Creative Collaboration in Rural Texas Communities

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Kathryn May Lattimore Norris

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Abstract

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Kathryn May Lattimore Norris, PhD

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Supervising professors: Alejandro Rodriguez, Karabi Bezboruah, and Even Mistur

The body of research on collaboration has grown exponentially in recent years with the realization of its potential to generate innovative solutions to complex problems. Although there is an abundance of literature on collaboration, scholars have fallen short in understanding how collaboration works towards creativity. Lack of consensus on how this critical construct functions has not only made it more challenging for researchers to advance theory on the matter but also to recognize, utilize, and realize the full benefits of collaboration for practitioners. Until practitioners achieve a better understanding of the ways in which collaboration can produce creative outcomes, they will not be able to include it in their toolbox to tackle the problems associated with an increasingly interconnected and rapidly evolving world.

This study begins with a theoretical analysis of collaboration as a multidimensional construct and takes a multidisciplinary approach to unraveling the complexities and misunderstandings of the collaborative process, especially with respect to creativity. Exploration begins with a consideration of an established model of collaboration. It is suggested that this model addresses collaboration at a lower level, which represents a solution for combining resources and solving simple problems. The enhanced model illustrates the interaction between creative abrasion and the dimensions of collaboration, which results in a higher level of

collaboration labeled creative collaboration. In the proposed model, creative abrasion mediates the relationship between conflict and diversity.

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Finally, a sincere, heartfelt "thank you" to all those who participated in this study: collaborators in rural Texas communities who work tirelessly to increase access to healthcare and ways to stay healthy. Your stories are amazing, and the kindness that you showed me in taking time out of your busy schedules to share them with me is a testament to the collaborative spirit in

rural Texas. I hope that the findings from this study will not only prove useful to each of you and your organizations but also inspire others to look to creative collaboration as a source of innovative solutions. Outcomes are always better when we work together.

To Liza, from me, your loving mother.

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Chapter 1. Introduction

> The collaborative nature of innovation is what leads us to talk of slices of genius that come together to create collective genius. No individual contribution will suffice to create a final solution, especially for large, complex problems. But each contribution—through collaboration—plays a part in creating collective genius. In the right organizational context, with the right leadership, a group can amplify the diverse talents and ideas of individual members. (Hill et al., 2014, p. 13)

Nearly every professional sector or academic discipline deals with collaboration and creativity at one time or another. In fact, one could speculate that an observer sitting at the back of any boardroom or academic conference today might hear the words "collaboration" or "creativity" used frequently—almost habitually—by both academics and practitioners. Moreover, the most impactful leaders claim that collaboration draws the best out of their team and generates the most effective and creative ideas (*Collaboration: the Key to Success*, 2004; Haas & Moretenson, 2016; Smith, 2016). In short, the word "collaboration" has become common jargon, with little understanding of how it produces creative outcomes (Bedwell et al., 2012; O'Flynn, 2009; Thomson et al., 2009; Word, 2012). In current usage, "collaboration" is a buzzword that is interchangeable with other vague concepts such as cooperation, coordination, partnership, and teamwork (O'Flynn, 2009; Sullivan, 2012), even in academic settings (Andrade et al., 2009). Collaborators make promises about the potential for the best and most creative outcomes, but little is understood about how this occurs. A lack of understanding of collaboration, which is reflected in confusion over the types of activities that the term describes,

suggests that engaging in further academic exploration of the concept may be beneficial, especially with regard to understanding how the collaboration process results in creative ideas.

Although discussions about collaboration are sometimes discordant, they appear to have at least one aspect in common: they describe collaboration as two or more entities working together (Gray, 1989). Moreover, the literature has repeatedly noted the potential for a wide variety of successful outcomes and benefits, including creativity (Gazley & Guo, 2020; Morris & Miller-Stevens, 2015; Stout & Keast, 2021). However, others have observed that collaboration entails costs such as the staffing, technology, and other resources required to initiate meaningful collaborative efforts that result in creative outcomes, which are the focus of this study (Bryson et al., 2015; Emerson et al., 2012). Perhaps even more importantly, collaborations are not always successful (Ansell & Gash, 2007; Das & Teng, 2000; Hu et al., 2016; McNamara et al., 2019; Takahashi & Smutny, 2002; White & Wehlage, 1995). So, why would an entity seek collaboration despite its associated costs and lack of certainty over its success? One explanation is that collaboration provides the potential for outcomes that an entity could not unilaterally achieve (Gray, 1989) and that are innovative (Hill et al., 2014).

Scholars have sought to support the practical need to understand collaboration due to its capacity to produce successful or creative outcomes. Indeed, this thread runs throughout the public administration and public management literature (Head & Alford, 2015; Williams, 2015). Nevertheless, it has been noted as recently as 2020 that public administration, management, public policy, and related disciplines lack a common language and understanding for communicating and developing theory on collaboration that explains how collaboration results in creative outcomes (Gazley & Guo, 2020). Several models of collaboration broadly describe how entities can work together by pooling resources and sharing information, as explained in Chapter

2 of this study. Nevertheless, frustration over the lack of clarity on the matter persists. One could interpret calls for further study as results of the failure of existing models to identify factors in collaboration that shift the process from entities simply working together to a higher level at which creative outcomes are possible. Scholars and practitioners would benefit from understanding this key aspect of collaboration, which is labeled *creative collaboration* in this study. The risk of moving forward without clarifying the creative piece of collaboration is that academics could fail to develop robust theories and practitioners could overlook ways to make collaboration work towards creativity in the real world (Parmigiani & Rivera-Santos, 2011).

Practical Problem Overview

While there are numerous complex problems that would provide suitable scenarios in which to explore collaboration, the challenges of providing healthcare, both physical and behavioral, in rural settings have attracted the attention of academics and practitioners alike and led them to work together to identify effective strategies for overcoming these obstacles. The Rural Health Information Hub (*Healthcare Access in Rural Communities*, 2021) outlined several barriers to healthcare access in rural areas, including distance and transportation, workforce shortages, health insurance coverage, broadband access, low health literacy, and issues related to social stigma and privacy. Most recently, coronavirus disease 2019 (COVID-19) and the resulting global pandemic have exacerbated and highlighted these problems (*Texas had serious rural health issues well before the pandemic. How will providers continue to care for rural Texans?,*" 2022). Because of the complexity of the matter and absence of precedents, creativity has been critical in finding ways to overcome the barriers to accessing healthcare and ways to stay healthy (*Guide to Rural Response to Coronavirus Disease 2019 (COVID-19)*, 2021).

