Flood et al., 2015; Wolff, 2016). These risks have motivated me to further explore the social mechanisms involved in community-academic partnerships and, more broadly, CBRE projects.

Problem

Connecting to others across geopolitical, socioeconomic, cultural, and ideological divides can be a harrowing task, especially if these divides are constantly shifting to produce new relational complexities. In CBRE, where equitable and empowering relationships are at the center of successful collaborations, connection among diverse sets of stakeholders who often hold conflicting visions about how to approach and accomplish the work can be daunting. In some cases, the lack of meaningful relationships within CBRE projects leads to disappointing project outcomes. In other cases, discordant relational dynamics effectively reinforces structural oppression. The problem is that CBRE scholars do not know enough about how to collaborate in a way that fosters equitable and empowering relationships that can optimally support the execution of research and evaluation projects and empower local residents. In a similar vein, CBRE researchers have yet to fully realize the expansiveness of collaboration as conceived through the idea that collaboration takes on specific types of social structures, dynamics, and motivations.

The problem of connecting with others in collective efforts is both multifaceted and multidimensional. For this reason, I conceptualize these facets and dimensions from the perspective of CBRE principles and complex systems science (CSS) concepts and techniques, from perspectives that allow

space for a plurality of interrogations of collaboration to occur simultaneously and not necessarily with synchronicity. I choose to explore the problem of collaboration using the lenses of CBRE and CSS precisely because they are founded upon the importance of interaction, whether among individuals or variables that represent the dynamics of personal interactions. The sheer number of interacting variables that constitute a personal relationship is currently unquantifiable and increases in complexity as you travel from cell to community. In the same vein, even if CBRE scholars could identify each constituent piece of successful collaborations, there is no guarantee that these pieces, when added together, would produce meaningful and supportive scholarly collaborations. Indeed, each piece is likely adaptive and interacts with one another nonlinearly to produce temporally and contextually emergent behavior. However, there may be defining rules that span scale and exist across changing collaborative landscapes. That is the hope for this dissertation: to build toward a better understanding of what these relational dynamics might be in order that CBRE scholars and practitioners collaborate more effectively.

Significance

Researchers, evaluators, funders, and practitioners, at some point, must be concerned with the nature and outcomes of CBRE collaborations, either related to the underlying determinants of supportive and empowering relationships or related to their ability to achieve the objectives of their projected outcomes. CBRE collaborations explicitly seek to bring together groups of people who can combine resources and ideas to address commonly defined complex social issues or concerns—all while creating opportunities of empowerment and community building. Therefore, CBRE collaborations have explicit objectives related to collaboration formation, group dynamics, and collective action that are considered integral to attaining CBRE project goals.

A participatory research or evaluation project facilitates equitable partnerships in all phases of research, involving a power-sharing process that attends to social inequities. CBRE scholars facilitating these equitable partnerships would benefit from knowing additional information about how relational dynamics play a role in the promotion of fair and just partnerships. Scholars may find it easier to adhere to CBRE principles and align their projects with participatory modes of research and evaluation if they had

more information about the kinds of relationships and relational dynamics involved in successful collaborations. Scholars, whose interventions include the purpose of fostering equitable collaborations across community groups, especially in the case of creating consensus and civic engagement to promote a cause, need a better understanding about how these collaborations can be structured and how better (e.g., more trusting, respectful) relationships might translate into the achievement of project outcomes.

In addition to the topic of my dissertation, there is significance in my approach as well. A complex systems approach is important for uncovering stubborn, sometimes hidden relationships that may help collective efforts approach their work better prepared. Complex systems science is a diverse phenomenology comprised of concepts and analytical techniques that, relative to the field or fields it is deployed in, attempts to explore the rich variation of structure and behavior of actors at multiple scales with differing individual motivations and priorities (Hammond, 2009; Moore et al., 2020; Williams & Hummelbrunner, 2010). The structure and behavior of actor systems have many moving parts and operative pathways, which interact to produce rich variation in outcomes that cannot be reduced to a single mechanism. Thus, this perspective provides a potentially fruitful lens through which to conceive of collaboration in CBRE.

Theoretical & Conceptual Background

The theories, concepts, and thoughts contained in my dissertation rely on an array of disciplines and thinkers. Much of my investigative thinking is grounded in sociological theories from the 1900s on through more contemporary thinkers from the last decade that delve into the trenches of social structure, dynamics, and motivations in research and evaluation collaborations. Other included theories are drawn from biology, game theory, community-based research, social ecological systems theory, and complex systems science. Here, I briefly review each of these disciplines and the purpose each serves in bolstering my analysis of collaboration in CBRE.

The purpose of drawing from the sociological body of work is dual. First, sociological theories are readily demarcated by their assumptions and explanations of social life and, therefore, provide equally salient demarcations for conceptualizing collaboration in CBRE (Joas & Knöbl, 2009). For example, the

separation of social structure from that of an agent's behavior serves as fertile ground to think about the more temporary and, in some cases, more fragile social phenomenon found in CBRE collaborations (Levi-Strauss, 1953). Second, sociological concepts provide a language for the experience of collaboration in CBRE. For example, conflict theory, derived from Karl Marx's theory of resource competition, has potential to explain aspects of social order and power differentials found among university-community partnerships (Ghosh, 1993).

Community-based research and evaluation[1] is based on a set of principles and, more contemporarily, a process of stakeholder engagement (Belone et al., 2016; Wallerstein et al., 2017). I draw from these principles and processes to describe the general outline of stakeholder partnerships. While this partnership approach attempts to equitably involve community members throughout the research process is based on well-meaning principles of power redistribution, empowerment, emancipation, decision-making, and ownership, I use this approach with caution, using a critical lens through which to parse the aspects of CBRE that continue to be problematic and for which CBRE principles and practices have little guidance. For example, many universities have histories of data extraction, and other colonizing practices, from surrounding local residents that have yet to be meaningfully remedied, resulting in current day tenuous university-community relationships (Hilgendorf et al., 2019). CBRE principles attempt to promote more equitable relationships today, but the principles themselves do not directly confront universities' historical incursion on specific populations (Dukes et al., 2011). Thus, I draw from CBRE principles and practices to frame how the process of CBRE unfolds and to situate CBRE within its broader socio-political and historical context.

I draw on concepts rooted in general systems theory, a general science of wholeness originally conceived and developed in context of biological organisms, to explicate the process of relationships

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[1] Evaluation is its own conceptually and methodologically diverse field that is generally focused on improving a program, practice, or policy. Some scholars have compared and contrasted research and evaluation. While the distinction between research and evaluation is not within the scope of this dissertation, I do note that the two can have very different goals. I combine research and evaluation together in the term CBRE only to signify the collaborative nature that the two forms of inquiry can take.

between agents and their socio-historical environment (von Bertalanffy & Sutherland, 1974). Similarly, I use general systems theory, as proposed by Ludwig von Bertalanffy, a biologist, as a reservoir of broadly applicable concepts and principles grounded in the ideas of interactionism and dynamics, otherwise known as active systems (von Bertalanffy & Sutherland, 1974). I use these two interrelated theories to contextualize agents' relationships in CBRE as well as to describe interrelationships between dissimilar cultures found within the university and within discrete local communities.

Agents within CBRE collaborations often make an array of contextually and interpersonally informed decisions that go on to influence how collaborations take shape and sustain themselves. I invoke game theory here to provide a language for agents' decision-making behavior and whether and how this behavior is tied to collaborative cooperation (Axelrod, 1997). While I do not attempt to form mathematical models of strategic interaction among rational decision-makers, I do pull concepts from cooperative game theory, which focuses on which coalitions will form, the joint actions that groups take, and resulting collective payoffs. For example, CBRE collaborations generally form around a singular purpose or mission. How these collaborations form based on the decision-making behavior of each agent and whether there are collective payoffs for those who participate aligns well with cooperative game theory.

I draw on social ecological systems theory to represent collaboration in CBRE within the bio-geo-physical unit associated with social agents and institutions (Berkes et al., 2008; Reeb et al., 2017). The social ecological model provides an outline of dynamic interrelations among various personal and environmental factors that moves beyond individual decision-making, incorporating anthropological theories to describe human development. Thus, an agent in CBRE does not make decisions in isolation. Instead, an agent makes decisions within an institutional, historical, cultural, and sociological context that is intimately tied to the agent's bio-psychological makeup. This view heavily relies on systems thinking, as defined by cognitive processes rooted in constructing the world as a combination of interacting, interrelated, or interdependent elements that form a whole. Together, social ecological system theory and systems thinking inform both the context and the development of agents' behavior.

Finally, I draw on the burgeoning area of complex systems science (CSS) to invoke concepts that have potential to further explain collaborative processes among heterogenous agents acting within and across social ecological levels of experience (*e.g.*, person, family, university, policy; Diez Roux, 2011). CSS is a field focused on describing how elements with heterogeneous properties dynamically interact with each other and their environments to produce patterns of phenomenon over time (Moore et al., 2020). The structure and behavior of actor systems have many moving parts and operative pathways, which interact to produce rich variation in outcomes that cannot be reduced to a single mechanism. Complex systems (CS) are composed of many heterogeneous pieces, interacting with each other in subtle or nonlinear ways that strongly influence the overall behavior of the system. CS share a few general properties found in Table 1 and reiterated throughout the dissertation. Given these general properties' utility in exploring the nature of complex systems, many fields have deployed this phenomenology in effort to explain intractable issues that are emblematic of these features. One such field is community-based research and evaluation (Moore et al., 2020).

Table 1

Features of A Complex System

Feature	Description of the Feature
Multilevel	Complex systems generally consist of nested, multilevel variables that span micro, individual-level behavior to macro, community-level behavior.
Heterogeneity	Substantial diversity in actors' characteristics, goals, rules, and constraints at each level.
Nonlinearity	Small actions can have large consequences.
Stochasticity	Outcomes and system behaviors are unpredictable, sometimes uncontrollable, and many times unknowable in advance.
Dynamicism	Interactions within, between, and among systems are often changing. Past behavior of the system affects future behavior of the system.
Interdependence	CS usually contain many interdependent and interacting actors, connected across different levels with feedback and nonlinear dynamics.
Feedback	Feedback, also known as feedback loops, is a closed chain of causal connection. For example, a change in one variable X affects change in another variable Y; subsequently, the change in variable Y affects change in variable X. Feedback loops result in either amplification (positive feedback) of both variables or balancing (negative feedback) of both variables.
Adaptation and Self-organization	Interacting elements and agents respond and adapt to each other; emergent behavior is a function of ongoing adaptation among both interacting elements and the responsive relationships interacting agents have with their environment.

| Emergence | Occurrence of unexpected phenomena—patterns of collective behavior that form in the system are difficult to predict from separate understanding of each individual element. |

Note. Adapted from Moore and colleagues (2020). Originally adapted from Patton (2011) and Hammond (2009).

Research Questions

In my theoretical and conceptual background, I review many of the components that consist of and affect collaboration in CBRE. Each article included in this dissertation will address various aspects of these collaborative components; therefore, in my dissertation research questions, I ask broad questions about what consists of collaboration in CBRE and how those who collaborate in CBRE are affected, knowing also that I will not be looking to comprehensively answer these questions:

A. What kind of culture do the diverse agents who engage in collaborative action in CBRE create?

B. How can we use systems thinking and complexity to understand the emergent behavioral patterns found in CBRE collaborations?

Article 1

Demystifying Collaborative Complexity in Community-Based Research

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Abstract

This century has seen an explosion of community-based research (CBR) projects. The proliferation of these projects comes with added pressure about how these projects are being conducted, whether equitable partnerships are being made, and what this form of collective collaboration translates into for participants and local ecologies. While researchers and practitioners have contributed substantial research to explaining the process of conducting CBR, as well as potential barriers to and products of forming equitable partnerships, little attention has been paid to what form collaboration takes and what function collaboration plays in these partnerships; to the problems of the university as the primary site of deploying CBR. In this article, I review discrete aspects of collaboration as theorized and conceptualized by an array of thinkers spanning disciplines such as sociology, cooperative game theory, and human ecology, procedurally demarcated by an exploration of social structure, social dynamics, and social motivations for collective action. Throughout, I consider how a complex systems approach might challenge or facilitate how we think about collaboration and collaborative efforts in CBR. I end with a discussion of the implications of the theories and concepts reviewed for both research and practice.

Keywords: community-based research, sociology, collaboration, collaborative research, complex systems science

Demystifying Collaborative Complexity in Community-Based Research

The need for scholars and practitioners to understand how relational dynamics are involved in and are an outcome of collective action increases as community-based research (CBR) practices become more pervasive. The interaction between small-scale, individual level relationship dynamics and larger collaborative dynamics is complex, nonlinear, and constantly adapting in response to shifting political, economic, social, environmental, and cultural systems (Matheson et al., 2018). This is particularly true in CBR where stakeholder engagement is the field's moral imperative, that spans dyadic interactions between researcher and community member to more expansive interactions between groups of individuals—all of which are imbedded in interacting, interdependent local realities (Banks et al., 2013; Mikesell et al., 2013). The researcher-stakeholder interaction, as one example of a stakeholder engagement dyad, has potential to increase the quality of research through higher participation rates, insightful interpretation of findings, and greater reliability and validity of measures in diverse populations (Goodman & Sanders Thompson, 2017). Given this potential, collaborative life in CBR must be more comprehensively dissected, informed by theoretical advancements in sociology, community organizing and development, even biology, and supported by recent research on collaboration, partnership, and participation in CBR.

I break collaborative life in CBR into four sections in the following theoretical and conceptual review for the purposes of explicitly naming the elements of collaboration that pertain to participatory research practices, and of connecting theories of collaborative life to its impact on project participants and outcomes. First, I briefly explore definitions of community and community-based research to create an architecture around which relational dynamics can be injected and explored. And because one focus of this article is to incorporate concepts from complex systems science to understand how concepts of collaboration might overlap and interact with one another, I briefly review the features of complex systems. Second, I use this architecture to explore the social structure, dynamics, and motivations of collaborative life in CBR, respectively, each with consideration to complex systems. Finally, I explore the implications of my review on CBR practice, with a focus on forming and sustaining equitable partnerships.

The theories and concepts chosen to be included in this review were arrived at iteratively, starting with a grounding in sociological perspectives and, in a snowball fashion, extending outward to related theories and concepts. For example, reviewing social structure led to a review of social relations, social rules, and institutional structure as elements that may lead a more definitive understanding of social arrangements found in CBR collaborations. Similarly, reviewing agency and action led to a review of cooperative game theory, conflict theory, and concepts related to the capacity for individuals to act upon their world purposively and reflectively. While this snowball process was effective in revealing interrelated concepts, it was also effective in excluding certain voices. Thus, a second, more intentional review was conducted to include researchers and practitioners a) with postcolonial perspectives grounded in feminism, queer phenomenology, and critical race theory; and b) at the "margins" of mainstream scientific inquiry.

Community and Community-Based Research

Briefly Defining Community

There is a long history of researchers trying to define community (Brown, 2004; Glanz et al., 2015; Pastor et al., 2011). Some researchers place emphasis on geographical boundaries and loose networks of associations such as those found in neighborhoods, rural towns, and metropolitan areas (Brown, 2004; Fisher et al., 2007; Glynn, 1986; Hovmand, 2014; Jewkes & Murcott, 1998; Katz, 2004). Others place emphasis on shared characteristics such as socio-economic status and sexual orientation (Fellin, 2001; Glanz et al., 2015). Still, other researchers have used a combination of definitions to explore the community as a construct: functional spatial units meeting basic needs for sustenance or providing a sense of place (Hunter, 1975; MacQueen et al., 2001); a space for sharing common interests and perspectives (MacQueen et al., 2001); units of patterned social interaction (Hunter, 1975; MacQueen et al., 2001); symbolic units of collective identity and sense of coherence (Hunter, 1975; MacQueen et al., 2001); and a space for joint action where people come together politically to make changes (Glanz et al., 2015; Israel et al., 2012; MacQueen et al., 2001). Integrating these definitions, community consists of: (1) a variety of geographic and trans-geographic groupings, (2) a network of patterned and symbolic social interaction that functions as a space for support and collective action; (3) diverse contextually- and situationally-dependent reciprocal

social action (*i.e.*, social action forms community and community forms social action; Brown, 2004; Joas & Knöbl, 2009).

These definitions seem inclusive at first glance but are missing several key elements. First, the definitions do not incorporate concepts and processes of community organizing and building. Community organizing, or the process by which community groups identity common problems or goals, mobilize resources, and develop and implement strategies to reach goals they have not set collectively (Minkler, 2012), involves the concept of empowerment, viewed as an enabling process through which individuals or communities take control over their lives and environments (Christens et al., 2019; Christens & Speer, 2011). Community building (Blackwell & Colmenar, 2000) is an orientation to the ways in which people who identify as members of a shared community engage together in the process of community change (Wallerstein et al., 2017a). While definitions of community do include concepts of joint action and support, and so allude to concepts of participation, they could be better substantiated by incorporating concepts of empowerment, control, and critical awareness (Glanz et al., 2015). Thus, to add to the integrated definitions above, community also consists of relationships that are actively engaged in building empowering relationships that foster a sense of control over common problems or goals.

Even though some of the reviewed researchers (e.g., MacQueen et al., 2001) have conducted empirical studies to incorporate definitions that originate from within specific communities, among community members, defining community is still a cultural and political act. That is, who gets to define community determines who is a member, how the issues get framed, who the stakeholders are, how we understand the politics and power, and even what language we use (Hovmand, 2014). Defining community must be culturally relevant, responsive, and intentionally aware of power differentials created by the position and status of the researcher. For example, an appreciation of the unique characteristics of indigenous communities should be a major consideration when defining community, as community to Menominee Nation, for example, is more central to community life than the individual (Hilgendorf et al., 2019). And the definition of community for Menominee Nation has been severely altered by modernization (Tonnies & Loomis, 2002) and historical trauma as a result of colonialism and exploitation (Cram &

Mertens, 2016). Defining community to provide an operational definition for a population or a means to judge the appropriateness of a sampling strategy does not consider the rich diversity of community members.

Briefly Defining Community-Based Research

In the mid- to late-1900s, researchers, scholars, and practitioners reacting to the shortcomings of traditional, positivist research, as well as to simultaneous sociopolitical movements in both hemispheres, turned toward constructivist and participatory modes of research (Belone et al., 2016; Dukes et al., 2011; Moore et al., 2020). This reaction was largely stimulated by inadequate conceptualizations of knowledge production and practices of inquiry where the traditional role of the researcher, seen as objective and distanced, was now inadequately positioned to answer questions about the new sociopolitical zeitgeist. Researchers confronting issues of power, participation, control, and ownership in research generated new modes of research for the purpose of promoting equity and social transformation (Puma et al., 2009; Wallerstein et al., 2017a). Thus, the participatory paradigm emerged, conceptually housing a deluge of equity-oriented approaches and practices.

CBR is a paradigm of research practice that developed from Northern and Southern traditions, two historical traditions that represent distinct approaches to participatory practice (Oswald et al., 2016; K. Strand et al., n.d.; Wallerstein et al., 2017c). The Northern tradition emphasizes a collaborative utilization-focused research approach that evolved from Kurt Lewin's subjectivist approach to research (Adelman, 1993), that rejected the gap between theory and practice for a more solution-focused, socially engaged research cycle (Bargal et al., 1992; Coghlan & Jacobs, 2005). The Northern tradition, then, is reminiscent of Talcott Parsons's normative functionalism that places rational decision making at the nexus of research and social issues (Harsanyi, 1969; Munch, 1981). Here, the researcher is in association with others to form and inform the research process, as posited by the political philosopher Michael Sandel, and acts coequally with practitioners to define what is 'good' and just (Sandel, 1984). Today, the Northern tradition can be seen in community-academic partnerships that facilitate equitable collaborations in all phases of research (Perrault et al., 2011).

The Southern tradition was born out of the Marxist critiques of underdevelopment—which are rooted in notions of class conflict, stages of economic development, and modes of production—as well as action-oriented practitioners reacting to colonialism and globalization (Ghosh, 1993; Wallerstein et al., 2017c). Reacting to this zeitgeist, Paulo Freire, a Brazilian philosopher, conceptualized the research process as a connection between the subjective and objective in which community members participate in knowledge generation (Freire, 2000). Participatory researchers adopted this view of the research process, viewing oppressed community members as agents[2] who can transform their conditions through their own actions and critical consciousness (Wallerstein et al., 2017c).

CBR falls along the solution-focused utilitarian approach and the emancipatory approach continuum where differences are defined by the level of activism and how much control local residents have in the project. If the research process is for the purposes of technical problem solving, improving practice, and making processes more efficient, then the research falls more in the Northern, solution-focused end of the continuum (Strand et al., 2003). If the research process is for the purposes of transformative social change and empowerment, then the research falls more in the Southern, emancipatory end of the continuum. This heuristic approach is also affected by where the locus of control and power rest among members of the research collaborative. CBR projects that place control of the research process in the hands of local residents are placed on the emancipatory end of the continuum, as residents with more control over how the research unfolds experience a sense of ownership over the research process, empowered to transform their conditions (Mayan & Daum, 2016).

In addition to CBR defined by the level of activism and the location of power and control in the research process, CBR is also grounded in several principles of research practice: (1) community is a unit of identity; (2) CBR builds on strengths and resources within the community; (3) CBR facilitates a collaborative, equitable partnership in all phases of research, involving and empowering and power-sharing

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[2] Agent is used to signify the array of stakeholders (e.g., researchers, community partners, members) involved in a CBRE project. Agent is also used to signify the agency individuals have to act.

process that attends to social inequities; (4) CBR promotes co-learning and capacity building among all partners; (5) CBR promotes research as a long-term process with a commitment to sustainability to address issues of race, ethnicity, racism, and social class (Collins et al., 2018; Galea et al., 2019; Wallerstein et al., 2017a). These principles guide researchers to conduct research processes that employ a community-engaged approach in which residents have equal power in determining the research agenda and resource allocation (Wolff, 2001; Wolff, 2016).

These CBR principles of research practice point to one imperative: CBR involves connecting across geopolitical, social, cultural, racial, and economic divides. It involves dynamic, nonlinear patterns of relationships that form a collaborative life within CBR for the purposes of empowerment, equity, and development. But to more readily understand this collaborative life within CBR, there must be a review of social structure, social dynamics, and social action. I turn now to a review of what we know about the social structure of collaboration in CBR.

Critiques of Community-Based Research

The clean definitions of CBR Northern and Southern traditions belies the problematic historical integration of the two traditions that we see today. With strong traditions in anticolonial movements in the Global South, CBR was slowly institutionalized and coopted by social science researchers in the 1980s in effort to align CBR practices with neoliberal globalization (Jordan, 2009). As the Global South developed CBR as a methodology of the margins, the Global North developed action research. Action research was developed by European and Northern American social science researchers who were working under the capitalist Global North regime and who liberalized CBR for the purpose of improving professional programs and practices (Collins et al., 2018). For these researchers, action research was a form of research participation mediated by practices of the market, social capital, and democratic improvement of programs and practices within the current neoliberal political zeitgeist; thus, the effect of action research on through the early twenty first century has been to assimilate and reconstitute CBR as a methodology of social organization for the purpose of capitalist accumulation (Hilgendorf et al., 2019).

Northern American universities slowly became the primary site of CBR's institutionalization and cooption by way of neoliberal ideology and capitalist practices, resulting in an understanding of community engagement through the lens of the market, social capital, and participatory improvement (Cahill et al., 2010; Jordan, 2009). Being housed within the university, CBR, as an increasingly institutionalized methodological approach, remains at the nexus of several tensions. First, each university is rooted in a history of colonial practices deployed on local residents for the purpose of dominating knowledge production. This history has left many communities that have participated in research with a strong sense of distrust and skepticism of university-community relationships. Second, by being housed within the university, CBR researchers and practitioners are confronted with conflicting valuations on discrete research paradigms that ultimately dictate which process of knowledge generation is the most credible. University researchers and practitioners often find that their practice of CBR as an equitable form of participatory research is at odds with the university's business of science that remains a practice of accumulating knowledge to bolster the market and social capital of the institution. In effect, many university researchers and practitioners accept the emancipatory roots of the Southern tradition of CBR while also engaging in a denial that veils the problems of deploying CBR practices from the university and that ultimately protects them from having to confront how their CBR practices may be bolstering the Project of the university. Third, and finally, the combination of the universities' historical roots in colonizing practices for the purpose of knowledge control and the paradigmatic incompatibilities of CBR with positivist approaches to research is a source of power and control imbalances. These structural and systemic issues make conducting CBR within academic territory fraught with cross-cultural tensions that often go unresolved and undisclosed, creating unintentional consequences for those who participate in CBR and, in some cases, result in reinforcing structural inequities (Wallerstein et al., 2017a).

To address the issues of CBR listed above, researchers have adopted alternative theories and approaches that attempt to decolonize CBR. Some CBR scholars examine how bodies, space, and politics are interrelated. Postcolonial, queer, and feminist scholars in other fields such as geography and literature have examined how power acts spatially in research to "control, regulate, confine, produce, construct,

delimit, gender, racialize, and sex the body" (Mountz, 2018, pg. 1). If CBR scholars are vessels of academic privilege and power, then where their bodies produce research, particularly in the process of participatory modes of research and evaluation, problematizes how empowering and emancipatory CBR practices can be. This problem is exacerbated by unwitting scholars who assume their presence is politically benign regardless of whether their body is in a university classroom, a homeless shelter, a high school cafeteria, or a rural community town hall. The tensions of CBR practice conducted by scholars is further exacerbated by which bodies are designated as academically worthy. Although institutionally and contextually variable, by and large it is white, heterosexual bodies that conduct CBR and enter spaces beyond campus walls. This inequity excludes other bodies and voices from both CBR practice and scholarship but also creates a value orientation around who gets funding; who has permission to traverse sociopolitical and cultural boundaries; and, therefore, who has the power to control and regulate other bodies in CBR. The marginalization and in many cases exclusion of bodies and voices in CBR practice and scholarship is antithetical to the tenants of the CBR approach, so the examination of bodies as a geopolitical vessel through which academic epistemologies are produced and reproduced in local communities is essential to the project of decolonizing the CBR process.

Another way to confront the tensions highlighted above is to embrace a critical systems approach to CBR. Traditional forms of critical systems approaches include both feminist and critical race theories which vary based on their definitions and manifestations of power differentials for the purpose of achieving more empowering, participatory, and emancipatory scholarship practices (Mertens, 2017; Parker, 2004; Podems, 2010). But, more recently, intersectionality has emerged as an approach that goes further than feminist and critical race theories by being more comprehensive in scope, by attempting to examine how interlocking systems of oppression shape the human experience. Originating in Black feminist scholarship (Collins, 1990; Crenshaw, 1989), intersectionality theory is emerging as a cornerstone of sociological thought. In practice, it encourages scholars to consider the ways in which upstream social determinants such as racism, sexism, and classism form interlocking systems of oppression that shape the experiences and life chances of individuals because of their multi-dimensional social identities. Under an intersectional

framework, contextual forces such as sexism or racism do not operate in isolation but interact with each other in the production of inequalities. Intersectionality is being increasingly adopted because it dovetails with the focus on the underlying power structures that produce inequalities—rather than inequalities simply resulting from the accumulation of independent risk factors (Bowleg, 2012).

While the focus on how power as mediated by different bodies and how different systems oppression interlock to create inequality is an attempt to create a decolonized worldview, it may be purely academic. Thus, some scholars embrace more active and practical approaches to addressing neoliberal forms of participation. This approach is most often found among indigenous scholars who deploy indigenous methodologies and ways of knowing in their university-community partnerships that also align well with the emancipatory tenants of CBR. Other researchers, in acknowledgement that appropriating Indigenous methodologies for the purpose of bolstering critical CBR practices is its own form of colonialism, adopt postcolonial theories such as postcolonial feminism to analyze and act upon the Western worldviews that have created deep structural inequities in research and other scholarly practices. For example, researchers who deploy a postcolonial feminist approach to CBR focus on decolonization, power, reflexivity, and co-construction of knowledge in university-community partnerships to expose and deconstruct CBR practices that are rooted in or are initiated from within academic spaces. These researchers actively work to create space for local residents to speak to the historical atrocities and shortcomings of the university and its researchers, attempting to form authentic, transparent, and equitable relationships. However, actively centering the concerns and worldviews of the colonized Other may not be enough to unseat the academic pillars that CBR stand on; more critical approaches to relationship formation that are sensitive to both history and culture are needed to ensure that CBR rises to its own auspices. More critical reflection on the kinds of methodologies, such as critical ethnography, that are best suited for constructing CBR and addressing the political economy CBR is grounded in are needed.

Defining Complex Systems Science

Complex systems science (CSS) is a rapidly developing, interdisciplinary field whose adherents study the nature of systems, or a group of interacting or interrelated entities that form a unified whole. As

a way of thinking, researchers who employ CSS typically characterize phenomena using core systems features (*e.g.*, nonlinearity and heterogeneity, *etc.*; Table 1). As a way of conducting research, CSS is deployed as a set of ideas, theories, approaches, and methods for studying systems. CSS can provide a language and method to studying the multilevel drivers and feedback mechanisms of complex phenomena that have somewhat been studied in disciplinary siloes.

Table 1

Complex System Features

Feature	Description of the Feature
Multilevel	Complex systems generally consist of nested, multilevel variables that span micro, individual-level behavior to macro, community-level behavior.
Heterogeneity	Substantial diversity in actors' characteristics, goals, rules, and constraints at each level.
Nonlinearity	Small actions can have large consequences.
Dynamicism	Interactions within, between, and among systems are often changing. Past behavior of the system affects future behavior of the system.
Interdependence	CS usually contain many interdependent and interacting actors, connected across different levels with feedback and nonlinear dynamics.
Feedback	Feedback, also known as feedback loops, is a closed chain of causal connection. For example, a change in one variable X affects change in another variable Y; subsequently, the change in variable Y affects change in variable X. Feedback loops result in either amplification (positive feedback) of both variables or balancing (negative feedback) of both variables.
Adaptation and Self-organization	Interacting elements and agents respond and adapt to each other; emergent behavior is a function of ongoing adaptation among both interacting elements and the responsive relationships interacting agents have with their environment.
Emergence	Occurrence of unexpected phenomena—patterns of collective behavior that form in the system are difficult to predict from separate understanding of each individual element.

Note. Adapted from Moore and colleagues (2020). Originally adapted from Patton (2011) and Hammond (2009).

Collaborative Life in Community-Based Research

The purpose of this article is to examine specific aspects of collaboration within and due to CBR. In the following sections I review the social structure, dynamics, and motivations of collaborative life in CBR. I use social structure to refer to the patterns within culture and organization through which social action takes place (Joas & Knöbl, 2009). More specifically, I use social structure to (1) discuss the possibilities of what and who is enabled and constrained in collaborative life in CBR; (2) to then discuss the social dynamics that occur within such a structure. I do so by way of addressing the role of agents

(particularly the interaction between agents and groups of agents), agency, and action within the context of the social structure of CBR, which includes the most recent advancements in community-based participatory research (Wallerstein et al., 2017c). Finally, I review the motivation of collaboration in CBR by building on theories of social movements, social change, community organizing, and community development. I end by discussing the gaps in the research that, in some respects, my research will address.

The Social Structure of Collaboration in Community-Based Research

Very few researchers discuss collaboration in CBR as one that generates or is a product of a type of social structure (Levi-Strauss, 1953), which I refer to as the changing pattern within culture and organization through which social action takes place (Sewell, 1992). Social structure in CBR is tangentially discussed in terms of sets of overlapping dimensions of context such as politics, history, and culture (Chouinard & Milley, 2016; Rog, 2012; Vo & Christie, 2015). For example, in Figure 1, Wallerstein and colleagues depict a socio-structural representation of context, listing important contextual considerations without explaining how these constructs overlap or influence an overall social structure for CBR. While helpful to ensure researchers and evaluators consider an array of important factors involved in CBR collaborations, conceptual models like this one fall short of representing how these factors interact with one another to create discrete patterns of culture and organization that give structure to CBR projects.

Widening the scope to other disciplines quickly reveals that social structure has been given a good deal of thought. While the following sections do not explicitly reflect a discussion that is being held in the CBR literature, I pull from an array of theories and concepts to conceive of a collaborative life in CBR that my research might speak to. In addition, because the research on this aspect of CBR collaboration is lacking, I provide my own insights into how various concepts and theories discussed might apply to the social structure of collaboration in CBR. Along these lines, I posit that CBR can be thought of as its own social structure, particularly if thought of as a civil society through which associational life (i.e., social relations) can manifest within the public sphere. To demonstrate what I mean, I first operationalize the social structure of collaboration in CBR as a civil society that promotes social relationships through associational life. I then turn to a review of institutional structure, social relations, and embodied rules as structural elements

of collaboration in CBR. Throughout, I consider what the complexity lens may offer our understanding of each theorist's concepts.

Collaboration in Community-Based Research as a Civil Society

Researchers, evaluators, practitioners, local residents, and other stakeholders often collaborate in CBR briefly, often over a period of one to three years, and then, when the project is over, disperse. For this brief moment of collaboration, agents gather together to have conversations, pursue common interests, negotiate goals, work through conflict, and attempt to influence public opinion and public policy for social change (Sampson et al., 2005; Young, 2017). They create a temporary space through which agents can associate on the basis of some shared interest; they create a civil society (Table 2; Cohen, 1988; Cohen & Arato, 1994).

That CBR functions as a conduit space for agents to collaborate and act on oppression and class struggle is a departure from Aristotle's classical polis, where "civil" takes the form of good citizenship (Young, 2017). While Aristotle's polis idea was carried through to the late 18th century, ideas about civil society quickly changed in reaction to perceived class struggle and the rise of the market economy (Taylor, 2004). Indeed, the CBR of today is more in line with thinkers of the Enlightenment who thought of civil society as a defense against intrusions by the state on individual rights and freedoms, organized through the medium of voluntary associations (Sharma & Gupta, 2009; Taylor, 2004). This form of civil society is based on voluntary associations in curbing the power of centralizing institutions and protecting ideological pluralism and constructive social norms, especially trust and cooperation. These neo-Tocquevillian themes still exist today, especially in the United States where traditions of self-governance, suspicions about the state, and concerns about public disengagement are pervasive (Joas & Knöbl, 2009).

Some theorists believed that civil society was more than an associational architecture that acts as fortification against state imposition. Critics of the neo-Tocquevillian ideal, such as Friedrich Hegel and Karl Marx, focused more on class conflict and inequity (Ghosh, 1993); Marx saw civil society as another vehicle for furthering the interests of the dominant class under capitalism. Then, Antonio Gramsci, who often sided with Marx's version of the civil society argument, reasoned that civil society was the site of

rebellion against the orthodox as well as the construction of cultural and ideological hegemony, expressed through the family system, institutions of higher education, and voluntary associations, institutions important in shaping the body politic disposition of citizens (Joas & Knöbl, 2009). Together, these thinkers exposed civil society as highly hierarchical, preventing some groups from articulating their interests and the failure of the neo-Tocquevillian tradition to account for the impact of globalization, economic restructuring, political corruptions, and power relations of different kinds.

Collaborative life in CBR combines the neo-Tocquevillian, along with its Marxist and Hegelian critiques, and the Gramsci traditions to distill a civil society that involves voluntary, constructive associations to form a site of rebellion where agents must also negotiate power relations and class differences. Even so, the structure that these ideas of civil society provide to collaborative life in CBR does not, for example, account for the structural nuances in the associations that are formed between researchers and local residents. It was for this reason that John Dewey articulated the importance of the public sphere idea to which I now turn (Westbrook, 2015).

Community-Based Research: The Public Sphere and Associational Life

The tension between civil society as a political association that governs social conflict through the imposition of rules and civil society as a vehicle or site through which voluntary associations can be leveraged to articulate class struggle and power relations provides a backdrop for thinking about where and how CBR is socio-politically situated. Importantly, American philosophers expanded upon Antonio Gramsci's idea about civil society as a site and developed it around the public sphere. John Dewey articulated "public" as a shared experience of social and political life that underpinned public deliberation (Joas & Knöbl, 2009; Westbrook, 2015). These conceptualizations of the public sphere exist today, especially for Americans committed to deliberative democracy. But it was Jurgen Habermas, a European critical theorist, who combined Marx's criticisms with liberal traditions, that emphasizes the role of guarding personal autonomy, into a series of theoretical constructs concerning communicative action, discursive democracy, and colonization of the life world (Flyvbjerg, 1998; Lupel, 2005). Critical theorists like Habermas saw civil society as one that is articulated through members' shared meanings, which are

constructed democratically through the communication structures of the public sphere (Joas & Knöbl, 2009).

The social structure of collaboration in CBR reflects elements of Habermas's civil society as constructed through the communication structures of the public sphere, of Gramsci's civil society as a site of rebellion against inequity, of the neo-Tocquevillian civil society as voluntary association to protect ideological pluralism and constructive social norms, and operationalizes them in culturally, spatially, politically, and historically specific contexts (Collins et al., 2018; Oetzel et al., 2018; Wallerstein et al., 2017b). Its social structure is created through voluntary and deliberative associations, through the rich, diverse experiences, desires, and dreams that agents bring to life through these associations, and affected by the contextually specific space these associations are created in. These considerations reflect CBR's Northern and Southern tradition spectrum but bends more toward the Southern (activist) tradition where local residents and other stakeholders can participate in a deliberative democracy, one that works to expose oppressive forces while also guarding personal autonomy. This also means that the social structure of collaboration in CBR supports a type of emancipatory civil society, where CBR is the product of agents gathering to discuss important topics. In this way, CBR is situated adjacent to other civil societies that act as public spheres for the articulation of shared inequity, injustice, and strife.