Early in the pandemic, many experts assumed that urban centers would be most severely affected by COVID-19 because the virus spreads through close, sustained contact between individuals. However, reality has played out differently (Cuadros et al., 2021). Rural areas of the United States have been disproportionately impacted by COVID-19 due to several factors, including a higher prevalence of comorbidities and lower access to testing and treatment (Mueller et al., 2021). Furthermore, residents of rural areas are less likely to be able or willing to follow the measures that have proven most effective for mitigating the spread of the virus, including obtaining vaccinations, wearing a mask, and incorporating social distancing measures into daily activities (Callaghan et al., 2021; Lennon et al., 2022). According to experts, challenges related to COVID-19 in the rural United States can only be effectively addressed through authentic, cross-sectoral, and meaningful collaboration (Hughes et al., 2021). In one example of this type of collaboration, which was observed and showcased by the Rural Health Information Hub (*Rural COVID-19 Innovations: Providing Health Services*, 2022), stakeholders in Pottsboro, Texas worked together to provide greater access to telehealth medicine. A local wireless internet service installed wireless equipment on water towers to reach more households at no cost to them. Moreover, the Pottsboro public library offered portable Wi-Fi routers for checkout by students from low-income households, funded three neighborhood stations, and—perhaps most creatively—designated and modified a room specifically for telehealth use. Such collaboration has resulted in creative solutions to the challenges of the COVID-19 pandemic around the world. Identifying factors in this type of collaboration that leads to creativity could help other practitioners in efforts to overcome similar complex challenges.

Purpose of the Study

The purpose of this study is to articulate and empirically test a model of creative collaboration that advances understanding of how interactions result in creative solutions to complex problems that no single entity could unilaterally solve. Additionally, this study aims to outline the implications of creative collaboration for public policy and practice, specifically in the domain of healthcare accessibility in rural Texas communities.

Theoretical Importance

Despite the abundance of literature on collaboration, scholars have paid little attention to clarifying the dimensions of the collaboration process that influence the development of creative outcomes. Some collaboration scholars have noted that practice is ahead of theory in this regard (Crosby et al., 2017; Prentice et al., 2019). Nevertheless, there is extensive literature on aspects of collaboration other than the collaborative process (Andrade et al., 2009; Gazley & Guo, 2020; Hsieh & Liou, 2018; Prentice et al., 2019; Thomson, 2001; Wood & Gray, 1991). In academia, it is difficult to grasp the state of collaboration research because the field is vast and disparate. We know that collaboration scholarship is rapidly emerging, but it is also rapidly diverging (Morris & Miller-Stevens, 2015). The discussion is multidisciplinary and interwoven. Furthermore, each discipline has a distinct approach to discussing the topic. Thus, while the collaboration literature is rich and vast, it is difficult—if not impossible—to understand collaboration and identify a cohesive body of collaboration theories.

Some have claimed that laborious attempts to integrate disciplines, specifically understandings of constructs that vary across disciplines, may be unwarranted (DiMaggio, 1995; Klein & Delery, 2012). Critical to the academic conceptualization process is the assertion that a consensus on a definition of a construct need not be reached, and a construct can be defined

effectively within a scenario so that it is useful in that specific context (DiMaggio, 1995). Additionally, different understandings of a construct across scenarios can enrich study and research. Accordingly, a diversity of definitions should not only be allowed but also encouraged and celebrated (Klein & Delery, 2012). In their endless attempts to uniformly define a construct, academics can take multidisciplinarity beyond the point of usefulness. Findings can be so overgeneralized that they lose any chance at a practical meaning (DiMaggio, 1995). Are collaboration scholars and practitioners satisfied with this argument? Is understanding collaboration only as it relates to specific situations as good as it gets?

This study is grounded in the argument that accepting definitions that are only adequate for a limited number of scenarios undermines one of the main goals of academia: the production of rich theories that explain some aspect of the human experience that occurs in a nonrandom pattern (Blaikie, 2009, p. 124). Scholars who focus on collaboration and work in a variety of disciplines—from public administration and management to business, engineering, information technology, medicine, education, and the arts—have called for expansion beyond the disciplinary boundaries of theoretical perspectives and approaches to understanding collaboration (Gazley & Guo, 2020; Graff, 2015; John-Steiner, 2000; Yang & Maxwell, 2011). Even more immediate to this project's goals and objectives, calls have been made for researchers investigating the public sector to work across discipline boundaries to generate more common knowledge (Graff, 2015; Nesbit et al., 2011).

The gap in research on collaboration and how it results in creative outcomes is clear. What occurs during collaboration and the dimensions of the collaborative process remain unclear, and little is known about precisely how collaboration results in creative outcomes. Factors in collaboration are underdescribed and underresearched (Gazley & Guo, 2020; Huxham

& Vangen, 2013). Furthermore, collaboration is complex, and its description is multilayered, multitheoretical, and, ultimately, multidisciplinary (Chowdhury, 2005; Gazley, 2008). There is value in growing and enriching understanding of collaboration in public administration and management by synthesizing literature across disciplines (Kapucu & Demirhan, 2019; Stout & Keast, 2021). This study makes a theoretical contribution by proposing and empirically testing a model of creative collaboration, clarifying the meaning of this concept, and enhancing cumulative knowledge on the topic in academia.

Theoretical Perspectives

Several models of collaboration have been proposed (Ansell & Torfing, 2014; Bryson et al., 2006; Huxham & Vangen, 2013; Keast et al., 2007; Ring & Van de Ven, 1994; Simo & Bies, 2007; Thomson, 2001). With the exception of Thomson's model (2001), they tend to be highly conceptual in nature, and many have yet to be empirically tested with large sample sizes (Morris & Miller-Stevens, 2016). When these models have been tested, most researchers employed case studies (Morris & Miller-Stevens, 2015). Additionally, these models tend to focus on specific aspects of collaboration, such as its antecedents, factors that facilitate success, and outcomes (Thomson et al., 2009). How collaboration results in creative outcomes remains somewhat of a black box (Gazley & Guo, 2020; Keast, 2016; Stout & Keast, 2021; Thomson & Perry, 2006).

This study primarily incorporates literature from the growing body of collaboration research and the field of public administration, which is itself interdisciplinary in nature. Thus, literature from a wide range of fields was considered, including public and nonprofit management, organizational theory, and economics. Because this research aims to clarify the process of collaboration and how it results in creative solutions, it also includes a review of public administration literature on creativity in joint activities—that of collaborative innovation

(Ansell & Torfing, 2014; Hartley et al., 2013; Torfing, 2019). While collaborative innovation focuses more on innovation as a means of implementing creative ideas and doing so collaboratively, it describes how the action is accomplished rather than the action itself. Nevertheless, collaborative innovation literature brings the idea of creativity into the public space (Halvorsen et al., 2005; Hartley, 2006). Consequently, it provides a basis for explaining how creative collaboration differs from collaboration itself.

Practical Importance

In practice, collaboration is assumed to be the most effective path to outcomes that are more successful and creative than results that were independently reached (Hill et al., 2014; Stout & Keast, 2021). Working without a unified understanding of collaboration is counterproductive, as it renders creative collaboration useless—a concept that is not only convenient but also imperative to those who seek to identify solutions to complex problems, such as increasing access to healthcare in rural communities in the United States (Bedwell et al., 2012; Climer, 2016; Crosby et al., 2017; Hill et al., 2014; O'Flynn, 2009; Thomson et al., 2009; Wegrich, 2019). If any situation in which self-serving entities loosely cooperate can be called collaboration without regard for accurately describing the collaborative process, then the risk of mislabeling is high. Extending the definition of collaboration to include cooperative processes indicates a damaging misunderstanding of how individuals, groups, or organizations creatively collaborate to achieve innovation in practice, ensure the efficient allocation of scarce resources, and create authentic, engaged communities. Without understanding the appropriate language to describe collaboration, recognizing when it occurs and distinguishing it from other processes that may appear similar at first is nearly impossible (Wood & Gray, 1991). This has led to the "construct contamination as well as deficiency" (Bedwell et al., 2012, p. 128) of collaboration as

a whole; as a result, understanding its meaning and benefits is difficult. If a deeper understanding of creative collaboration is established through this study, practitioners in rural communities could incorporate it into their approaches to identifying and implementing creative paths to increase healthcare access more readily.

Primary Research Question and Research Overview

The primary research question in this study is as follows: "How does creative abrasion, in the presence of the critical dimensions of collaboration, impact creative collaboration?" To answer this question, I derived a theoretical model from an extensive literature review. The model was empirically tested using cross-sectional quantitative and qualitative data. Quantitative data were collected through a survey administered to entities in rural communities that have used creative collaboration to identify and implement solutions for increasing access to healthcare and ways to maintain health. Moreover, qualitative data were collected through one-on-one interviews with individuals who could discuss collaboration as representatives of their organization. They provided local knowledge, descriptions of collaborations, and context for how rural communities in their regions collaborated to address health-related wellness, which ultimately enriched our understanding of creative collaboration. Qualitative and quantitative data were concurrently collected. Quantitative data were analyzed using structural equation modeling (SEM), and a series of propositions were considered to assess relationships between dimensions of creative collaboration. Qualitative data enriched our understanding of creative collaboration, which was highly contextual, and provided deeper explanations of how conflict, diversity, and creative abrasion were integrated into the creative collaboration process than permitted by quantitative data.

Assumptions, Limitations, and Delimitations

Several assumptions, limitations, and delimitations underlie this study. First, I delimited the study scope to cross-sectoral creative collaboration as it applied to health-related wellness in rural communities, although some literature and ideas that underpinned my model of creative collaboration came from other fields, types of problems, and contexts. While there may be similarities in collaboration between these, the context undoubtedly shapes the process. This creative collaboration model was tested in rural Texas communities that sought ways to overcome barriers to healthcare access. Further research, testing, and refinement are required to determine whether the model could fit other fields, types of problems, and contexts, which is beyond the scope of this study.

This study was also delimited to the part of the creative process related to idea generation. Interest in creativity and innovation is growing in the public sector, and the literature on both topics is closely intertwined. Sometimes, these terms are interchangeably used to describe a process that spans idea generation to implementation. In other cases, creativity is used to describe the idea generation stage, while innovation is used to describe the implementation stage. This study uses the two terms synonymously but limits the phase under consideration to idea generation. The intent is not to discount the creative implementation stage or overlook the gap between these two concepts but rather to provide clarification and simplify analysis.

As explained in Chapter 6, the data analysis was somewhat limited by the relatively small sample size. Generally, researchers assume that SEM, the quantitative analysis technique, requires a large dataset. Although the sample size was found to be adequate for performing SEM analysis, the findings were limited. Certain relationships between the factors, such as the correlation between error terms suggested in the modification indices, may be unique to this

dataset. Again, while this model was shown to fit the observed data well, further validation with other, larger datasets in different settings are necessary to refine it.

This study assumes that the ideas generated during creative collaboration will be implementable improvements over ideas that result from noncreative collaboration. Creative collaboration is not an easy undertaking and can be uncomfortable for participants. Engaging in creativity for no other reason than to identify ideas that are new and useful but not implementable improvements may frustrate and dishearten the latter. Ultimately, this would be detrimental to the collaborative effort.

Summary

This study contributes to a growing body of collaboration and creativity research as it relates to the public and nonprofit sectors. A proposed theoretical model of creative collaboration was derived from an extensive literature review. The model was tested with qualitative and quantitative data collected from organizations that currently collaborate or have collaborated, with a focus on increasing health-related wellness. The data were analyzed with SEM. The main goal of the study is to develop a valid and reliable model of creative collaboration. A secondary goal is to understand the decision-making and policy implications of this model for organizations that seek to promote health-related wellness.

This dissertation is organized as follows. Chapter 2 contains a literature review on collaboration and covers major contributing theories and recurring themes in collaboration scholarship. Chapter 3 establishes a theoretical model of creative collaboration using a modified version of Thomson's (2001) multidimensional model. It also outlines the propositions that were tested in this study. Chapter 4 describes research designs and methods, including the research questions and approach, data collection and analysis, and methodological concerns. Chapter 5

describes the context of the creative collaboration under study, namely healthcare in rural Texas communities. Chapter 6 describes the findings. Finally, Chapter 7 presents a series of propositions and conclusions about creative collaboration.

Chapter 2. Literature Review

The following literature review broadly summarizes existing scholarship on collaboration. It begins with an overview of collaboration research, then highlights some prominent theoretical approaches to understanding collaboration. Next, descriptive research is reviewed and grouped by focus, including collaboration antecedents, facilitators, barriers, processes, and outcomes. Lastly, the chapter presents existing challenges and shortcomings in collaboration research.

The State of Collaboration Research

Even a cursory literature review suggests that the search for a consistent definition of collaboration—especially creative collaboration—is not likely a fruitful endeavor. Systematic reviews of the vast body of collaboration research are limited, and there has not been a comprehensive synthesis of collaboration theory (Bryson et al., 2015; Gazley & Guo, 2020; Varda et al., 2012). This is not to say that attempts should not be made to advance a conceptual definition of collaboration based on the realistic assumption that a definition limited to an identified context is better than none. On the other hand, the assertion that a consensus need not be reached on the dimensions of a construct is critically important to understanding academic conceptualization (Klein & Delery, 2012). Blaikie (2009) argued that "researchers are required to define these concepts precisely in terms of how they will be used in a particular research project. The aim is to maintain a consistent theoretical language, although this is unlikely to be achieved" (p. 116).

Although creativity and collaboration are not often explicitly mentioned, they are a thread that runs through public administration and public policy research (Williams, 2015, p. 16). It is crucial to establish a conceptual definition of creative collaboration grounded in empirical

research, as governments struggle to manage in an increasingly uncertain, networked, and interdependent environment in the 21st century. Common definitions are the building blocks on which to advance theory that informs practice (Bryer, 2009; Fosler, 2002; Gazley & Guo, 2020; Kapucu & Demirhan, 2019; Lecy et al., 2012; Varda et al., 2012). Moreover, collaboration is important as both a concept and a practical end goal for teams in any work setting, whether in the public or private sectors, especially when it is meaningful, authentic, and results in creativity. Higher-level collaboration leads to innovation, which not only results in solutions to problems but also organizational longevity (Steinmo & Rasmussen, 2018). Before a model of creative collaboration can be explored, an overview of collaboration is necessary.