Arrangements of Institutional, Relational, and Embodied Rules in the Social Structure of Collaboration in Community-Based Research

There are several other ways in which the social structure of collaboration in CBR might be understood (Table 2). One is by thinking of CBR social structure as constructed through institutions, or the customs, practices, relationships, or behavior patterns that emerge through collaboration in CBR. Talcott Parsons believed that a set of stable, pattered relationships of units resulted from the normative orientation of action (Munch, 1981). Robert Merton, too, takes this institutional structure idea to explain how social structure comprises the normative institutional patterns which then come to define expected modes of action (Thio, 1975). But viewing the social structure of collaboration in CBR as a set of stable, patterned relationships does not, as Emile Durkheim and Herbert Spencer would suggest, account for the reciprocal

relationship between structure and agents' customs, practices, relationships, or behavior patterns (Marks, 1974). Durkheim, through his concept of collective representation, believed that institutional structure was a product of agents' patterned expectations that formed social norms that, in turn, then defined agents' expectations toward each other. That is, the social structure of collaboration in CBR is co-created and reciprocal. Spencer takes this further and characterizes institutional structure as a (biological) system: a combination of connected parts that make up an organized society irreducible to agents and their actions. Applied to collaboration in CBR, agents' customs, practices, relationships, and behavioral patterns might be thought of as their own components of collaboration in the CBR system, components that are reciprocally generated and affected by agents' expectations about the project.

Finally, the way in which (unconscious) social rules (e.g., expectations, norms, regulations, taboos) are embodied may have bearing on our understanding of the structure of collaboration in CBR. Pierre Bourdieu saw rules as those that become embodied as unconscious dispositions and tendencies of action, coded into agents' brains and other organs in such a way that agents can act in routine ways without thinking (i.e., habitus; M.D et al., 1993). Further, Anthony Giddens viewed social structure as the unconscious generative system of rules that allow agents to engage in particular ways called the duality of structure. This duality of structure pits agency and structure against one another in an equal battle for creation of social structure. William Sewell picks up the mantel from Bourdieu and Giddens and reformulates Gidden's duality of structure and Bourdieu's habitus by restoring human agency to social actors to build in the possibility of change into the concept of structure (Sewell, 1992). For collaboration in CBR, this may mean that agents' disposition in a project is a reflection of their social relations and institutions; that the projects cultural milieu is a synergy of the agents' agency and environment; and that agents may varying levels of capacity to shape the structure of collaboration.

Social Structure as Network

Networks capture the pattern of interactions between the parts of a community, patterns that can have a huge impact on the behavior of the community. A network is a simplified representation that reduces a community to an abstract structure or topology, capturing the basics of connection patterns in a system.

One type of network is a social network in which system representation takes the form of agents and their pattern of connections to other agents. These connections, or edges, among actors can represent many different possible definitions of interaction between actors: friendship, professional relationship, exchange of goods, communication patterns, etc. Georg Simmel and Alfred Radcliffe-Brown emphasized the reciprocal nature of relationships that then go on to create a social structure reflective of relational networks (Table 2; Radcliffe-Brown & Forde, 2015; Simmel, 2010). Simmel viewed social structure as a product of relations among agents in which there is a reciprocal effect, interdependence, and interviewing actions; social structures are constellations or configurations of reciprocal social relationships. Radcliffe-Brown views Simmel's "forms of sociation" similarly in that social structure comprises a complex network of relations and interconnections that organize the flow of interactions among specific agents. Taken together, Radcliffe-Brown and Simmel offer insight into how the social structure of collaboration in CBR might consist of interweaving networks of relations where agents' longitudinal, yet brief, social interactions in CBR projects generate a constellation that can be understood apart from the normative content that they have.

Table 2

Theoretical Perspectives on Social Structure Applied to Collaboration in CBR

Theorist	Perspective on Social Structure	Implications for the Social Structure of CBR Collaborations Today
Aristotle	Civil society (polis) is an act of good citizenship	It is constructed through the act of good citizenship
Tocqueville	Civil society as defense against the state; organization through voluntary association	Collaborations are voluntary and fortify against unwanted intrusions of policy
Karl Marx	Civil society as vehicle for furthering the interests of dominant class	Collaborations are hierarchical in nature and reproduce the oppressive forces of the dominant class
Antonio Gramsci	Civil society as site of rebellion against the orthodox and the construction of cultural and ideological hegemony	Collaborations are sites of resisting oppression but also where cultural and ideological hegemony are reproduced
John Dewey	Civil society as public sphere, as shared experience of social and political life	Collaborations are a place where social and political life can be shared among agents
Jurgen Habermas	Civil society is articulated through communicative action, members' shared meanings	Collaborations are a place that is constructed through the voices of its members

Talcott Parsons	Social structure consists of stable, pattered relationships	Collaborations are produced through stable, patterned relationships among its agents
Robert Merton	Social structure as institutional patterns that then define agents' behavior	Collaborations are sites that define how agents behave through top-down approach
Emile Durkheim	Social structure as agents' patterned expectations that form social norms that inform agents' expectations (reciprocal; collective representation)	Collaborations consist of higher order behavioral expectations that are reinforced through agents' engagement with these expectations
Herbert Spencer	Social structure as biological system	Collaboration is an organized whole irreducible to the agents or group of agents that make up the system
Pierre Bourdieu	Social structure as rules that become embodied as dispositions and tendencies of action	Collaborations consist of a set of rules that agents conform to, which reproduces the rule-based social structure
Anthony Giddens	Social structure as unconscious generative system of rules; duality of structure where agency and structure are balanced	Collaborations are a zero-sum game between structure and agency that agents reproduce unconsciously
William Sewell	Social structure as duality of structure where agents' have the capacity to change society	Collaborations where agents have the agency, capacity to change the social structure
Georg Simmel	Social structure as product of reciprocal relational network	Collaborations are a social structure of relationships between agents
Alfred Radcliffe-Brown	Social structure as relational network that organize flow of interactions	Collaborations are a relational network that come to organize agents' interactions

Social Dynamics of Collaborative Life in Community-Based Research

Social dynamics, or the action of agents that give rise to patterns of behavior, are inherent in the social structure of CBR collaborations. And agents experience the temporary social structure of collaboration in CBR by interacting with other agents, creating relationships and consensus, and working through conflict, for example. This section expands on what contemporary community-based researchers and evaluators will be familiar with: the community-based participatory conceptual model, Figure 1. I take this model and expand on Wallerstein and colleagues' conceptualization of context and the partnership process by reviewing sociological concepts such as the role of agents' social action and agency; Blumer's symbolic interactionism; conflict theory; psychological concepts found in Bowen's family systems theory; and recent literature on partnership in CBR.

Figure 1

Community-Based Participatory Research Conceptual Model

CBPR Conceptual Model

Adapted from Wallerstein et al, 2008 & Wallerstein and Duran, 2018, https://cpr.unm.edu/research-projects/cbpr-project/cbpr-model.html
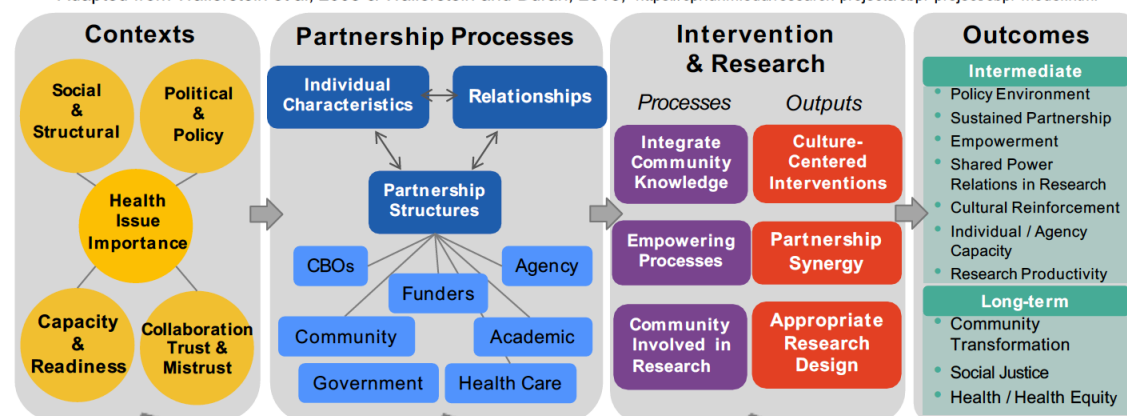
Visual from amoshealth.org 2017

Contexts	Partnership Processes	Intervention & Research	Outcomes
• Social-Structural: Social-Economic Status, Place, History, Environment, Community Safety, Institutional Racism, Culture, Role of Education and Research Institutions • Political & Policy: National / Local Governance/ Stewardship Approvals of Research; Policy & Funding Trends • Health Issue: Perceived Severity by Partners • Collaboration: Historic Trust/Mistrust between Partners • Capacity: Community History of Organizing / Academic Capacity/ Partnership Capacity	**Partnership Structures:** • Diversity: Who is involved • Complexity • Formal Agreements • Control of Resources • % Dollars to Community • CBPR Principles • Partnership Values • Bridging Social Capital • Time in Partnership **Individual Characteristics:** • Motivation to Participate • Cultural Identities/Humility • Personal Beliefs/Values • Spirituality • Reputation of P.I.	**Relationships:** • Safety / Respect / Trust • Influence / Voice • Flexibility • Dialogue and Listening / Mutual Learning • Conflict Management • Leadership • Self & Collective Reflection/ Reflexivity • Resource Management • Participatory Decision-Making • Task Roles Recognized **Commitment to Collective Empowerment**	• Processes that honor community and cultural knowledge & voice, fit local settings, and use both academic & community language lead to Culture-Centered Interventions • Empowering Co-Learning Processes lead to Partnership Synergy • Community Members Involved in Research Activities leads to Research/Evaluation Design that Reflects Community Priorities • Bidirectional Translation, Implementation, Dissemination	**Intermediate System & Capacity Outcomes** • Policy Environment: University & Community Changes • Sustainable Partnerships and Projects • Empowerment –Multi-Level • Shared Power Relations in Research /. Knowledge Democracy • Cultural Reinforcement / Revitalization • Growth in Individual Partner & Agency Capacities • Research Productivity: Research Outcomes, Papers, Grant Applications & Awards **Long-Term Outcomes: Social Justice** • Community / Social Transformation: Policies & Conditions • Improved Health / Health Equity

The CBPR conceptual model (Wallerstein et al., 2017b) outlines the process of participatory research based on literature reviews (Wallerstein et al., 2008), a survey of CBPR researchers, a national advisory board that consisted of academic and community CBPR experts (Schulz et al., 2003), and empirical research (Oetzel et al., 2018). The model includes four domains: context, partnership dynamics, research/intervention, and outcomes. While there has been additional research on the social dynamic components of this conceptual model, such as Khodyakov and colleagues' research on partnership characteristics and Jogosh and colleagues' research on pathways of trust and commitment to power-sharing, the model remains in its infancy (Jagosh et al., 2015; Khodyakov et al., 2013). Mainly, the conceptual model does not help explain how its components relate to and interact with one another; it forgets community organizing and development as central elements of CBR; and it does not capture well-known sociological and psychological concepts. Even so, the model lists an array of useful constructs from which

to draw from as I review sociological and psychological social dynamic concepts—that often relate to social structure—and the most recent literature on collaboration in CBR.

Social and Psychological Dynamics in Community-Based Research

Sociologists are principally concerned with the interaction between agents, agency, and action in their theories of social dynamics (Table 2). In CBR, agents are those who are in and, in some cases, outside of the project and have varying capacities to act independently to make their own choices. These agents move from one social setting to another (Thevenot, n.d.) and temporarily come together during CBR projects with different motivations (e.g., researcher altruism versus local resident empowerment). This gathering, or collaboration, provides space for individual choice or agency. Drawing on philosophical pragmatism and phenomenology, Emirbayer and Mische disaggregate agency into three temporal categories (Emirbayer & Mische, 1998). In iterational agency, like Bourdieu's habitus, past patterns of thought and action are selectively reactivated in relevant circumstances. In projective agency, actors' use of creativity and invention configure an array of possible future trajectories of action. And in practical-evaluative agency, situationally based judgements are made about how to act in response to emerging demands, dilemmas, and ambiguities. These three temporal categories of agency have yet to be incorporated into the components of the CBPR conceptual model, even in light of their potentially significant implications on the ways in which agents behave in CBR collaborations.

Some theorists believed that an agent's agency is more than a reaction, and instead conceive of agency as an action for some purpose influenced by other agents within their context. Herbert Blumer's symbolic interactionism views an actor as a being which acts in intersubjective contexts, which is enmeshed in actions carried out by two or more individuals (Blumer, 1986). The fundamental and deceptively simple premises of Blumer's symbolic interactionism is that (1) humans act toward things on the basis of the meanings that the things have for them; (2) the meaning of such things is derived from, or arises out of, the social interaction that one has with one's fellows; (3) these meanings are handled in, and modified through, an interpretative process used by the person in dealing with the things they encounter (Blumer, 1986). In

the same vein, Bourdieu viewed interaction as reciprocal, where agents create an interpretable world and, in turn, society affects agents in an ongoing cycle of interpretation and meaning-making.

Blumer and Bourdieu's concept of agency provides a working model for the multitude of collaborative moments (e.g., consensus building, negotiation, planning) that occur in CBR. The definition of the situation is one example of a collaborative moment. Defined by Claude Levi-Strauss, the definition of the situation is a social condition that must be constantly accomplished, which includes the precarious balance between the interests of various actors and the normative demands of the situation (Levi-Strauss, 1953). Further, William Thomas saw the definition of the situation as an initial state of examination and deliberation that subsequently establishes moral codes and norms (Thomas, 1931). Thomas viewed agents as defining the situation through interaction with other agents which ends up creating a type of social order. Whether the definition of the situation is structurally imposed, socially constructed, or in constant revision, CBR researchers have yet to identify the role these ideas play among collaborators in CBR, particularly in cases of community organizing, community development, and in situations of large power differentials due to the presence of diverse sets of stakeholders, many of whom have authority and social capital over others (Weber, 2009).

Different ideas about the definition of the situation (see Durkheim's thoery of anomie; Marks, 1974) creates moments of conflict and negotiation. Following Levi-Strauss's idea of constant negotiation and Habermas's theory of communicative action—where agents discuss the various validity claims made and attempt to produce consensus—agents inevitably engage in conflict, defined as the implicit or explicit lack of consensus that gives social relationships structure and process (Simmel, 2010). This conflict can be intrapersonal, interpersonal, or institutional (e.g., cultural differences), and is commonly viewed as inherent to group processes as it is to struggle within social systems (Weber, 2009). Current trends in CBR research on partnerships depict conflict as either an isolated construct with potential for productive and direct effects on downstream project outcomes (Figure 2; Arora et al., 2015; Collins et al., 2018; Jagosh et al., 2015; Oetzel et al., 2018) or a function of inequitable partnerships, a lack of bi-directional communication, and hierarchical collaborations (Wallerstein et al., 2008; Reback et al., 2002). More research is needed to

explain what conflict is in these situations and how conflict plays a role in collaborative life in CBR. One way forward may be to view conflict in terms of Habermas's habitus, where conflict arises because different systems of interaction clash with and dominate the social milieu that then must be negotiated through communicative action. Similarly, an analysis of the conditions under which statements of knowledge and which positions of high social status are deemed truthful and acceptable must be included in an analysis of collaboration in CBR (Heiskala, 2001).

Figure 2

Conceptual framework for assessing group dynamics as an aspect of effectiveness of community-based participatory research partnerships (adapted from Schulz et al., 2003)
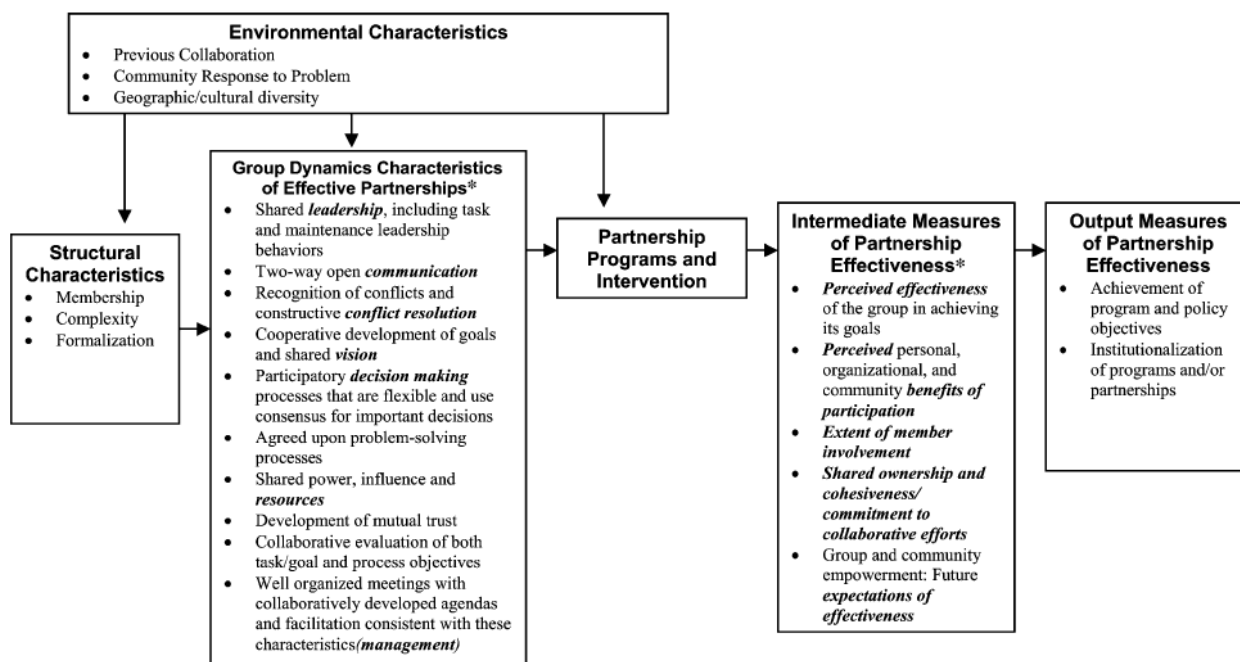
Aside from conflict theory among partnerships, researchers have focused on an array of partnership dynamics in their attempt to understand effective group dynamics. Around the same time as Blumer, Savage, and Bourdieu, Johnson and Johnson conducted an exhaustive synthesis of the characteristics of effective group dynamics (Johnson & Johnson, 1982). These characteristics of group dynamics include effective conflict resolution, bi-directional communication, shared power, influence, resources, vision, and

leadership, for example (Figure 2; Johnson & Johnson, 1982; Schulz et al., 2003). Since then, researchers have added in structural (e.g., membership, formalization) and environmental (e.g., previous collaboration, geographic and cultural diversity) characteristics than affect group dynamics (Schulz et al., 2003; Shortell et al., 2002). Again, these figures lack representation of the dynamics between listed constructs and fail to fully account for issues of power and inequity and concepts of community organizing and development.

One way to account for the lack of representation of the dynamics between the constructs of partnership might be through concepts of cooperation and systems theory. Axelrod's articulation of cooperation in the context of game theory and Bowen's family systems theory are both biologically based theories of evolution and may provide insight into the social dynamics at play in collaboration in CBR that may also capture the social dynamics captured in Figures 1 and 2. Using game theory, Axelrod's seminal formulation of cooperation rests on the examination of systems effects given agents pursuing their own interests. In general, researchers in game theory explore the effects of interacting choices made among agents with respect to the preferences of those agents, where the outcomes in question might not have be intended. The "game" in this sense is a situation in which at least one agent can only act to maximize their utility through anticipating a response to their actions by one or more other agents. Even though Axelrod's theory of cooperation is predicated on agents who pursue their own self-interest without the aid of a central authority to force cooperation, the resulting mechanisms of cooperation that appear in Axelrod's formulation, and then more recent formulations of cooperation such as that found in Nowak's 2006 paper, may provide a wealth of social dynamic mechanisms to consider in future research on collaboration in CBR (Nowak, 2006).

Though currently unapplied to CBR, Bowen's family systems theory provides useful concepts that may help elucidate social ecological models by emphasizing the dynamics of social interaction in collaborations in CBR (Kerr & Bowen, 1988). Where game theory is founded upon rational decision making, Bowen family systems theory is a theory of human behavior that views the family as an emotional unit and uses systems thinking to describe the complex interaction within the unit. Bowen elucidates an array of relational constructs such as differentiation of self (i.e., a concept derived from biology in which a

single cell in an organized system works to define its functioning apart from, yet in unison with, the other cells), and triangles (i.e., three-person relationship system), to explain how emotional systems govern behavior on an individual, family, organizational, and societal level, promoting both progressive and regressive periods of society. CBR scholars have not incorporated long-standing traditions in relational psychology into their understanding of collaborative dynamics. Instead, researchers focus primarily on expanding the social ecological model, models similar to the one found in Reeb and colleagues' paper on developing a psycho-ecological systems model (Reeb et al., 2017). Conceptual models like these take a broad approach to CBR and frequently gloss over the nuances of agent interaction at various levels (e.g., individual- and organization-level). More research is needed to determine how Bowen's articulation of the family system can be practically applied to collaborative life in CBR.

Finally, an array of transformative theories and approaches exist that can aid in understanding social dynamics in CBR. Feminist theory (Cahill et al., 2010), critical race theory (CRT; Parker, 2004), and intersectionality theory (Cho et al., 2013) fit under the banner of transformative theories (Mertens, 2017), as they espouse the central tenants of stakeholder participation with the goal of empowerment and equity. Each of these approaches seeks to challenge the status quo to liberate subjugated members of oppressed communities (Podems, 2010). Each reach for social justice and equity by way of inclusive practices that improve programs, practices, and policies, all driven by stakeholders who intimately understand their own condition.

Together, these transformative approaches necessitate a focus on race, gender, or power and other important factors related to the transformation of oppressed communities such as class. First, if guided by complex systems science, they can be used as an integrative approach to more deeply assess root causes by asking how issues are complex, multi-level, multi-stakeholder problems. Two, the transformative approach makes explicit the relationships required to conduct effective evaluations. Relationships is used here in two ways: (1) to connect and build trust with stakeholders through extensive communication and (2) to conceptualize and treat the program, practice, or policy as a complex system of interrelated components. These relationships are integral to understanding diverse collaborative experiences within a system. Three,

transformative approaches are more about action than they are about analysis. Feminist and CRT offer ideas to analyze race or gender in programs, practices, and policies; ideas that help to unveil the ways in which contextual factors undermine our efforts for social justice. But transformative approaches provide a framework to deploy these lenses for more effective research-practice change projects. Because the transformative approach provides the ability to conceive systems structure and dynamics more holistically, it is a vital framework for researchers and evaluators who seek to be social justice advocates equipped with a powerful tool to deconstruct complex issues and promote equity.

Table 2

Summary of Social Dynamics That May Influence Collaboration in CBR

Theorist	Aspect of Social Dynamics	Perspective on An Aspect of Social Dynamics	Implications for Collaboration in CBR
Mustafa Emirbayer and Ann Mische	Agency	Iterational agency: past patterns of thought and action are selectively reactivated in relevant circumstances	Agents in CBR collaborations display an array of agencies based on past patterns of thought, future trajectories action, and judgements about current situations.
		Projective agency: actors' use of creativity and invention configure an array of possible future trajectories	
		Practical-evaluative agency: situationally based judgments are made about how to act in response to emerging demands	
Herbert Blumer	Agent Interaction & Situation Creation	Symbolic interactionism: agents act in intersubjective contexts, which is enmeshed in actions carried out by two or more individuals	Agents in CBR collaborations interact with one another based off of one another's behavior and emerging demands. Interactions are cyclical, creating a type of collaborative life.
Pierre Bourdieu		Agents' actions are reciprocal, which creates an interpretable world	
Claude Levi-Strauss	Interpretation of the Situation (e.g., others' behavior, collective processes, etc.)	Agents engage in the social condition of defining situations involving agents and normative demands	Agents in CBR collaborations constantly negotiate the purpose, goals, and products of the project. The type of negotiation establishes moral codes and norms.
William Thomas		Definition of the situation is a constant, initial state of examination that then establishes moral codes and norms	
Jurgen Habermas	Conflict	Agents engage in conflict: the implicit or explicit lack of consensus	Agents in CBR collaborations often run into moments that lack consensus, clarity, and purpose.
Johnson & Johnson	Group Dynamics and Partnership Constructs	Group dynamics: conflict resolution, bi-directional flow of communication; shared power, influence, resources, vision, and leadership	Throughout the life cycle of a CBR project, collaboration involves an array of group and partnership dynamics influenced by heterogenous agents and contexts.
Contemporary Thinkers		Partnership dynamics: individual characteristics, relationships, partnership structures	

(Wallerstein and Duran, 2018)			
Eoyang	Human Systems Dynamics	Agents spontaneously self-organize to generate order in a complex adaptive system	Independent agents with a common concern spontaneously organize around a common goal.
Cahill, Parker, Cho, & Mertens	Transformative Approaches	Systems of oppression are a function of race, power, class, and other important social and economic factors	Collaboration in CBR can be used to foster equity and empower community members if they address system oppression.

Social Motivations and Collaborative Life in Community-Based Research

CBR consist of agents that have a vested interest in social change (Lehrner & Allen, 2008). This section briefly reviews the research attention to collaboration as a function of social and community change, a way to understand how and why agents collaborate based on the goals and products of the collaboration. While there has been much research around the sociological typology of social change (e.g., changes in composition, structure, function, boundaries with other fields, environment; Bringle et al., 2006; Mair et al., 2012; Shier & Handy, 2015), I focus my review on social movement theory, community organizing, collective action, known processes of collective behavior for social change, especially as applied through the lens of collaboration in CBR. Social movement is defined here as organized yet informal collective actions which form around specific discontents to resist or promote social change (Lehrner & Allen, 2008).

Social Movement Theories and CBR

CBR is strongly influenced by Freire's social change theories which views action and critical reflection as inextricably linked to fostering critical consciousness and transformative change (Freire, 2000). This framing, as mentioned in a previous section, situates CBR at the nexus of research as a collaborative process that acknowledges power differentials and asks its members to enter into critical dialogue about issues important to local residents (Freire, 2000; Tremblay et al., 2017). However, these assumptions leave researchers in the field of CBR without substantive ways in which to grapple with its function as a vehicle for social change across multiple levels of influence and contexts (Cargo & Mercer, 2008; Wallerstein et al., 2002). This is primarily because conceptual frameworks in CBR generally focus

on implementation (Goodman & Sanders Thompson, 2017), group dynamics (Perrault et al., 2011), and social capital (Faust et al., 2015) without linking CBR actions to CBR changes in community mobilization, for example (Tremblay et al., 2017).

We can look to Durkheim's theory of anomie for ideas around what motivates some agents to participate in social change efforts like CBR. Durkheim reasons that cultural disjunctions exist between the means and ends of a particular achievement. He explains that agents react to these cultural disjunctions in four different ways: innovation, or the rejection of legitimate means and turning to illegitimate means; ritualism, or the complete abandonment of the attempt to change one's circumstances due to the perceived improbability of success; retreatism, or the rejection of both means and ends, thereby dropping out of social order; and rebellion, or the rejection of legit means and ends in place of alternatives that pose a challenge to conventional ideas (Marks, 1974; Thio, 1975). While Durkheim's theory of anomie has clear implications for local residents who might decide to participate in and collaborate on a CBR project, community-based researchers and evaluators have yet to apply these ideas in project specific situations. More research is needed around differing motivations for participation in CBR collaborations, especially considering that researchers may have different motivations for participating than local residents or community-based organizations.

Recent advances to link collaborative action to social change in the context of CBR projects includes a sequential and interactive framework that integrates change levels and processes (Fawcett et al., 2010) and a framework synthesis that builds on social movement theory to conceive and map community change processes in the context of CBR (Tremblay et al., 2017). Most notably, Tremblay and colleagues outline themes (e.g., context, problem, partnership, cause, collective action strategy, framing process, opportunities, resources, system and community changes) across 58 documents and mapped these themes across a proposed CBPR lifecycle in four stages: creation of the partnership, definition of the cause and development, implementation of the collective action strategy, and continuity of the partnership's action after it achieved its goal (Tremblay et al., 2017). In Figure 3, Tremblay and colleagues design a revised conceptual framework that proposes a clear picture of CBPR mobilization processes.

Figure 3

Tremblay and Colleagues' (2017) Revised Conceptual Framework for CBPR Processes for Community

Mobilization
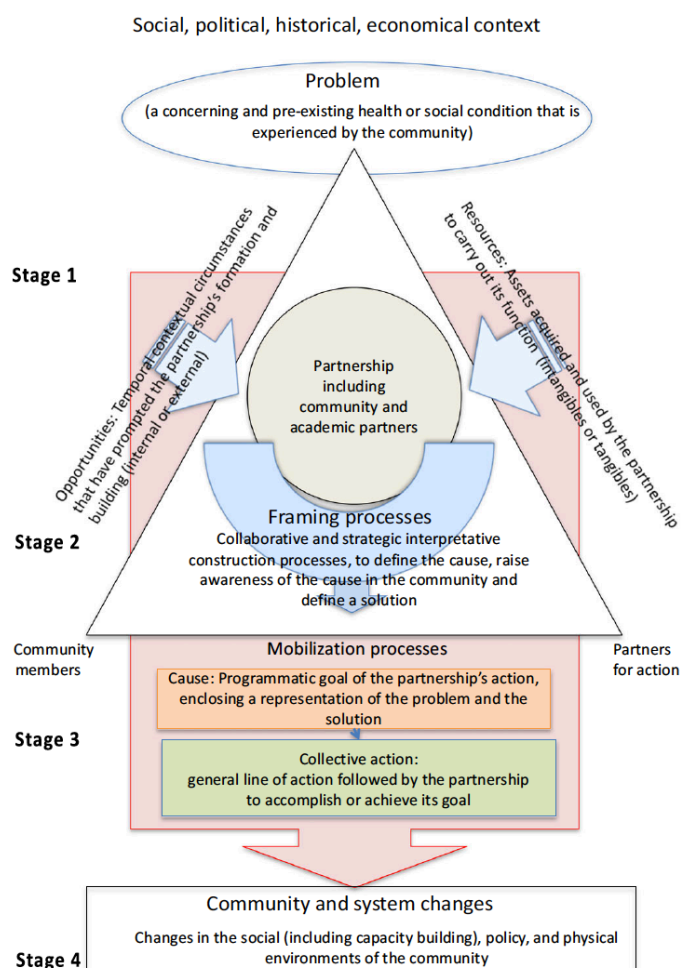
Tremblay and colleagues' model links CBPR mobilization processes with key themes and relationships between concepts. Because the model is based on social movement theory, it does not help to explain how it varies from one culture to another; how characteristics of social structure and collaborative relationship are tied to community and system changes; what role power and equity play in the "problem", partnership, "assets acquired", or mobilization process; why the model takes a deficit approach; why "problem" is separate from those who create it; how community organizing and community building, or the goal of the social movement affects preceding stages; and, perhaps more poignantly, how their themes

are related to one another in addressing community needs. To this last point, more theoretical and empirical research is needed to understand the dynamics in which these themes affect one another and, ultimately, affect project outcomes.

Table 3

Summary of Selected Motivations for Collaborating on CBR Projects

Theorist	Motivations for and/or Products of Social Change	Implications for Collaboration in CBR
Paulo Freire	Critical reflection, critical consciousness	Agents in CBR collaborations are motivated by strong sense of injustice, to engage in creating social, economic, health equity
Emile Durkheim	Anomie: reactions to cultural disjunctions	Agents in CBR collaborations participate based on an array of reactions to cultural disjunctions
Tremblay (2017)	Social Movement & Community Mobilization	Agents in CBR collaborations participate to solve a "problem" for the purposes of community mobilization for a "solution"

Centering Complexity to Understand Collaborative Intersections

The preceding review explores a wide array of concepts that uncover a diverse set of perspectives on collaboration, elucidated by artificial demarcations of social structure, dynamics, and motivations. While conceptually useful, these demarcations certainly breakdown in practice; structure cannot be isolated from agents' motivations or interactions with each other, for example. Thus, returning to complex systems science (CSS), I explore how the features of complex systems (Table 1) help relate each of these sections to one another with the goal of highlighting key aspects of complexity in collaboration that future research might address.

From a CSS perspective, the intersection of social structure, dynamics, and motivations in CBR collaborations can be reduced to several features of complex systems (Table 4). First, agents in collaboration influence and are influenced by social structure, dynamics, and motivations *across* multiple social ecological levels. Researchers and theorists have identified a diverse array of potential influencers in collaborative action, and these influencers act at the individual level, both intra- and inter-personally, all the way to the more macroscopic levels such as in national sociopolitical movements. The social structure, dynamics, and motivations found within and existing because of collective action are complicated by how

they are imbedded differently at each level. This means that one agent's motivation to collaborate in CBR may be influenced by a sense of personal injustice, reminiscent of Freire, *and* cultural injustice, reminiscent of Durkeim's Anomie, while another agent's motivation to collaborate may be driven by a combination of the personal, institutional, and political. These multilevel and nested factors exist for social structure and dynamics as well, each defined differently from which level(s) of social ecology that the factor originates.

Second, agents' in collaboration in collaboration influence and influenced by social structure, dynamics, and motivation mechanisms *within* multiple social ecological levels. The mechanisms involved in creating the social structure in collaborative efforts, for example, produce a system where behavioral outcomes are fed back into the system as inputs. For instance, multiple microsystem dimensions, including agents' family, neighborhood, and local organizations, exists within a single social ecological level that interact with each other, influencing agent behavior, reinforcing specific social outcomes. Where the effect of these dimensions is clear in many areas of social influence, the linkages and feedback between these mechanisms are not well studied or well understood. Additionally, no single mechanism appears able to account for all that we know about social structure, dynamics, and motivations, whether in mobilizing resources or creating more inclusive and empowering relationships.

Third, there is a heterogeneity of agents and contexts that affect collaborative action. These actors include those from across different sectors, disciplines, and levels of service as well as those who represent different cultures, backgrounds, and ethnicities. Each of these agents have different goals, motivations, constraints, sources of information, modes of decision-making, and types of connect to other agents in collaborative efforts. Thus, collaborative action affects those who participate differently; and each agent, as well as each CBR project, has a different sphere of potential influence as an agent of change. CBR conceptual models that fail to capture the diversity of agents may not understand and leverage potential synergies for collaboration. CBR conceptual models also run the risk of being inaccurate and imprecise if they are counteracted by other agents' behaviors at different levels.

Table 4

Complex System Features and Their Applications in Collaboration in CBR

Feature	Description of the Feature	Applications for Collaboration in CBR
Multilevel	Complex systems generally consist of nested, multilevel variables that span micro, individual-level behavior to macro, community-level behavior.	Collaboration consists of agents from multiple social ecologic levels as well as groups of agents or organizations that span sectors, disciplines, and levels of influence.
Heterogeneity	Substantial diversity in agents' characteristics, goals, rules, and constraints at each level.	Collaboration consists of a diverse array of agents with heterogeneous individual-level characteristics (*e.g.*, sexual orientation, gender, race/ethnicity, age) as well as social-level characteristics (*e.g.*, goals, motivations, social skills).
Nonlinearity	Small actions can have large consequences.	Collaboration and existing conceptual models often assume linearity and simple cyclic models of agent behavior. Instead, collaboration can be viewed as micro-interactions between agents that evolve over time with covarying levels of trust and other interpersonal constructs to produce a CBR project.
Stochasticity	Outcomes and system behaviors are unpredictable, sometimes uncontrollable, and many times unknowable in advance.	Collaboration (and the effects of collaboration) are often unpredictable, sometime uncontrollable, and many times unknowable in advance. Thus, conceptual models of collaboration in CBR must account for how known social structure, dynamics, and motivation dimensions interact as well as capture emergent (see "Emergence" feature) data.
Dynamicism	Interactions within, between, and among systems are often changing. Past behavior of the system affects future behavior of the system.	Collaborative relationships are inherently dynamic, changing and adapting over time, influencing the nature of the collaboration. Cultural, political, and relational histories of collaboration between agents, both individuals and organizations, must be considered.
Interdependence	CS usually contain many interdependent and interacting actors, connected across different levels with feedback and nonlinear dynamics.	Once relationships are formed, either before or during CBR collaborations, agents become connected across different levels with feedback and nonlinear dynamics. Partnerships themselves are subject to interdependence with the social-structural context.
Feedback	Feedback, also known as feedback loops, is a closed chain of causal connection. For example, a change in	Collaboration in CBR is often studied through the lens of partnership effects on participants and participant projects (Goodman & Sanders

	one variable X affects change in another variable Y; subsequently, the change in variable Y affects change in variable X. Feedback loops result in either amplification (positive feedback) of both variables or balancing (negative feedback) of both variables.	Thompson, 2017). Research on collaboration in CBR must shift to examining the relationship between agents, other agents, variables of collaboration, and ensure longitudinal research designs that can capture the reciprocal nature of the feedback loops created in the process.
Adaptation and Self-organization	Interacting elements and agents respond and adapt to each other; emergent behavior is a function of ongoing adaptation among both interacting elements and the responsive relationships interacting agents have with their environment.	Collaboration in CBR must be understand by how collective behavior emerges and changes over time or is sensitive to initial conditions such as preexisting distrust between partners. A function of CBR collaboration effectiveness is how partnerships adapt to changing circumstances. Thus, the social structure, dynamics, and motivations of agents must be contextualized and then measured overtime to understand how agents adapt and respond to each other and their environment.
Emergence	Occurrence of unexpected phenomena—patterns of collective behavior that form in the system are difficult to predict from separate understanding of each individual element.	Social structure, dynamics, and motivations often seem unexpected. However, many collaborative events are a function of patterns of individual and collective behavior that form emergent phenomena. The social structure of CBR collaborations, and its change over time, is an emergent property of the social dynamics of the collaboration as well as the motivations of agents.

Note. Adapted from Moore et al. (2020).

To effectively account for and study collaboration in CBR, the intersection within and between social structure, dynamics, and motivations must be understood through the lens each of these multilevel, multi-mechanistic, and heterogeneous dimensions of complex systems. To bolster this understanding, the features in Table 4 can be used to illuminate obtuse and seemingly unknowable interactions and effects of CBR collaborations. For example, evaluating CBR collaboration might take the form of analyzing the social connections among heterogenous agents at multiple levels; their level of interdependence over time; and the types of social dynamic and motivation mechanisms involved in reinforcing the feedback loop that has created the social structure. Mostly fundamentally, the use of CSS to understand CBR collaboration is about understanding relationships and interactions among and within agents and their respective environments that intermingle and often clash during collaborative moments. In understanding collaboration from a CSS perspective, CBR participants, especially researchers and scholars, can more easily account for how equity and empowerment in their projects as a function of agents' multilevel, multi-mechanistic, and heterogeneous experience.

Discussion

With integrative conceptual models from Wallerstein and colleagues (2008; Figure 1), Fawcett and colleagues (2010), Wandersman and colleagues (1996), and Tremblay and colleagues (2017) periodically emerging in the CBR literature, particularly in community-based participatory literature, more empirical research and conceptual examination needs to be done to understand how various elements of collaboration interact with one another. I argue that to increment our way there, we first must understand more about what we mean by collaboration and the various types of collaborative dynamics that emerge throughout the lifespan of a CBR project.

My review of the social structure, dynamics, and motivations of collaborative life in CBR enhances existing conceptual models. Before the turn of the century, Wandersman and colleagues (1996) situated community coalitions, a more participatory form of collective action, within a social ecologic perspective of health promotion. They review how contextual variables influence the development of community coalitions as well as describe how key leaders influence community coalition processes. While this is one

of the first adaptions of the social ecological model to collective action, more recent efforts have incorporated empirical and additional theoretical evidence to support this approach. Reeb and colleagues (2017) outline the Psycho-Ecological Systems Model (PESM) described as an integrative conceptual model rooted in general systems theory, and designed to inform and guide the development, implementation, and evaluation of transdisciplinary community-engaged scholarship. While Reeb's conceptual model does highlight the need for conceptual models to incorporate multiple systems while also recognizing the need to understand reciprocal interactions among each system, the model falls short in describing how transdisciplinary partnerships and other forms of collaboration function in community-based collective action. Their person- and microsystem-levels, as well as the mesosystem or the interactions among microsystems, do not describe how interaction unfolds, replicating the issue raised by researchers calling for better descriptions and theories of collaboration dynamics.

Fawcett et al. (2010) and Tremblay et al. (2017) conceptual models integrate change levels and processes to better speak to the precise ways in which conceptual models are operationalized and influence program outcomes. Fawcett's model provides a framework that aims at providing guidance on different processes for collaboration action in communities. Tremblay's conceptual model adds to Fawcett's by taking into account the broader context of action and external inputs and proposes a more specific representation of community mobilization. Even in light of these advances, particularly in the way of connecting collective action to policy, cultural, or social changes, neither depict the complexity involved in CBR collaborations or in partnership formation and sustainment more broadly.

Finally, the CBPR conceptual model (Figure 1; see also Belone, 2016), along with Community Coalition Action Theory (CCAT; Butterfoss & Kegler, 2012) remain the only frameworks that explicate both the importance of collaborative dynamics as well as the specific constructs from which collaborative dynamics are composed. CCAT extends prior theoretical work in community organizing, participation and empowerment, interorganizational relationships, and social capital to understand the contextual factors that affect community coalition functioning and effectiveness (Butterfoss & Kegler, 2012). The CCAT builds on a number of existing models and frameworks such as the Community Organization and Development

Model (Braithwaite et al., 1989); the Framework for Partnerships for Community Development (Butterfoss & Francisco, 2004); the Community Coalition Model (Butterfoss et al., 1993); and the Model of Community Health Governance (Lasker & Weiss, 2003). Together these frameworks have informed the CCAT's presentation of the stages of development and implementation, core components of effective coalitions, and the interaction of context and outcomes that impact a coalition's formation and success. Both the CBPR Conceptual Model and the CCAT provide comprehensive examples of distinct collective action processes, but both also lack a full description of partnership dynamics and, though outside the scope of this article, how these dynamics might translate into CBR project outcomes.

My review of the social structure, dynamics, and motivations of collaborative life in CBR provides needed partnership context to each of these different models of collective action. First, the role of civil society, as outlined by theorists such as Karl Marx and Jurgen Habermas, provides descriptions of different formations of associational life that might be created during a CBR project and because of partnership for collective action. Further, perspectives on social structure, such as those of Emile Durkheim and Pierre Bourdieu, provide a way to conceptualize the patterned and emergent social arrangements that come to govern CBR collaborations. These arrangements may provide insight into which aspects of collaborative structures might be intervened in or leveraged to influence other levels of ecology such as cultural or political systems. The social dynamics concepts review provide insight into the ways in which agents in CBR collaboration interact with one another and with common elements of the CBR project (*e.g.*, conflict, resource allocation, leadership, shared power, consensus building) adds to extant partnership dynamics that result from the interactions of individual CBR members. More importantly, the reviewed social dynamics perspectives add needed context to behavior of agents that lead to power differentials or, viewed from a different lens, the constructs of behavior that might be nourished to empower CBR members. Finally, the brief review of social motivations to participate in CBR projects contextualizes agent behavior as a function of a social, political, and cultural disjunctions. Both the social dynamics within and the motivations for CBR projects highlight the importance of conflict in creating behavior generative enough for collective action, though potentially damaging during the sustainment of CBR projects.

My introduction to CSS and the features of complex systems provides a starting point for operationalizing some of the reviewed collaborative concepts, adding additional value for conceptual models that outline collective action processes. From the perspective of CSS, the ways in which social structure, dynamics, and motivations for participating in CBR projects to create what we perceive as collaboration dynamics or partnership processes (Belone et al., 2016) are dictated by features of a complex system. That is, when collaboration is viewed as a complex system of social structures, dynamics, and agent motivations for participating in collective action, then understanding collaboration is an issue of multiple levels of ecology, multiple mechanisms of social relationships, and the heterogeneity of agents and contexts involved in CBR projects. Each of the features outlined in Table 4 provide a way of understanding how partnership constructs interact with one another is a reciprocal fashion, creating collaborative feedback loops. These feedback loops potentially provide areas of intervention and evaluation in CBR projects, to examine how varying levels of partnership constructs produce different CBR project outcomes. This would be particularly appropriate for increasing the quality of participation as well as examining how partnerships could be more equitable and empowering.

Limitations

My review has neglected to point out several important considerations about how the review was constructed (*i.e.*, why some theorists were chosen over others); the nature of who gets to theorize and publish on social life; and the inherent risk of being misinterpreted as an attempt to create a comprehensive theory of a phenomenon and, therefore, the risk of producing an uncritical worldview of collaboration at the cost of plurality. First, the process I took to review the literature on theories and concepts of collaboration as well as principles of CBR practice only included published work in either book or peer-reviewed journal format. Thus, prominent, and prolific scholars are highlighted throughout my review. In turn, and secondly, with a few exceptions, I highlight primarily white, male, heterosexual voices, leaving out potentially rich perspectives on what collaborative life in CBR is and how it is experienced. While unintentional, this form of exclusion is representative of historical trends of whose worldview is valued and, therefore, whose opinions become academic hegemony.

Third, I argue that my review is not an integration of theories or concepts, as such would result in what Gibbons refers to as theoretical mush (Joas & Knöbl, 2009). Conceptual and theoretical integration is the process of joining ideas from two or more discrete theories or concepts into a single argument, often to provide a more complete and accurate explanation of a phenomenon. While some researchers argue that this sort of integration develops better explanations, others claim that competition between theories and between concepts is essential for exposing their strengths and weaknesses. However, the benefits of integration depend on how integration is defined and on what is being integrated. Terence Thornberry (1989) describes integration as the "act of combining two or more sets of logically interrelated propositions into a one larger set of propositions in order to provide a more comprehensive explanation of a particular phenomenon" (Messner et al., 1989, p.52). By this definition, my review of theories and concepts is not an integration with the purpose of synthesizing a new, more comprehensive explanation of collaboration in CBR; I do not explicate the underpinnings of theoretical presuppositions to reconcile their similarities and integrate their concepts. Instead, I review theories and concepts that logically relate to the elements of collaboration in support of exploring various aspects of collaborative life in CBR, not to build a comprehensive theory. By simply reviewing theories and concepts logically related to collaboration in CBR, I also inadvertently point to possible theoretical and conceptual syntheses that other researchers might attempt to reconcile in the future.

While much can be gleaned from this review, I notice several other themes of gaps across the literature. First, there is a lack of attention to the lived experience of local residents in the conceptualization of all aspects of CBR, as well as a lack of clarity around how the framing of CBR is affected by researcher-exclusive perspectives. Most forms of CBR are participatory modes of research and evaluation that prize empowerment for stakeholders and local residents and, yet, participation across the literature seems to be more readily defined by the bare minimum standards of normal human-subjects research between academics and community members. At the same time, issues of power, control, and the impact of personal relationships on and because of local resident inclusion in CBR collaborations is only tangentially mentioned. Two of my articles address two specific aspects of these issues: what participation looks like in

CBR, and how several dimensions of power preclude key stakeholder and local resident participation in CBR projects.

Second, and more in line with the scope of my articles, the concepts identified as key players in determining how collaboration affects CBR projects lack a framing that puts these concepts in relation to one another such as power in relation to cooperation, culture in relation to definitions of the situation. CSS proposed in this article may have a way forward in this respect. In addition, the literature lacks clear implications for how elements of social life in CBR impact the agents who participate or the project's progress toward community-defined goals.

Conclusion

The purpose of this article was to explore concepts that may widen the view of how collaboration works in CBR. I have covered several concepts related to the social structure, dynamics, and motivations of agents in CBR collaborations, and outlined several important considerations from CSS that help to describe the connection between and movement of collaboration constructs. While researchers and practitioners have contributed substantial research to explaining the process of conducting CBR, as well as potential barriers to and products of forming equitable partnerships, future areas of thinking and research need to utilize CSS to examine specific aspects of collaboration, thinking more comprehensively about connecting each partnership construct to intended community-driven outcomes.

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Article 2

A Framework Synthesis of Public Health Community Coalitions in Context of Complex Systems Science

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Abstract

A challenge for community coalitions has been to ground community-engagement and community-wide outcomes within a comprehensive theoretical framework of systems change. This study describes the development of a multilevel conceptual framework that builds on existing community coalition conceptual models—such as Community Coalition Action Theory and the more general psycho-social ecological system model—to identify interdependent components of community coalition structures, processes, and outcomes through a complex systems science lens. Framework synthesis, developed by Dixon-Woods (2011) and further refined by Carroll and colleagues (2013), was used as a structured literature search and analysis strategy. An initial conceptual framework was developed from the theoretical literature on community coalitions and complex systems in public health. A literature search was then performed to identify relevant, illustrative community coalition studies that also deployed complex systems science concepts or techniques. The initial search yielded 2,673 relevant papers from which six papers were retained after record and full-text screening. Framework synthesis was used to code, organize, and refine the final conceptual framework that illustrates the key complexity concepts involved in community coalition processes and outcomes such as adaptation; self-organization; heterogeneity; and multi-level interventions that drive community-wide changes. The revised framework provides a context-specific model to generate an innovative understanding of community coalitions, drawing on existing theoretical and empirical foundations. Using the revised framework, I provide a list of questions relevant to community coalition processes to guide research and practice.

Keywords: community coalition, coalition action theory, complex systems, health promotion, networked action, social ecological systems model, community-based participatory research

A Framework Synthesis of Public Health Community Coalitions in Context of Complex Systems

Science

Collaborative initiatives have been a hallmark of collective action where individuals or groups from different disciplines, fields, and levels of service come together to solve what West Churchman coined as wicked problems (Skaburskis, 2008). In public health, these partnerships have emerged across the U.S., touted as the panacea for complex health issues such as childhood obesity and malnutrition (Appel et al., 2019; Kania & Kramer, 2011). Proponents of this collective, solution-focused approach to public health believe that working together and across traditionally siloed fields is more effective than working independently, and that fostering empowering and equitable relationships is fundamental to transformative change (Minkler, 2012; Wallerstein et al., 2017a). For these reasons, distinct collaborative initiative approaches have emerged to guide researchers and practitioners in partnering with stakeholders for social and health change. Community coalitions are one of these approaches, defined broadly as multi-sector partnerships for expanding resources and solving social, political, economic, and community health problems (Butterfoss et al., 1996; Wolff & Maurana, 2001). Community coalitions bring together individuals and organizations from different disciplines, fields, and levels of service to address complex societal issues and accomplish goals outside the ability of an individual working independently.

Public health community coalitions are a collective action approach that organizes individuals from across diverse organizations and backgrounds, to increase capacity and resources, to work together to achieve community-wide health change (Wandersman et al., 1996). Variations of this definition specify the geographical location of the community coalition (*e.g.*, individuals who represent different sectors of a community) and the level of community partner and member involvement (DiClemente et al., 2009). The purpose of community coalitions in public health is to improve the health of individuals and communities by deploying multi-level health interventions that result in policy, practice, and/or environmental (PPE) change (Betancourt et al., 2017; Communities Putting Prevention to Work Program Group et al., 2012; Kegler et al., 2015). Changes in PPE are then believed to result in changes in individual-level social and health outcomes (Anderson et al., 2015; Clark et al., 2010; d'Aquino et al., 2014; Page-Reeves et al., 2014).

The issues that community coalitions in public health intervene in are diverse (Communities Putting Prevention to Work Program Group et al., 2012), ranging from childhood obesity prevention (Economos et al., 2007) to tobacco use and second-hand smoke exposure (Soler et al., 2016). In doing so, community coalitions attempt to democratize social movement for community-wide transformative change (Clark et al., 2010).

There are multiple challenges that community coalitions face, and that make the study of community coalitions essential. The overarching challenge has been to attribute health outcome change to community coalition efforts, especially in the form of linking the processes of collaboration and action to targeted changes across multiple levels of health and social influence (Butterfoss & Kegler, 2002; Jagosh et al., 2015; Tremblay et al., 2017). Relatedly, community coalitions face additional obstacles such as describing the dynamics (*e.g.*, decision-making, conflict management, consensus-building, leadership, *etc.*) of collective processes and how these dynamics modify community coalitions' strategies for and impact on community-wide health change. Adding to this complexity is the nature of community coalition lifespans which includes changing resource allocations and quickly fluctuating circumstances within and as a result of community coalition behavior (Butterfoss & Kegler, 2012; Fawcett et al., 2010; Hammond, 2009; Moore et al., 2020). Combined, these challenges can be summarized as challenges of complex systems where the nexus of improvement—as well as future research—involves A) understanding the strategies that community coalitions use to intervene in multiple mechanisms of health for systems change; B) understanding how community coalitions create and leverage equitable multisector partnerships to effect change at multiple ecologic levels; and C) sufficiently describing the heterogeneity of both the actors within the community coalition and the community context in which the community coalition is imbedded (Moore et al., 2020).

Some researchers approach these challenges by examining collaboration and partnership dynamics, as collaboration is often difficult to establish and maintain overtime and plays a vital role in coalition sustainment (Goodman et al., 2017). Other researchers have tried to adapt conceptual models from elsewhere to address these challenges and examine various factors involved in community coalition action.

For example, Fawcett et al. (2010) describes a sequential and interaction framework that provides guidance on different processes for collaborative action in communities. In another example, Wandersman et al. (1996) examines the concepts, variables, and results of community coalitions to situate community coalitions within their social ecological context. Taking a more parochial approach, some researchers have focused their efforts to understand specific aspects of community coalition processes such as coalition capacity building (Foster-Fishman et al., 2001), and, more loosely, elements of collaboration (Stevenson & Mitchell, 2003). More recently, researchers have returned to the lessons and scholarship of community organizing (Christens & Inzeo, 2015; Minkler, 2012), reemphasizing the principles of equity and social justice (Wolff et al., 2016). Each of these approaches highlight important aspects of community coalitions, and, as DiClemente et al. (2009) and Butterfoss & Kegler (2012) allude to, more work is needed to both build from principles of equity and social justice and conceptualize how empirically supported constructs in collaborative work might function to support community coalition cohesion as well as community coalition impact on systems change.

Complex systems science (CSS) is a rapidly developing, interdisciplinary field whose adherents study the nature of complex systems (CS), or a system of many components that interact with each other, often exhibiting unexpected behavior with unintended consequences. As a way of thinking, researchers who employ CSS typically characterize phenomena using core systems features (e.g., nonlinearity and heterogeneity, etc.; Table 1). These features of CS are well-developed and can be used to inform the development of a coherent and unifying framework of community coalition composition and impact. As a way of conducting research, CSS is deployed as a set of ideas, theories, approaches, and methods for studying systems. CSS can provide a language and method to studying the multilevel drivers and feedback mechanisms of both collaborative dynamics internal to community coalitions and systems changes that result from collective, community-wide efforts. In addition, on account of CSS's ability to conceptualize and capture diverse mechanisms involved in system expression, CSS has started to attract interest in the fields of evaluation (Larson, 2018; Moore et al., 2019) and community-based participatory research (Brown & Callum, 2008), fields aimed at social and health betterment through participation, and has been a focus

in the field of public health for over a decade (Diez Roux, 2011; Matheson et al., 2018; Rutter et al., 2017). However, the benefits of CSS are just starting to reach the study of community coalitions and other collective efforts. For example, in a report on working with a collaborative initiative, Hilgendorf et al., (2020) demonstrate how CSS applied to community-driven efforts can be used to assess community coalition development and health equity. As the benefits of applying CSS to community coalitions emerge, there remains a need to integrate CS features into existing conceptual models of community coalition practice and impact to understand how community coalitions mobilize to foster systemic change in the context of public health.

Drawing on framework synthesis (Carroll et al., 2013; Dixon-Woods, 2011) of key community coalition projects, this study aims to describe the development of a multidimensional conceptual framework, building on systems science broadly and CSS specifically, capable of drawing out potential elements of both community coalition practice and impact. In this work, I favored a specific rather than exhaustive search strategy, focused on the need to find information-rich examples of illustrative community coalition work. I believe that using CSS to understand and conceptualize community coalition practice and intervention will provide interesting and innovative insights for the study of formation, collaboration, evaluation, and impact of community coalitions.

Literature Review

Despite ongoing questions about their effectiveness in effecting community-wide change, community coalitions remain a popular vehicle for generating broad and diverse community representation (Butterfoss & Kegler, 2012; Feinberg et al., 2005) as well as building community capacity (Bess, 2015; Foster-Fishman et al., 2001). Because community coalitions provide access to greater participation and increased ability to effect community-wide change, researchers have attempted to ground community coalitions and their approach to collective action in theory to explain how community coalitions build stakeholder capacity and achieve systems change (Minkler, 2012). Most notably is the Community Coalition Action Theory (CCAT; Butterfoss & Kegler, 2002) that extends prior theoretical work in community organizing, participation and empowerment, interorganizational relationships, and social

capital to understand the contextual factors that affect coalition functioning and effectiveness (Figure 1; Butterfoss & Kegler, 2012). The CCAT builds on a number of existing models and frameworks such as the Community Organization and Development Model (Braithwaite et al., 1989); the Framework for Partnerships for Community Development (Butterfoss & Francisco, 2004); the Community Coalition Model (Butterfoss et al., 1993); and the Model of Community Health Governance (Lasker & Weiss, 2003). Together these frameworks have informed the CCAT's stages of community coalition development as well as the interaction of context and outcomes that impact a coalition's formation and success. The theory proposes an array of propositions that align with constructs derived from empirical studies. These constructs are assigned to two categories: 1) community coalition formation, structure, and processes; and 2) community coalition interventions and outcomes. Importantly, the CCAT characterizes community coalition development as a cyclical process, weaving in and out of formation, maintenance, and institutionalization, or the stage in which coalition strategies result in outcomes (Butterfoss & Kegler, 2012). The past decade has seen improvements in grounding the CCAT in empirical evidence (Anderson et al., 2015; Choy et al., 2016; Kegler & Swan, 2011), but more research and theory-building is needed to establish which key constructs of community coalition processes translate into transforming local ecologies as well as how coalition structures and dynamics inform the achievement of desired community-wide outcomes.

Figure 1

Community Coalition Action Theory (Butterfoss & Kegler, 2002)

Community context

Lead agency or convener group → Coalition membership

Operations and processes

Leadership and staffing

Structures

Synergy
Pooled resources
Member engagement
Assessment and planning

Implemention of strategies

Community change outcomes

Community capacity

Health and social outcomes

Formation → Maintenance → Institutionalization
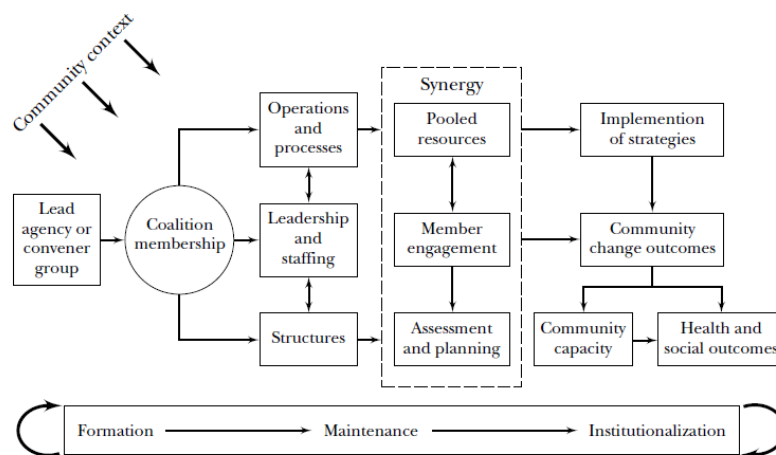
In addition to the CCAT, Clark and colleagues (2006) developed a conceptual model of an asthma community coalition. This conceptual model captures the development, maintenance, and anticipated outcomes of a context-specific coalition. Though developed earlier, Clark et al.'s conceptual model is reminiscent of the CCAT's stages of development, cycling through stages of formation, maintenance or planning implementation assessment tasks, and community outcomes. Key differences between the two models include Clark et al.'s inclusion of different contextual variables; specification of implementation tasks such as needs assessments and cross-sector coordination; and lack of specificity around member engagement, and coalition structures (*e.g.,* rules, roles, and procedures; and member engagement). Overall, Clark et al.'s conceptual model of development and potential impact of community health coalitions illustrates the key high-level process and outcome constructs of community coalitions for a specific community context; but, not unlike the CCAT, it needs additional theory-building that relates its constructs to one another within a broader ecologic system of related constructs and contexts.

The CCAT, along with similar conceptual frameworks, captures how community coalitions have the potential to be a community-level intervention aimed at community-level change, particularly as it relates to building community capacity through synergistic pooling of partnerships and resources (Bess, 2015; Foster-Fishman et al., 2001; Jaja et al., 2017). Newer approaches to studying community coalitions take an ecological approach, centering community context as an essential construct and using network

science to examine multiple levels of coalition influence (Bess et al., 2012; Bess, 2015; Feinberg et al., 2005). This work is conceptually based on situating community coalitions within their broader ecologic system by examining multi-level drivers of community-wide change over time (Perkins et al., 2007). This work also highlights the reciprocal nature of coalition development; as coalitions deploy community-wide systems change strategies, they too are shaped by the complex systems in which they are imbedded. But as community coalition leaders aspire to connect partnership dynamics and coalition practices to more downstream health outcomes (Goodman et al., 2017), more work is needed to build on network science to conceptualize the complexity of these multi-level partnerships and their effects on social and health outcomes.

Researchers' use of Complex Systems Science (CSS) in public health to explore and explain the nature of health as comprised and affected by interdependent socioeconomic, cultural, and environmental factors—as well as social, behavioral, and biological factors that generate population health outcomes— has rapidly evolved (Rutter et al., 2017). Over the last decade, various public health disciplines have started using CSS concepts and techniques to understand persistent health and social issues, including issues found in obesity research (Appel et al., 2019; Finegood, 2011; Hennessy et al., 2020) and epidemiology (Auchincloss & Diez Roux, 2008; Galea et al., 2010; Ness et al., 2007). Because public health issues are their own form of complex adaptive systems (Matheson et al., 2018), researchers are beginning to describe and evaluate health issues by capturing their ecology at multiple levels; drivers or mechanisms within each level; and heterogeneity in both agents and community contexts (Hammond, 2009). Though many challenges still exist in using CSS to examine public health issues, such as accounting for unexpected or unpredicted emergence of interacting mechanisms (Sniehotta et al., 2017), researchers are increasingly building evidence for its benefits (Diez Roux, 2011; Salway & Green, 2017; Silverman, 2018).

One area in public health that CSS has not yet touched is public health community coalitions, providing a potentially rich application of CSS concepts and evaluative techniques to existing conceptual models of community coalition formation and action. As seen in Table 1, these concepts are indicative of complex (adaptive) systems in which each concept is an abstraction of system structure and dynamics.

Complex systems are *multilevel*, they consist of multiple ecologic levels (Hammond, 2009). The concept

of multilevel models or interventions is not new in public health. The concept stems from socioecological

systems theory that emphasizes the determinism of social, biological, political, and environmental factors

in determining health outcomes (Berkes et al., 2008; Huang et al., 2009). Thus, complex systems are

multilevel in that they consist of nested levels of human experience, from individual behavior to larger

socio-political economies that constrain those behaviors (Cook et al., 2014; Roux, 2008; Trickett & Beehler,

2013).

Table 1

Complex System Features

Feature	Description of the Feature
Multilevel	Complex systems generally consist of nested, multilevel variables that span micro, individual-level behavior to macro, community-level behavior.
Heterogeneity	Substantial diversity in actors' characteristics, goals, rules, and constraints at each level.
Nonlinearity	Small actions can have large consequences.
Dynamicism	Interactions within, between, and among systems are often changing. Past behavior of the system affects future behavior of the system.
Interdependence	CS usually contain many interdependent and interacting actors, connected across different levels with feedback and nonlinear dynamics.
Feedback	Feedback, also known as feedback loops, is a closed chain of causal connection. For example, a change in one variable X affects change in another variable Y; subsequently, the change in variable Y affects change in variable X. Feedback loops result in either amplification (positive feedback) of both variables or balancing (negative feedback) of both variables.
Adaptation and Self-organization	Interacting elements and agents respond and adapt to each other; emergent behavior is a function of ongoing adaptation among both interacting elements and the responsive relationships interacting agents have with their environment.
Emergence	Occurrence of unexpected phenomena—patterns of collective behavior that form in the system are difficult to predict from separate understanding of each individual element.

Note. Adapted from Moore and colleagues (2020). Originally adapted from Patton (2011) and Hammond (2009).

Complex systems contain and express substantial *Heterogeneity*, or diversity of agents, contexts,

and outcomes at each ecologic level (Petraglia et al., 2018; Trauer et al., 2019). Diversity of agent

characteristics, goals, rules, and environmental constraints makes modeling complex systems difficult, as

individual-level diversity evolves into complex population-level patterns (Bagnall et al., 2019). Thus, health

promotion programming and interventions must consider the range of and interaction between agent behavior and contexts to capture system variance and strive for generalization (Feng, 2014). The interaction among agents and their environments can lead to large consequences that are often unintended and unpredictable or stochastic (Knai et al., 2018). This *Nonlinearity* presents methodological difficulty in modeling complex systems, as complex trajectories evolve from singular, common actions; from self-organizing trends (see *Self-organization*); and from highly dynamic, often qualitative interactions and relationships among system variables (Castellani et al., 2016; Knai et al., 2018). Thus, complex systems in public health display nonlinear interactions and relationships among agents and drivers of health within diverse community contexts that ultimately generate the complexity we see in public health issues (Tracy et al., 2018).

Nonlinearity is related to *Dynamicism* and *Interdependence*, wherein interactions among system variables are fluid, change often, and are highly connected. Dynamicism is a complex system archetype that relates to the dynamics of variable and level relationships and interactions that constantly shift in reaction to system perturbations (Chang et al., 2017; Freebairn et al., 2018). Modeling complex systems can utilize dynamicism in the form of variable stochasticity and agent heterogeneity to simulate possible changes in system behavior. This is particularly true in modeling system changes because of policy change (Atkinson et al., 2017). While dynamicism is more often related to the behavior of a complex system, interdependence is related to the structural characteristics of complex systems that give rise and affect the behavior of system variables and patterns (Chaturvedi et al., 2014; Frenk et al., 2014). Complex systems are composed of interacting and interconnected agents and contexts intricately linked across ecologic levels that either resist or facilitate health outcomes, and, in either case, generate feedback loops of causal influence. Complex systems have a multitude of interdependent mechanisms that produce system *Feedback*. This feedback creates causal, reciprocal loops wherein system outcomes are fed back into the system and reinforce existing patterns of behavior (Homer & Hirsch, 2006; Rutter et al., 2017). Existing and new feedback loops, composed of multiple levels of influence and mechanisms, are adaptive over time (Rutter et al., 2017). *Adaptation and Self-organization* are a function of mechanistic feedback loops and

interdependence among dynamic system variables, creating a complex system capable of resilience to changing circumstances as well as to the introduction of health interventions (Norman, 2009; Ratnapalan & Lang, 2020). These features are what create health issues that resemble complex systems as well as why public health strategies must account for multiple mechanistic health drivers at multiple ecologic levels among diverse agents and community contexts (Salway & Green, 2017).

Conceptual Framework

Although the aforementioned concepts emphasize abstract characteristics of complex systems, they can be concretely applied to community coalition formation *and* action. Building from the CCAT and other community coalition conceptual models, such as that found in Clark et al. (2010), and the social ecological systems model, the key characteristics of CS applied to community coalitions can be summarized in several points.

Community coalition adaptation and lifecycle:

1. Influenced by heterogeneity of community members and contexts, community coalitions adapt and act in interdependent stages of formation, maintenance, mobilizing, and collective action.

2. Community coalition developmental and operational stages are dynamic, depending on the nonlinear and interdependent relationships between community context; coalition partnership structures (*e.g.*, rules and roles) and dynamics (*e.g.*, conflict, defining the cause and the mission, trust, respect); individual and group decision-making behavior; the availability of resources; the needs of community partners; and quickly shifting health and social issues.

3. Participation in community coalitions is fluid. And decisions to participate are influenced by individual- on through community-level factors such as perceived group efficacy and available resources.

Community coalition strategies and outcomes:

1. As community coalitions organize, they develop strategies for addressing a health or social issue that has been experienced by community members. Strategy mobilization generated by pooled resources, leadership, and an array of partnership dynamics.

2. Community-wide strategies are multi-level. At the individual level, strategies are influenced by individual factors of participation including whether individuals perceive injustice as cause for action or whether individuals believe the group will be effective in achieving change. At the coalition level, strategies are influenced by partnership dynamics and the broader community context in which the strategies are deployed.

3. Community coalitions iteratively assess and evaluate their organization and their ability to mobilize for collective action.

4. Community coalitions implement policy, practice, and environmental change strategies for community-wide change and downstream impact on individual-level behavior.

Relevance of Complex Systems to Community Coalitions

Complex system features have a few interesting similarities with community coalition formation and community-wide systems change practices. Complex systems and community coalitions exhibit self-organization and adaptation (Hilgendorf et al., 2020). Community coalitions develop in stages and recycle through these stages, collectively acting to implement community-wide interventions. Complex systems are often similar, exhibiting order emergent from local interactions between parts of an initially disordered system, which, in this case, would be community agents such as community members, partners, and leaders (Bagnall et al., 2019). Over time, community coalitions adapt to changes in their stakeholder membership, and definition of the situation or the cause, among other important factors. Complex systems, too, are adaptive, changing based on events and interdependencies within the system.

Community coalition sustainment is, in part, a function of how equitable their partnerships and relationships are (Choy et al., 2016). Their organizing for community mobilization is based on how trusting and empowering their relationships are in context of an array of community factors such as collaborative histories and policy trends (Wallerstein et al., 2017a). Complex systems exhibit histories that influence large patterns of behavior and ideology; its past is co-responsible for its present behavior (Castellani et al., 2016). Thus, community coalitions as complex systems are similar in that they exhibit path dependency, their current behavior is sensitive to initial or historic partnerships and community contexts. Similarly,

community coalition partnership dynamics—including the individual and structural dynamics that give rise to relational dynamics between individuals or organizations—are interdependent, nonlinear, and dynamic, giving rise to a complex system that fluctuates from ordered to disordered in effort to adapt to changes in agent behavior and community contexts.

The influence of community coalitions is generally focused on community change in the realm of health and social outcomes at the local level. Complex systems also generally exhibit influence at a local level, near neighboring subsystems that are connected to an array of other neighboring subsystems (Diez Roux, 2011). Thus, community coalition strategies are developed as multilevel interventions to perturbate the interdependencies among unhealthy or socially unjust policies, practices, or environments. Importantly, this means that community coalitions do not act *on* community systems. Instead, community coalitions act *within* community systems through the formation of equitable and empowering relationships with the goal of building community capacity and social capital to implement and sustain community-wide interventions (Bess, 2015).

Methods

In this study, I use framework synthesis (Carroll et al., 2013; Dixon-Woods, 2011). Framework synthesis is a review technique adapted from framework analysis, a technique for data analysis in primary qualitative studies (Dixon-Woods, 2011). It is a structured approach to organizing qualitative data and is based on a priori themes drawn from a published literature and can include conceptual frameworks, theories, or theoretical models (Carroll et al., 2013). Framework synthesis involves both deductive and inductive approaches to identify potential new themes from the data. Thus, the goal of this study is to both inductively and deductively arrive as a synthesized conceptual model of community coalition formation, processes, and action in the context of complex systems.

Framework synthesis proceeds through four steps. First, researchers identify theories, models, or frameworks relevant to the phenomenon of interest, which can come from background material, consultation, team discussion, or scholarly or grey literature. This step also includes reducing the theories, models, or frameworks into a priori themes, concepts, or categories that are then used to analyze reviewed

articles. Second, researchers identify and select primary studies to be included in the review following conventional literature review methods. Third, using the a priori themes derived from step one, researchers analyze the reviewed and included papers. Importantly, this step may also include thematic analysis of the included papers to generate new themes that may be incorporated into the final synthesis. The fourth and final step of the synthesis involved reconstructing the themes and concepts into a refined framework, outlining the relationships between the themes and concepts. Thus, the product of framework synthesis can take the form of charts, models, or otherwise, that may be used to illustrate the framework's dimensions.

Step 1: Identifying the Initial Conceptual Framework

Aligned with the first step of framework synthesis, I searched for relevant theories, models, or frameworks that capture community coalition processes, actions, and outcomes. I consulted major work in the theoretical and empirical literature on community coalitions to help build a conceptual framework that could contextualize and investigate how CSS may inform community coalitions processes, actions, and outcomes. These works included theories, concepts, and models from Belone et al. (2016), Butterfoss & Kegler (2002), Clark et al. (2010), Reeb et al. (2017), and Wallerstein et al. (2017b). Once I had gathered several, empirically supported thinking around community coalitions, I started the process over for CSS. Given the multitude of CSS concepts and techniques used to understand complex systems, I deployed an iterative process, focusing on CSS concepts employed in public health theories and research. These were generated primarily from Hammond (2009), Moore et al. (2020), and Patton (2010). Gradually, I pulled out the most salient CS features that have bearing in the context of community coalition conceptual models. Key concepts of both community coalitions and complex systems and their relationships are represented in my initial conceptual framework (Table 2).

Table 2

A Priori Theme Descriptions from Initial Conceptual Framework

Themes/Categories	Descriptions
Coalition Development and Processes	
Community Context	Community coalitions are influenced by social, structural, political, economic, and historical contextual factors throughout their lifespan. Heterogeneity in these contexts poses unique challenges for development.

Coalition Participation	As coalitions develop, they expand their membership networks, increasing their total capacity to effect community-wide change.
Resource Pooling	Coalitions pool assets such as money and partnerships to organize around addressing a health or social issue.
Partnership Dynamics	Inter-relational dynamics such as conflict and collaborative histories, between individuals and organizations alike, drive coalition functioning. Community coalitions focus on fostering equitable and empower relationships.
Coalition Leadership	Leadership emerges early on in formation and plays a vital role in the direction and functioning of community coalitions.
Coalition Structures	Rules, roles, and other coalition structures moderate how efficient community coalitions utilize assets for organizing and mobilizing.