Thomson (2001) divided the field of collaboration research into two main streams: normative and descriptive literature. The literature that Thomson classified in the normative stream describes collaboration as one of several "new forms of organizing for a postmodern world" (Thomson, 2001, p. 25). Collaboration is a response to a world challenged by seemingly insurmountable problems—a "strategy for survival" (Thomson, 2001, p. 25) that organizations turn to in the midst of environmental turbulence brought about by rapid economic, social, and political change (Alexander, 1995; Alter & Hage, 1993; Crosby, 1996; Emmert et al., 1993; Huxham, 1996; Metcalfe, 1978). Collaboration is an appropriate response to instability because it is under such conditions that "organizations become highly interdependent with others in unexpected but consequential ways" (Gray, 1989, p. 27). Thomson (2001) suggested that the search for new forms of organizing gave rise to the distinct field of collaboration research, which she claimed is mostly descriptive in nature. She argued that it is practitioner-based and mostly conducted through case studies and action research (Thomson, 2001, p. 26).

This distinction seems less accurate today, perhaps since the field has somewhat matured since 2001. A recent systematic review of nonprofit collaboration literature by Gazley and Guo (2020) found that many studies on collaboration do not directly employ theory: "Absent from more than one in 10 articles was an explicit conceptual framework for the study" (Gazley & Guo, 2020, p. 221). Practitioner-based literature, which comprises the bulk of the collaboration field, assumes some of the same underpinnings as normative literature. Most collaboration scholars agree that collaboration is undertaken to produce outcomes that a single entity could not (Thomson, 2001, p. 26). Nevertheless, several large theoretical umbrellas appear to inform collaboration research, including interorganizational relations, network theory, and new institutionalism and collective action.

Interorganizational Relations

Collaboration activity with an explicit focus on the public and nonprofit sectors has been studied for at least four decades, dating back as early as the 1980s. Interest in the topic sharply increased during the government privatization era (Gray, 1989). Early conceptions of interorganizational collaboration focused on formal rules, structures, and hierarchies. From an interorganizational relations perspective, the purpose of or impetus to collaborate is to minimize and resolve conflict to enable organizations to achieve a shared vision (Gray, 1989).

Among the most cited foundational scholars in the field is Barbara Gray (1985, 1989, 1994, 2000, 2004). Gray's conceptions of collaboration as a construct were informed by theories of interorganizational relations, but she diverged from early scholars in the field by focusing on relationships across a domain rather than a single referent organization (Gray, 1985). Gray prioritized analysis of underorganized domains rather than those that were already engaged through well-defined, rigid structures. This allowed her to work on identifying specific

conditions under which collaboration might emerge (Gray, 1985). Perhaps most importantly, Gray viewed collaboration as an opportunity to conceptualize solutions for wicked problems (Gray, 1989). Although the concept of wicked problems was developed by Rittel and Webber (1973), these complex issues were important to Gray because they exist in domains that cannot be managed by any single entity (Gray, 1989). She argued that all stakeholders affected by a wicked problem compose a problem domain and that these should be the level of analysis for collaboration scholars (Gray, 1989).

Wood and Gray (1991) expanded on Gray's (1989) idea and noted that a key limitation of collaboration research is that it is often limited to the level of the "individual focal organization," which means that academics analyze collaboration between two entities by only considering the operations of one individual firm, agency, or governmental department. In fact, organizational theorists generally strive to apply theories at the organizational, group, or individual level, but seldom all three (Kozlowski & Klein, 2000). Some research (Andrade et al., 2009; Goossen, 2015) has examined innovation as the result of both interorganizational and intraorganizational collaboration but was limited to collaboration outcomes rather than the collaborative process. Wood and Gray (1991) remedied this perceived problem by encouraging researchers to consider the problem domain as the level of analysis.

Another contribution from Gray (1989) and other interorganizational relations theorists was noting that interorganizational forms vary according to context and that context can heavily affect collaboration outcomes (Williams, 2015, p. 31). Interorganizational interactions were described by the functions that they perform and their possible outcomes. Organizing collaboration typologies by purpose or function is a strategy that has proven useful in further theorizing, but Gray (1989) did not elaborate on how dimensions differentiate between the types.

Nevertheless, her typology introduced the concept of interorganizational interactions that move from exploratory to contractual forms and exhibit different levels of intensity as they progress (Williams, 2015). This charge has been carried forward by other organizational theorists such as Alter and Hage (1993), who also described interorganizational interactions on a continuum.

Network Theory

After Gray, many researchers approached collaboration scholarship from a network perspective. The fields of collaboration research and network scholarship heavily overlap (Huxham & Vangen, 2013; Keast et al., 2004; Parmigiani & Rivera-Santos, 2011; Voets et al., 2019). In fact, the literature on networks and collaboration is so intertwined that it may appear to some that scholars use the two terms interchangeably (Stout & Keast, 2021). Network theory provides an easy transition to studying collaboration because the nature of networks appears similar to that of collaboration (Keast et al., 2020; Voets et al., 2019). Examples of parallels include the lack of rigid rules for governing relationships in networks, the permeability of network boundaries, and virtually absent barriers to entry in networks (Keast et al., 2020). Moreover, established public sector accountability mechanisms and leadership concepts do not appear to be applicable to either networks or collaborations, as power and authority are horizontally shared. Gazley and Brudney (2007) argued that contractually bound relationships should not be considered collaboration because power is not shared in these arrangements. This argument incorporates concepts of power relations theory.

The most developed network literature on collaboration positions the concept within several levels of interaction (Austin & Seitanidi, 2012; Imperial, 2005; McNamara, 2012; McNamara, 2008). Some works based on the ideas of Himmelman (2002) and Fagan (1997) define distinct levels of interorganizational interaction, from networking to cooperation,

coordination, and, finally, collaboration. In this concept, collaboration is the most intense type of interorganizational interaction (Imperial, 2005; McNamara, 2012; McNamara, 2008; McNamara, 2010). This type of organization of interorganizational interaction informed interorganizational arrays, which are thematic frameworks for understanding these interactions that combine quantitative organizational characteristics and qualitative dimensions (Keast et al., 2007; McNamara, 2012; Williams, 2010). Williams (2015, p. 32) listed 10 dimensions that shape interorganizational arrays identified by McNamara (2012), including the administrative structures, the formality of the relationship, organizational autonomy, participants, information sharing, decision making, conflict management processes, resource allocation, systems thinking, and trust. Earlier, McNamara (2008) included three additional dimensions: the age of the relationship, the difficulty of the task to be performed, and the impetus for collective action (Williams, 2015, p. 32).