Coalition Implementation and Outcomes	
Community-Wide Strategies	Community coalitions work to implement an array of policy, practice, and environmental change strategies. These strategies are multi-level and synergistic.
Assessment, Planning, and Evaluation	Community coalitions coordinate systems and developmental evaluation processes to inform planning and adapt to changing circumstances.
Community Social and Health Outcomes	Sustained community-wide strategies lead to health and social outcomes.

Stages of Community Coalition Development	
Stages of Development	1. Organizing. Coalitions form from partnerships for working on a pre-existing health or social issue. 2. Mobilization. Empowering members and pooling assets to define the cause and collectively act. 3. Implementation. Multi-level interventions geared toward community-wide change. 4. Outcomes and Reassessment. Health and social outcomes achieved and evaluated.

Step 2: Developing a Search Strategy

The search strategy used in this framework synthesis is a product of a larger scoping review project conducted to understanding the intersection between community-based research and complex systems science, originating at the Santa Fe Institute's Complex Systems Science Summer School in 2019 (Moore et al., 2020). While "community coalition" was a search term used in this original scoping review, an

additional follow up search was conducted to ensure that using different combinations of terms did not produce additional articles for review. For this reason, I believe the search was comprehensive.

My search included typical characteristics of community coalitions (many of which are found in Butterfoss & Kegler, 2002) and complex systems (see Table 2). For community coalitions, these include stages of community coalition development; community context; coalition membership; community coalition operations and processes including decision making, communication, defining the cause, and conflict management; partnership dynamics including leadership and power sharing; community coalition structures such as organizational structure; member engagement such as participation and satisfaction; assessment, planning, and evaluation; implementation of strategies; community change outcomes; and health and social outcomes. For complex system features, these include nonlinearity, heterogeneity, emergence, and multilevel mechanisms, among others. The eligibility criteria for selecting papers were developed in question format according to these considerations (Table 3). The analysis included both qualitative and quantitative papers if they met the selection criteria, which had to include sufficient information about community coalition processes and outcomes as well as whether complex system features were used to conceptualize community coalitions, or the issue community coalitions were trying to address.

Table 3

Eligibility Criteria

Identification criteria of bibliographic records	Selection criteria of full-text papers
1. Does the citation discuss community coalitions or multi-sector partnerships formed to address a specific health or social issue?	1. Does the citation indicate primary coalition action?
2. Does the citation use Complex Systems Science concepts (nonlinear, emergence, co-evolution, interdependence, adaptive, etc.) or techniques (social network analysis, agent-based modeling, computation, etc.) as part of the study?	2. Does the citation indicate a health- or social-related intervention component to coalition activities?
	3. Does the citation indicate a community setting?
	4. Does the citation indicate a description of or information about community coalition formation, process, and outcomes or aims?
	5. Does the citation use complex system features to describe or analyze coalition formation, operations, or action?
	6. Does the citation indicate a paper in English?

For the search strategy, Medline (Ovid) and Embase (Elsevier) were searched using a combination of MeSH terms and title, abstract, and keywords in English. This initial search was followed by an analysis of the words in the title and abstract of retrieved papers as well as the index terms that were used to describe the included articles. Several other databases were then used: PsychINFO (Ovid), AGRICOLA (Ovid), ERIC (EBSCO), Academic Search Premier (EBSCO), and Web of Science (Clarivate). Endnote (Clarivate) was used initially to store citations found in the search process and to check for duplicates. They were then uploaded in DistillerSR (Evidence Partners, Ottawa, Canada). Search strategies and results were tracked using an Excel workbook designed specifically for this purpose.

Study selection proceeded as follows. All screening and full text reviews were completed using DistillerSR. Prior to screening all titles and abstracts, reviewers (two student scholars) were trained on the use of DistillerSR and on the aims, eligibility criteria, and exclusion criteria of the project. The titles and abstracts of articles considered for inclusion were independently screened by the author and two student scholars, blinded to journal titles. From these data, we calculated an interrater reliability score (i.e., the Kappa statistic) to determine the level of rater agreement. Disagreements were resolved by the author, who, on a weekly basis, solicited or provided feedback on unique or common disagreements. A similar process occurred for screening full text articles. An additional search was completed for each study in PubMed using a retraction/correction database search filter to ensure the study should be included and the correct data was used for analysis.

Step 3: Data Analysis

In this step, I analyzed the information extracted from each of the included papers based on the a priori themes from the initial framework. As part of this analysis, I also used thematic analysis to generate new themes, categories, and properties that the initial framework did not capture. I began by using NVivo 12 (QSR International, 2020) to create a database of each included full-text papers, developing a coding matrix using the a priori themes of the initial conceptual framework. I chose one paper to pilot test and refine the coding matrix. I began data extraction by gathering general information from each paper such as where the community coalition took place and who was involved. Then, I used sentence-by-sentence and,

at times, paragraph-by-paragraph coding to assign text to one or many specific themes of the coding matrix, particularly if there emerged properties that related to new themes the a priori framework did not capture. Much like grounded theory (Glaser, 2002), this process was iterative and cyclical, moving back and forth between the text and codes to create a coherent framework of refined and related themes.

Step 4: Refining the Conceptual Framework

The final step of framework consisted of revising and recombining themes that emerged from step three to produce a coherent and refined framework of community coalition operations, processes, and action and complex systems. The conceptual model that emerged from this step was arrived at iteratively, using several popular conceptual models as guidance on how to think about the many operations, processes, and actions that take place within and as a result of community coalitions. These models include those detailed in Butterfoss & Kegler (2012) and Clark et al. (2010), and Schulze et al. (2017). Naturally, these conceptual models also informed the a priori framework, too. The final framework represents the fundamental constructs of community coalitions in the context of complex systems science and provides a refined representation of each theme and their relationship.

Results

The search yielded 2,673 potentially relevant papers after de-duplication. Following screening, 1,610 papers were selected. Full-text screening reduced the pool of selected papers to 23 (Figure 2). While these 23 records matched the criteria, further review revealed insufficient information about coalitions (*e.g.*, lacks

Figure 2

Summary of Search Yield

description about community coalition formation and maintenance over time). The final six papers were selected due to their fit with the criteria and the depth and richness of detail in their explanation of the
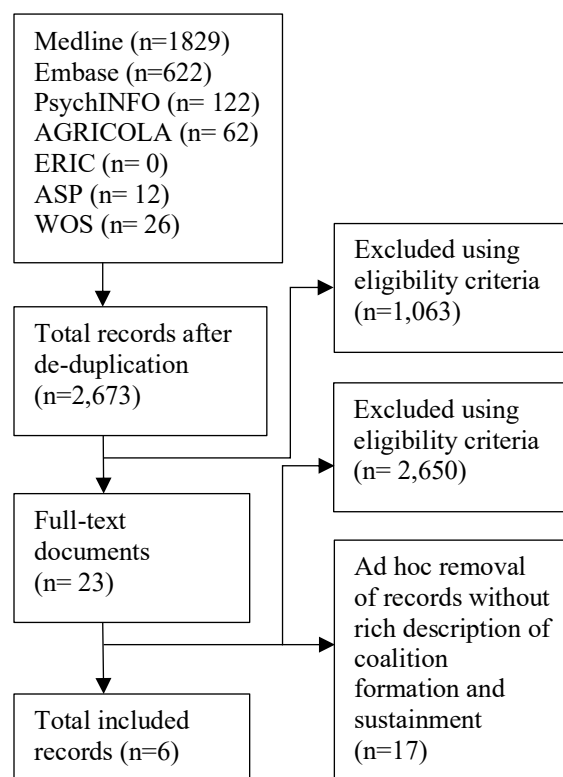
community coalition and complex system science concepts and techniques. General information about each paper and coalition can be found in Appendix A.

The projects included in this review were each conducted in North America. This points to the location of researchers who are combining community coalition work with complex systems science, as the initial scan of citations included multi-sector collective action from countries such as India and Brazil. The projects included in this review boasted an array of community partners and members from different sectors involved in health promotion such as hospitals, community-based organizations, universities, government agencies, and lay people. Community coalitions focused on youth (under the age of 18) health promotion, seeing youth as equal partners in the processes of framing, developing, and implementing community-wide health strategies.

Framework Synthesis Results

The results of the thematic analysis are summarized in Table 3 and illustrated in Figure 3. Table 3 was used prior to constructing Figure 3 to describe the final constructs and properties before relating them to one another. The process of describing the constructs and illustrating their interdependence happened iteratively, moving back and forth between the two, refining and rearranging construct relationships to produce a coherent conceptual model of community coalitions through the lens of CSS. As the thematic analysis of included projects proceeded, some initial constructs were validated while other constructs were reframed or entirely new. The following construct was new: sense of injustice. The following constructs were reframed: heterogeneity of community members and contexts (community context); dynamic member networks (coalition participation); resource pooling and partner bridging (resource pooling); nonlinear partnership dynamics (partnership dynamics); leadership (emergent leadership); systems evaluation (assessment, planning, and evaluation); community-wide systems change (community social and health outcomes); and interdependent stages of adaptive development (stages of development). The following construct names remained the same but were built upon in this analysis: coalition structures; and community-wide strategies. Reframing constructs is primarily due to the complexity lens researchers are

using to conceptualize community coalitions, a lens not fully deployed in any of the conceptual models used to create the a priori framework.

Table 3

Description of Final Themes & Categories

Themes/Categories	Descriptions	Concepts, Examples
Community Coalition Self-Organization and Adaptation		
Heterogeneity of Community Members and Contexts	Community coalitions act within diverse community contexts influenced by diverse members. This heterogeneity exists at every ecologic level, shaping why coalitions form (defining the cause), and the way coalitions form and implement strategies.	Contexts: • Socio-structural • Policy • Collaborative histories Members: • Community-based Organizations • Universities • Community members
Sense of Injustice	Community coalitions form as health or social concerns emerge to the point of generating of sense of injustice needing to be addressed. Inequity always exists but rises to the surface of awareness creating a tipping point from one state to another.	Types of Injustice: • Group-based inequity • Collective disadvantage
Dynamic Member Networks	As community coalitions form and develop, they expand their membership networks, increasing their total capacity to effect community-wide change. Member participation is dynamic and multi-sectoral, affected by community context, often producing unintended consequences.	Dynamic participation: • Community member has control • Power is delegated • Partnership
Resource Pooling & Partner Bridging	Community coalitions bridge stakeholders, building community capacity and pooling assets to facilitate mobilization.	Resources: • Funding • Time • Capacity Types of Connections: • Trusting • Influential • Respectful
Nonlinear Partnership Dynamics	Member collaboration and stakeholder engagement proceed dynamically and nonlinearly, often having unintended consequences that contribute to coalition functioning and efficacy through feedback loops. Thus, coalitions aware of these partnership dynamics focus on fostering equitable and empowering relationships.	Partnership Dynamics: • Time in partnership • Participation motivation • Bidirectional communication
Emergent Leadership	Leadership emerges early on in formation and plays a vital role in influencing coalition members and functioning. While initially vital to pooling assets and directing the growth of the coalition, leadership becomes shared governance;	Leadership: • Shared decision-making • Iteratively directional • Iteratively shared

individual actions of members and leaders become inter-related and co-constructed.

Coalition Structures	Coalitions are dynamic networks of members and other stakeholders structured by the formal and informal rules, roles, and other consensus-making agreements that moderate how efficient community coalitions utilize assets for organizing and mobilizing.	Structures: • Formal agreements • Definition of cause • Organizational and social hierarchy of members

Coalition Implementation and Outcomes

Community-Wide Strategies	Community coalitions implement an array of policy, practice, and environmental change strategies. These strategies are multi-level and match cultural norms, knowledge, and practices.	Interventions: • Upstream: increase capacity • Midstream: policy, practice, environmental change strategies • Downstream: health and social outcomes
Systems Evaluation	Community coalitions track collaborative partnerships, expansion of their network, identify effective patterns and principles, and nurture ongoing local adaptation.	Evaluation: • Developmental • Iterative • Cyclical
Community-Wide Systems Change	Sustained stakeholder engagement and empowerment and multi-level interventions lead to health and social outcomes.	Systems Change: • Uptake and scaled, multi-level interventions • Built community capacity • Sustained changes in policy, practice, environments • Community empowerment

Stages of Community Coalition Development

Interdependent Stages of Adaptive Development	Self-organizing. Coalitions form from partnerships for working on a pre-existing health or social issue. Organizing can evolve from an array of formal or informal instances, including new or existing relationships with community partners or members; research and evaluation; a needs assessment; or informal conversations about health or social issues of concern. Mobilization & Influence. Empowering members and pooling assets to define the cause and collectively act. Involves expanding coalition networks to include key stakeholders to develop and validate multi-level health interventions. Multi-level Implementation. Multi-level interventions geared toward community-wide change. Often involves formative and summative evaluation of intervention impact. Outcomes and Adaptation. Health and social outcomes evaluated. If achieved, especially if not achieved, coalition adapts based on procedural and intervention implementation

	refinement; new funding sources; new or changing partners and partner relationships; expanding the coalition network; scaling the intervention up or down; or refining the cause.

Themes

Heterogeneity of Community Members and Contexts (Initially: Community Context)

Incorporating context as a central element shaping the conditions under which community coalitions take shape and evolve is common practice (South et al., 2019; Wallerstein et al., 2019). The initial framework positioned context as social, structural, political, economic, and historical factors influencing community coalitions, as captured in the CCAT and the model developed by Clark et al. (2010). Building on this conceptualization, my analyses revealed a more nuanced definition and behavior of community context that posits context as a function of diversity in both stakeholders and contextual conditions, moderating the potential for coalitions to form and the capacity for coalitions to adapt under fluctuating circumstances. The diversity of stakeholders and contexts involved in the evolution of joint- and multi-sector partnership creates a system of quickly shifting parts that interact to produce differing outcomes irreducible to a single mechanism. Thus, this reframe helps to reemphasize not just the importance of considering contextual factors when thinking about and planning for collective action but highlights the need to focus on how differing stakeholders and contexts form an adaptive system that community coalitions then form within and act upon. The reframe also helps to highlight how heterogeneity in community members and contexts shapes which health or social issues are important to consider and address, which informs when and why community coalitions initially form. This theme must be viewed as overlapping with each of the other themes, interacting in a nonlinear, interdependent fashion. For example, changes in a community's socio-structural context (*e.g.*, socio-economic status, safety, institutionalized racism, *etc.*) influences the ability for community coalitions to pool and mobilize resources and bridge partnerships for collective action.

Sense of Injustice (New Theme)

Sense of injustice emerged as a new theme. None of the included articles explicitly discussed why specific health or social issues were important to address nor did they state why community coalitions were

the best way to address them. However, in describing how community coalitions form, researchers described community conditions under which certain individuals and groups were at a significant disadvantage or where there needed improvement when compared to others within the community. For example, Bess (2012, 2015) describes coalition formation around youth violence prevention to decrease youth violence in Nashville, Tennessee, where youth violence is, of course, viewed as unfair treatment needing to be curbed or extinguished. Unfair treatment or outcomes is generally described as arousing perceptions of injustice, and in the included papers injustice is based on subjective perceptions of group-based inequity, as seen in Bess's papers, or collective disadvantage, as seen in Bailey's (2011) paper. While some conceptual models characterize injustice as a "problem" experienced by the community (Tremblay et al., 2017), my analyses indicate that 1) the "problem" is characterized as a sense of injustice, as experienced and acknowledged by community members and partners; and 2) this sense of injustice is, in part, what contributes to community coalition formation, collective action. Sense of injustice overlaps significantly with the heterogeneity of community members and contexts; the injustice is grounded in diverse contextual conditions among diverse community members. It also overlaps with coalition structures, as perceptions of inequity frame how issues are approached by coalition decision-makers.

Dynamic Member Networks (Initially: Coalition Participation)

In the initial conceptual model, coalition participation was defined as membership networks that coalitions organize to increase community capacity for community-wide change. Analyses revealed that coalition participation as a construct was misleading and could represent coalitions as the subject of participation in collective action. Instead, the reframe focuses on member participation, which researchers described as dynamic, with members across sectors joining and leaving the coalition. The term network emerged across papers to describe the influence of member participation and relationships in the coalition on coalition formation (Bess et al., 2012; Bess, 2015; Davis et al., 2018; Evans et al., 2014; Feinberg et al., 2005; Vivolo et al., 2011). Under the dynamic member network banner, participation is viewed as iterative and cyclical, driven by a sense of injustice, perceived group efficacy, and community context. Viewing community coalitions as networks emerged as a salient construct to categorize inter- and intra-structural

attributes of the community coalition as well as relationships between participating members. Under the network conceptualization, researchers used network analyses to describe the composition of coalitions as a function of a coalition's diverse set of members (*e.g.*, community members, partners, organizations) and member connections, especially related to building community capacity (Bess, 2015).

The dynamics of member networks can be seen in Evans and colleagues (2014) paper reflecting on Catalyst Miami, a community coalition whose vision is to "build a strong network of informed change agents working together to understand constituent power and create a movement in which our community challenges the root causes of poverty and creates social and economic equity" (p. 360). Member participation in Catalyst Miami varied based on the coalition's developmental phase; ability to convene and recruit individuals from local organizations; sustained staff engagement and mission attainment; and leadership dynamics. Member participation was interdependent on coalition functioning and network outreach, occurring across health sectors and community contexts.

Resource Pooling and Partnership Bridging (Initially: Resource Pooling)

The initial conceptual model posed capacity building as a function of community coalitions pooling resources. Analyses revealed that resource pooling co-occurs with partnership bridging, or the intentional formation of relationships with current and new members for the purposes of building greater capacity within the community coalition to mobilize and address health and social issues. Capacity in the reviewed papers referred to skills or expertise, time, funding, and academic and local knowledge; these types of capacities can be categorized into tangible and intangible assets. Conceptual models such as the CCAT generally categorize pooling resources under the formalized processes of community coalitions (Butterfoss & Kegler, 2012). However, researchers in the included papers often emphasized the importance of bridging partnerships to pooling resources for capacity building and sustained implementation of community-wide interventions.

Resource pooling and partnership bridging was used to organize and mobilize coalition networks and adapt to unanticipated changes in coalition structure (*e.g.*, leadership or staff loss or restructuring; seen in the Miami Catalyst project); in the definition of the cause (seen in the Community Health Advocacy and

Research Alliance; Davis et al., 2018); and collective goals and coalition roles (seen in San Francisco Hep B Free; Bailey et al., 2011). That is, synergistic pooling of tangible and intangible assets aided community coalitions' ability to adaptively mobilize their partnership networks to address health and social issues. For instance, the Community Health Advocacy and Research Alliance in the Columbia Gorge region, Oregon pooled resources from several sources and bridged partners across several health sectors to increase knowledge of regional priorities; to build capacity of community partners to engage in research; to deliver targeted workshops and research training on implementing intervention to improve colorectal cancer screening. The process of pooling resources and bridging partnerships to build capacity to address health or social issues created feedback loops composed of key factors contributing to the coalition's ability to collaborate and sustain their collective action (Davis et al., 2018).

Nonlinear Partnership Dynamics (Initially: Partnership Dynamics)

Existing community coalition conceptual frameworks do not dive deeply into the interpersonal relationships that drive coalition structure and dynamics. However, the initial conceptual framework in this paper drew from CSS used in public health to begin to illuminate the importance of interpersonal dynamics in shaping how community coalitions function. Given the importance and effect of interpersonal relationships in the reviewed papers, the initial partnership dynamics construct was reframed as nonlinear partnership dynamics to capture the relationship between partnership dynamics and coalition functioning, where seemingly small interactions between coalition members and stakeholders can create disproportionately large consequences for the coalition and its members. Partnership dynamics emerged from the analyses out of reflections on three areas: 1) individual interactions; 2) structural interactions; and 3) relational dynamics. This theme, composed of these three constructs, is empirically supported outside of this review in community-based participatory research conceptual models (Israel et al., 2012; Wallerstein et al., 2017c). Individual interactions were characterized by individual-level factors such as one's reason for participating in the coalition or social and cultural identity. Structural interactions emerged as the dynamic and nonlinear interplay between individual interactions and structural forces that generally contributed to the conditions under which community coalitions functioned. Examples of structural forces

in the papers reviewed include heterogeneity in stakeholders, shared decision-making, and agreements made between funders, community coalition members, and stakeholders. Relational dynamics emerged out of researcher reflections on the interactions between various coalition members and stakeholders. Researchers described relational attributes such as trust, influence, and power sharing when outlining the processes of community coalition formation and sustainment, especially in context of consensus building where a type of directed bargaining proceeded as a function of these attributes to achieve common understanding.

Importantly, each researcher, in varying degrees, described the explicit drive to foster equitable and empowering relationships. The partnership dynamic construct overlaps with other conceptual models' themes such as resource pooling and partnership bridging and emergent leadership, as power sharing to foster empowering relationships is seen as a function of those with power having the ability to share stewardship and ownership to bridge new partnerships. Power sharing emerged as an essential element of partnership dynamics in community coalitions where organizational and social hierarchy are inherently built into multi-sector collaborations. Thus, most decision-making processes were participatory, emphasizing the importance of bi-directional communication among members of different roles, backgrounds, and skill levels.

Emergent Leadership (Initially: Coalition Leadership)

Emergent leadership is a reframe of the initial construct coalition leadership. Emergent leadership took three forms across included papers: 1) leadership was observed when a system of actions or communications of a stakeholder or a group of stakeholders were shown to produce an approach or collaboration strategy where choosing to participate in the approach or collaboration strategy was an attractor (the benefits outweigh the costs) for individual choices of other stakeholders; 2) leadership was observed when a system of actions or communications of a stakeholder or group of stakeholders produced an approach or collaboration strategy that other stakeholders decided to endorse; and 3) leadership was observed when a system of actions or communications of a stakeholder or group of stakeholders served to change the relationships among other stakeholders (*e.g.*, empower community members). The system of

actions or communications of stakeholders varied. Some researchers identified shared leadership as part of the actions of leadership in community coalitions (Bailey et al., 2011; Evans et al., 2014). Two papers identified leadership actions as those that successfully navigate complex feedback loops involved in multi-sector stakeholder engagement, directing engagement to promote coalition cohesion (Biroscak et al., 2014; Feinberg et al., 2005). Together, leadership emerged as a flexible goal-oriented action, that gains popularity and buy-in over time, and that helps to navigate complexity by incorporating feedback.

Leadership was also described as ever-evolving, taking on different forms throughout the lifecycle of community coalitions, and remaining crucial to coalition adaptation (Bess, 2015; Feinberg et al., 2005). For example, Bess (2012) described Youth Prevention Program leadership as an evolution from "emergent, slow-forming networks driven by dyadic relationships and no overarching goal" to "a centralized structure with a leader" (p. 534). Some leaders also created community advisory board to distribute control and power over community coalition function and operations (Davis et al., 2018). Thus, leadership coincides with the self-organization and adaptation of community coalitions, where increasing the patterns of interactions and knowledge sharing between stakeholders interested in community development or reacting to perceived injustice manifests in the coordination of operative groups, which can be seen in the Clinton County Healthy Communities Community Health Outreach Coalition (BeLue et al., 2012). Importantly, in the reviewed papers, the emergence of leadership proceeds best (*i.e.*, facilitates the navigation of complex systems) when there is distributed control and when participation in decision making is explicitly required to implement community-wide interventions.

Coalition Structures

The theme coalition structures emerged consistent with the initial conceptual framework. Coalition structures are the form or informal rules, roles, procedures, and other arrangement that guides coalition member participation and, more broadly, defines how community coalitions mobilize. These structures are dynamic, fluctuating when needed, but overall, more static when compared to partnership dynamics. The construction of these structures enables community coalitions to self-organize by creating efficient synergies through shared knowledge of the coalition as well as by creating space for the self-assignment of

coalition tasks. The interaction between community coalition self-organization and coalition structures created a feedback loop in each adaptive stage of coalition development, as seen in Biroscak and colleagues' (2014) systems dynamics models.

Community-Wide Strategies

Community coalitions organize around a cause and plan and mobilize policy, practice, and environmental change strategies. Collectively, these strategies are known as multi-level community-wide strategies for the purpose of health and social change. The theme community-wide strategies remains unchanged in comparison to the initial conceptual framework. This form of collective action in the context of community coalitions depends on the synergistic pooling of resources and partnerships, the definition of the cause, and the community context, among other listed constructs. Community-wide strategies are so named because of the aim to intervene in multiple contexts, at multiple levels, involving diverse sets of stakeholders. The process of community-wide strategy implementation is coordinated and planned, involving multiple feedback loops and mechanisms of interaction that unfold bidirectionally.

The forms that policy, practice, and environmental change interventions take across included papers are diverse. For example, the San Francisco Hep B Free coalition, documented in Bailey et al. (2011), developed culturally specific "strategies to increase hepatitis B testing, vaccination, and treatment services in the high-risk Asian and Pacific Islander community by promoting general knowledge about hepatitis B to create broad public awareness and institutional change toward ending hepatitis B infection" (p. 539). These strategies included providing education and awareness to health care providers through medical education events; serological testing, vaccination, and referrals through existing health care providers; awareness promotion through grassroots community organizing and outdoor advertising; and SFHBF leadership worked with community advocacy groups and policy-makers to promote opportunities for legislative changes regarding hepatitis B prevention, management, and research. Taken together, these strategies are multi-level and involve stakeholders in multiple sectors.

Systems Evaluation (Initially: Assessment, Planning, and Evaluation)

Initially assessment, planning, and evaluation, the systems evaluation themes emerged out of descriptions of iteratively monitoring and tracking community coalition development. This theme was reframed as systems evaluation to capture assessment, planning, and discrete forms of evaluation under the same umbrella. The systems evaluation umbrella covers the iterative and cyclical process of discovery and improvement in context of community coalition self-organizing, mobilization and influence, multi-level implementation, and outcomes and adaptation stages. Systems evaluation of community coalition progress toward achieving desired outcomes generally involved tracking collaborative partnerships; understanding how best to expand coalition participation; identifying effective patterns and principles of coalition functioning and stakeholder-engagement; and monitoring ongoing adaptation to local community needs.

As several of the included papers reflected, the process of systems evaluation involved mapping internal coalition processes and decision-making as well as coalition strategy implementation and impact in feedback loops (BeLue et al., 2012; Biroscak et al., 2014; Davis et al., 2018). Diagraming the causal paths between internal coalition processes and perceived strategy implementation outcomes enables community coalitions to track network development, allowing coalition members to visualize points in the system in which to intervene in coalition decision-making and other behavior. Diagraming feedback loops in this way also has the potential to track how internal coalition processes translate into desires systems change outcomes.

A majority of included papers used social network analysis for research or evaluation purposes (Bess et al., 2012; Bess, 2015; Evans et al., 2014; Feinberg et al., 2005). This is in part due to researchers focusing on the impact of multi-sector collaborations, reflecting the last decade's zeitgeist comprised of mapping the utility and effects of community coalition capacity building; a response to neoliberal policies outlining the promise of community-based organizations working together (Hasenfeld & Garrow, 2012). While the social network analysis used in the included papers emerged as the primary analytical method of tracking or researching coalition structure and dynamics, systems dynamics models, like those outlined in

Belue et al. (2012) that use feedback loops, provide macro-level insights into and between aggregate variables.

Community-Wide Systems Change (Initially: Community Health and Social Outcomes)

The community-wide systems change theme emerged as an aim of community coalition multi-level interventions and strategies, that are believed to result in changes in health and social outcomes. For instance, Miami Catalyst's (Evans et al., 2014) aim was to create community-wide systems changes regarding poverty reduction and creating social and economic equity. The form these aims come in are diverse, ranging from building community capacity (Bess, 2015) to changing policy, practice, or environments (Bailey et al., 2011). There is little consensus across the included papers about which systems changes are the most optimal. Instead, consensus is around implementing broad, multi-level interventions that result in incremental progress toward health equity and social justice, both of which go undefined. There is also consensus around the importance of stakeholder empowerment as a fundamental aspect of building coalition capacity to support sustained changes in health and social outcomes.

Interdependent Stages of Adaptive Development

Based on the framework synthesis analyses, community coalitions' lifecycle evolves and adapts in a process that operationalizes and interrelates each of the identified themes. The process unfolds in a same manner as described in the CCAT, which states that "the process of building and maintaining coalitions is not linear, but rather cyclical, with coalitions returning to earlier stages as community situations dictate" (Butterfoss & Kegler, 2002, p. 170). This process, however, departs from the CCAT in how community coalition stages are related to one another, forming adaptive feedback loops composed of interdependent variables.

The first stage that emerged from analyses is a reframing of the initial conceptual model's first stage, going from organizing to self-organizing, and reflecting researchers' use of systems thinking in context of community coalition formation. The theme self-organizing refers to both informal and formal social relationships between at least two individuals aware of the state of policy, practice, and environmental conditions related to a perceived injustice of mutual concern. This shared observation of the

community context creates a contrast between the external environment and the partnership, enabling for mental models to form about how the partnership can influence the external environment. Inherently, the formation of this kind of social relationship builds social capital in the formal sense, where once independent identities, norms, and shared values, among other tangible and intangible assets, have a chance to co-mingle. Given that resources such as time and money are available or can be procured, and partners are able to commit to mobilizing, self-organizing partnerships quickly evolve from what can seem like inconsequential or menial social interactions. Importantly, whatever the initial conditions are that provide fertile ground for community coalition self-organization, social relationships are the building block for recursive systems to produce other viable systems; community coalitions only self-organize and evolve from existing viable systems. These existing viable systems can be at the grassroot level, but, considering the papers reviewed, are mostly located somewhere between grassroots and grasstops levels such as the university (Bailey et al., 2011) or community-based organizations (Evans et al., 2014).

The second stage that emerged from analyses is mobilization and influence, which is a reframing of the initial construct mobilization. The initial construct, based on models such as the CCAT, viewed the mobilization stage as primarily empowering community coalition members and pooling assets to define the cause and collectively act. After analyses, this still holds true. However, the process for and by which community empowerment and the pooling of assets unfolds needed refinement. Community coalitions mobilize through a diverse array of internal operations and processes including, but not limited to, communicative action, conflict and consensus, definition of the cause, expansion of coalition membership, among others; these operations and processes are captured by the final conceptual model's themes dynamic member networks, resource pooling and partner bridging, nonlinear partnership dynamics, emergent leadership, and coalition structures.

The process by which each of these themes within the mobilizing and influence stage unfold is described as iterative, cyclical, interdependent, and nonlinear, creating intricate feedback loops that make it challenging for community coalitions to track collaborative progress. For instance, Biroscak et al. (2014) outline the interdependent mechanisms of mobilization and influence, through a systems science lens. For

example, collaborative synergy is dependent on coalition culture which itself is dependent on the feedback loops of the coalition's ability to change and the coalition's level of institutionalization (*i.e.*, where successful strategies result in outcomes; Butterfoss & Kegler, 2002). Of course, these feedback loops are interdependent on other feedback loops, creating the internal recursive system of self-organization outlined earlier.

The third stage emerged as multi-level implementation, a reframing of the initial conceptual model's implementation stage. This reframe builds on community coalitions implementing multi-level interventions and, as analyses revealed, often included a form of research or evaluation to understand or improve the intervention. This stage is interdependent on the community coalitions ability to mobilize and influence stakeholders in and outside of the coalition. For instance, the theme pooling resources and partner bridging is tied to coalitions' capacity to mobilize and implement policy, practice, and environmental change strategies across community contexts at multiple levels of influence. This stage is highly iterative and requires community coalitions to adapt based on evaluative feedback. Although not exclusive to this stage, the systems evaluation theme emerges here largely based on community coalitions' need to set boundaries around what to measure, define collective priorities, and refine strategies as multi-level implementation occurs.

The final stage emerged as a goal of community coalitions, that, in the short-term, do not realize community-wide systems changes. Instead, this stage, known as outcomes and adaptation, centered around community coalitions' shifts and refinements in context of new information, partnerships and partnership dynamics, funding sources and requirements, and other changes due to the heterogeneity of stakeholders and community contexts involved. As community coalitions evolve, they develop histories with stakeholders across levels and community contexts, creating path dependence within the system where history influence the present behavior of stakeholders. This accumulated history, in part, drives stakeholder interactions and community member engagement, where empowerment and participation in coalition decision making in required for the community coalition to adapt to changes in community contexts and issues.

Figure 3

Final Conceptual Model

Note. I = Intra-personal; E = Environment (*e.g.*, natural, social, and build environment); Pr = Practice (*e.g.*, an individual's behavior over time); Po = Policy

Refined Conceptual Framework

Building from social ecological theory, the CCAT, and other community coalition conceptual models, the key characteristics of CS applied to community coalitions can be summarized in several points. Community coalition adaptation and lifecycle:

1. Influenced by heterogeneity in community members and contexts, community coalitions adapt and self-organize over time in response to perceived health issues. Coalition adaptation is guided by

leadership and partnership, emergent properties of self-organizing networks, and the interdependent stages of formation, maintenance, mobilizing, and collective action.

2. As community coalitions self-organize, membership expands, resources are pooled, and partnership dynamics play a larger role in decision-making processes.

3. Community coalition organization is dynamic, depending on the nonlinear and interdependent relationships between community context; coalition partnership structures (*e.g.*, rules and roles) and dynamics (*e.g.*, conflict, defining the cause and the mission, trust, respect); individual and group decision-making behavior; the availability of resources; the needs of community partners; and quickly shifting health issues. Each of these dependent variables create feedback loops that influence the development of community coalitions as well as their ability to implement strategies for community-wide change.

Community coalition strategies and outcomes:

1. As community coalitions self-organize, they develop strategies for addressing a health issue that has been experienced by community members and identified collaboratively. Community coalitions mobilize their pooled resources and partnerships to implement policy, practice, and environmental change strategies for community-wide change.

2. Strategy implementation is impacted by feedback loops created at multiple levels. At the individual level, strategies are influenced by feedback loops created by individual factors of participation including whether individuals perceive injustice as cause for action or whether individuals believe the group will be effective in achieving change. At the coalition level, strategies are influenced by partnership dynamics and the broader community context in which the strategies are being deployed.

3. Community coalitions iteratively assess and evaluate their organization and their ability to mobilize for collective action. Systems evaluation create a feedback loop informing mobilizing and collective action patterns of behavior and strategy implementation. Emergent data in strategy implementation is captured as indicative of community coalition's ability to adapt and innovate.

4. Community coalitions are complex systems that act within and on other complex systems. Thus, the achievement of community-wide outcomes can include changes in health policies, practices, and environments if community-wide perturbations reach critical mass, tipping over into downstream health and social outcomes. Therefore, increasing community capacity increases the influence one system can have on another.

Discussion

The initial conceptual model builds on the CCAT (Butterfoss & Kegler, 2002); conceptual models such as those contained in Clark et al. (2010) that were created for research and evaluation projects of contextually specific community coalitions; broader collaborative frameworks contained in Fawcett et al. (2010); as well as concepts from the community-based participatory research conceptual model from Wallerstein et al. (2008). It draws heavily from research in public health that uses complex systems science concepts and modeling techniques to illustrate the multi-level heterogeneity and feedback loops found when research and practitioners attempt to study real world health and social issues (Burke et al., 2020; Hammond, 2009; Salway & Green, 2017). Finally, it pulls from community organizing and development principles (Subica et al., 2016), with particular attention to fostering empowering relationships from the bottom up to build community capacity and mobilize for collective action (Minkler, 2012; Wolff et al., 2016).

While the CCAT discusses aspects of complex systems—such as cyclical development stages—existing models do not capture principles and self-organizing and adaptation when framing community coalitions. Some researchers do call for viewing community coalitions and their interventions through a social and systems ecological lens (Bess et al., 2012; Bess, 2015), but many of the reviewed articles stop at social network analysis, neglecting to account for individual level behavior and interactions (Feinberg et al., 2005). The final conceptual model of community coalitions reframes a majority of the initial constructs based on themes that emerged from reviewed papers, that primarily capture not just *what* entails coalition formation and development but *how* coalition formation and development evolve over time.

A majority of studies in the past decade examine community coalition-driven interventions and their effects on health and social outcomes using linear or, at most, networked approaches (Anderson et al., 2015; Blanchet et al., 2014; DiClemente et al., 2009; Jaja et al., 2017). What is clear, however, is the need for better approaches and systems modeling techniques that can capture complex and adaptive feedback loops in coalition dynamics and strategy implementation at multiple levels, from individual behavior to macro-level policy influence. Many researchers are answering this call in other areas of public health that do not focus exclusively on community coalitions. For instance, researchers in obesity prevention research have been using complex systems science concepts and modeling techniques to capture the heterogeneity of agent behavior across a multiplicity of ecologic levels that increase obesity rates (Appel et al., 2019; Bagnall et al., 2019; Hennessy et al., 2020). Some of these studies tangentially discuss the importance of community coalitions, especially in the case of leaders increasing coalition capacity building and the diffusion of knowledge across coalition networks (Coffield et al., 2014; Economos & Hammond, 2017; Matheson et al., 2018). Other public health areas that include similar approaches include chronic disease prevention (Fawcett et al., 2010), health disparities (Diez Roux, 2011) and epidemiology (Galea et al., 2010).

The final conceptual framework has important implications for those involved in or a part of community coalitions, which may include researchers, practitioners, community members, funders, and other stakeholders who collectively care about a particular health or social issue. Seen in Table 4, the final conceptual framework themes can be translated into questions that community coalition stakeholders might ask themselves at any point in the coalition process. The list of questions is not meant to exhaust the pool of queries that might evolve naturally out of relationships with stakeholders and the implementation of community-wide interventions. Instead, the list of questions can be treated as a starting point for considering an array of important, and often interdependent questions informed by community coalition processes in context of CS. Because the final conceptual model and framework are informed by CSS, it has potential to be used to investigate both community coalition processes and actions.

Table 4

Complexity-Informed Questions for Stakeholders Studying or Involved in Community Coalitions

Stages	Questions and Considerations

1	• What relationships gave rise to the self-organizing behavior of the coalition?
	 • Who are the individuals who initiated the coalition and what are the histories of their relationship?
	 • Which health or social injustices do these individuals care about?
	   ○ Are their concerns congruent with community member concerns and contexts?
	 • Who are the other stakeholders involved or relevant to organizing?
	   ○ Who has authority and control over what is relevant to the coalition?
	 • Is research or evaluation (formal or informal) useful to track coalition development at this stage?
	 • Which assets or strengths of the organizing group can be built on?
	   ○ What tangible and intangible resources can be pooled to mobilize and sustain the coalition?

2	• Which relational dynamics lead to positive collaboration and efficient adaptation?
	   ○ Which relationship dynamics need to be nourished or stemmed?
	 • How is the coalition informed by the dynamic relationships between stakeholders?
	 • Is the coalition effective in influencing those dynamic relationships?
	 • How is the mission defined and refined?
	   ○ Who gets to decide what the mission is and how to operationalize it?
	 • How does the coalition react to changes in partnerships, funding, policies, or coalition structures such as rules and roles?
	 • Which new or existing assets or strengths can the coalition continue to build on to mobilize the network?
	 • How is leadership shared?
	   ○ Is leadership moving toward shared governance?
	 • How is coalition partner and community engagement equitable and empowering?
	 • Is the coalition accommodating of the diversity of intendent beneficiaries and contexts?

3	• How is the coalition selecting an approach to reach their mission?
	   ○ How does this approach align with coalition and community member values?
	   ○ Is the approach multi-level?
	 Can this approach account for heterogeneity in community members and contexts?
	 • Is the coalition tracking and taking action based on emergent behavior related to coalition organizing and mobilization?
	   ○ What are the boundaries around what is measured?
	   ○ Is the coalition monitoring, review, and adapting coalition practices and strategy implementation based on new information?

4	• What community-wide changes have been achieved as a result of the community coalition's mobilization for collective action? • What is the community coalition doing to sustain their strategies and interventions? ○ What is the coalition doing to adapt to changes in partnerships, funding, and other resources and assets? • How can the coalition self-organize, mobilize, and adapt to continue mobilization and multi-level interventions? • If the coalition fails to adapt to changes, are members engaged in what would happen to their efforts and partnerships if the coalition were to disband?

The final conceptual model and framework, along with the practical questions that were generated by this synthesis, raise important questions about community coalitions and exciting opportunities for future research. If the nature of community coalitions lies in the self-organization of its members and the interdependent partnership dynamics, how might we conceive of partnerships that are adaptive and innovative enough to survive changing external environments and scarcity of resources and assets? By the same token, how do community coalition leaders and stakeholders know when to disband the coalition before partnerships are irrevocably damaged? What conditions give rise to the fundamental dyadic relationship between two individuals or organizations that seems essential to the formation of community coalitions? Does political affiliation affect community coalition orientation to cultures of health and social issues? And, finally, what are the benefits of community coalition participation given that a central tenant of organizing and mobilizing for collective action is empowerment? These questions offer fertile ground for researchers to explore the relationships between community context, coalition evolution and adaptation, and coalition outcomes.

Limitations

In general, qualitative syntheses might fail to specify the relevant theories or conceptual models that form the a priori themes and often vary in the types of qualitative analyses conducted to arrive at the final conceptual synthesis (Carroll et al., 2013). Framework synthesis accounts for these limitations by standardizing the qualitative synthesis review process by outlining specific steps and iterative methods to follow to increase credibility and transparency in the final model or framework. In particular, framework synthesis requires the development of two different sets of inclusion criteria, searches, and study selection (Carroll et al., 2011, 2013). One set is for identifying the initial theory, framework, or model to build the a priori framework and the other is for the systematic review of studies.

A priori frameworks and themes are generated from theories and studies identified as relevant to the review question. However, it is very likely that a different reviewer could identify other relevant theories and themes, leading to slightly different analysis and results. From this view, my results are limited by the use of my a priori framework. The framework synthesis process accounts for this by providing opportunities

for new themes, concepts, and categories to emerge from the data. Additionally, framework synthesis accounts for bias by requiring the researcher to examine conceptual reframes or the emergence of new themes. The framework synthesis contained in this paper reviews each them reframe, discussing why and how the theme departs from the a priori framework.

Another limitation is that this type of research draws mostly on peer-reviewed literature, thus excluding developments that are not captured in scientific papers. It is possible that there is grey literature that could slightly alter the final framework. To mitigate this, my future work will focus on conducting grey literature search as well as assembling a panel of both experienced community coalition leaders and community members who have participated in community coalitions, garnering feedback on the final model and framework, and making any necessary refinements in the process. Although framework synthesis employs a combination of conceptual synthesis and secondary thematic analysis, a number of stakeholders are often missing in the construction of these models and frameworks, potentially decreasing their practicality, usability, and applicability. Future framework syntheses, such as one planned for this study, should consider procuring feedback from an array of stakeholders.

Finally, in this paper I readily accept the position that community coalitions are generally a socio-cultural good. However, personal experience, along with documented community coalition partnership failures and lessons learned (Brown et al., 2010; Thompson et al., 2015), tell a more complicated story about the nature of collaboration when many different sets of stakeholders are involved, especially in context of partnerships with histories of mistrust. Complexity accounts for these failures, and, in fact, may hold explanatory potential for better accounting for how failures in multi-sector partnerships evolve from seemingly small interactions. Thus, I maintain that the framework synthesis in this paper holds promise for any array of applications, coalition success or not.

Conclusion

This study generates a framework based on a priori themes and concepts of community coalitions viewed through a complex systems science lens in public health from well-known, existing models such as the CCAT (Butterfoss & Kegler, 2002), as well as coding data from papers included after a systematic

review against the a priori themes. The final conceptual model and framework of community coalition organization, mobilization, and outcomes in the context of complex systems science is context-specific and evidence-based. The model and framework are pertinent to researchers studying coalition processes and engaged in community-based participatory research, leaders of community coalitions looking to understand coalition evolution, other types of collective action projects interested in the structure and process of this particular form of social movement, as well as community coalitions in different contexts, composed of different stakeholders not captured in the reviewed papers. Questions generated from this synthesis are pertinent to those interested in forming or participating in community coalitions and evaluators who need both conceptual grounding in coalition stages of development and constructs for tracking coalition progress towards sustaining community-wide strategies for systems change.

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Appendix A

Paper	Community Coalition	Description	Stakeholders
San Francisco Hep B Free: A Grassroots Community Coalition to Prevent Hepatitis B and Liver Cancer; Bailey et al. (2011)	San Francisco Hep B Free Campaign	A grassroots coalition that develops strong partnerships with diverse organizations can use existing resources to successfully increase public and healthcare provider awareness about hepatitis B among APIs	Driven by the Steering Committee, preliminary meetings conversations with health care, industry, and community groups were conducted; high profile leaders such as Fiona Ma and San Fransisco Mayor Gavin Newsom increased the profile of the community coalition; sought commitments from all public and private county hospitals; non-healthcare community partners; community-based organizations
Reframing Coalitions as Systems Interventions: A Network Study Exploring the Contribution of a Youth Violence Prevention Coalition to Broader System Capacity; Bess (2015)	Youth Violence Prevention Coalition	Nashville Urban Partnership Academic Center of Exellence (NUPACE) convened local organizations and groups concerned with the impact of youth violence on community well-being	Academic partners; government agencies; public middle schools; private, non-profit organizations
Systems Thinking Tools as Applied to Community-Based Participatory Research: A Case Study; Belue et al. (2012)	Clinton County Healthy Communities Community Health Outreach Coalition	Multilevel partnership set in Clinton County, Pennsylvania, a semirural, mountainous woodlands region with a population of approximately 37,500. Coalition mission to decrease drinking behavior and attitudes.	Volunteer board (president, vice president, secretary, and treasurer); prenatal care, early care and education, tobacco and other drugs, diabetes subcommittees; local county-level Clinton County Cooperative Extension offices, The Pennsylvania State University
Applying Systems Science to Evaluate a Community-Based Social Marketing Innovation: A Case Study; Biroscak et al. (2014)	A Community-Based Obesity Prevention Coalition	Coalition aimed to decrease obesity through the use of specific initiatives. For instance, one initiative, called Better Bites: Snack Strong, developed a set of nutritious menu items for restauranteurs and private retailers to adopt.	An array of academic partners, community partners, community-based organizations, and community members involved in or affected by healthy eating and active living interventions
Aligning systems science and communitybased participatory research: A case example of the Community Health Advocacy and Research Alliance (CHARA); Davis et al. (2018)	Community Health Advocacy and Research Alliance (CHARA)	Coalition focused on changes in health and primary care practices, increase in colorectal screening practices. Also focused on sustained social relationships and partnership trust; sustained capacity increase	Academic partners, patient, community, and health/service organization, research ambassadors, organizational affiliates
Miami Thrives: Weaving a Poverty	Catalyst Miami (CM) (formerly	Primarily strategies consisted of facilitating collaboration,	CM leadership and staff; depending on the initiative, different types of

Reduction Coalition; Evans et al. (2014)	Human Services Coalition of Dade County, Inc.)	fostering trusting relationships, and catalyzing collective action initiatives. Implementation was iterative and stakeholders were included throughout the process to challenge the root causes of poverty	community-based organizations that represent different sectors and areas in Miami

Article 3

Gatekeeping's Influence on Equitable Evaluation Practice

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Abstract

The ethical guidelines for the American Evaluation Association (AEA) and the principles of community-based participatory research and evaluation both state the importance of equitable stakeholder involvement. Regardless of the evaluation approach, however, evaluators are often confronted with gatekeepers, or those who control the access to stakeholders, information, or resources. Gatekeepers, who are often evaluators themselves, limit both the participation of key community members and, therefore, the exchange of relevant information related to the evaluation—a process called gatekeeping. Despite the widespread, interdisciplinary use of evaluation approaches with varying levels of stakeholder engagement, little research attention has been placed on studying gatekeeping, resulting in a dearth of knowledge about the influence of gatekeeping in not only stakeholder-engaged evaluations, but the social-structural dynamics that are part of the evaluation's context and that potentially perpetuate gatekeeping practices. In this paper, we propose a gatekeeping influence theory grounded in the findings from 14 interviews. With a constructed theory of gatekeeping, we document the emergent social-structural and relational dynamics involved in stakeholder-engaged evaluation, with a focus on evaluations that include community partners and members.

Keywords: gatekeeping, evaluation, stakeholder involvement, relationships, ethics

Gatekeeping's Influence on Equitable Evaluation Practice

The American Evaluation Association (AEA) Guiding Principles for Evaluators (AEA Guiding Principles, 2018) and the evaluation field's standards for conducting program evaluation (Yarbrough et al., 2004), along with several evaluation approaches such as empowerment evaluation (Fetterman & Wandersman, 2007) and transformative evaluation (Mertens, 2017), urge evaluators to include stakeholders in evaluation practices from inception through dissemination in varying degrees (Fetterman et al., 2014). These evaluative principles, standards, and approaches prioritize stakeholder involvement to generally ensure that the evaluation process is informed by community worldviews and local knowledge (Shoemaker & Riccio, 2016). This predominant discourse on stakeholder involvement in evaluation stems from the discovery of potentially deleterious effects of evaluators limiting or excluding important perspectives that inform evaluation projects (Khanlou & Peter, 2005).

The aim of stakeholder involvement is to engage the perspectives and talents of those who have an interest in the intervention or evaluation throughout the process of data collection and analysis, interpretation of findings, and reporting and disseminating the evaluation's results (Cartland et al., 2008; Goodman & Sanders Thompson, 2017). Yet, stakeholders, particularly those from historically marginalized groups, are often excluded from evaluation processes for reasons often beyond the control of evaluators and despite their desires or best attempts (Chouinard & Milley, 2018; Kochhar & West, 1996). Our experiences with evaluators suggest that gatekeepers and gatekeeping practices influence the extent to which evaluators can involve stakeholders, thereby potentially compromising the integrity of information collected during an evaluation and biasing judgements made about a program's or intervention's desired impacts (Goodman & Sanders Thompson, 2017).

Despite advances in theory and methods for stakeholder involvement in the evaluation process, little research attention has been placed on the agents who moderate stakeholder participation, resulting in a dearth of knowledge about the role that gatekeeping plays in stakeholder involvement approaches such as those found in participatory evaluation or empowerment evaluation (Cousins & Chouinard, 2012). Understanding the role of gatekeeping in evaluation will greatly expand our understanding of stakeholder

involvement dynamics and the achievement of equity in evaluation practice, a central tenant of evaluation science.

<div align="center">**Background**</div>

Defining Gatekeeping and Gatekeepers

At the end of World War II, where much of Europe and Asia had been reduced to ruins, American society became much more affluent. Public policies like the GI Bill of Rights provided money for veterans to attend college, to purchase homes, and to buy farms, and influenced the proliferation of forming families and having children in unprecedented numbers. But not all Americans had the chance to participate equally in these opportunities and in the growing economic prosperity. It was within this growing disparity that the term gatekeeping emerged. In 1944, social psychologist Kurt Lewin studied how families select food items to explore the decision-making process in context of such disparity (Shoemaker & Riccio, 2016). Lewin compared the act of deciding which food to select to gates, where the binary of open and closing a gate referred to the selection or rejection of food items (Brown, 1979). In this sense, the grocery shopper was a gatekeeper of the food the family eventually consumed, selecting which food items were "in" and which were "out", thereby deciding the nutrition of the basic social unit.

Stakeholder-engaged research in the past two decades has given gatekeeping an array of meanings. In research on evaluation scholarship that reports on stakeholder involvement, researchers have focused on gatekeeping as a process by which individuals decide who has access to socially excluded people in research, facilitating or inhibiting researchers' and evaluators' access to the research phenomenon under study and to the evaluators in that setting (Emmel et al., 2007; Kawulich, 2011; Wanat, 2008). Researchers who focus on gatekeepers as intermediaries of this form generally view access, or the lack of, as a function of power differentials, trust, and social capital (Doll et al., 2012; Emmel et al., 2007; Kawulich, 2011). The term gatekeeper has been used to describe community advisory boards (Kaiser et al., 2017), key informants and stakeholders (McKenna & Main, 2013), community health advisors (Story et al., 2010), interpreters (Edwards, 2013), sentries (McGregor et al., 2017), and insiders (Schatz et al., 2015). Considering these meanings and terms, we began our research defining gatekeeping as the process by which decisions are

made about who gains access to people, information, materials, and/or goods. Gatekeepers, then, are those who decide who or what is "in" and who or what is "out".

Research on gatekeeping in evaluation is scarce, and topics that come close to examining gatekeeping practices in evaluation tend to examine organizational power (Kim & Cervero, 2007), power and role sharing (Cartland et al., 2008), and stakeholder engagement (Gilliam et al., 2002). From these topics alone, gatekeeping seems to be experienced as and is created by power differentials in the process of stakeholder engagement and inclusion during an evaluation project. Widening the scope to literature on gatekeeping in research, we find that researchers focus on similar aspects of gatekeeping such as access to minority communities and other stakeholders (Lund et al., 2016; McAreavey & Das, 2013), university-community partnerships (Suarez-Balcazar et al., 2006), and trust (Emmel et al., 2007). There is also an emphasis on gatekeeping dynamics and relationships in research on access to palliative care (Kars et al., 2016). Thus, the combination of common elements of gatekeeping, such as lack of access to stakeholders and power imbalances, is a commonly referred to but seldom researched relational phenomenon.

The purpose of this study was to generate a theory, grounded in data, that explains (a) why and how evaluators experience gatekeeping; (b) how gatekeeping impacts evaluators, and their respective projects; and, (c) the various processes and strategies evaluators employ to resolve their main concerns regarding the impact gatekeeping has on evaluation.

Process and Procedures

Design

Grounded theory methodology, as originally developed by Glaser and Strauss (Glaser & Strauss, 1994) and separately refined by Glaser (Glaser, 2002) and Charmaz (Charmaz, 2014; Charmaz & Belgrave, 2015), informed the plan of research for this study. The grounded theory process consists of five basic components: theoretical sensitivity, theoretical sampling, coding, theoretical memoing, and sorting. These five components were integrated by the constant comparison method of data analysis. The goal of the research was to understand evaluators' experiences of gatekeeping in evaluation. Once the main themes

emerged from the data, researchers developed a theory, grounded in data, about how and why evaluators experience gatekeeping.

Recruitment and Sample

Two rounds of recruitment were used. The first round utilized authors' professional network of evaluators in Wisconsin. These evaluators were recruited through email and phone and utilized for both pilot and official interviews. The second round of recruitment began after the authors' professional networks were exhausted and consisted of emailing both Topical Interest Groups (*e.g.*, research on evaluation) and regional offices of the American Evaluation Association.

An important tenet of grounded theory is the idea that researchers should not assume the relevance of identity data, including race, age, gender, sexual orientation, class, and ability. Thus, the relevance of these variables was not assumed. Specifically, 14 evaluators were interviewed with approximately 30% identifying as male and 70% identifying as female. All evaluators identified as evaluators who conduct evaluations with varying levels of stakeholder involvement. Additionally, we left the definition of stakeholder open for evaluators to identify themselves. Thus, evaluators used "stakeholder" to describe an array of individuals in their evaluation projects, with most describing various mid-level managers (*i.e.*, those who decide which programs, practices, and tools to adopt; deliberating ways to improve existing services; shaping the conditions for implementation; and making resource allocation decisions), and community members or those who participate in programs or practices being evaluated.

Data Collection and Analysis

Theoretical sampling, the process of data collection that allows for the generation of theory, was the primary sample method used in this study. When using theoretical sampling, the researcher simultaneously collects, codes, and analyzes data and uses this ongoing process to determine what data to collect next and where to find them. In line with theoretical sampling, evaluator selection was informed by the analysis and coding of the interviews. Semi-structured, adjusted conversational interviewing was utilized. Interview times ranged from 30 minutes to approximately 3 hours, with an average of approximately 1 hour and 10 minutes. Adjusted conversational interviewing was utilized because it is

regarded as the most effective grounded theory approaches to interviewing (Rensen et al., 2017). This occurred in three phases. In Phase 0, we began piloting our interview questions with local evaluators who categorized their approach to evaluation as stakeholder-engaged. In Phase 1, we used an initial interview protocol that consisted of broad questions about each evaluator's experience in research and evaluation projects with a focus on dynamics of engagement, participation, and stakeholder involvement. Through line by line coding, capturing emerging concepts, and constant comparison, categories emerged and informed a second Phase of theoretical sampling as well as a refined interview protocol. In Phase 2, we continued theoretical sampling but, this time, with a focus on a) identified themes that emerged in Phase 1 such as issues of power, temporality, and trust; and b) evaluators who did and did not categorize their evaluation projects as stakeholder-engaged, seeking to refute initial findings. As additional interviews occurred, categories were reconceptualized and the properties that inform each category were identified. Selective coding was used after interview 12, when core concepts emerged, and the data were saturated across categories and across their properties. Two additional interviews were conducted for verification purposes. Phase 2 ended when we reached category saturation.

Data sources for this study included 14 evaluator interviews, notes taken when interviewing evaluators and gathering feedback from students and experts, and field notes from graduate students who conducted evaluator interviews and assisted with a literature review. The lead author, along with two graduate students and one undergraduate scholar, collected, transcribed, and coded all data in Dedoose Version 8.0.35. To ensure inter-rate reliability, the lead author created a training session or "test" based on the coding of a single interview. This works by selecting the codes to be included in the "test," the selection of previously coded/rated excerpts to comprise the test, and then specifying a name and description for the test. Research assistants were prompted to access the test and to apply codes to the set of excerpts making up the test. During the test, research assistants were blind to the work that was done by the lead author or other research assistants. Upon completion, Dedoose reported a Cohen's Kappa of .61 otherwise known as substantial interrater agreement. As we proceeded, each interview was coded twice by research assistants and reviewed by the first author. To aid in the process of generating categories, the team utilized Microsoft

Excel to track quotes across categories and Miro (*Miro*, 2020), an online collaborative white board, to map categories to concepts and properties. The last author, an experienced evaluator and researcher, oversaw the project and provided guidance and advice throughout the study. She also assisted with conceptualizing the broader themes that were emerging from data analysis.

Ethical Considerations

The University of Wisconsin-Madison Education and Social/Behavioral Science Institutional Review Board reviewed and approved the research protocol on 6/21/2018 prior to the scheduling of evaluator interviews. Evaluators were given the opportunity to review field notes and the final substantive theory prior to the conclusion of the study. They were also assured that field notes would not include identifying information.

<center>**Findings**</center>

Overview of Gatekeeping Influence Theory

The theory emerging from this process is termed Gatekeeping Influence Theory (GIT). GIT offers a working definition of gatekeeping and a conceptual identity for gatekeepers. GIT describes drivers that influence the conduct of evaluation; identifies the strategies that evaluators use to navigate the social-structural conditions of evaluation projects; and the gatekeeping disruptions that problematize equitable evaluation practice. Within each theme are categories and properties of categories that emerged across interviews such as power differential, navigating contextual dimensions such as politics and culture, temporality (*e.g.*, when the evaluator enters the evaluation process; whether the evaluator is given enough time to foster equitable relationships with stakeholders), and positionality, or where the evaluator is positioned within the evaluation project, among other organizations and stakeholders.

Equitable Evaluation Practice

Evaluators described fears, hopes, and dreams when conceptualizing the purpose of their evaluation projects. Evaluators tended to describe their aim for the evaluation as an equitable process of involvement, valuation, and discovery with one evaluator describing evaluation as "a process that I aim to be inclusive and also a way to discover and value more about what community partners do." When defining equitable

evaluation practice, evaluators generally refrained from using terms that might fall under capitalistic framings; words such as product, profit, and incorporate were not used. Instead, when evaluators defined equitable evaluation practice, they used phrases such as "co-create," and "jointly-owned"; they embraced references to evaluation as a means of valuing, distributing, and exchanging as owned or regulated by all stakeholders in the evaluation. The theme of equitable evaluation practice emerged out of several categories as a goal of evaluation practice. These categories include *experiences in evaluation* and *expanding the scope of evaluation*.

Experiences in Evaluation

Experiences in evaluation refers to the practical contact with and observation of events in evaluation that support evaluators' desire to conduct equitable evaluation practices. The experiences in evaluation category emerged from the following properties: maximizing the benefits and reducing the risks of evaluation (mitigating bias and potential power imbalances); experiencing conflict and setbacks; and unintended consequences (reinforcing existing inequities). As evaluators described their experiences in evaluation projects, they recounted the need to maximize the benefits and reduce the risks of their projects by engaging stakeholders in an "empowering and emancipatory" process. This process was put into place in their evaluation practice to mitigate bias and potential power imbalances, as indicated by one evaluator: "We use engagement and participation to empower people partly because, as a methodologist, we want to mitigate bias and, and an evaluator, deal with aspects of power." Additionally, evaluators discussed their experiences of stakeholder conflict and unintended consequences such as reinforcing existing inequities. As evaluators described their experiences in evaluation, they cycled through a feedback loop of noticing risks, wanting to reduce risks and maximize the benefits of evaluation, and then wanting to increase the equity of the evaluation process.

Expanding the Scope and Purpose of Evaluation

This category includes the properties: *stakeholder engagement*, *definition*, and *politics of evaluation*. When evaluators described their evaluation projects, they often identified a desire to expand the scope of who evaluation projects typically include as well as expand the scope of the definition of evaluation

to normalize evaluators who act as advocates, champions, technical assistants, and proponents of specific members of the community and political causes. Thus, these evaluators desired to expand the scope of evaluation's audience as well as its normative definition, as one evaluator described, "The role of the evaluator, whatever that ends up being by the time the evaluation project unfolds, generally shifts and, generally, it's hopeful that means we still get to be as inclusive as we'd like." Evaluators described a desire to reframe evaluation away from a rigid process by which valuations are made about programs and towards thinking about evaluation as a commons or voluntary sector in which the activity of evaluation is nested in efforts for social, economic, and health equity. One evaluator said, "…it's mostly about making value assessments and judging programs, so what I do is more like a common space to create change." This suggests not only a desire for expanding the definition, but a specific political orientation to evaluation, too. Evaluators who desire to use evaluation as a mode of participatory and democratic inquiry also tended to describe social, economic, and health issues as a problem of systemic oppression; social, racial, and economic injustice; and discrimination, as indicated by one evaluator's comment that "evaluation should be democratic and address issues systemically." By the same token, evaluators did not discuss social, economic, and health issues regarding individual agency or self-determination. This suggests a specific political orientation that coincides with evaluators who conduct stakeholder-engaged evaluation, particularly those who perceive themselves as advocates, champions, facilitators, and proponents of specific members of a community and its socio-political causes.

Gatekeeping Disruptions

As evaluators revealed their interactions with other members of their evaluation projects, so too did they reveal the frequent disruptions in the evaluation process: moments of interpersonal conflict resulting from organizational hierarchies; extended periods of being unable to access information needed to answer evaluation questions; running into stakeholders or other evaluators who control access to other stakeholders and/or information; or, more rarely, the protection of community groups such in the case of community advisory groups or community outreach specialists. These are small, often contentious moments in evaluation projects that, when left unaddressed, flourish into cultures of distrust and power imbalance. For

instance, discussing a hostile and conflict heavy work environment and its impact on their evaluation practice one evaluator narrated how organizational culture and personal grievances can come together to create an incredibly disruptive environment:

"I was running into issues with a colleague who was setting themselves up as the gatekeeper in this particular example. Which led to a lot of control of the information that was received and then just controlled a lot of the process of the evaluation…I think the gatekeeping aspect has been really tough in that they don't understand how that has impacted evaluation and moving it forward and negatively impacted an inclusive climate, an inclusive process, and collaborative process…So, my organization is tough in general, it is very politically and-- it's all about politics and it's about maneuvering and it's about power."

In a discussion around this kind of disruption one evaluator discussed having a conflict with senior management at their consulting firm: "I'd definitely say the project didn't turn out as well as it could have. It was small things she did that made my job difficult. The project suffered overall because of it." In another discussion, one evaluator discussed the difficulties dealing with local authorities "sometimes it's difficult. There are definitely times where you have to do things you don't agree with or don't want to do. In this project here were local officials that made things very difficult." Thus, gatekeeping disruptions are the fractious interactions that result in problematic social-structural cultures when evaluators attempt more equitable stakeholder involvement practices. The reciprocal is true as well. Gatekeeping disruptions are the social-structural and cultural contexts of complex partnership dynamics that thwart evaluators from practicing equity in their projects, indicating that there exists relational dynamics that need to be addressed. The gatekeeping disruptions theme emerged from the following categories: *barriers to access*; *politics of stakeholder involvement*; *social-structural contexts*; *perceptions of self and others*; and *disruptive effects*.

Access to People, Knowledge, and Data

In every project discussed, evaluators reflected on instances in which they could not access specific stakeholders, knowledge, and/or data. Evaluators described these instances as barriers to following through on evaluation activities and potential disruptions to equitable evaluation practice. Access to people,

knowledge, and/or data emerged as a key category consisting of the following properties: *lack of access*; *barriers to access*; and *systemic barriers to conducting equitable evaluation practice*. Barriers (*e.g.*, time, funding, individuals who intentionally limit access to people or materials) are described as instances where an evaluator is unable to accomplish their tasks [or responsibilities or activities], especially due to gatekeeping.

Lack of access consisted of evaluators experiencing an inability to access stakeholders (*e.g.*, decision-makers, community members); knowledge (*e.g.*, paywalled journal articles, existing evaluation reports from community-based organizations); and/or data (*e.g.*, medical records). Instances of lack of access occurred when evaluators were collaborating with a diverse set of stakeholders occupying an array of social roles and organizational positions. Evaluators described their lack of access as representative of barriers that occur iteratively throughout a project, "sometimes barriers just pop up, you have to deal with it." These barriers to access generally related to a lack of resources such as time or funding, a lack of stakeholder buy-in, or poor evaluation design that did not include stakeholder involvement principles. Finally, evaluators described several systemic barriers to conducting equitable evaluation practice. First, evaluators described confronting gender norms and systemic racism in stakeholder meetings that either assumed the normative role of the evaluator or prevented the evaluator from building the necessary relationships needed to facilitate more equitable forms of stakeholder involvement. In an example of gender bias, an evaluator admitted that simply by virtue of her gender she likely "changed how people reacted to the project". Another evaluator discussed how being a minority meant she was excluded from certain discussions about the direction of the project which had negative implications for the project outcome. Second, evaluators' superficial understanding of the context in which stakeholders are imbedded limited evaluators' ability to transparently engage stakeholders in a culturally responsive manner. Reflecting on an early experience as an evaluator, one evaluator described how in hindsight the project "did not serve the community as positively" because community leaders were left out of key decision-making processes. This was particularly true of evaluator-stakeholder relationships where the stakeholder or stakeholder groups

had a history of engaging researchers and evaluators that resulted in further harming that group. These systemic barriers resulted in obstacles to conducting equitable evaluation practice.

Political Dynamics of Stakeholder Involvement

While there continues to be confusion around the differentiation between various stakeholder involvement approaches, each evaluator expressed interest in human need and in the contentiousness of the ideas of collaboration and participation. That is, evaluators were preoccupied with the politics of decision making in groups, and other forms of power relations between individuals, such as the distribution of resources, regardless of the stakeholder involvement approach chosen. This is the context in which the categories of *politics of stakeholder involvement* emerged. Politics of collaboration is a category that emerged out of evaluators' identification of the relational dynamics involved in stakeholder involvement practices. These dynamics include the following properties: *conflict*, *consensus*, and *power sharing*.

Evaluators encountered instances of disagreement often in the form of protracted and unspoken misunderstandings. Thus, emerged the conflict property, contributing to the category of politics of stakeholder involvement and the theme of gatekeeping disruptions. Importantly, this type of conflict did not always result in ruined relationships. Instead, sometimes conflict created important moments of reflection on how collaboration is or is not proceeding effectively (*i.e.*, creating opportunities for all members of the evaluation to voice their ideas or concerns). For this reason, conflict and consensus seemed to exist on a spectrum of productive and unproductive. Evaluators often qualified their explanation of conflict by suggesting that conflict is an inherent part of evaluation, or when a) the evaluation is used to achieve a form of social justice or b) when the evaluator evaluates an intervention geared to change unwanted or unjust social activities. For example, describing how conflict could have a positive effect on an ethical consideration an evaluator described a previous conversation as follows: "A colleague calls me and says, "Oh, crap. They're trying to force me to give them the data, but we said we're not going to share the data," then I'm going to say, "Okay." I'm going to fluff my feathers a little bit." Thus, in some cases, prolonged tranquility in evaluations may be either an indication of stable social relationships or stirring unrest. Finally, the property *power sharing* emerged out of discussions about why stakeholder involvement

was important and how involvement could function to redistribute power among stakeholders in an evaluation. The need for power sharing was a consequence of inherent hierarchies within evaluations consisting of an array of stakeholders and contributed to gatekeeping disruptions: "It's within the client organization and it's at all levels of authority, so power sharing is essential but rarely done."

Social-Structural Context

Social-structural context, defined as the patterned social arrangements in society that are both emergent from and determinant of the action of individuals, arrangements that consist of socio-economic status, place, history, environment, institutionalized racism, *etc*., emerged as a category with the following properties: *institutionalized politics and racism*; *histories of collaboration*. Evaluators described running into issues of institutionalized politics and racism, or the practices of social and political institutions that overtly or covertly discriminate based on political viewpoint or race. One evaluator described dealing with institutional conflict as follows; " the case is sometimes-- especially if you address issues around race and structural racism-- it's not an easy to convey, sometimes, to stakeholders, especially when these stakeholders are sitting in organizations-- when they're public organizations or even non-profits that they want to do the right thing, but they're maybe not seeing that they're racist. And I think those are tough pieces." Evaluators described instances of conflict, sometimes related to racial justice, on diverse topics such as health and economic wellbeing, especially when consensus on the drivers of inequities could not be achieved. In describing such a conflict one evaluator reflected on the role of a White stakeholder in the following discussion: " I don't think that they have had a lot of experience , either, with some of the experiences that someone might learn respect for others off of, right? So, I think that they've had a-- it's a white woman, grew up pretty wealthy. And so, I think some of it might, I mean, it might be like that lived experience piece that's missing…So, but I don't know if they've never really experienced oppression. I don't know if they haven't really understood it, or reflected on it, or understood what that type of thing does then, and why it's the root of all or many problems in our society is the oppression piece." One evaluator reflected on the institution of evaluation being "rooted in neoliberalism," stating that it problematized the intent behind evaluations for many stakeholders who often held preconceived notions of evaluation as a covert

effort to further colonialize specific community groups, especially if the university was the evaluator's home. Evaluators described that these preconceived notions were held by many stakeholders and were rooted in histories of collaborating with researchers and evaluators from the university. Thus, the role of the evaluator was often called into question by stakeholders who wanted to know how the evaluator was going to subvert current day institutionalized politics and racism: "My role changes based on the contract, which includes stakeholders who sometimes expect you do be a social justice advocate and sometimes they don't and they just want you to uphold the status quo."

Disruptive Effects

As evaluators described their confrontation with both gatekeepers and cultures of gatekeeping, they also detailed the disruptive effects these had on both the evaluator, the stakeholders, and the evaluation. The category of disruptive effects emerged from the following properties: *emotionality*, *reinforcement of social-structural inequities*, *influencing evaluation deliverables*; and *evaluation complexity*. In the face of relational tension, evaluators often described feeling annoyed, confused, and frustrated, as indicated by increased emotionality during interviews, particularly that of anger. As on evaluator said, people in evaluation "expect you to get it all done. And this is all the money and time you get. It's bullshit. I mean, you can't do it. There's no integrity to it." These emotions were mainly the result of either failed attempts at resolving perceived issues or not knowing how to resolve them. Evaluators also noticed that relational tension reinforced existing inequities and power differentials within the evaluation, among stakeholders, and, as a few evaluators noted, within the context of the intervention the evaluation was based on: "So really, just paying attention to the culture of that community. But people with bad history can mess that up." Thus, evaluators noted that these tensions influenced evaluation deliverables by limiting the type and number of stakeholders available to the evaluation and the credibility of the results. Finally, gatekeeping disruptions created issues of complexity. The complexity described was a confluence of a) a multiplicity of levels of disruptions involved; b) a diversity of actors with heterogenous backgrounds and cultures; and c) the interactions between evaluator and stakeholders that went unnoticed or unaddressed. This complexity limited evaluators' ability to effectively ameliorate or leverage the disruptive effects to their advantage. By

the same token, this complexity also led to evaluators using strategies to achieve more equitable stakeholder involvement in their projects.

Evaluator Ability to Engage Stakeholders

GIT posits that evaluators who primarily work to achieve equity in their evaluations are thwarted by specific disruptions of the evaluation process, limiting their ability to engage stakeholders and to create the enabling conditions that lead to more equitable relationships. The evaluator's ability to engage stakeholders emerged as a discrete strategy foundational to achieving more equitable evaluation practices but realized only through complex interaction between stakeholders' and evaluators' attitudes and beliefs; the strategies evaluators perform to circumnavigate gatekeeping disruptions; and the conditions that enable equitable practices.

Stakeholders and Evaluator's Attitudes and Beliefs

GIT posits that evaluators' attitudes and beliefs of and about themselves, others, and evaluation are predisposing conditions that drive the types of strategies evaluators use to navigate the conditions of evaluation; the evaluator's ability to engage stakeholders; and the conditions that enable equitable evaluation practice. These conditions consist of two categories: *out- and in-group membership* and *perceptions of stakeholder involvement*. These predisposing conditions are best understood as the intersection of these two categories and as a function of the enabling conditions that evaluators identified as influencing their attitudes and beliefs. The essence of this category is captured by one evaluator's belief about gatekeeping: "So I think gatekeeping is incredibly more complicated than when I started, and I think that there are more people talking about it and I think everybody recognizes it. I think where the rubber hits the road, everybody kinds of backs away from that conversation and says, 'That's somebody else's problem to fix. That's not me' So evaluators in philanthropy are coming together talking about this very issue, but nobody wants to change the way they do the work to make it better."