Additional typologies and frameworks for understanding collaboration leverage rich scholarship on network perspectives. Herranz (2008) conceptualized a typology of network coordination organized according to the "strategic orientation of network actors" (Williams, 2015, p. 79). Strategic orientation exhibits different combinations of distinct dimensions. Moore and Koontz (2003) articulated a typology that distinguished between collaboration based on whether participants were primarily citizens, members of agencies, or a mix of the two. Williams and Miller-Stevens (2015, p. 32) argued that, although these dimensions have descriptive utility, using antecedents and outcomes to classify interorganizational relationships constitutes a logical fallacy. Other collaboration continuums classify collaboration based on the intensity of the interaction. These are envisioned as ordinal scales based on the idea that they can be classified in a unidimensional space. Sometimes, interactions move up on the continuum by involving higher

levels of leadership, which can be problematic because these frameworks only apply to leadership or one level within an organization (Ansell & Gash, 2007). More recent work has suggested that not all collaboration is equal. Because collaboration can be plotted as a point along a continuum, there must be other interactions that are similar to collaboration but either more or less intense, frequent, or complicated (Keast et al., 2020; Morris & Miller-Stevens, 2015; Sedgwick, 2017).

New Institutionalism and Collective Action

New institutionalism and the logic of collective action is an additional stream of thought that has heavily influenced collaboration scholarship. In this body of literature, collaboration is viewed as a solution to institutional collective action dilemmas (Feiock & Scholz, 2010). Early on, Ostrom (1990) argued that existing rational theories and economically focused game theory models were problematic because they did not explain why rational actors engage in self-governance for collective action (Williams, 2015). This appeared contrary to the expected behavior of self-interested, rational actors, but the collective action framework posits that actors' perceptions are shaped by the surrounding institutional context. Social capital is the cornerstone of Ostrom's Institutional Analysis and Design Framework (Ostrom, 1999, 2009). Social capital, made apparent in the presence of norms such as reciprocity and trust, is built through face-to-face interactions that create systems that govern themselves. Rational actors are more likely to self-govern with increases of social capital. While one of the known antecedents of collaboration is interdependence (Emerson et al., 2012; Gray, 1985; Trist, 1977, Williams, 2015), interdependencies increase as the institution continues to solidify and social capital builds (Morris & Miller-Stevens, 2015; Ostrom, 2009).

Approaches to Studying Collaboration

As previously described, most collaboration research is practice-based. The foci of these studies can be divided into several main areas: antecedents to collaboration, the process of collaboration, and the outcomes of collaboration. This is in line with Wood and Gray's (1991) proposed theoretical framework for guiding the discussion on collaboration. Thomson (2001, p. 27) highlighted that, "in the literature, these three categories rarely occur independently." This is still true in more recent literature. Gazley and Guo (2020, p. 227) argued that reliance on government funding is considered an antecedent to collaboration among nonprofit organizations, but it is also a potential outcome. This is because nonprofit collaboration can result in increased funding from government sources. The following sections provide an overview of the literature in terms of different foci in collaboration research: antecedents, facilitator and barriers, processes, and outcomes of collaboration. My organization of the sections uses Wood and Gray's (1991) framework as a roadmap for discussion, with the addition of a separate section on facilitators and barriers to collaboration. This addition aligns with growing interest among academics in supporting practice by exploring ways to employ collaboration.

Each discussion provides an overview of specific components of collaboration and presents a table that outlines how contributions have shaped understanding of collaboration. The contributions of each perspective and theory are not exclusive of one another due to the intertwined nature of academic thought. Additionally, much of the reviewed literature did not name contributing theories. Nevertheless, themes and assertions that recurred throughout the literature were identified and tied to established or emerging theories whenever possible.

Antecedents to Collaboration

As defined by Gazley and Guo (2020, p. 223), antecedents "describe the preconditions of collaborative activity, such as human, organizational, and environmental characteristics that might influence processes or results." The body of literature that explores antecedents to collaboration is broad, and there remains little consensus on the scenario that is most conducive to the formation of a collaborative. Table 1 outlines a selection of collaboration antecedents proposed by a variety of theoretical perspectives, including transaction costs, social capital, resource dependence, power dynamics, organizational characteristics, new institutionalism and collective action, the network perspective, interorganizational relations, integrative governance, institutional perspective, cooperation theory, and the collaboration perspective.

Table 1

Antecedents to Collaboration

Theory or perspective	Contribution	Support
Transaction costs	Desire to minimize possible losses	(Snavely & Tracy, 2000); (Stout & Keast, 2021)
	Benefits outweigh costs	(Jang et al., 2016); (Sowa, 2009); (O'Regan & Oster, 2000)
	Desire to reduce transaction costs	(Amirkhanyan, 2008); (MacIndoe, 2013); (Mitchell, 2014); (O'Regan & Oster, 2000); (Stout & Keast, 2021)
	Desire to increase effectiveness/efficiency	(Logsdon, 1991); (O'Regan & Oster, 2000)
Social capital	Attracts diverse stakeholders who are willing to share resources	(Logsdon, 1991); (Stout & Love, 2016)
Resource dependence	Reliance on outside funding	(Suarez, 2011)
	Need to collect/secure resources	(Amirkhanyan, 2008); (Guo & Acar, 2005); (Logsdon, 1991); (MacIndoe, 2013); (MacIndoe & Sullivan, 2014); (Mitchell, 2014); (O'Regan & Oster, 2000); (Pfeffer & Salancik, 2003); (Saidel, 1991); (Sowa, 2009); (Stout & Keast, 2021)
	Need to manage uncertainties	(Pfeffer & Salancik, 2003); (Saidel, 1991); (Sowa, 2009)
	Interdependence	(Emerson et al., 2012); (Emery & Trist, 1965); (Gulati & Gargiulo, 1999)
	Financial stability	(Snavely & Tracy, 2002)
	Need to reduce redundancies	(Stout & Keast, 2021)
	Resource scarcity	(Gazley & Guo, 2020); (Levine & White, 1961); (O'Toole Jr, 1997); (Menefee, 2015)
Power dynamics	Desire to increase influence	(Snavely & Tracy, 2000)
	Competition (informal collaboration)	(Lee et al., 2012)
	Desire to increase equity/democratic engagement	(Stout & Keast, 2021)
	Participants are egalitarian and self-organizing	(Stout & Love, 2017)
	Perceived power symmetry	(Jang et al., 2016)
	Understanding sources of power	(Huxham & Beech, 2008)
Organizational characteristics	Need for different organizational functions	(Guo & Acar, 2005)
	Desire to achieve greater effectiveness	(O'Regan & Oster, 2000)

(continued)

Table 1 (continued)