Navigating Group Membership

Originally defined by Henri Tajfel, an out-group consists of an individual that does not identify as a member of a social group whereas an in-group is a social group in which a person identifies as being a

member (Tajfel, 2010). Navigating group membership emerged from four properties: *culture*, *social ties*, *evaluator identity*, and *positionality*. The *culture* property generally emerged when there were cultural differences among evaluators and their social ties as well as a property evaluators considered when engaging new stakeholders. The *culture* property, in this sense, manifested as differences between social behavior and norms, diverging across discrete geographies, institutions, socio-economic groups, histories, and ways of being (*e.g.*, white, academic evaluator evaluating an indigenous community organizing group). Differences among culture often coincided with challenges of group membership, which contributed to the circumstances in which access to stakeholders or information was controlled. The *social tie* property emerged as evaluators described different types of relationships with stakeholders. These interpersonal ties—or interpersonal relationships among evaluators and other stakeholders that vary in their level of trust, influence, and transparency—contributed to how evaluators perceived their group membership, with low levels of each attribute fostering perceptions of increased discrimination, favoritism, and group polarization.

Evaluators described that both their role as an evaluator and their personal identity (*e.g.*, race, sexual orientation) mediated their social ties and, in turn, their perceptions of group membership. The category of group membership emerged as an aspect of why, for what purpose, and which some evaluators or stakeholders may control access to people or information. For example, some evaluators described that their out-group status, which varied from project to project, sometimes made it more difficult or altogether prevented their ability to gain access to people and information needed to inform the evaluation, as community or organizational mid-level managers often denied their requests for access. In mitigating these issues some evaluators discussed their connection to in-group members who helped address issues to access, "I have a 900-plus friends list of Native Americans when I need to reach out to them. And so, what it's done is that-- I think one of the things it probably created, it really fostered a strong relationship between tribal collages, myself, tribal communities." These same evaluators, when identified as in-group, often of community-based organizations, described themselves as those who sometimes limited access to people or information, particularly in cases of "protecting colleagues or local residents". For example, one evaluator who identified as Indigenous explains that "The work I do with Native populations…gatekeeping is a

positive thing…because sometimes individuals just don't understand some of the cultural nuances that occur within tribal communities."

Closely related to evaluator identity emerged the positionality property, or the way in which stakeholders' and evaluators' attitudes and beliefs were shaped, biased, and influenced by the roles or identities they assume when navigating relationships and evaluation processes. Though not always related to attitudes and believes, this property emerged from evaluators' differing attitudes and beliefs about evaluation based on the relationship between the evaluator and the sociopolitical context of the evaluation that includes community members, community organizations, decision-makers, and intermediaries. In effect, evaluators described that their attitudes and beliefs shaped their evaluation roles and identities, which varied from both project to project and among different contexts within the same project. This property emerged as conceptually linked to culture, social ties, and personal identity, but was practically distinct from these properties based on descriptions of shifting power differentials inherent in changes in sociopolitical position. For example, in the same project, an evaluator may find themselves confronting a board of physicians on one day and a small group of local residents needing medical treatment at a resource center the next day. In another example, when evaluators considered themselves project leaders, they described stakeholders with more detail and cast a wider net in terms of who they considered stakeholders. Discussing these different roles form project to project one evaluator said the following:

"Yeah. I mean, it's really depends on also in what kind of role I'm called upon, right? And what is the-- and who am I ultimately in service of, right? I mean, if there's an example of a colleague calls me and says, "Oh, crap. They're trying to force me to give them the data, but we said we're not going to share the data," then I'm going to say, "Okay." I'm going to fluff my feathers a little bit, and I'm going to say, "Okay. So, here's how it's going to go down. And if you want me to quote university regulations, I'll do that but first, I'll tell you why it's an ethical problem you do this." So, in that case, I'm coming in with this personality as an authority or somebody who actually does this in service of protecting the people that provided us with data because that's a treasure. That is a personality-- I mean, it's an extension of them, and we are responsible to this and as a

professional, I have that ethical imperative and I need to maintain that. On the other hand, if I'm coming in as a-- help, here's this guy and he's going to help us figure out what folks have said. Well, that's a completely different personality part that comes in. I'm a helper. I'm here to help you."

Normative Beliefs and Subjective Norms

Normative beliefs are "individuals' beliefs about the extent to which other people who are important to them think they should or should not perform particular behaviors" (Trafimow, 2008, p. 1). And subjective norms are the accumulation of normative beliefs that then have a reciprocal effect on intention and behavior. These categories emerged from the following properties: *idealizing inclusivity*, *moral imperative* (social and institutional pressure), *feasibility*, and *context*. Evaluators tended to believe that stakeholders should be included, knowing that the American Evaluation Association prioritizes the equitable inclusion of stakeholders in evaluation practice. This property revealed that evaluators perceive inclusion as a moral imperative of the field, noting that peer and institutional pressure influenced their perception of the type of inclusion that was valued. Evaluators acknowledged that the idealization of this perceived moral imperative often led to confusion about how, when, and where to access stakeholders for participation in evaluation, which stakeholders to include, and whether their evaluation projects were sufficiently empowering. Feasibility, or whether stakeholder inclusion was possible given timing and funding constraints, was a property that emerged out from our inquiry. Evaluators described their perception of stakeholder involvement as a conflicting duality of desiring to ensure equitable inclusion and being unable to do so due to limited resources (*e.g.*, time, money, capacity). For example, one evaluator lamented, "We couldn't really access or do that. Part of it was cultural so it would have taken a significant amount of time and resources." Speaking to the accountability of inclusion in a project an evaluator discussed the conflict between organizations, communities, resources and reality as follows: "I think our accountability to our committees is sometimes at odds with our values and equity and for grantees…So if our committees wants certain information or a director that is about outcomes and accomplishments then that's what they're expecting. But our grantees can't produce that because that type of change doesn't happen that quickly and

in the time periods we fund. Then they could potentially stop that program when maybe the outcomes that grantees really want to report on is learning and their increases in learning."

Perceptions of stakeholder involvement varied by where and with whom the evaluation was being conducted, and by different histories, geographies, cultures, institutions, politics, and social structures. Differing attitudes and beliefs about stakeholder involvement, as influenced by personal experience and discrete contextual factors, also problematized the process under which equitable evaluation practice was achieved. In all cases, however, these feelings were accompanied with evaluators deploying strategies to both enable more equitable stakeholder participation and create more equitable conditions under which inclusion could be achieved.

Strategies for Equitable Evaluation Practice

GIT posits that evaluators', when their aims are to engage in equitable evaluation practices with stakeholders, develop strategies, behaving differently and creatively based on the unique sets of relationships and contextual dimensions (*e.g.*, politics, environments, histories) involved. GIT proposes that these strategies are heavily influenced by stakeholder and evaluator beliefs and attitudes regarding evaluation and evaluators. This theme consists of the following categories: developing and defining an inclusive approach; flexibility and redefining the evaluator role; relationship building; and creating and engaging intermediaries (provide examples of what is meant by intermediaries).

Developing an Equitable Approach

Evaluators developed and deployed specific evaluation approaches in their projects as one strategy to fostering equity. This category emerged from the following properties: *choosing an evaluation approach*, *defining equity*, *iterative stakeholder analysis*, and *stakeholder power sharing*. First, evaluators chose evaluation approaches (inclusive of frameworks and principles), such as culturally responsive evaluation and transformative evaluation, to center community voices and foster equitable relationships among stakeholders. Evaluators described that the tenants of these approaches, as well as the principles of community-based participatory evaluation, were strategically deployed with the hope that the approaches themselves would generate equity in evaluation: "We generally use participatory approaches to create the

right kinds of relationships…equitable relationships." However, evaluators described one caveat to this process: the presence and level of equity generated in an evaluation project depended on how the evaluator spent time building relationships. That is, one theme that emerged from the discussion around explicitly deploying stakeholder involvement approaches was that it was mediated by the evaluator's use of the approach in guiding their relationship building practices.

Relatedly, another property that emerged was around how equity means something different to each stakeholder and each stakeholder group. Thus, one evaluator described the necessity to build consensus, often at multiple time points in the evaluation project, around what equity meant to each stakeholder group and how and for whom equity could be achieved: "In my experience I've always had to work with everyone to define what equity means because it changes every time I start a new project with new people and in a new place." Evaluators conducted iterative stakeholder analyses. Stakeholder analyses often involves identifying the individuals who have a stake in the evaluation project, and who vary based on their level of engagement, interest, influence, power, and skill level. Evaluators noted that conducting stakeholder analysis, especially in cases where evaluation projects were longer than a year, aided in maintaining a current understanding of which stakeholder voices needed to be empowered and who in the evaluation had the most power. Finally, evaluators often described having to relinquish control of the developments and choices outlined above. That is, to infuse empowerment and emancipatory processes into the evaluation project, evaluators described a process of abdicating their role as the "evaluator" to both dispossess themselves of the normative "evaluator" role and provide space for stakeholders to take control of the evaluation process, deciding what equity for their community means and what the goals of the evaluation should be: "Definitions are important and I think more distributed power structures and redefined roles are necessary."

Flexibility & Redefining the Evaluator Role

Evaluators described having to shift their role in evaluation projects as a strategy of creating more equitable evaluation practices: "A big part of my job is helping stakeholders take control and learn from each other." Flexibility and redefining the evaluator role consists of the following properties: evaluator,

facilitator, observer, capacity builder, and advocate. Each of these properties have considerable overlap as well as the ability for the evaluator to occupy more than one role at once. Evaluators described having to educate stakeholders about what evaluation is, could be, and how they themselves would be a decision-making agent within the project: "I often have to help stakeholders understand the different ways that evaluation could help serve the program or project. That sometimes includes saying that I don't need to be the one leading." Evaluators described taking the role of facilitator when the evaluator needed to enhance discussion among stakeholders to advance evaluation activities, overcome barriers, and create a more collaborative environment: "I transitioned to being a facilitator…I facilitated the development of the process and framework, and then worked with stakeholders to administer surveys and create discussion." Evaluators described becoming more of an observer, particularly at the beginning of an evaluation project where an evaluator may be forming knew relationships and learning about a new context.: "…just by being physically present in communities where we are collecting data is more observational. I wasn't really interacting very directly with anyone." This role included having to listen more than speak; reflect more than make decisions. In all cases, however, the evaluators described having to advocate on the behalf of specific stakeholder groups whether to funders, oversight committees, and key policy- and decision-makers: "I brought the funders and tribal colleges closer…the National Institute of Health has never had such a project to interact with diverse groups." Overall, flexibility in role and role sharing facilitated closer, more trusting relationships: "You change…and then, when they feel comfortable and they trust you, then you can go into the community and you realize the story might be very different."

Relationship Building

Relationship building emerged as a category marked by an array of inter- and intra-personal properties. These properties include *trust*, *respect*, *language used*, *rapport*, and *reflexivity*. Evaluators described each of these properties as essential to the work of building equitable relationships. Trust was most often cited as the key relational property needed in conducting equitable evaluation practices and consisted of listening and developing reliability: "At the beginning [evaluators] are very advisory. And we were learning about the program. As we understood it better, we could make better recommendations. As

they learn to trust us, they were more ready to accept our advice. It was a stronger partnership with trust." Trust was diminished when the evaluator or stakeholders controlled access to people or information: "Administrators were so controlling it eventually got to a point where they got overly involved and essentially dissolved the partnership because a lack of trust and willingness to work collaboratively around shared interest." Experiencing open and honest communication was a driver of trust, and therefore a driver of what circumstances generate issues of control over people and information.

The property respect emerged out of descriptions of feeling admiration for someone or a group of stakeholders, with attention to the feelings, rights, and traditions of others. The property was generally discussed in accordance with the early stages of evaluation, stages in which trust building and earning respect are a function of cultural humility and acknowledging and engaging with those who have experienced possible harmful relationships with researchers and evaluators in the past: "I think it was respect for other people and their voice and seeing value in people and what they could offer." Connected to this property is the property of using and altering language to speak to certain audiences. This language property emerged as most evaluators described having to speak and help disseminate results to an array of stakeholders such as funders, key policy- and decision-makers, and other general audiences. Evaluators recounted that language use and language barriers is especially important in context of community-based participatory evaluation, wherein equity, in part, relies on accessible language: "One community member has been very active in shaping the language of the community-based participatory evaluation…attention to language meant better collaboration." Trust, respect, and the language used usually led evaluators into discussing building rapport, or simply long-term relationship building based on mutual attentiveness, positivity, and coordination, or the feeling of being "in sync" with one another: "In evaluation relationships don't have over night. And so, you're building relationships, new relationships, with others in the community…it's about attentiveness and coordination." These properties coincided with the emergence of the reflexivity property, or the process of attending systematically to the context of knowledge construction, especially to the effect of the evaluator, at every step of the evaluation process. That is, an important property of the relationship building category was the intentional and intra-personal process of attending to

how the evaluator's background and positionality affects how the evaluator engages stakeholders: "I come at it from a feminist evaluative perspective, meaning that I thinking about how I influence evaluation. One of the ways that I'm cognizant about how I influence evaluation is that I come from a university and I have, at my fingertips, a log of resources that communities don't."

Creating & Engaging Intermediaries

Creating and engaging intermediaries emerged as a category rooted in the more contemporary strategy of some evaluators creating or encountering community advisory boards or other individuals and groups assembled or chosen to protect a specific population of people. This category emerged out of the properties, protection and ethics. Evaluators described needing alternative protocols that ground the assessment of risk to specific communities in the achievement of equity and other community-based participatory evaluation principles for the purposes of protecting and honoring community partner knowledge and culture. As one evaluator added in an interview, "you can't just go waltzing into any tribal community and expect folks to just sit down with you. I mean you need to know who are. Sometimes I have talked to the tribal chairman or tribal council to talk about what I was doing. So, it's kind of the people that know the other stakeholders in the community that can assist you in moving forward with the evaluation processes." In some cases this involved shifting away from traditional questions such as "describe exactly how the research will be carried out" and towards potential new questions such as "how will the community be involved in the research and what levels?" In many cases, evaluators helped build a community advisory board consisting of representatives of the general public who meet with representatives of the evaluation project to relay information between the two groups. In some cases, the evaluator became the intermediary responsible for both honoring the ethics of evaluation practices and protecting community members from potentially harmful evaluation practices. While these properties are suspected to be a reaction to institutional review boards or ethical review boards, as many do not have equity-focused protocols, evaluators described these properties as strategies of fostering equity in evaluation.

Enabling Conditions

Enabling conditions is defined as the situations that must occur simultaneous with a given initiating event to allow the specific cause for achieving equity in evaluation practice. Enabling conditions emerged as the research team reviewed notes, memos, and codes that described contextual and circumstantial elements surrounding evaluators' ability to engage stakeholders on the path to promoting equity in evaluation. In addition to influencing evaluators' ability to engage stakeholders and encompassing the drivers of stakeholders' and evaluators' beliefs and evaluators' strategies, this category emerged from the following categories: *levels and histories of stakeholder involvement*; *leadership and shared stewardship*; *power balance*; *self-collective awareness*; and *capacity*. GIT posits that these categories represent the conditions under which evaluators found themselves more easily ensuring equitable evaluation practices such as sharing power and integrating awareness of histories of collaboration into relationship building.

Levels and Histories of Stakeholder Involvement

Evaluators frequently discussed the varying levels of stakeholder involvement that facilitated equitable evaluation practices, as well as the importance of understanding of and engaging in potential histories of collaboration with stakeholders and community members. When referring to levels of collaboration, some evaluators referenced the Tamarak Institute's collaboration spectrum. This spectrum begins with competition between partners as the lowest form of collaboration and with integration as the highest form of collaboration, with fully integrated programs, planning, and funding. And, when referencing the importance of collaboration, described the importance of considering the histories of the stakeholders the evaluator is working with. This category emerged from the following properties: *information-sharing*, *consensus building*, and *histories of collaboration*.

Evaluators described that the enabling conditions of equitable evaluations relied on information sharing across stakeholders and across the lifespan of the evaluation. However, evaluators often noted that before information exchange could happen, the various histories of stakeholders needed to be both solicited and addressed. That is, the level of exchange of any resource relied on trust and safety building between the evaluator and stakeholders, especially in cases where stakeholders experienced previous harmful

collaborations with researchers and/or evaluators. This was certainly the case when evaluators were working with minority populations. Evaluators described a process of relationship building to understand stakeholder histories not for the purpose of information exchange but for the purpose of consensus building around the potentiality of equitable evaluation practices. Therefore, a product of this practice was increased trust and safety; information exchange followed thereafter. Evaluators saw each of the properties as intertwined and ultimately reliant on the evaluator's ability to critically reflect on the social-structural contexts in which stakeholders are imbedded: "Yeah, especially given, kind of, the historical research in certain communities of color. We're wanting to be really respectful of that history, and that's why we ultimately don't push evaluation."

Leadership and Stewardship

Evaluators discussed leadership and stewardship as a behavioral category giving form to the conditions enabling more equitable evaluation practices. This category consisted of the following properties: dialogue, co-learning and co-creation, and shared governance. The dialogue property emerged out of evaluators reflecting on the importance of transparent communication in the process of determining roles and tasks. Evaluators also discussed dialogue on a spectrum of listening to directing and knowing where to exist on the spectrum in any given dialogue as essential to effective leadership in evaluation: "…listening more than directing. [The evaluation] is way more equal and co-constructed." Both the co-learning and co-creation and the shared governance properties emerged out of evaluators' reflection on the process of sharing power and communicating in a way that invites instead of coerces. Evaluators described relying on built relationships to generate evaluation data and results that reflected a collaborative process involving different forms of knowledge, expertise, and perspectives. While co-learning and co-creation relied on collaboration, shared governance relied on a more structured process for partnership, equity, accountability, and ownership. Evaluators described sharing their ownership over the evaluative process to create a participatory decision-making process as well as put the potential of the evaluation project to be empowering in the hands of those who will operationalize the results of the project. By the same token, one evaluator mentioned that the lack of shared governance, "meant there was no distribution of power. There

should have been a structure in place to identify what everyone's roles were and the expectations for each group and the decision-making process in regard to how the evaluation would be conducted, how the groups would work together. No leadership for how to overcome conflict, which was something that was regularly seen within the partnership because of the lack of structure and leadership."

Power (Im)Balance

The first round of interviews of evaluators, which included 5 semi-structured interviews, did not reveal any properties related to power. In the authors' practice, however, we knew that one of the central issues involved in community-based evaluation is the presence, persistence, and effects of power differentials created by evaluators or preexisting in evaluation projects; one evaluator captured this well, "I think power can corrupt. And I think the negative gatekeeper in this instance, they've gained more power over the last several years. And it's somewhat corrupting, but I also think it's their personality. And I think that they probably value less respect for other people. So, I think it comes down to values, too. And I think they had a lot to gain from being a gatekeeper." Thus, the second round of interviews focused on tensions evaluators encountered and why they encountered them. The category of power (im)balance emerged out these discussions along with the following properties: exposing oppressive contexts, structures, and language, oppressive versus emancipatory, combating hierarchies, and community resilience and strength.

Most evaluators described engaging stakeholders in a process of open communication and deliberative democracy to expose historically and existing co-occurring oppressive contexts (*e.g.*, socially oppressive relationships, policies), structures (*e.g.*, organizational hierarchies), and language (*e.g.*, abstruse or inaccessible academic language). Several evaluators explained that outlining these oppressive contexts in the beginning of an evaluation created space to engage stakeholders on how to combat these elements during or with evaluation: "We really pay attention to power structures and some of the tenants found in culturally responsive evaluation to combat oppressive structures." Evaluators noted that this process was accompanied with discussions and actions around creating evaluation practices that were emancipatory rather than blindly reinforcing existing or potential oppressive evaluation practices. These actions usually accompanied discussions around how to combat hierarchies that exist within institutions such as the

university or government agencies. By challenging inequities inherent in institutions' hierarchies, evaluators were better able to create conditions in which stakeholders could imagine more empowering structures: "This particular side of the project is actually doing a pretty good job with evening out hierarchy that is typically present in evaluations…I guess we are able to talk about inequity and it allows us to combat stuff." On the other hand, some evaluators described leveraging the structural strength of third sector institutions that understood community member priorities. Finally, evaluators grounded conversations and actions in evaluation in community histories of organizing and leadership strengths, particularly in activism. As one evaluator said, "when we talk…it's a very collaborative setting, and everybody was heard, and there was respect and openness. Maybe because as the Native American way we are natural organizers, knowing we are all in this together."

Self-Collective Awareness

As evaluators described their experience of conducting evaluation, they often reflected on the need for both self and collective (*e.g.*, partnerships of stakeholders) awareness. This category emerged as evaluators discussed power dynamics and structural inequities in evaluation projects and refers to the following properties: consciousness knowledge, self, and other. These three properties are intimately tied to one another. Evaluators reflected on situations where being more conscious of their character, feelings, motives, and desires as an evaluator and for the evaluation would have aided in creating more equitable evaluation practices. Evaluators also described needing to develop conscious knowledge around the historical, structural, racial, and economic inequities that exist among and within specific populations and contexts to avoid reproducing inequities within the evaluation: "I educated myself. I looked at socio-historical-ecological maps of people in Wisconsin. So I read every single report on the topic from 1890 to 19070 about black folks in [name omitted] because how do we effectively evaluate without context?"

Capacity

Finally, when evaluators described their ability to facilitate or partake in the conditions in which equitable evaluation can take place, they also mentioned capacity for both the evaluator and stakeholders to engage one another in such a process. The capacity category, or the amount an evaluator or stakeholder

can produce something, consists of the following properties: time, funding, personnel, and community readiness. Evaluators often described their inability to include stakeholders in the evaluation due to a lack of one or more resources such as the lack of funding and personnel allotted to evaluate a community organization's program: "And sometimes, I think that's why the evaluations that I've done haven't' been as participatory as I would like because we've just run out of time." Thus, the capacity category emerged as an enabling condition out of evaluator descriptions of constraints on creating equitable evaluation practices. Evaluators also noted, particularly when facilitating evaluation practices with community partners and members, that some organizations or groups may not be ready to engage in evaluation for several reasons: "Some evaluands just aren't ready and shouldn't even be considering evaluation. When I work with community partners, this is the case more often than not. But, well, funders." Although evaluators did not specifically mention it, their descriptions of encountering varying levels of stakeholder preparedness to engage in evaluation was similar to the stages found in the Community Readiness Model (R. W. Edwards et al., 2000).

The GIT offers a working definition of gatekeeping and a conceptual identity for gatekeepers. The GIT describes themes that influence the conduct of evaluation; identifies the strategies that evaluators use to navigate the social-structural conditions of evaluation projects; and the gatekeeping disruptions that problematize equitable evaluation practice. These themes are interrelated, influencing each aspect and each stage of an evaluation project.

Discussion

Positioning Gatekeeping Influence Theory in the Literature

The purpose of this section is to assess the ways in which the hypotheses and theoretical concepts that emerged from the grounded theory process supports or challenges existing literature. GIT proposes a contextualized and multidisciplinary understanding of relational dynamics in evaluation that is not easily categorized into any of the approaches found in evaluation theories or approaches. GIT brings together social, psychological, and decolonial approaches to relationships in evaluation, addressing several gaps in our knowledge about gatekeeping in evaluation, and informing several existing approaches, theories, and

models used in evaluation. In order of influence, GIT builds significantly on the community-based participatory research (CBPR) conceptual model, participatory evaluation, transformative and empowerment evaluation, feminist evaluation, critical race theory, and the concept and practice of community development.

The GIT is best supported by, and lends to most support to, the contextual and partnership dynamics dimensions of the CBPR conceptual model. The CBPR conceptual model grew out of the examination of the promoters and barriers of CBPR partnerships by scholars at the University of New Mexico Center for Participatory Research and at the University of Washington Indigenous Wellness Research Institute. The CBPR conceptual model focuses on the influence of contextual factors on community-academic group dynamics and how these dynamics go on to influence research and intervention designs. This influence on research and intervention designs then has several interrelated outcomes on the achievement of systems and capacity change, with the CBPR conceptual model focusing on changes in health disparities and social justice (Belone et al., 2016; Wallerstein et al., 2008).

The fundamental differences between GIT and the CBPR conceptual model is GIT's inductive approach to understanding the contextual and relational factors involved in evaluation partnerships; GIT's focus on gatekeeping disruptions; and GIT's focus on power differentials. Thus, GIT builds on the CBPR conceptual model by looking through an evaluative lens to understand the potential dynamics and effects of disruptive relational processes generally created by those who control access to people or information. With the focus on these gatekeeping disruptions, the GIT also questions the purpose of evaluation (and potentially research) within the university as a function of power inequities. Moreover, the GIT goes a step further than the CBPR conceptual model and attempts to initialize how various partnership and relationship dynamics are co-constructed through joint-action and various social-structural contexts (*e.g.*, collaborative histories) that impact relational dynamics such as trust and power differentials.

GIT builds from and adds to participatory evaluation (Cousins & Chouinard, 2012). Traditionally, evaluation has been driven by the postpositivist paradigm that places empirical method and rigor over a concern for the population studied (Greenhalgh & Russell, 2010; Parker, 2004). This view of evaluation

has often worked against the type of participatory process that attends to critical social context issues that affect the program and issue being studied. Traditional evaluation methods leave much to be desired when the voices of the individuals being studied are excluded from the process. Participatory approaches to evaluation (Cousins & Chouinard, 2012; Cousins & Whitmore, 1998) calls for program evaluators to assume the role of independent outsider and knowledgeable insider. Here, the evaluator and the evaluators can better examine and expose the intended and unintended consequences and benefits of the programs. An evaluator, who is a member of the group, or has familiarity and trust with that group, is in a better position to ask the questions to illuminate the complexity of the issue under investigation (Lund et al., 2016). GIT challenges the assumption that there exist clear distinctions between the evaluator as independent outsider and knowledgeable insider, calling for evaluators to consider positionality and social-structural contexts. Additionally, GIT problematizes evaluators who are simply "members of the group," adding factors to consider such as membership dynamics, evaluator reflexivity, and power, factors that add dimension to participatory evaluation's principle of forming trusting partnerships.

Transformative evaluation's axiological assumption is that evaluation must be designed so that is promotes social justice and human rights (Mertens, 2017). The GIT departs from transformative evaluation in two important ways. One, the GIT problematizes both the evaluator who and evaluation that extends from the university and other institutions that are wellsprings of hierarchy and ideological dogma. The GIT suggests that evaluators who take on the role of the social justice advocate are prone to believing that only others are withholding access to people and information and to neglecting to take into account collaborative histories that have occurred long before their evaluation project. Additionally, while the transformative paradigm asserts itself as "a meta-physical umbrella that brings together philosophical strands associated with feminism, critical theory, Indigenous and post-colonial theories" (Mertens, 2017, p. 1), GIT suggests that there are a great number of relational tensions, and strategies to counteract these tensions, that arise precisely because there is a confluence of philosophical and ideological clashes when groups of stakeholders collaborate. Collaborative, participatory, and empowerment evaluation, as outlined in Fetterman and colleagues (2014) article, also highlights the problems of founding and comingling terms

and paradigms when building a conceptual foundation for stakeholder involvement approaches in evaluation. The GIT builds from this article by suggesting the importance of critical awareness around the involvement of stakeholders in evaluation as well as suggesting there are clear distinctions and implications between collaborative, participatory, and empowerment approaches to evaluation, warranting a closer inspection of the relational dynamics in evaluation projects that take on incrementally more community-engaged practices.

GIT also builds from and adds to multiple theories, theories that change the lens through which the evaluator understands social justice, equity, and evaluator reflexivity. Feminist evaluations seek to uncover how gender bias "…is manifest in the major institutions in society … Feminism examines the intersection of gender, race, class, and sexuality in the context of power" (Mertens, 2017, p. 154; Podems, 2010). Thus, a feminist evaluator seeks to improve programs, processes, practices, and/or policies by seeking to uncover the ways in which power imbalances are a function of systemic gender bias, race, and class. In practice, feminist evaluation emphasizes participatory, empowering, and social justice agendas (Howton et al., 2011; Patton, 2010). In addition to examining power imbalances, GIT proposes that the process of improving programs, process, and practices must also consider the evaluand's social-structural context, including prior research and evaluation histories, the evaluator's identity and background, and new and ongoing relationships that create the enabling conditions for equitable evaluation practice. One similarity between feminist evaluation and GIT is the value they place on multiple ways of knowing; this includes an emphasis on researcher reflexivity as a form of self-knowledge. However, feminist evaluation is more specific about how this is done, seeking alternative ways to knowing in programs, policies, and practices apart from explanations grounded in men's reality. GIT, on the other hand, suggests co-creation and joint decision making to seek alternative ways of knowing apart from colonialist knowledge production. In any case, the prioritization of multiple ways of knowing translates into the need for inclusive evaluation practice. Thus, both feminist evaluation and GIT suggest diversifying key stakeholder inclusion to empower stakeholders with different perspectives and identities. Further, Black feminist evaluation (Collins, 1986; Haley, 2019) is slightly more in alignment with GIT since it places more emphasis on interlocking systems of oppression

and examines the types of political economy that are manifest in differences in culture and group membership as expressed as "insider" versus "outsider". While Black feminism captures the unique standpoint that the "outsider within" status can create (Hooks, 2000), which aligns well with GIT, GIT adds that this status is subject to relational dynamics in community-based evaluation projects that complicate insider and outsider demarcations; from the evaluator perspective doing inclusive work, membership status is fluid and often unclear.

In a similar fashion, critical race theory (CRT) and GIT align and depart in several ways. CRT provides the basis for an analytical model that exposes how racism functions in America to oppress racially/ethnically diverse students, particularly African-Americans, to diminish its effects and achieve equality (Cho et al., 2013; Mertens, 2016; Newell & Kratochwill, 2007). Thus, critical race evaluation, combined with elements of participatory evaluation, examines the social contexts of racism in the broader society where minority groups that are the subjects of the evaluation have to be full evaluators throughout the process so evaluators can gain insights into not only racial oppression from the evaluators' perspectives but its many intersections that affect evaluation outcomes, too (Reynolds, 2015). Though not specifically centering the Black experience, GIT builds from this perspective in several ways: 1) making the perspectives of socially marginalized group the central axis around which discourse on a topic revolves by building trusting, transparent relationships with community members; 2) awareness of personal biases through evaluator reflexivity and building Self-Collective awareness; 3) examining histories of collaboration that have reinforced negative understandings of race and race relations based on historical, contextual, political, or other social considerations (Graham et al., 2011).

Finally, GIT supports the role of community development in evaluation. Community development is a process where community members come together to take collective action and generate solutions to common problems. The GIT proposes community development as a strategy in evaluation that enables the conditions for more equitable practice. However, again, the GIT questions the role of the evaluator and evaluation in the process of community development activities. When evaluation is viewed as the professionalization of community development in the form of empowerment evaluation, the GIT suggests

that an array of social-structural, cultural, and relational dynamics must be taken into account. Thus, the GIT ultimately proposes that understanding the contextual and relational factors involved in disruptive collaborations may yield more equitable evaluation practices. For this reason, we must redefine what we mean by gatekeeping and gatekeepers in context of the GIT and the relevant literature.

(Re)Defining Gatekeeping & Gatekeepers

When we set out to understand what was meant when we heard evaluators, researchers, and others use the term gatekeeper, we ran into definitions that identified specific agents as those who controlled the access to other people and/or information within an evaluation project. We listened to presentations by nonprofit leaders and philanthropists who identified gatekeepers as foundations or nonprofits that mediated resource allocation and, in some cases, overemphasized resource protection to the detriment of fulfilling the organization's mission. In these cases, gatekeepers function from a mindset of "no" (*e.g.*, looking for reasons not to fund an organization); lack community engagement; and think in terms of "us" versus "them" when granting resources. Thus, our original definition of a gatekeeper would broadly fit this description; however, the GIT and relevant literature suggests a more nuanced process involved in creating gatekeepers, which we define as gatekeeping.

GIT proposes that gatekeeping is a psycho-social-cultural construct that reflects a process by which gatekeepers, either as an individual (*e.g.*, evaluator) or a group of individuals (*e.g.*, foundations, nonprofits, universities, *etc.*), emerge from contentious inter- and intra-personal dynamics as key decision-makers through which people, knowledge, and data are filtered. In evaluation, the GIT proposes that the effect of gatekeeping is dual. One, that it mediates how well evaluators and their evaluations can attain equity in their projects. Two, that the products of the evaluation are not as reliable or representative. Importantly, the social-structural contexts that evaluators find themselves in has a large impact on their ability to engage stakeholders.

Limitations

One potential limitation to this study, as with any grounded theory study, is the introduction of sampling bias and how the sample may bias grounded theory results. Following theoretical sampling

procedures, we interviewed individuals who identified as an evaluator. After several rounds of analysis, we noticed that a) the data indicated that our interview protocol did not include any guiding questions; that b) evaluators had primarily identified as oriented toward conducting inclusive evaluation projects, including an array of stakeholders; and c) subsequent sampling needed to offer both confirmation and potential refutation of prior findings. Thus, In the second round of sampling, we chose to interview evaluators who did and did not categorize their evaluations as stakeholder-engaged. Reasoning for interviewing evaluators who categorized their work as stakeholder-engaged was driven by data indicating a higher incidence of gatekeeping practices as well as to interview those who align their work with AEA's guiding principles for equitable evaluation practice. Reasoning for interviewing evaluators who did not categorize their work as stakeholder-engaged was to seek counterfactual evidence refuting established categories from prior themes. Thus, our final sample included evaluators who experienced an array of gatekeeping instances irreducible to how they categorized their approach to conducting evaluation. We believe this theoretical sampling method by allowing for diverse evaluator perspectives to contribute to theory construction.

Conclusion

This article presents the empirical foundation for a new approach to understanding the influence of gatekeeping in evaluation and its impact on the achievement of more equitable evaluation practice. The GIT offers a more nuanced perspective of evaluation practices that are aimed at equity and social justice, highlighting how important relational dynamics and evaluation contexts are in building lasting partnerships. Future research is necessary to fully develop the GIT conceptually. We selected evaluators who conduct evaluations using an array of approaches to be included in the grounded theory processes. However, we argue that the GIT would greatly benefit from a complex systems perspective, wherein each stakeholder who was a part of an evaluation was interviewed so that a map of the GIT could be drawn, and the influence of gatekeeping could be better tracked. Thus, we are currently reengaging evaluators from this study, asking them to reconvene stakeholders from their past or current evaluation projects, so that we can build systems maps of the GIT. Future research is also necessary to test the practice application of the GIT. Specifically,

we must expand our inquiry to include others' perspectives, which may include the perspectives of those who participate in evaluation projects rather than those who facilitate them.

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Article 4

Complexity in Networked Coalition Action: The Case of a State-Wide Public Health Community

Coalition

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Abstract

healthTIDE (hT), a multi-level, multi-sector state-wide network of health promotion partners and community coalitions, conducted an evaluation of their theory of change that primarily focuses on creating partnerships across Wisconsin to influence organizations' policy, practice, and environmental (PPE) change efforts. In this paper, I document a retrospective mixed-method systems evaluation of hT's networked coalition action. Using social network analysis and modified causal-loop diagramming, I explore how hT played a key role in facilitating community coalitions in implementing multi-level PPE. Results from this evaluation reveal that hT's networked coalition action provides an important correlation between hT's theory of change and community coalition project outcomes. How hT leveraged their network provides an important step forward to determining the factors involved in collaborative work toward health equity, particularly in context of PPE change. By defining the role hT has played in supporting partnerships and facilitating organizations' goals for positive health outcomes through PPE change efforts, and documenting important evaluation pivot points along the way, I point to a series of next steps in testing their network enroute to examining the use of collaboration to understand organizational decision making in the context of community coalition formation and sustainment.

Keywords: collaborative initiative, PSE change, collaboration, partnership, evaluation, organization

Complexity in Networked Coalition Action: The Case of a State-Wide Public Health Community

Coalition

Evidence for effective collaborative initiatives, including community coalitions and other multi-sector collaborations, is growing (Anderson et al., 2015; Page-Reeves et al., 2014; Watson-Thompson et al., 2018). Researchers have studied both approaches to and the importance and impact of multi-sector collaborative efforts, especially in areas of health promotion and disease prevention (Swinburn et al., 2019). In public health research, approaches involving changes in policies and environments as precursors to systems-level change is the most promising (Koh & Parekh, 2018). Results from whole-of-community interventions, such as Shape Up Somerville (Economos et al., 2007) in the US and Romp & Chomp (de Silva-Sanigorski et al., 2010) in Australia provide further evidence that multi-level collaborations can be effective in policy and environmental change for disease prevention, especially among children.

In light of the successes of previous collaborative initiatives, the last decade has seen innovative, state-wide approaches to improving health emerge, creating both challenges in evaluating these large-scale, multi-sector collaborations and exciting opportunities in multi-level health interventions that span diverse cultures, geographies, histories, and demographics. One such approach is *networked coalition action*, or the bridging of local, place-based public health community partners, coalitions, and participating stakeholders, usually across a state, to create a multi-level relational network for the purpose of achieving scalable, sustainable changes in health and social outcomes. The initiatives and projects that emerge from these networked partnerships reflect the full range of community-engaged projects, from collaborative to empowerment and emancipatory research and evaluation that leverage the dynamic structure of relationships among the network's participating stakeholders.