Antecedents to Collaboration

Theory or perspective	Contribution	Support
New institutionalism and collective action	Institutional collective action dilemmas	(Feiock & Scholz, 2010); (Mattessich et al., 2001); (Trist, 1977)
	Base level of interpersonal relationships	(Jang et al., 2016); (Stout & Love, 2016);
	Dedication to project goals	(Gajda & Koliba, 2007)
	General agreement on scope of the collaboration	(Gajda & Koliba, 2007)
	Sense of greater good	(Gajda & Koliba, 2007)
Network perspective	Domain is networked	(Guo & Acar, 2005); (O'leary & Vij, 2012)
	Willingness to cooperate or work together	(Agranoff & McGuire, 2003); (Stout & Love, 2017)
	Need for diverse expertise	(Amirkhanyan, 2008); (Chen & Graddy, 2005)
	Complex issues or problems	(O'Toole Jr, 1997); (Roberts, 2000); (Van Bueren et al., 2003); (Weber & Khademian, 2008)
	Resource scarcity	(O'Toole Jr, 1997)
	Resource abundance	(Guo & Acar, 2005)
	Collaborative capacity	(Gazley & Guo, 2020)
	Prior experience collaborating	(Gazley & Guo, 2020); (Radin, 1996)
Interorganizational relations	Scarcity of diverse organizational functions	(Levine & White, 1961)
	Favorable social and political climate	(Mattessich et al., 2001); (Trist, 1977)
	Reciprocity	(Logsdon, 1991)
Integrative governance	Entity is more egalitarian	(Stout & Love, 2017)
	Entity is more self-organizing	(Stout & Love, 2017)
	Willingness to cooperate or work together	(Stout & Love, 2017)
Institutional perspective	Desire for independence/legitimacy	(Jang & Feiock, 2007); (Podolny, 2001); (Suarez, 2011)
	Lower autonomy	(Guo & Acar, 2005)
	Desire to resolve conflict	(Gray, 1989)
	Exposure to other entities collaborating	(Casey, 2011); (Hwang & Powell, 2009)
Cooperation theory	Repeated interaction/prior collaboration	(MacIndoe, 2013); (Radin, 1996)
Collaborative governance	Leadership	(Emerson et al., 2012)
	Incentives to collaborate	(Emerson et al., 2012)
	Interdependence	(Emerson et al., 2012)
	Uncertainty	(Emerson et al., 2012)

(continued)

Table 1 (continued)
Antecedents to Collaboration

Theory or perspective	Contribution	Support
Collaboration perspective	Passionate about collaboration's end goals	(Menefee, 2015)
	Legitimate reason to collaborate	(White & Wehlage, 1995)
	Complex issues that cannot be addressed by one entity alone	(Biggar & Hood, 2018); (Gray, 1985, 1989); (Head & Alford, 2015); (Mayer & Kenter, 2016); (O'Toole Jr, 1997); (Stever, 1988); (Thomson, 2001); (Wood & Gray, 1991)
	Shared purpose/vision	(Gray, 1989)
	Environment values cooperation over competition	(Marlowe et al., 2011)

Based on the existing collaboration literature, critical antecedents that must be in place for collaboration to occur include an overall purpose for multiple entities to work together. For example, transaction cost scholars have identified desire to reduce transaction costs on the part of individual entities as an antecedent to collaboration (Amirkhanyan, 2008; Guo & Acar, 2005; Logsdon, 1991; MacIndoe, 2013; MacIndoe & Sullivan, 2014; Mitchell, 2014; O'Regan & Oster, 2000; Pfeffer & Salancik, 2003; Saidel, 1991; Sowa, 2009; Stout & Keast, 2021). Political scholars who study power dynamics claim that, in collaborations, entities typically are interested in using their power to garner benefits. According to Snavely and Tracy (2000), power can function differently in nonprofit collaborations. Entities may seek to collaborate to increase their influence, as there is power in collaboration. Competition that stems from power imbalances fosters informal collaboration (Lee et al., 2012). On the other hand, entities may shy away from collaboration because they fear a perceived power imbalance (Snavely & Tracy, 2000). Network scholars argue that, to be willing to collaborate, entities must sense a need for diverse expertise (Amirkhanyan, 2008; Chen & Graddy, 2005). Furthermore, some researchers have recognized that the world, especially the public and nonprofit sectors, has become increasingly networked in

recent decades, spurring the emergence of more collaborative multiorganizational arrangements (Guo & Acar, 2005; O'leary & Vij, 2012). Agranoff and McGuire (2003) attributed this to the growth of the information age.

Another recurring antecedent to collaboration in several theoretical perspectives is the presence of a complex problem that cannot be unilaterally solved (Gray, 1989). Resource dependency theorists contend that, to enter a collaboration, entities must either experience or perceive a shortage of resources needed to confront the complex problem (Amsler & O'Leary, 2017; Menefee, 2015; O'toole, 1997). They must manage some level of uncertainty around the issue (Pfeffer & Salancik, 2003; Saidel, 1991; Sowa, 2009). As discussed in the previous section, new institutionalism and collective action theories specifically focus on complex collective action dilemmas and how or why entities interact to solve them (Feiock et al., 2012; Feiock & Scholz, 2010). These concepts have also attracted the attention of those who work from the emerging collaboration perspective. Identifying ways to mitigate complex issues and perhaps implementing solutions is the common end goal that brings collaborators to the table (Chen & Graddy, 2005). Most importantly, the complex problem should be the focus of and motivation for collaboration. Collaborations with an excessive focus on encouraging entities to work together to solve a problem can sometimes be less effective or fail altogether (White & Wehlage, 1995).

In summary, the literature on collaboration derived from different theories and perspectives offers researchers and practitioners a long list of antecedents that should be in place before collaboration is attempted.

Facilitators of and Barriers to Successful Collaboration

In both research and practice, much attention has been paid to the factors that are most likely to enhance collaborative efforts. This could be due to the recognition that collaboration

indeed presents a possible pathway to developing creative solutions to complex problems. Thus, practitioners and researchers seek to understand how to successfully engage in collaboration. Theories and approaches to identifying facilitators of collaboration (i.e., the factors that are most likely to result in collaboration) are as varied as those employed to define the concept of collaboration and understand its antecedents. These factors range from ideas about transaction costs to institutional environment theory and collaborative governance. Tables 2 and 3 list several examples of facilitators and barriers to collaboration, along with contributing theories and perspectives.

Table 2

Facilitators of Collaboration

Theory or perspective	Contribution	Support
Transaction costs	Choice to collaborate based on entity's needs	(Jang et al., 2016)
	Decreased revenue	(Jang et al., 2016)
	Competition	(Jang et al., 2016)
	Lack of community influence	(Jang et al., 2016)
	Reduced transaction cost	(MacIndoe, 2013)
	Previous experience with collaboration to reduce perceived transaction costs	(Gazley, 2010)
Social capital	High levels of social capital	(Ferreyra & Beard, 2007)
	Repeated productive interactions/relational processes that form synergies	(Mandell, 2002)
Resource dependence	Resource dependency	(Gulati & Gargiulo, 1999); (MacIndoe, 2013); (Mitchell, 2014); (Pfeffer & Salancik, 2003); (Saidel, 1991); (Suarez, 2011); (Sowa, 2009)
Power dynamics	Accepted interpersonal dynamics	(Stout & Keast, 2021)
Organizational characteristics	Ties with other community entities	(Stone et al., 2010)
	Older entities	(Chambré & Fatt, 2002)
	Larger entities (measured by total revenue)	(Simo & Bies, 2007)
	Nonprofit capacity (organizational size and number of volunteers)	(MacIndoe, 2013); (Simo & Bies, 2007)
New institutionalism and collective action	Clearly defined organizational structure	(Ferreyra & Beard, 2007); (McCullough et al., 2018)
	Social identity/culture that supports collaboration/cooperation	(Marlowe et al., 2011); (McCullough et al., 2018)
	Deeply embedded informal relationships	(Jang et al., 2016)
	Credible commitments among entities	(Jang et al., 2016)
	Minimal destructive conflict	(Marlowe et al., 2011)
	Desire to overcome collective action problem	(Jang et al., 2016)
	Expectations of mutual benefit from collaboration	(Jang et al., 2016)
Network perspective	Culture that values collaboration	(McCullough et al., 2018)

(continued)

Table 2 (continued)

Facilitators of Collaboration

Theory or perspective	Contribution	Support
Negotiated order	Presence of a convener/leadership	(Ferreyra & Beard, 2007)
Interorganizational relations	Purposive cross-program meetings	(McCullough et al., 2018)
	Clearly articulated vision	(Ferreyra & Beard, 2007)
Institutional environment theory	Exposed to other entities collaborating	(Casey, 2011)
Game theory	Authoritative mechanisms/deeply embedded informal relationships	(Jang et al., 2016)
Cooperation theory	Culture that values collaboration/cooperation	(Marlowe et al., 2011)
	Cooperative style of relating	(Mandell, 2002)
	Reciprocal interdependence	(Mandell, 2002)
	Trust	(Mandell, 2002)
	Respectful interpersonal relationships	(Mandell, 2002)
Collaborative governance	Social capital from close geographic proximity and small number of participants	(Ansell & Gash, 2007)
Collaboration perspective	Culture that values collaboration	(Marlowe et al., 2011); (McCullough et al., 2018)
	Formal and informal channels of communication	(Ferreyra & Beard, 2007)
	Repeated interactions/relational processes that forming synergies	(Mandell, 2002)
Adaptive leadership	Adaptive leadership style	(Esteve et al., 2013)

Table 3

Barriers to Collaboration

Theory or perspective	Contribution	Support
Transaction costs	Inadequate resources/competition for resources	(Mulroy, 2003); (Jang et al., 2016)
	Financially based collaboration	(Jang et al., 2016)
	Costs are immediately realized, while benefits are delayed	(Jang et al., 2016)
	Failure to minimize risks	(Gray, 1989)
	Unequal distribution of costs/risks	(Gray, 1989)
Social capital	Lack of trust	(Lasker et al., 2001) (McGuire, 2006)
	Low levels of social capital	(Agranoff & McGuire, 1999); (Lasker et al., 2001)
	Lack of shared responsibilities	(Lasker et al., 2001)
Resource dependence	Entities do not have resources to spare	(McCullough et al., 2018)
	Inadequate resources overall	(Jang et al., 2016); (Mulroy, 2003)
Power dynamics	Unequal power dynamics/large power asymmetries	(Gray, 1989); (McGuire, 2006); (Stout & Keast, 2021)
	Unequal decision-making ability	(Davoli & Fine, 2004)
New institutionalism and collective action	Undefined organizational structure	(Ferreyra & Beard, 2007)
	Lack of trust	(McCullough et al., 2018)
	Costs experienced individually while benefits experienced collectively	(Jang et al., 2016)
	Breakdown of human relations processes	(Agranoff, 2008)
	Presence of free riders	(Olson, 2012)
	Poor communication	(Noonan et al., 2012)
Network perspective	Competition among participants	(Jang et al., 2016); (Milward & Provan, 2003)
	Inadequate resources	(Jang et al., 2016); (Mulroy, 2003)
	Collaboration's objectives/values do not align with those of participants	(Weber & Khademian, 2008)
Negotiated order	Lack of convener/leadership	(Ferreyra & Beard, 2007)

(continued)

Table 3 (continued)

Barriers to Collaboration

Theory or perspective	Contribution	Support
Interorganizational relations	Excessively high expectations for outcomes/success	(McCullough et al., 2018)
	No common goals/vision	(McGuire, 2006)
	Lack of collaboration experience	(Gray, 1989)
	Negative past experience with collaboration	(Gray, 1989)
	Lack of clearly articulated vision and strategy	(Ferreyra & Beard, 2007)
Institutional perspective	Fear of legitimacy	(Jang et al., 2016)
Group processes	Participant's self-interest	(McCullough et al., 2018)
Game theory	Efforts in collaboration are made by one entity, while benefits are felt by the whole	(Jang et al., 2016)
Collaborative public management	Failure to incorporate individual goals into collective efforts	(O'Leary et al., 2012)
	Failure on the part of one participant can result in failure of the entire collaborative	(McGuire, 2006)
Collaborative governance	Large number of participants	(Ansell & Gash, 2007)
	Geographically dispersed participants	(Ansell & Gash, 2007)
	Broad policy problems	(Ansell & Gash, 2007)
Collaboration perspective	Lack of mutual trust	(Bond-Barnard et al., 2018); (Chua et al., 2012); (Gray, 1989); (Kapucu & Demirhan, 2019); (Sedgwick, 2017); (Snavely & Tracy, 2002)
	Lack of formal/informal communication channels and strategy	(Ferreyra & Beard, 2007)

Many of these theories incorporate the idea that relationships can facilitate collaboration. For example, transaction cost theory identifies increasingly competitive relationships as a factor that is likely to encourage collaboration because their presence fosters the perception that the cost of collaboration will be minimized (Jang et al., 2016). Furthermore, some researchers (Gulati & Gargiulo, 1999; Suarez, 2011) have argued that collaboration is likely if the relationship between entities is characterized by resource dependence. However, McIndoe (2013) claimed that resource dependence can be a barrier to collaboration. Gazley and Guo (2020)

highlighted the possibility that factors that lead to a successful collaboration (i.e., one that meets the goals and vision of participants) may significantly vary from those that lead to a failed collaboration (i.e., one that does not meet the goals and vision of participants). Nevertheless, the literature offers little distinction between factors that influence successful and unsuccessful collaborations. This may be an area for additional studies and research.

Barriers to collaboration are factors that make a task difficult or impossible to achieve. Some might assume that each antecedent to collaboration has a corresponding barrier. For example, if resource dependence is a known facilitator, then one may conclude that not being dependent on other entities for resources would be a barrier. Nevertheless, as previously mentioned, resource dependence is sometimes a barrier to collaboration (MacIndoe, 2013). Debate among scholars and practitioners has demonstrated that factors such as resource dependence could be facilitators in one situation and barriers in another. This is especially true of financial resources. The literature on resource dependence theory suggests that the need to secure resources, including money, would motivate an entity to cooperate in the collaborative process (Suarez, 2011). On the other hand, it has been observed that financial vulnerability makes some nonprofit organizations less open to collaboration (MacIndoe & Sullivan, 2014).