Given the fledgling nature of networked coalition action in improving health outcomes, a dearth of evidence exists that identifies the elements of successful networked coalition action practices that facilitate participant policy, practice, and environment (PPE) strategies for changes in downstream health outcomes, and many questions remain regarding which factors about this approach might contribute to healthier ecologies. Part of the challenge is gathering evidence from evaluations of coalitions, interorganizational

alliances, cross-sector collaborations, and other community-driven efforts that use collaboration and partnership to influence PPE strategies for positive health change (Trochim et al., 2008). Conventional evaluation frameworks fail to account for the complexity of collaborative efforts, especially those that aim to influence policies, practice, and environments (Bakken, 2018; Moore et al., 2019). This is especially true when the collaborative initiative's goal is to increase health equity, a continuously shifting objective left out of most evaluation models (Hilgendorf et al., 2020). For this reason, evaluations of collaborative initiatives have evolved over the years, shifting away from conventional program theory and embracing more developmental and systems-oriented evaluation activities that aim to understand community-based collaboration as dynamic and adaptive.

In this article, I explore a) the key elements and moments of healthTIDE's (hT)—a state-wide health promotion network—networked coalition action approach in facilitating PPE efforts in two community coalitions; and b) the salient evaluation adaptations that were required to assess the development and impact of the hT network. To facilitate this exploration, I focus on two evaluation questions: 1) How did hT affect partnership and collaboration? And 2) How did partnership and collaboration affect organizations' goals, practices, or partnerships? To answer these questions, I use a novel integrated mixed-methods developmental evaluation that incorporates systems thinking and exploratory systems modeling. This approach will help to retrospectively assess a range of collaborative processes, to narrow in on the elements of hT's theory of change (Appendix A) that seem to contribute most to PPE health change, and to more visually and descriptively explain the state-wide network. This article specifically covers the portion of the evaluation that investigates the presence and effects of collaboration and partnerships related to hT's theory of change's core activities: connection and convening partners for collective action. This portion of the evaluation also investigates the structure of hT's network of community-placed organizational partnerships in one city, a subset of the state-wide network. Using two case studies of reported PPE change, I highlight the elements of hT's theory of change and the attributes of their network that potentially facilitate organizations' use of PPE change strategies for positive health outcomes.

Background

Collaborative Initiative Approaches to Improving Health Outcomes

Collaborative initiatives include a wide array of collective action efforts such as community coalitions, strategic co-funding, and collective impact initiatives. In public health, collaborative initiatives generally focus on health promotion and aim to improve population-level health outcomes by collectively creating important and sustainable policy and environmental changes in different community sectors in which health-related behaviors occur (Flood et al., 2015). For example, a coalition to increase health care access for those experiencing poverty may attempt to transform employer's health care policies, reduce pharmacy fees, and increase access to services through neighborhood clinics and religious organizations (Watson-Thompson et al., 2018a). A partnership goal of population-level improvement differs from more modest preventive interventions or programs that target change in only limited segments of a community to broad, multi-sector, state-wide initiatives that target many health-related indicators (Korth et al., 2018; Kunz et al., 2017). The emphasis on multi-sector collaboration, environmental change, and population-level improvement often involves a greater number and type of intervention components, such as in policy advocacy or mass media campaigns, than local community-based interventions (Roussos & Fawcett, 2000). Regardless of the size of the collaborative initiative, the purpose remains the same: improve health through partnership and collaboration.

Given the diversity of collaborative initiative composition, their structure and organization in public health today is not well researched. While some empirical studies that utilize a multi-sector approach to improve community health outcomes report who their stakeholders are (Griffin et al., 2011; Linowski & DiFulvio, 2012; Thompson et al., 2015), there are currently no cross-coalition studies on the various structures, dynamics, or organization of collaborative initiatives writ large (Kegler et al., 2015). Research seems to either focus on specific forms and practices of multisector collaborations such as community coalitions (Butterfoss & Kegler, 2012; Kegler & Swan, 2011) or empirically examining the effects of community coalitions (Anderson et al., 2015a; Choy et al., 2016). However, one might imagine that the structure of collaborative initiative, composed of organizations across sectors, is naturally hierarchical. That

is, the shape that collaborative initiatives take likely reflects the modes of operations of people and organizations of varying social positions (e.g., government agency versus community organizing group; Barrett et al., 2011). The shape of collaborative initiatives may also be a function of a partnership and collaboration continuum where structural differences are based on how stakeholders are engaged and at which levels of social ecology they operate within and across (Cargo & Mercer, 2008; Israel et al., 2012). Further, in contrast to grassroots community organizing that functions primarily at the resident level and Collective Impact (Kania & Kramer, 2011) that utilizes a top-down approach to systems change, collaborative initiatives embody aspects of both, usually with a focus on community-engagement (Christens et al., 2019). Thus, the structure of collaborative initiatives may vary based on level of stakeholder engagement, who controls the direction of the project, and where the locus of power in driving the project resides (Galea et al., 2019).

While their approach is primarily middle-out, collaborative initiatives that focus on community health outcomes tend to be based on a rich history of community organizing, prioritizing a bottom-up approach regardless of where the locus of their initiative is located (Christens & Inzeo, 2015; Christens & Speer, 2011). They also tend to deploy community empowerment strategies (Laverack, 2004, 2006), and coalition building (Foster-Fishman et al., 2001; Watson-Thompson et al., 2018; Zakocs & Edwards, 2006) strategies. These community-based strategies and approaches consist of residents collaboratively investigating and taking collective action to change health and social conditions of mutual concern ((Christens & Speer, 2011; Wallerstein et al., 2002). The issues and strategies for action are selected by local resident-leaders usually with the goal of building power and sustaining the initiative overtime and across multiple issues (Christens et al., 2019). These collaborative initiatives are generally referred to as community coalitions (Zakocs & Edwards, 2006).

Collaborative initiatives that function through this worldview and focus on community health mobilize community residents to advocate for environmental and policy change to rectify structural inequities (Subica et al., 2016). This is generally done by targeting disparities' root causes in the social and built environment, environmental factors that minimize access to health-protective resources such as

income and social status and constrict residents' healthy behavioral options (González et al., 2012). Collaborative initiatives generally find success in utilizing this approach due to broadening networks of local relationships that builds social capital among individuals who would not ordinarily form meaningful interpersonal relationships (Christens, 2010).

Newer strategies have emerged that shift how collaborative initiatives engage stakeholders and facilitate the process of community health change. Lawlor and Neal (2016) group these newer approaches, collectively known as *networked community change*. Among these approaches are Foth's (2006) Network Action Research, Burns's (2007) Systemic Action Research, Morrison's (2012) Strategic Doing, and Kania and Kramer's (2011) Collective Impact. Each of these approaches to large-scale systems change has a unique set of characteristics governing the process through which they engage stakeholders in learning and action, but they share many commonalities and begin to develop a common process for community change efforts. This common process, or networked community change, is a process that combines context or preexisting ecology of the community, the dynamic structure of relationships among participating stakeholders, and the use of this network structure for the purposes of sharing information to create changes in health outcomes (Lawlor & Neal, 2016). The collaborative initiative included in this article is most closely aligned with this category.

Some researchers argue that collaborative initiative literature and practice needs to return to the basics of community building and empowerment principles, particularly in response to the failings of Collective Impact (Wolff et al., 2016). Thus, the most recent advances in collaborative initiative thinking is couched in the return to the fundamental principles of community collaboration for justice and health equity (Hilgendorf et al., 2020; Wolff et al., 2016). Indeed, the Collaborating for Equity and Justice Principles, generated by Wolff and colleagues (2017) and based on Butterfoss and Kegler's (2009) Community Coalition Action Theory and Wolff's (2010) Power of Collaborative Solutions, reposition collaborative efforts around community organizing and development, empowerment principles, equity, and policy and environmental change. This movement calls for collaborative initiatives to be organized in such

a way that facilitates resident ownership and leadership in determining the collaborative's agenda and resource allocation (Wolff et al., 2016).

Evaluating Collaborative Initiatives

For some, the return to community organizing and development thinking is simply an affirmation rather than an admonition and are looking for more nuanced ways to think about evaluating collaborative initiatives. While lacking a true theory, some researchers are using complexity science to make sense of collaborative initiative structure and dynamics (Hilgendorf et al., 2020; Moore et al., 2020). For example, Hilgendorf and colleagues (2020) use complexity science to make sense of a collaborative initiative with over 150 partners working to provide children with opportunities for healthier eating habits and access to active living. This complexity science approach consists of a three-tiered framework for conceptualizing collaborative initiatives as a complex system. Complexity science may help shed light on the various forms and dynamics of collaborative initiatives while embracing community organizing and development principles of stakeholder engagement and empowerment.

In some cases, researchers conceptualize collaborative initiatives as social networks with the network structure and dynamics described as a function of the initiative's partnerships or social ties. This is likely due to the available salient language of network science to describe different types of ties across a large body of connections. While social ties have often been investigated to understand organizational behavior (Lowndes & Skelcher, 1998; Mcquaid, 2010), little is known about how social ties play a role in community-based research, especially for the promotion of health (Frerichs et al., 2016; Oetzel et al., 2018). What *is* known are some of the effects of social ties on the formation of grassroot coalitions (Israel et al., 2012) and on information diffusion across networks (Matous & Wang, 2019), which will not be covered here due to scope.

Relatedly, evidence of social tie effects on or because of collaborative initiatives is sparse. When conceptualized as networks, collaborative initiatives foster social ties (*i.e.*, partnerships) for positive community health outcomes, especially if the initiative works from preexisting relationships and is seen as a leader by other organizations (Bess et al., 2012). Organizations within collaborative initiatives that have

preexisting ties with community stakeholders are more likely to participate in new coalitions together as well as more readily share information across the network (Luke et al., 2013). These findings are bolstered by results of collaborative initiatives that focus on increasing capacity and collaboration due to the associated increase in tie density (Schoen et al., 2014) and strength (Kothari et al., 2014). The causal mechanisms of the effect that social ties have on PSE change or health outcomes are still unknown, and better, more nuanced strategies for evaluating collaborative initiative networks and partnerships are needed (Hilgendorf et al., 2020).

Collaborative initiatives that perform networked coalition action tend to be based on many of the concepts, approaches, and principles outlined above. Fundamentally, they value connection, relationship, organizing, and action, viewing the combination of these as a networked approach to create capacity, social capital, and greater potential for large-scale health change (Adams et al., 2016; Korth et al., 2018). These values are reminiscent of community-based participatory research principles that define community as a unit of identity; that builds on the strengths and resources within the community; that facilitates collaborative, equitable partnership in all phases of practice; that promotes co-learning and capacity building among all partners; and that promotes coalition practices as a long-term process with a commitment to sustainability to address the social determinants of health (Moore et al., 2020; Oetzel et al., 2018). However, there are several key differences. Although improvements have been made to increase resident engagement, networked coalition action groups are noticeably removed from the particulars of resident experience. The nested fashion of networked coalition action groups that span large geographies inhibits easy and intimate community-based practice. Instead, these groups mainly work with state and local departments of health, education, and child welfare; mid-level managers whose role is to decide which programs, practices, and tools to adopt and shape the conditions for intervention implementation; and other key decision makers that shape the production of research, evaluation, and practice such as policy makers, think tanks, advocacy groups, consultants, professional associations, and others. Thus, networked coalition action groups act as intermediaries that help shape coalition efforts and facilitate health promotion by connecting, convening, and catalyzing collective action at a larger scale. They are neither entirely bottom-

up nor top-down approaches to community health improvement; they are middle-out approaches with anchors in multiple social ecologic levels.

Evidence for Collaboration and Partnerships for Health Promotion

In the last two decades, research evidence on the effectiveness of public health community-based collaborations has flourished. Over a dozen studies report the use of collaboration and partnership to reduce health disparities among racial and ethnic minorities (Anderson et al., 2015a); reduce and prevent Hepatisis B and Liver Cancer (Bailey et al., 2011); increase Mammography among rural women (Bencivenga et al., 2008); reducing food insecurity in an Indigenous reservation (Blue Bird Jernigan et al., 2012); reducing cardiovascular disease (Brownson et al., 1996); increasing safe routes to school (Pelletier et al., 2018); and many other examples related to coalition action for community health improvement, including the well-known Shape Up Sommerville collaborative initiative that effectively reduced childhood obesity in Sommerville, MA (Appel et al., 2019). Each of these studies underscore the power of multisector collaboration with many implementing multilevel health multilevel interventions in the form of policy, practice, and environmental change strategies (Choy et al., 2016; Economos & Hammond, 2017). However, while there is growing consensus about the effectiveness of community coalition activity in improving community health, very little is known about the optimal structures, dynamics, and decision-based behaviors of the collaborations that lead to maximal community health impact. This is especially true for networked coalition action groups. More research is needed to understand how coalition groups, whose work and partnerships span multiple ecologic levels, form and sustain themselves to impact systems change for positive health outcomes.

The Collaborative Initiative: healthTIDE

healthTIDE is a state-wide network of community-placed partners involved in a range of health promotion activities. Today, hT's network consists of over 3000 individual partners at over 600 organizations (Table 1) committed to improving the health of the people of Wisconsin. With a networked approach, hT aims to enhance collaboration and partnership through a novel theory of change that centers connecting, convening, catalyzing, and collective action as core elements for achieving PSE health

outcomes (Appendix A). These core elements are believed to be critical to achieving three shared goals: 1) To support thriving place-based partnerships locally and statewide, 2) To build greater awareness and public support for health-related issues, and 3) To create stronger investments in policy, systems, and environmental change related to healthy eating and physical activity. Examples of this work include more congruent access to biking and walking trails, healthier kids' meals on restaurant menus, implementation of a social marketing campaign for fruits and vegetables, and childcare centers offering farm to early childhood education opportunities which includes tasting local produce.

Table 1

hT Network Stakeholder Stratification Aggregated at Organizational Level (N=615)

| Organizational Attribute	Number of Organizations
Sector	
Public	303
Private	76
Government	173
Community	56
System	
City Planning	8
Community Development	123
Criminal Justice	3
Early Childhood	32
Education	87
Environmental Protection	10
Faith	3
Food Systems	54
Funding	13
Healthcare	82
Housing	3
Media	1
Other	21
Physical Activity	11
Politics	17
Public Health	130
Transportation	12
Level	
Local	362
Regional	65
State	132
National	45
International	6

Evaluation Design

For over six years, hT has assessed whether and how connecting and convening place-based community partnerships has influenced their network of community partners and coalitions. During this time, various evaluation activities were employed under traditional linear approaches (*e.g.*, pre/post comparison of outcomes) to determining the value, worth, or merit of an intervention. However, the indicators and other criteria needed to evaluate network coalition action are not well documented (Hilgendorf et al., 2020), leaving evaluators with a dearth of resources to measure collaboration and partnership progress. hT decided that a linear approach to exploring the effects of their collaboration was inappropriate and ineffective, noting that future evaluation practices must align with the nature of their organization and their work: adaptive, iterative, and developmental.

Thus, hT embraced a systems-oriented approach that combined mixed methods developmental evaluation, systems thinking, and complex system concepts (Figure 1; Hilgendorf et al., 2020). We turned to literature for validated, iterative measurement approaches that also acknowledged the adaptive nature of the object under investigation (Wallerstein et al., 2002). Using this approach, we also turned to the hT network to explore potential criteria to focus on during evaluation. We found that partnership and collaboration were the essence of the network and hT's theory of change; and, with these criteria in mind, we leveraged existing data and applied appropriate systems science methods. This approach is iterative and can aid in learning more about the aspects of networked coalition action we do not yet understand, as well as inform future data collection.

The design included five mutually reinforcing phases. Phase one utilized a stakeholder analysis to inform evaluation planning; a comprehensive database of multi-sector and multi-level community partners aggregated at the organizational level was generated to provide a better understanding of hT's network and curate potential community partners for inclusion in evaluation activities.

Figure 1

Systems-Oriented Evaluation Design for Cross-Case Analysis
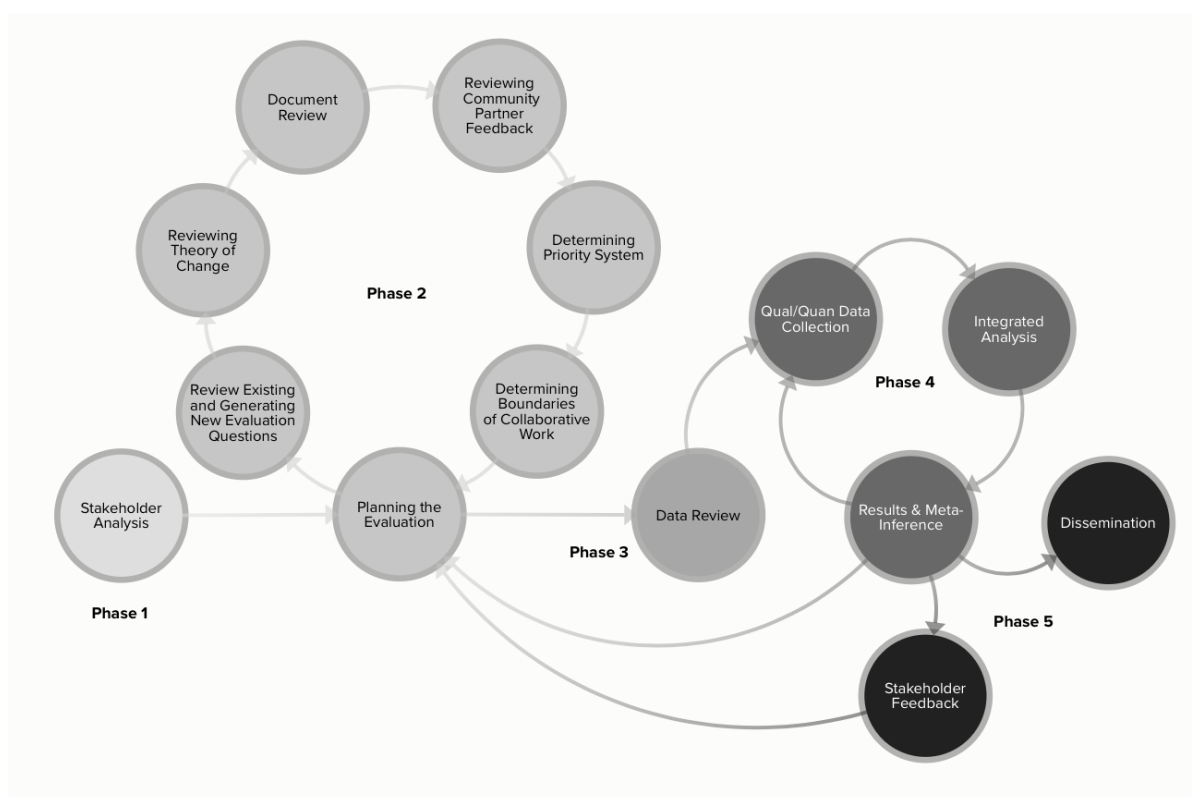
Phase two involved planning the evaluation, which included a formalized review of hT's previous evaluations (e.g., data collected and analyzed), theory of change development, and documents (e.g., meeting notes, strategy sessions), and refined the evaluation design with community partner feedback via informal conversations. As feedback was integrated, we determined which priority system to focus on. In other words, we chose to focus on the dynamics of collaboration and partnership as opposed to, for example, community partner satisfaction with the hT network. This choice was driven by one-on-one community partner feedback, results from previous hT network surveys, and discussions with hT staff on which aspects of their theory of change was most salient with their work. Next, we defined the boundaries of the evaluation activities. This step involved choosing suitable methods available for capturing relationships and examining perspectives, while also attending to practical constraints such as time and capacity. Out of these steps, two evaluation questions emerged as the most salient for current organizational needs (Table 2). A combination of computational and systems science methods was selected in congruence with the primary evaluation questions and available data.

Table 2

Evaluation Questions and Related Analyses

Evaluation Question	Analysis Organization & Integration
1. How did hT affect partnership and collaboration? 2. How did partnership and collaboration affect organizations' goals, practices, or partnerships?	*Case Studies* Story mapping, ripple effect mapping, causal loop diagraming, LDA topic modeling, TFIDF; *Network-wide Analysis* ego-centric regression, social network analysis, causal loop diagramming

Phases three through five of the evaluation design consisted of evaluation implementation. A full review of hT's previously collected data informed the development of a cyclical and iterative process of new data collection and analysis, and in turn we used the results to further refine data collection and sampling procedures (Table 3). Taking advantage of hT's existing data and newly planned data collection in the form of interviews, focus groups, and surveys, we either quantized or qualitized data to proceed to mixed data analyses (Teddlie & Tashakkori, 2009). Quantitative and qualitative data collection and analyses were conducted simultaneously; data collection incorporated rapid response feedback from community partners for mixed analysis.

Table 3

Summary of Integrated Data Review & Collection in Preparation for Analyses

Data	Reviewed or collected	Qualitized or quantized	Resulting analysis	Level of Result Integration
hT staff documents (e.g., team meeting notes)	Reviewed	Quantized	LDA topic modeling	
hT interviews, focus groups and convening notes	Reviewed and collected	Quantized	Inductively coded and thematically analyzed, story and ripple effect mapping, causal loop diagramming, LDA topic modeling	Qualitative and Quantitative results given equal consideration in result integration and interpretation
hT surveys	Reviewed and collected	Qualitized only for participant holistic* profiling	Regression analyses, descriptive statistics,	

	(e.g., frequency distributions of numeric responses)	ego-centric regression, social network analysis

Note. Teddlie & Tashakkori (2009)

Outcomes harvesting through story mapping had already begun when this evaluation was initiated; ripple effect mapping and causal loop diagramming were methods chosen to extend the usefulness of ongoing story mapping and deemed critical to investigating more specifically the role hT played in each case study (Table 4). Then, to expand the inquiry beyond campaign-specific boundaries, we chose several methods that would both utilize existing data (e.g., meeting notes, surveys) and extend the investigation to the state level. LDA topic modeling was chosen to utilize meeting notes and interviews with the advantage of exploring text-based themes across a range of stakeholder groups. Ego-centric regression was chosen to utilize survey data and to relate the predictive value of collaborative attributes at the organizational level back to the case study diagrams and the social network analysis. Finally, social network analysis was chosen to examine the hT network organizations' partnerships with the goal of providing a snapshot of the state-wide network with and without hT in one city. Taken together, these methods offered a more systemic portrait of hT's role in facilitating organizational partnerships and collaboration at the local, community, and state-wide level. This process proceeded cyclically, and results were iteratively provided to community partners for feedback to validate findings.

Table 4

Summary of Analytic Methods and Descriptions

Portion of The Evaluation Design	Analytic Method	Description
Case Study of Two Coalitions	Story Mapping, Ripple Effect Mapping, & Causal Loop Diagrams*	Combination of exploratory interviews, focus groups, and cause-and-effect diagrams to track or analyze progress toward outcomes
City-wide	Social Network Analyses	Network analysis of organizational node and edge attributes
Entire Network	LDA Topic Modeling	Computational method to generate substantive topics based on words used across a range of documents
	Ego-centric Regression	Organizational level regression analyses for predictive models pertaining to partnership and collaboration

Outcome variables: frequency of collaboration, health equity practices

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Note. These analytic methods were combined to provide information-rich maps specified for hT's role in achieving stakeholder reported PSE health outcomes.

healthTIDE's Evaluation Results

hT decided on multiple case studies that could highlight their involvement in several key state-wide campaigns that have had noticeable local policy, practice, and environmental (PPE) changes (Kegler et al., 2015). Each case study was chosen in conjunction with hT staff by deciding which community coalitions were successful in achieving significant local PPE changes. Additionally, hT staff were asked which campaigns they had the most data on, which coalitions they could easily access a range of stakeholders for additional data collection, and which coalitions were perceived to be highly influence by the hT network. Out of these conversations, we chose two coalitions that span different PPE health outcomes to uncover hT's influence on these collaborations.

Case Studies

Two case studies were generated using a combination of story mapping, ripple effect mapping, and causal loop diagramming. The goal of combing these systems mapping approaches together was dual. One, the combination allowed for participatory and responsive qualitative and quantitative data collection so that each coalition could be represented from multiple stakeholder perspectives. Two, the combination allowed for simultaneous data review and collection to proceed with the goal of holistically exploring whether and how hT contributed to organizations' partnerships and organizations' goals for local PPE health changes. Table 5 provides a summary of each case study description, stakeholders, and data review and collection. Figure 2 represents a synthesis of both case study causal loop diagrams.

Table 5

Case Study Descriptions

Case Study Title	Description of case	Description of stakeholders in each case	Number of interviews

| Fruits and Vegetables (FNV) | Healthy food retail campaign to increase access to and amount of fruits and vegetables in local food retail stores across Wisconsin. | State, city, local community | 24 |
| Wisconsin Active Together (WAT) | Coalition of health promotion partners invested in bringing awareness to health concerns throughout the state by highlighting community partner voice | State, city, local community | 18 |

Note. Existing and newly conducted interview data combined.

Fruits and Vegetables Social Media and Retail Marketing Coalition

The fruits and vegetables (FNV) case study is of a healthy food retail coalition that aims to increase access to and the amount of fruits and vegetables in local food retail stores across Wisconsin. Stakeholders within the fruits and vegetables (FNV) social media and retail marketing campaign described a narrative that situated hT at the nexus of campaign movement beginning from obtaining funding to present day environmental changes in food retail stores across Wisconsin.

Twenty stakeholders within the FNV campaign were interviewed and four focus groups were conducted to broadly explore the outcomes of the project, leaving the discussion open for stakeholders to describe elements of collaboration and partnership on their own. Consensus around outcomes of the project was achieved through both semi-structured interviews and focus groups. Stakeholders noted that hT facilitated engagement of 30 retailers, changing marketing on 15 billboards, over 17,000 transit impressions (i.e., pedestrian marketing sightings of the FNV campaign), and over 55,500 social media impressions (i.e., views and likes). With these outcomes, we worked backward to understand how hT contributed to facilitating the campaign.

With 43 identified variables that represented the key processes and variables that lead to marketing changes in 15 communities in Wisconsin. Connecting the 43 variables are 78 ties resulting in 5 reinforcing loops. Thematic analyses from stakeholder interviews and focus groups revealed six different tie attributes that contextualized the reinforcing loops. Discretely, there were 25 *facilitated information exchange*, 10 *used social capital*, 11 *catalyzed or pooled resources*, 18 *trust*, 1 *supportive effort*, and 19 *used convenings for consensus building* ties. The facilitated information exchange tie was described as hT staff who moderated or mediated the diffusion of information from one variable to the next. The catalyzed or initiated

movement tie was simply described as hT staff taking initiative to prompt and quicken project progress. The used social capital tie was characterized by leveraging existing connections and partnerships to, for example, find funding, gain access to community partners, or increase local feedback using surveys. The used convening tie was described as hT staff hosting in-person meetings or conducting conference calls to ensure consensus and information exchange.

Additionally, each map incorporated loops, strength of ties, and delays. Stakeholders noted reinforcing and balancing loops where cause and effect actions were noticed related to generating PSE health outcomes. Tie strength was assigned to linkages that stakeholders identified as especially important. For example, stakeholders identified hT using social capital to gain support from UW-Extension as an important element pushing the campaign forward. Finally, linkage delays were included in each diagram to denote significant temporal delays in the campaign. These delays were generally marked by hT stepping in to catalyze campaign movement (*e.g.*, implementation), as noted in their theory of change.

Wisconsin Active Together

Wisconsin Active Together (WAT) is a coalition of multi-sector and multi-level health promotion partners invested in bringing awareness to health concerns throughout Wisconsin by highlighting community partner projects, coalitions, and other collaborative health initiatives through an online application process. Sixteen purposive interviews and two focus groups were conducted in the same manner as before with the goal of identifying key instances of hT's role in facilitating local PPE health changes.

Stakeholders within the Wisconsin active together (WAT) alliance described a complex process of internal struggle to define their campaign and subsequent ease (comparably) of generating community partner voice and visibility for local policy awareness, support for change, and efforts. With 27 variables, 54 ties, the WAT stakeholders identified the key outcomes of increasing community partner voices, connections, and visibility across Wisconsin to support local policy change and other policy efforts. Thematic analyses from 16 stakeholder interviews and 2 focus groups revealed the same six tie attributes as the FNV social marketing coalition. In this campaign, however, there were 16 *facilitated information*

exchange, 1 *used social capital*, 4 *catalyzed or pooled resources*, 9 *used convenings for consensus building* ties, 12 *trust*, and 12 *supportive or backbone efforts* ties.

Stakeholders noted reinforcing and balancing loops where cause and effect actions were experienced related to generating PPE health outcomes. For example, an increase in WAT coalition funding efforts increased the number of grant applications which, in turn, increased the use of funds for coalition efforts. Linkage delays in this diagram were emerged between hT linkages identified as catalyzing, using social capital, and convenings.

Summary

Table 6 summarizes the types and frequencies of ties that emerged across the case studies. Figure 2 represents this summary visually, synthesizing themes from both coalitions. hT was identified as facilitating the exchange of information more than other ties. The second most frequent tie reported by stakeholders was hT's use of convenings. These findings support the thesis that hT functions as partnership and collaboration facilitators. Figure 4 translates the systems mapping processes from both coalition case studies into a synthesized version that highlights the key variables that emerged as the hT's network's constructs essential to forming and sustaining community coalition efforts. Information exchange (41 instances), trust (30 instances), and consensus building (28 instances) played the largest roles in forming and sustaining coalition activities, followed by pooling resources (*e.g.*, time, money; 15 instances). An additional construct deemed less essential by stakeholders was social capital (*e.g.*, coalition member knew a member of a funding panel; 5 instances).

Organizations across both coalitions described very similar interactions among these identified constructs. They reported that forming a coalition depended on preexisting, trusting partnerships with other interested organizations; information about of available funding; shared coalition purpose and goals; and awareness of the status of county residents' chronic diseases, such as rates of obesity and heart disease. Decisions to remain in and sustain the coalition depended on higher-than-average levels of information exchange among organizations; average or higher than average levels of trust; stable availability of funds;

time; capacity to accomplish the work of the coalition; and ongoing coalition mission and strategy implementation consensus.

Table 6

Summary of Ties Across Case Studies

Campaign	FNV	WAT	Total
Social capital	4	1	5
Information exchange	25	16	41
Consensus building (convenings)	19	9	28
Trust	18	12	30
Catalyzing (pooling resources)	11	4	15
Supportive efforts (technical assistance)	0	12	12

Figure 2

The healthTIDE Network's Key Variables in Facilitating Network Coalition Action
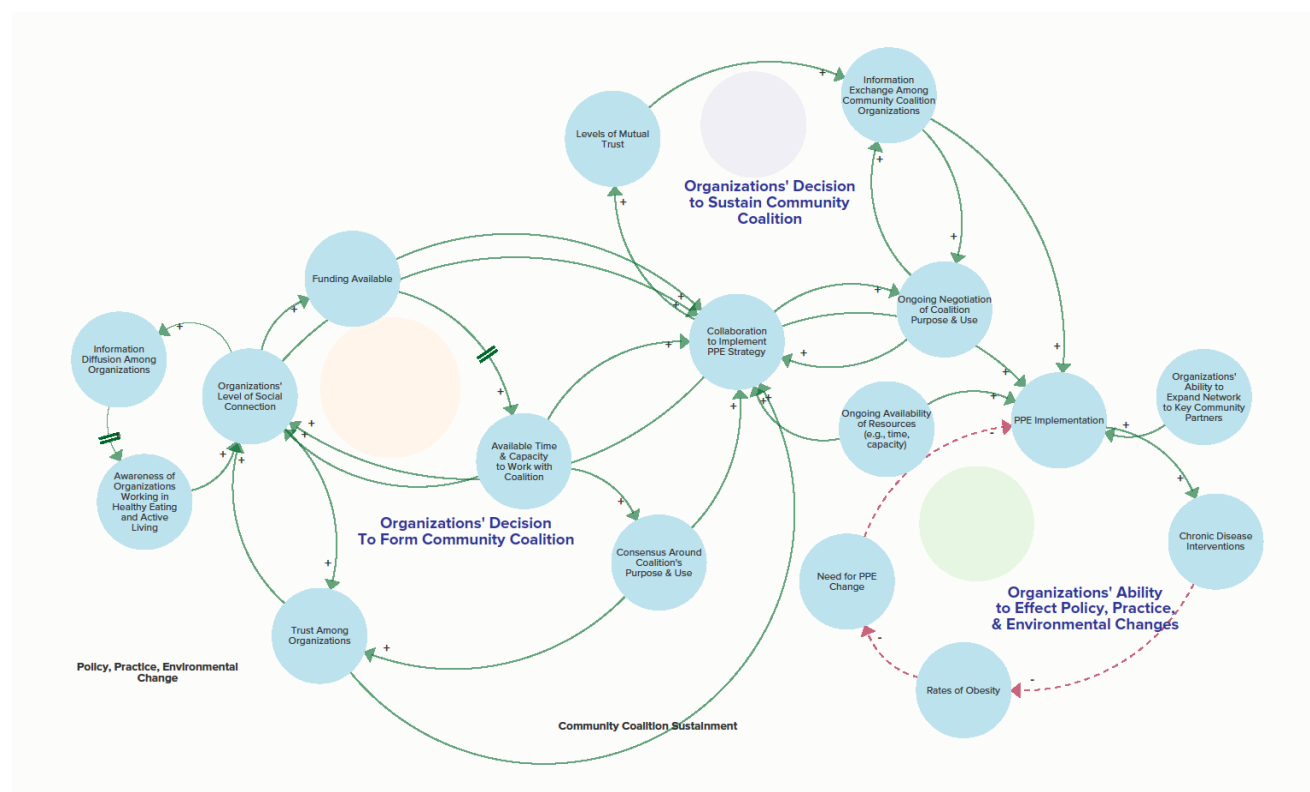
Network Results

While completing the two case studies, the evaluation team began to look at hT's larger network with the goal of understanding how partnership and collaboration was impacting organizations across the state engaged in PPE health. To do this, we gathered hT's existing whole-of-network data from the previous six years and ran three analyses that capitalize on meaningfully exploring data (e.g., meeting notes) that generally remains unexamined in evaluations of collaborative initiatives writ large. For now, these results are meant only to be a snapshot of the network, analyzing only a sample of the hT network in each method.

LDA Topic Modeling

Given existing data, the evaluation team moved to explore themes in documentation, interviews, and meeting notes, by running Latent Dirichlet Allocation (LDA) topic modeling using TF-IDF (McHugh et al., 2020) conducted in Python Version 3.8.3 and compared themes across coordinated campaigns and internal staff meetings. Topic modeling is a type of statistical modeling for discovering the abstract "topics" that occur in a collection of text. LDA is one example of topic modeling and is used to classify text in a document to a topic. Running LDA using TF-IDF allows for the user to distinguish different topics using the words in each topic and their corresponding weights. The goal of this method was to explore the discursive ways in which hT staff and community partners were talking about collaboration. By generating topics across a large amount of data collected over time, LDA topic modeling can be a creative and effective method for exploring topical themes based on the words used across multiple documents. To guide and focus this method, we asked: 1) "What are the topics related to collaboration that emerge across texts? And "Are there differences between how hT staff and community partners view partnership and collaboration?" This method utilized six years of hT staff weekly meeting notes, coalition meeting notes, and 40 coalition interview transcripts.

LDA topic modeling (Table 7) revealed the topics that arose across the corpus of text demarcated by ht staff and coalition perspectives. We completed LDA for 10 topics and found that three topics resulted in the largest number of topics with little to no topic overlap. For hT staff, which includes data from meeting notes, team meeting notes, and staff interviews across six years, the three topics centered around words

such as "measure" and "how". The highest topic probability was generated around words that pertain to convening community partners across the state. For community partner data, topics pertained to coalition planning, building consensus around priority goals derived from pertinent local public health concerns, and coalition needs to accomplish the goal. Topics centered around words such as community or together. The highest topic probability was generated around words that pertain to community, unity, and think.

Table 7

Potential Topics Generated by LDA Topic Modeling

Topic Number	hT Internal Data Topics	Associated Words	hT Community Partner Data Topics	Associated Words
1	Strategic planning	Evaluation, implement, convene	Priority goals	Community, goals, unity, think
2	Mission orientation	How, partner, change	Priority concerns	Healthy eating, physical activity, revitalization, issues
3	Nature of partnerships	Hard, collaboration, community	Priority needs	Help, direction, capacity, resources

Ego-Centric Regression

hT has conducted a network-wide survey every other year since its inception in 2013. Using the results of this survey, which mainly asked questions about community partner satisfaction, and newer items on health equity, policy engagement, and organizational attributes, we aggregated individual level data into organizational level data to run ego-centric analyses (each ego corresponding to an organization). Multivariate linear and logistic regressions were run to explore predictive models of organizational participation in health equity practices, willingness to engage in policy work at the local and state levels, and a range of social network attribute questions that involve elements of collaboration, partnership, and connection with other organizations. This analytic strategy was chosen to investigate how hT community partners perceive hT affecting partnerships and collaboration and how that might be linked to organizational practices (*e.g.*, PPE change efforts). This analytic strategy was also chosen concurrent to the campaign case studies to further contextualize hT's network-wide effect on partnerships.

Health Equity and Policy. The hT network survey asked whether and to what extent their organizations engage in health equity practices. For organizations (N=115), collaborating with hT was the single most significant predictor of higher health equity practices ($p < .01$). A more robust model was isolated using multiple linear regression to predict organizational health equity practices based on collaborating with hT, the average amount of trust across all organizational alters, and ratings of organizational alters' willingness to talk about issues relevant to health equity and health promotion for PPE change ($F(3,112)=34.88.x$, $p<.001$; R^2 of .712). The hT survey also asked a range of policy-related work questions related to an organizations orientation to and effort in changing health policies. Most relevant for these analyses, we explored whether a model could be found that successfully, significantly predicts hT community partners' organization's willingness to engage in policy-related efforts. Collaborating with hT was the only significant predictor of organizations' willingness to engage in policy-related efforts ($F(1,114)=24.11$, $p<.01$; R^2 of .433).

Organization and Alter Attributes. Multivariate regressions were used to explore the value of organizations' alter attributes (*e.g.*, frequency of collaboration, partnership, and connection) in predicting the frequency of collaboration (low or high) in the hT network among participating organizations. Because collaboration with hT seemed to be a meaningful independent variable for predicting organizational health equity practices and willingness to engage in policy-related work, a multiple linear regression was calculated to predict frequencies of collaboration with hT based on other organizational alter attributes. The most predictive model with the highest R^2 value predicted hT collaboration frequencies based on organizational alters' frequency of professional engagements relative to other types of contacts, frequency of identifying organizational ties as friends, the frequency of new projects started due to being connected to other organizations in hT, and the ability to talk about issues with their organizational alters.

Social Network Analysis

Finally, hT staff and community partners have expressed interest in how the network might be affecting organizations' partnerships as well as participating organizations' ability to implement and achieve local changes in health PPEs. The data that we employ in this analysis are comprised of six years

of compiled state-wide survey data that asked health promotion leaders about their relationships with other organizations (*e.g.*, who they most closely work with to promote health). Figure 3 depicts these organizations as social network "nodes", with different colors indicating organizational mission or goal. Connections between nodes represent one or more leaders of an organization identifying the other as a source of collaboration. The size of nodes is based on indegree, or the number of other organizations whose members chose to identify an organization as a source of collaboration.

Figure 3

healthTIDE's Madison Network of Organizational Connections

Note. Central green node is healthTIDE, central pink node is DHS, central light green node is UW-Madison, and off-center purple node is UW-Extension. Node size is by indegree.

The healthTIDE (hT) network in Madison is well connected (126 connections). At a 125 indegree (Table 8), or the number of incoming connections, hT is the organization that is most frequently identified as an important partner by leaders of other organizations, followed by a 96 indegree for the Department of

Health Services (DHS). These organizations have a broad reach, playing a pivotal role in sharing information with other organizations and shaping the actions that they take. For hT, this is likely the result of the concerted efforts of hT team leaders to convene community partners and connect community partners to one another.

Figure 4

Madison Network of Organizational Connections without healthTIDE
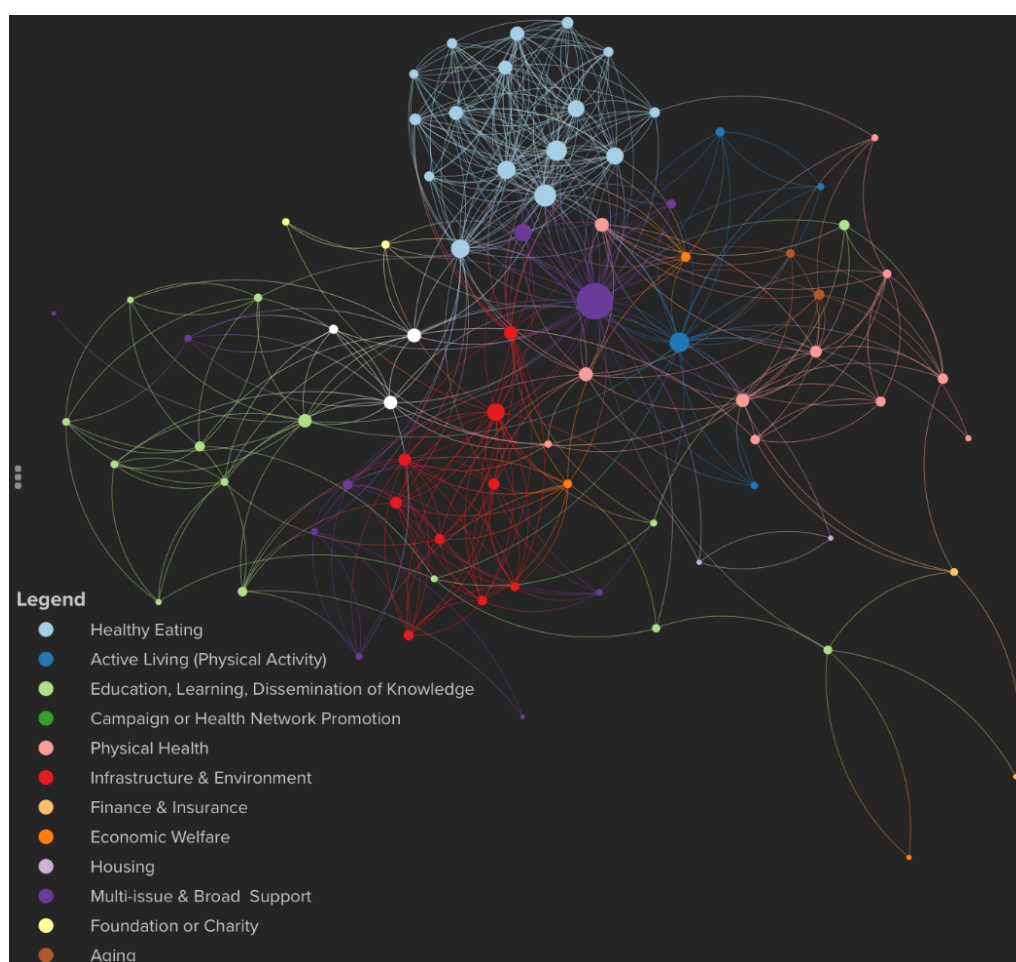
Note. Central purple node is UW-Extension. Node size is by indegree.

Analyses identify distinct clusters within the network that align to organizational types (*i.e.*, organizations within this network tend to be connected to others that share a similar focus). As seen in Figure 4, and quantified in Table 8, hT has multiple connections to each organizational sector; removing hT results in a dispersed, more segregated network. The removal of healthTIDE also leaves organizations

with specific missions clustered to themselves in several cases. For example, connections among organizations whose mission is to improve healthy eating are dense, clustered away from frequently collaborating with other health promotion organizations in other areas such as infrastructure and environment.

Table 8

Attributes and Values of a Social Network With and Without the healthTIDE Network

Attribute	Attribute description	With hT (average)	Without hT (average)
Indegree	Measures the number of incoming connections for an organization. Organizations with a high indegree are the leaders of a network, looked to by others as a source of advice, expertise, or information.	20.80	11.60
Closeness	Measures the distance each organization is from all other organizations. In general, elements with high closeness can spread information to the rest of the network most easily and usually have high visibility into what is happening across the network.	.60	.48
Betweenness	Measures how many times an organization lies on the shortest path between two other elements. In general, organizations with high betweenness have more control over the follow of information and act as key bridges within the network. They can also be potential single points of failure.	.006	.01
Eigenvector	Measures how well connected an organization is to other well-connected elements. In general, elements with high eigenvector centrality are the leaders of the network, though they may not have the strongest local influence.	.01	.01
Reach	Measures the portion of the network within two steps of an organization. In general, organizations with high reach can spread information through the network through close organization-to-organization contacts.	.95	.75

Discussion

Collaborative initiatives are hybrid alliance partnerships that include organizations from multiple sectors, such as schools and business, working together to achieve a common purpose (Anderson et al., 2015b; Kania & Kramer, 2011; Roussos & Fawcett, 2000). Under the collaborative initiative banner, community coalitions mobilize community representatives from an array of sectors to work collaboratively with public and private organizations to identify common health issues; develop program or policy

interventions; and attempt to sustain community-level change that supports health-promoting opportunities and behaviors (Anderson et al., 2015b; Liao et al., 2011). The strengths of community coalitions are imbedded in the notion of community participation, or placing value on members' knowledge of 'what matters', and the pooling of local community knowledge and resources with external partners' contribution of financial and technical support to achieve common goals (Anderson et al., 2015b; Ross C. Brownson et al., 2006; Nilsen, 2006; Roussos & Fawcett, 2000). The results indicate that hT, formally known as a state-wide health promotion *network*, exhibits many of these traits; traits that align well with Lawlor and Neal's (2016) networked community action. hT combines the benefits of community participation, the pooling of local community knowledge, and the dynamic structure of relationships among participating stakeholders to mobilize coalition action. Like community coalitions, hT has been effective at creating substantive and sustainable PPE interventions for community-wide systems change (Watson-Thompson et al., 2018b; Vlahov et al., 2007; Organization, 2008; Kegler et al., 2008).

However, in hT's case, the process by which that happens is potentially different given that hT is once removed from community coalitions implementing multi-level interventions. hT plays the role of cross-community organizing, improving upstream health determinants by supporting infrastructures of social services, capacity building, sense of community, and synergistic efforts to increase the flow of information, expertise, and resources (Christens et al., 2016). The evaluation of hT indicates that mobilizing multi-sector collaborations involves complex and dynamic community systems in which coalitions are largely shaped by network-related characteristics, as evidenced by the identification of network-related characteristics essential to determining how community coalitions included in this evaluation were impacted.

Of these network-related characteristics, the causal loop diagrams generated from the case studies showed that information exchange, trust, convenings for consensus building, and catalyzing (pooling resources) emerged as the most important in mobilizing the network for collective action—characteristics that have support elsewhere in the literature as follows. Information exchange comprised of acquiring information about community health issues and community context; of other organizations and coalitions

working toward to same health goals; of local context (including social norms, beliefs, and values); and of where coalition formation is taking place (Arnold, 2011). As indicated by the case studies, information about these factors is crucial at the beginning of coalition formation (Christens, 2019; Ostrom, 1990, 2010) but also mediates subsequent coalition activities via information exchange.

Trust played a mediating role throughout the life course of a coalition, and is needed for accurate and timely information exchange (Christens, 2019; Wolff, 2001a, 2001b). For ht, during coalition formation trust was based on prior experience working with organizations forming a coalition (*e.g.,* prior organizational collaboration or interpersonal networks and relationships) and other relational factors such as perceived social capital (Poortinga, 2012) of the forming coalition and any existing informal divisions, factions, or groups that give rise to community politics (*e.g.,* power; Butterfoss & Kegler, 2012; Kegler et al., 2010; Kegler & Swan, 2012). During coalition implementation and action, hT facilitated trust in the form of close and frequent collaboration with other organizations; close interpersonal ties moderates both the decision to continue participating in the coalition and the implementation of PPE strategies (Atouba, 2016; Chow & Chan, 2008; Poortinga, 2012).

hT convened stakeholders to establish common goals and perspectives during coalition formation and allowed for consensus throughout coalition activities, which has been shown to greatly influence whether organizations will join and remain in coalitions (Allard & Small, 2013; van Zomeren et al., 2004). This consensus building across activities is essential for coalition functioning (Christens et al., 2016; Korth et al., 2018) and feeds into whether organizations perceive coalition goals as congruent with their own goals and perspectives (Christens, 2019). This evaluation and others also indicate that coalition consensus is vital for effective PPE implementation (Dillahunt-Aspillaga et al., 2019; Foster-Fishman et al., 2001; Korth et al., 2018). Finally, hT pooled resources (*e.g.*, funding), which played a mediating role in organizations choosing to join and commit to coalitions throughout the coalitions' lifespan as well as sustaining coalition strategy implementation (Thomas et al., 2012; van Zomeren et al., 2008; Zomeren et al., 2012). Organizations often conduct formal or informal cost-benefit analyses of joining coalitions, which are central

to organizational decision-making and intervention implementation (Anderson et al., 2015b; Communities Putting Prevention to Work Program Group et al., 2012).

Network analyses from this study indicate the importance of networked coalition action groups like hT to increase the density of connections among health promotion organizations. Organizational networks (Godart & Claes, 2017) in public health (L. M. Frerichs et al., 2013; Galea et al., 2019; Le Feuvre et al., 2016; Lowndes & Skelcher, 1998; Mcquaid, 2010) are known to be a premeditated structural, collective strategy to 1) increase the flow of information across organizations (Kothari et al., 2014; Luke, 2005; Matous & Wang, 2019; Shearer et al., 2014); 2) increase policy diffusion into practice(Russell et al., 2015); 3) translate research evidence into action (Holmes et al., 2017); 4) create sustainable changes in health outcomes (Communities Putting Prevention to Work Program Group et al., 2012; Feinberg et al., 2005; Lawlor & Neal, 2016); 5) make new partnerships and increase access to financial resources (Burns, 2007; Foth, 2006; Morrison, 2012); and 6) increase relationship strength and capacity (Arnold, 2011; Provan et al., 2003). While this evaluation did not address each of these outcomes, in context of both the network analyses and case studies, hT increased the flow of information across organization, made new partnerships to increase access to resources, and increased relationship strength and capacity.

Future Directions

Results from the evaluation of hT partnership impact indicate that hT should focus on building trust, consensus, information exchange, and pooled resources. In addition, the evaluation results suggest that hT's theory of change would benefit from shifting away from statis logic models toward network and systems models that explain partnership expansion and strengthening over time. Results also indicate that hT may want to focus less on state-wide information diffusion across the network and more on local health information (*e.g.*, policy changes) exchange, especially in regard to catalyzing new and supporting existing health promotion projects initiated by community coalitions.

While the discrete set of constructs highlighted by the causal-loop diagram are key to outlining the dynamics and effects of hT's impact on partnerships and organizations' practices, the ways in which each attribute dynamically interacts with the other remains unclear. No study has examined the interrelationships

of each of these key attributes, especially not from a systems science approach that accounts for inherent multi-layered complexity. Systems science approaches such as agent-based modeling are potentially powerful tools to identify the most potent and efficient levers of organizational decision-making in the formation of coalitions. These approaches invoke not only longitudinally and at multiple levels, but also more complex phenomena like non-linearity, path dependence, feedback loops, and tipping (Davis et al., 2018; El-Sayed & Galea, 2017; Paina & Peters, 2012); understanding these phenomena may contribute to elucidating which aspects of networked coalition action contribute to mobilizing efforts the most so that organizing can be better modified and optimized.

Limitations

The nature of this research, even though geared for being generalizable, is highly contextual, specific to a certain time and geographic location, and vulnerable to selection bias and misclassification. Given that this is a retrospective study, I could not assess the temporal relationship in identified salient collaboration dynamics; I could not control exposure or outcome assessment; I had to rely on others for accurate recordkeeping and experience recall (Nagurney et al., 2005; Satten & Epstein, 2004).

This article includes analyses that are suggestive only. The methods employed were used to explore various angles through which to understand how hT may be influencing partnerships and collaboration at the organizational level. Results of these analyses should not be taken as causal; however, I believe the results should guide future investigations that do incorporate causal analyses. The included analyses largely draw on the perspectives and opinions of a small aspect of the hT network. That is, the perspectives and opinions of the included stakeholders, primarily community partners, do not and cannot represent the entirety of the hT network. Conclusions about whether hT's theory of change is relevant in all facets, for all populations, and cultures across the network cannot be drawn. Instead, conclusions should be couched as organizational mechanisms for PSE health changes as supported by a range of stakeholders.

When CLDs are drawn up in a collaborative effort, the very process of consensus building may be misleading if stakeholders hold inherently different interests or unequal power. Enforcing consensus may overlook or obscure the existing power dynamics; consensus may be imposed by the most powerful or

vocal, which will skew the modeling process. However, this we believe this challenge was overcome both by ensure a democratic Socratic method during collaborative modeling and by incorporating interview data into the products.

The results found in this article are blended. In some cases, data and result integration is precarious due to incompatible elements of data collection and analysis. However, due to the nature of developmental retrospective evaluations, there is generally a large amount of information to sift through, very little consistency in data over time (e.g., surveys did not always ask the same questions year to year limiting question comparison), and a general need for explaining themes generated over years of organizational collaboration.

Conclusion

Partnership and collaboration are integral to collaborative initiative progress toward PSE health changes. Using a mixed methods developmental evaluation that included complex systems concepts and modeling proved to be the ideal approach when confronted with the emergent, innovative nature of hT and their collaborative efforts to facilitate PSE health outcomes. The use of multiple systems-oriented methods allowed for the examinations of interrelated aspects of hT for which traditional linear methods could not account. The influence of hT on partnership and collaboration was highlighted through combined ripple effect and causal loop diagrams for each case study. Namely, that information exchange, trust, pooled resources, and consensus building were the drivers of campaign success along with several other elements such as using social capital to generate funds for campaign initiation. In addition, network analyses for a subsample of the network indicate the need for networked coalition action groups to increase the density of connections between health promotion organizations across sectors. These results corroborate hT's current theory of change but also suggest potential updates. Currently, hT's theory of change focuses broadly on connecting, convening, and catalyzing for collective action. These could be refined in context of the causal loop diagram and network analyses. These findings should guide future research, especially in the reification of partnerships and collaboration in decision based or diffusion simulation models.

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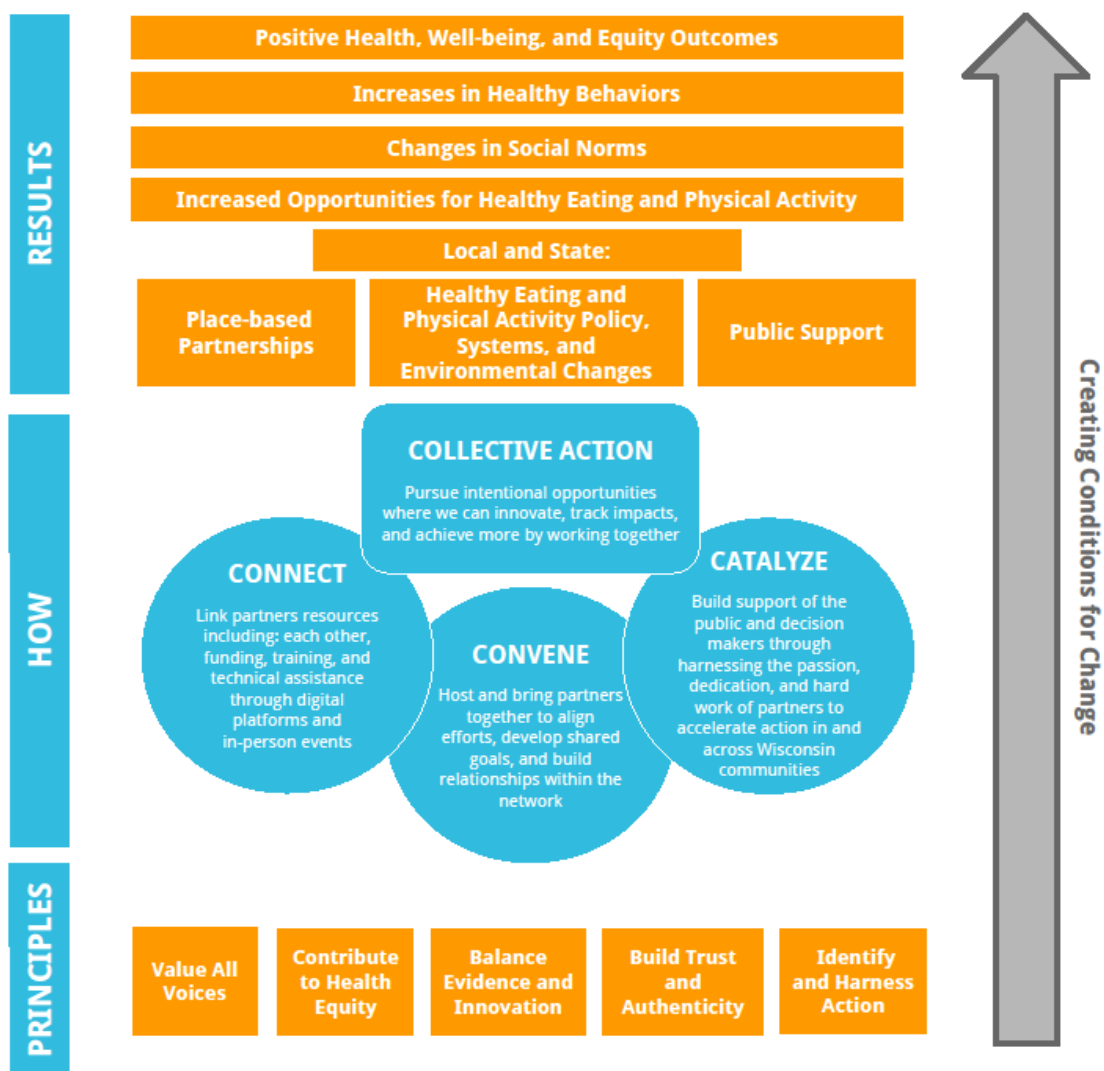
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Appendix A

healthTIDE

THEORY OF CHANGE

RESULTS

Positive Health, Well-being, and Equity Outcomes

Increases in Healthy Behaviors

Changes in Social Norms

Increased Opportunities for Healthy Eating and Physical Activity

Local and State:

Place-based Partnerships

Healthy Eating and Physical Activity Policy, Systems, and Environmental Changes

Public Support

HOW

COLLECTIVE ACTION

Pursue intentional opportunities where we can innovate, track impacts, and achieve more by working together

CONNECT

Link partners resources including: each other, funding, training, and technical assistance through digital platforms and in-person events

CONVENE

Host and bring partners together to align efforts, develop shared goals, and build relationships within the network

CATALYZE

Build support of the public and decision makers through harnessing the passion, dedication, and hard work of partners to accelerate action in and across Wisconsin communities

PRINCIPLES

Value All Voices

Contribute to Health Equity

Balance Evidence and Innovation

Build Trust and Authenticity

Identify and Harness Action

Creating Conditions for Change

Discussion

Built upon the work of critical theorists and social justice advocates, community-based research and evaluation (CBRE) projects are designed to create space for critique at the "margins" and the "bottom" and today remain a site of possibility. Participation in CBRE is an act of legitimizing democratic inquiry, and its collective behavior signals a demand for equity and parity. The byproduct of the desire for social change through CBRE is collaboration, where the intent of the collaboration involves coalescing scientific tools of knowing with local knowledge, thereby, as is longed for, reversing elitist structures that dominate the production of scientific knowledge. These ambitions drive most CBRE researchers and scholars to collaborate across space, time, and with stakeholders and local residents who represent diverse interests, backgrounds, and desires. And it is because of this heterogeneity among and between agents in CBRE collaborations that creates a complex system of emergent interactions and nonlinear group dynamics. The multitude of discordant collaborative structures and dynamics and its effect on CBRE participants, projects, and outcomes is at the heart of this dissertation.

In the last two decades, researchers have begun to examine collaboration in CBRE; however, they tend to do so myopically. Research on CBRE collaboration mainly examines effective partnerships (Barnes et al., 2010; Fawcett et al., 2010; Jagosh et al., 2015; Shortell et al., 2002), sometimes examining trust (Atouba, 2016; Dave et al., 2018) and almost exclusively focusing on the community-academic collaborative dichotomy (Barnes et al., 2010; Dave et al., 2018; Nicolaidis et al., 2011; Wolff & Maurana, 2001). This makes intuitive sense; if collaborative dynamics gone unexplained, then examine what consists of effective partnerships. However, the examination of partnerships and partnership dynamics as the essence of collaboration in CBRE both reduces collaboration to a single mechanism and fails to account for an array of interdependencies such as community context and the effects of participation. That is, the types of cultures created and imposed by CBRE collaborations are more than the sums of social interactions; they consist of the interaction between beliefs, practices, and diversity of those who enter these collective efforts. Collaboration is complex and socio-ecological, because social connection is neither simple nor independent of context.

As positive and hopeful as the description and practice of CBRE usually sounds, my articles, while not completely departing from this optimism, draw a more nuanced, complex picture of collaborative life in CBRE. Each article approaches collaboration in CBRE from a different angle, attempting to inform this project's research questions: a) What kind of culture do the diverse agents who engage in collaborative action in CBRE create? And b) How can we use systems thinking and complexity to understand the emergent social norms and behavior found in CBRE collaborations? This dissertation began with problematizing the romanticization of collaborative initiatives, casting doubt on the auspices of collective strategies such as collective impact (Kania & Kramer, 2011) and the lens through which collaboration is both conceptualized and studied (Nicolaidis et al., 2011). I connect this problem to the nature of complexity, represented by complex systems science (CSS), and posit that CS provides salient language to think about collaboration among diverse stakeholders in collective efforts such as CBRE or community coalitions who often use CBRE as part of their orientation to collective action. Ultimately, this project dissects specific aspects of collaboration in CBRE using an array of theoretical and conceptual approaches to highlight specific aspects of CBRE culture.

Paper one reviews discrete aspects of collaboration as theorized and conceptualized by an array of thinkers spanning disciplines such as sociology, cooperative game theory, and human ecology. I begin this paper by critiquing predominant perspectives of CBRE, perspectives that generally gloss over the potential incompatibilities of Northern and Southern CBRE traditions and paint a rosy portrait of equitable collaboration that translates into stakeholder empowerment (Strand et al., 2003). In contrast to the first paper, this paper configures the exploration of collaborative life into social structure, social dynamics, and social motivations for collective action. The review provides added context to ways in which stakeholders in CBRE interact with one another and with common elements of the CBRE project (*e.g.*, conflict, resource allocation, leadership, shared power, consensus building). More importantly, the reviewed social dynamics perspectives add needed context to the individual and collective behavior of stakeholders that lead to maladaptive collaboration traits such as power imbalances. Finally, I apply a CSS lens to collaboration in CBRE, noting its use in exploring multiple levels of stakeholder influence; multiple interactions between

stakeholders or a group of stakeholders at any given time; and how stakeholder diversity plays a generative role in creating the social structure, social dynamics, and motivations for participating in CBRE collaborations.

In the second paper, I describe the development of a multilevel conceptual framework that builds from existing conceptual models to identify interdependent components of collaboration throughout the community coalition lifecycle. Moreover, I apply CSS concepts to community coalition constructs to produce a novel understanding of community coalition development in context of collaborative dynamics. The final conceptual model is a departure from existing community coalition conceptual models primarily in how the themes interact to create the novel community coalition interdependent stages of adaptive development. It proposes that the heterogeneity of community members and contexts—as well as a host of community coalition collaboration themes such as nonlinear partnership dynamics—are drivers in the formation and lifecycle of community coalitions. It proposes specific stages of collaboration, from self-organizing based on individuals' sense of injustice and community context factors to the active adaptation of collaboration based on feedback loops created by mobilizing stakeholders and implementing community-wide strategies for systems change. Importantly, the final model places individual behavior at the nexus of both the interdependent states of adaptive development and the downstream aim of community-wide strategies. Although the paper does not specifically address CBRE, CBRE is captured in the theme of systems research and evaluation, and the paper writ large certainly addresses how complex systems science can be used to think about collaborations involved in CBRE.

The third paper looks at a specific collaboration dynamic in evaluation known as gatekeeping. Using grounded theory, the authors developed the Gatekeeping Influence Theory (GIT). The GIT proposes that gatekeeping is a psycho-social-cultural construct that reflects a process by which gatekeepers, either as an individual (*e.g.*, evaluator) or a group of individuals (*e.g.*, foundations, nonprofits, universities, *etc.*), emerge from contentious inter- and intra-personal dynamics as key decision-makers through which people, knowledge, and data are filtered. It proposes key categories of gatekeeping including: the drivers that influence the conduct of evaluation; the strategies that evaluators use to navigate the social-structural

conditions of evaluation projects; and the gatekeeping disruptions that problematize equitable evaluation practice. This paper, not unlike the previous three, captures the unexpected, and sometimes harmful, effects of collaboration among diverse stakeholders.

Paper four looks at collaboration from the perspective of networked coalition action. In this retrospective mixed-methods systems evaluation of a networked coalition, collaboration in the form of connecting and convening health promotion partners across the state correlated with increased levels of information exchange and awareness of public health issues, trust, resource pooling, and consensus building. Results from this evaluation reveal that the networked coalition's number and type of collaborations provide an important correlation between the coalition and project outcomes. How the coalition leveraged their network provides an important step forward to determining the factors involved in collaborative initiatives' work toward health equity, particularly in context of policy, practice, and environmental change.

Deductions Drawn from Collaboration in Community-Based Research and Evaluation

The conclusions drawn from exploring collaboration in CBRE in each paper in this dissertation are as follows. First, how collaboration in CBRE is defined depends on the individuals involved, the contexts in which it unfolds, and what is trying to be achieved. The nature of collaboration in CBRE will be very different between middle-aged white males and a group of individuals from diverse backgrounds. By the same token, collaborations initiated by university contexts will define collaboration differently than those that are initiated by grassroots organizations (McNall et al., 2009). And the goal of the partnership will drive how collaboration is defined and redefined over time (Tremblay et al., 2017). The same criteria follow for who gets to define what community and collaboration is and what it means to the group (Brown, 2004). For example, the researcher often chooses how much to involve community stakeholder in the decision-making process. The definition of collaboration in CBRE would benefit from adopting a CS perspective, conceptualizing collaboration as an adaptive system of feedback loops and nonlinear relationship dynamics. This is especially true when individuals have conflicting notions about the definition of collaboration or the definition of the cause (Butterfoss & Kegler, 2002).

Second, the purpose of collaboration in CBRE is not just to align project outcomes with the experiences of those it aims to benefit or to establish a better knowledge base to draw on to accomplish a goal. The purpose of collaboration in CBRE is to build equitable and empowering relationships to accomplish a collective goal. That goal could be to study phenomena of collective interest; to improve programs, practice, or policies; to advocate on behalf of those who do not have a voice to speak to others about their own condition; or to create a social movement. Many problems in CBRE projects arise when there are disagreements about the purpose of the collaboration (Jac, 1995). Moreover, covert purposes held by members of CBRE projects prove disruptive to the collaborative process, increasing the vigilance of participating members and decreasing collective desire to continue the partnership.

Third, understanding the relational dynamics involved in and as a result of collaboration in CBRE requires a CSS approach that builds from prior scholarship on social structure, dynamics, and motivations, as well as from community organizing and development (Wolff et al., 2016). Individual and groups of individuals interacting in CBRE projects create a diverse network of relational feedback loops that can be conceptually understood using CSS. This approach to understanding relational complexity has aided researchers and evaluators make sense of collaborative dynamics and outcomes (Axelrod, 1997; McGlashan et al., 2019). However, this approach has yet to be meaningfully applied in CBRE. For example, the ability for CSS to conceptually capture changes in interdependent variables has particular salience to understanding collaborative disruptions due to power imbalances, a noted challenge in CBRE project implementation (Dukes et al., 2011).

Fourth, measuring or tracking collaboration in CBRE would be best benefited by a CSS approach. CSS modeling in the form of social network analysis, casual loop diagraming, or agent-based modeling allows researchers and evaluators the necessary tools to capture interdependent relationships and interactions among variables of a priority system. Many researchers have begun to use social network analysis to understand how partnerships impact research (Goodman et al., 2017) and capacity building (Bess, 2015). Other systems modeling techniques that can capture individual-level behavior need to be

deployed. Agent-based modeling in particular can capture the heterogeneity of stakeholders and community contexts, multiple levels of influence, and multiple mechanisms of influence (Hammond, 2009).

Fifth, the effects of collaboration in CBRE projects on the achievement of desired project outcomes is not well known. That is, there is much room for growth in connecting CBRE collaborative processes to their downstream effects on project outcomes. The third paper documents the effects of collaboration on the process of achieving community-wide changes, but not on the changes themselves. This is a gap consistent with existing literature (Tremblay et al., 2017), which points to an area of needed research, one that CSS is best positioned to capture.

Sixth, and finally, it is clear from the papers included in this dissertation that collaboration in CBRE is mainly a culture of ideals with limited understanding of how connection and partnership in research and evaluation unfold. This culture of ideals is built on several assumptions that often go unexamined. One, that collaboration is more efficient than working independently. Two, that collaboration holds social utility for group cohesion and survival. Three, that collaboration is a more ethical and credible approach to research and evaluation. Four, that collaboration increases the research and evaluation refinement process by increasing the intellectual capacity and competencies of the group. The theme that stretches across each paper included in this dissertation is that these assumptions are dangerous, even in light of their benefits, playing out with unintended consequences. These assumptions are dangerous because they veil the reasons collaboration is complex and the reasons why so many CBRE projects and processes seem to fail (Dougill et al., 2006; Nicolaidis et al., 2011; Sterling et al., 2019). These reasons include competing personal interests; a desire to benefit self over the group; unclear expectations about the nature of collaboration; the presence of power imbalances built into social and organizational hierarchy, among many others. Collaboration in CBRE as a culture of ideals masks the importance of intentionally challenging how specific collaborative structures and processes perpetuate structural oppression, replicating the dominant culture. For example, a specific ideal of collaborative culture is inclusion, the type of inclusion where the goal is increasing representation more than building equitable relationships. This type of inclusion, resonating deeply within university systems, acts as a foil where CBRE project leaders enjoy and are often rewarded

for the appearance of project diversity while covertly engaging in denial that in practice representation can act as artificial equity.

Significance of Complex Systems Science for Collaboration in Community-Based Research and Evaluation

Collaboration in CBRE is not a well-defined process. The included papers in this dissertation each give a unique perspective on collaboration processes, structures, and outcomes. With the integration of CSS into three of these papers to extend existing perspectives on collaboration in CBRE, researchers, evaluators, and practitioners are offered a more comprehensive assessment of areas of concern and potential synergy for their projects. Collectively, the included papers act to increase awareness of an often-misunderstood aspect of CBRE projects. Whereas much of the literature champions the ideals of collaboration, this research asks CBRE project participants to challenge their understanding about the process of collaboration in CBRE. In addition, this research highlights several main areas in need of further investigation. One, more research is needed using complexity modeling on how coalition adaptation translates into desired coalition outcomes. Two, which constructs of collaboration play the most significant role in group cohesion and project sustainment need to be studied. Three, the relationship dynamics most salient to fostering equitable partnerships in a group setting should be studied and applied in different community contexts. Four, more perspectives of community partners and members are needed to bolster the thesis around collaboration as a complex system of structural, relationship, and motivational interactions. Finally, a critical ethnography of collaboration in CBRE projects would be useful in extracting the implicit values and assumptions around collaboration that may limit the formation of equitable and empowering partnerships.

Study Limitations

Collectively, the articles touch as various aspects of collaboration and group dynamics that occur within CBRE. They also touch on social structure, dynamics, and the purpose to which CBRE dedicates itself. With that said, no one article comprehensively answers the question of what collaborative life consists of in CBRE. While each article can easy fit under the conceptual and theoretical stratum laid out in the introduction, the conclusions drawn from each article are better suited to more holistically answer each

respective article's research or evaluation questions, not holistically answer the broad dissertation questions.

In future studies, I will specifically explore local resident perceptions of CBRE so that I can more holistically address the kind of culture that is created and the ways in which power, class, and race show up in CBRE collaborations. I will also conduct additional studies that focus on only one aspect of social structure, dynamics, or motivations in CBRE collaborations. This will allow for a fuller, more nuanced exploration of how CBRE practices tend to form specific civil societies, for example. Finally, I will conduct additional research that utilizes complex systems science concepts and techniques to explore why and what kind of collaborative interrelationships give rise to equitable and empowering CBRE practices.

The language used, such as community-based research and evaluation, can be easily misunderstood. I use CBRE as a catch all acronym that includes a diverse set of collaborative, participatory, and action research and evaluation derivatives but narrows this scope of my outlook to focus on community-based modes of research and evaluation. The main reason for this is based on the assumption that community-based modes of research and evaluation tend to be highly collaborative, and in some cases highly participatory, an assumption that lends itself well to a focus on explicating collaborative life in CBRE.

Finally, while this dissertation periodically examines issues of power, class, and race as key issues in collaboration in CBRE, by and large the included studies do not expand on these issues from that perspective. Articles 1 and 2 include many studies that do include local resident perspectives and experiences, but, of course, have no direct interaction with the conclusions I draw across all included articles. Similarly, a grassroots perspective is much needed throughout the included studies.

Conclusion

Researchers, evaluators, funders, and practitioners, at some point, must be concerned with the nature and outcomes of CBRE collaborations, either related to the underlying determinants of supportive and empowering relationships or related to their ability to achieve the objectives of their projected outcomes. CBRE collaborations explicitly seek to bring together groups of people who can combine

resources and ideas to address commonly defined complex social issues or concerns—all while creating opportunities of empowerment and community building. Therefore, CBRE collaborations have explicit objectives related to collaboration formation, group dynamics, and collective action that are considered integral to attaining CBRE project goals. However, connecting to others across geopolitical, socioeconomic, cultural, and ideological divides can be a harrowing task, especially if these divides are constantly shifting to produce new relational complexities. In CBRE, where equitable and empowering relationships are at the center of successful collaborations, connection among diverse sets of stakeholders who often hold conflicting visions about how to approach and accomplish the work can be daunting. In this dissertation, I explored collaboration from the perspective of community coalitions; 20th century theorists in disciplines such as sociology and biology; networked coalition action groups; and researchers and evaluators. I also integrated CSS concepts and techniques to examine the structures and processes of collaboration in CBRE. Together, these perspectives offer new insight into collaboration life in research and evaluation projects by creating dimensionality around CBRE project social structure and dynamics so that project members and participants may have additional information about how relational dynamics play a role in the promotion of fair and just partnerships.

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