Several potential barriers to collaboration with regard to goals and visions have been noted across multiple theories. From an interorganizational relations perspective, the lack of common goals and visions between entities can be a prominent barrier to collaboration (McGuire, 2006). All participants' expectations for benefits and outcomes of the collaboration should be aligned and realistic. It would be problematic for a participant to expect too much from a collaboration (McCullough et al., 2018). Goals and visions should be clearly articulated throughout the collaborative process (Ferreyra & Beard, 2007). According to the network

literature, goals can become barriers when the objectives of the collaboration as a whole do not align with those of individual participants (Weber & Khademian, 2008). This assertion is echoed in the collaborative public management literature, which states that failure to incorporate the goals of individual participants into the larger collaborative vison would lead to a barrier for the collaboration (O'Leary et al., 2012).

Another potential barrier to collaboration that consistently appears in the literature is low or absent social capital. Research has not only documented the role of social capital as an antecedent to and facilitator of collaboration, but it has also observed that its absence can make collaboration a challenge (Agranoff & McGuire, 1999; Lasker et al., 2001). Specifically, a lack of trust can be problematic (McGuire, 2006). The new institutionalism and collective action perspective also focuses on the importance of trust—a component of social capital—to a collaboration. A lack of trust can render collaboration virtually impossible (McCullough et al., 2018). Trust has been heavily incorporated into the collaboration literature, making it a strong facilitator and its absence a daunting barrier to the collaborative process (Bond-Barnard et al., 2018; Chua et al., 2012; Gray, 1989; Kapucu & Demirhan, 2019; Sedgwick, 2017; Snavely & Tracy, 2002).

In summary, literature that explores the facilitators of and barriers to collaboration is diverse and rich. A number of theories and perspectives have made contributions to this area of research, including transaction costs, social capital, resource dependence, power dynamics, organizational characteristics, new institutionalism and collective action, the network perspective, negotiated order, interorganizational relations, institutional perspective, institutional environment theory, group processes, game theory, cooperation theory, collaborative public management, collaborative governance, adaptive leadership, and the collaboration perspective.

The depth of understanding provides insight into how the process might be encouraged, possibly resulting in a higher level of collaboration.

Process of Collaboration

Many researchers have noted that, while there has been ample discussion of the inputs and outputs of collaboration, the actual process of collaboration has received little scholarly attention (Williams, 2015). This translates into a knowledge gap about variability in the intensity and stages of the collaborative process (Gazley & Guo, 2020). The lack of understanding of the collaborative process has made it difficult to grasp how collaboration can produce a creative outcome that is greater than the sum of its parts (Bardach & Lesser, 1996; Innes & Booher, 2010; Lasker et al., 2001; Stout & Keast, 2021). Table 4 summarizes key components of the discussion.

Table 4

Collaboration Process

Theory or perspective	Contribution	Support
Social capital	Phases of collaboration; first phase is activation (identifying the right mix of people and resources)	(McGuire, 2006)
	Social capital imperative to process	(Morris et al., 2013)
Power dynamics	Ideal types of collaboration process based on power dynamics	(Stout & Keast, 2021)
	Power dynamics shape the process	(Huxham & Beech, 2008)
New institutionalism and collective action	Different institutional actors come together during the process	(Thomson & Perry, 2006)
	Collaboration occurs in phases; second phase is framing (identifying leadership and administrative roles, culture, and structure); third phase is mobilization (entities committing to collaboration)	(McGuire, 2006)
Network perspective	Process is working out new knowledge	(McGuire, 2006)
	Process is a joint effort	(Guo & Acar, 2005)
	Includes interactive processing, mutual engagement, and mutual adjustment	(Agranoff, 2008)
Interorganizational relations	Process must be designed and managed	(Gray, 1989)
Integrative governance	Integrative process	(Stever, 1988)
	Interpersonal relationships transform transactional exchanges in human exchanges that lead to synergies	(Stout & Love, 2016)
Institutional perspective	Process is a joint effort	(Guo & Acar, 2005)
Continuum in cultural competence	Process is affected by culture	(Leavitt, 2010)
Collaborative value creation	Phases of collaboration	(Austin & Seitanidi, 2012)
Collaborative management	Process administered through goal setting, leadership, accountability, and decision making	(Morris & Miller-Stevens, 2016)

(continued)

Table 4 (continued)

Collaboration Process

Theory or perspective	Contribution	Support
Collaborative governance	Process is dynamic and cyclical	(Ansell & Gash, 2007)
	Broader factors (institutional) shape collaboration	(Ansell & Gash, 2007)
Collaborative advantage	Social capital is imperative to the process and other themes	(Huxham, 1996) (Huxham & Vangen, 2013)
Collaboration perspective	Multidimensional process	(Dhanpat et al., 2017); (Thomson, 2001); (Thomson & Perry, 2006); (Thomson et al., 2008); (Thomson et al., 2009)
	Collaboration occurs in phases	(Gray, 1989); (McGuire, 2006); (Ring & Van de Ven, 1994)
	Processes mediates the effects of antecedents on outcomes	(Chen, 2010)
	Collaboration is both structure and process	(Morris & Miller-Stevens, 2015)
	Inquiry, dialogue, constructive conflict, deliberation, consensus-oriented decisions, action, and evaluative reflection	(Flynn, 2018); (Gray, 1989); (Innes & Booher, 2010); (Keast et al., 2020); (Mandell, 2002)
	Must be authentically participatory	(King et al., 2015)
	Collaboration continuum	(Imperial, 2005); (Keast et al., 2007); (McNamara, 2012); (McNamara, 2008); (Thatcher, 2007)

A large portion of the literature on the collaborative process is thematic in nature. It focuses on small pieces of the activity rather than the activity as a whole. Among the most prominent of these is the collaborative advantage framework developed by Huxham (1996, 2003) and Huxham and Vangen (2013). At the center of the framework is a set of themes that they identified as generated by practitioners. Furthermore, they distinguished multiple cross-cutting themes, which were labeled policy-maker themes and researcher-generated themes. One that is of particular interest to a model of creative collaboration is social capital, which is not always directly named or recognized as an important factor by practitioners but known to be imperative to the collaborative process among researchers (Huxham & Vangen, 2013). While the

collaborative advantage framework is somewhat useful for understanding the complexity and dynamic nature of factors that influence the collaborative process, such as membership, it does little to describe the process overall (Williams, 2015).

An emerging stream in the network literature that investigates collaboration positions within different levels of interaction (Imperial, 2005; Keast et al., 2007; McNamara, 2012). Several studies have offered a typology continuum to begin describing the range of collaborative activities in the public, nonprofit, and private sectors (Austin & Seitanidi, 2012; Morris & Miller-Stevens, 2015). Among the most well-known typologies to date is that of McNamara (2012; 2008), which is based on the ideas of Fagan (1997), Mattessich et al. (2001), and Thatcher (2007). This typology comprises three levels of interorganizational interaction: cooperation, coordination, and collaboration. Within this typology, collaboration is the most intense type of interorganizational interaction (Imperial, 2005; McNamara, 2012; 2008; 2010).

Several overviews of collaboration research and theory have highlighted the critical shortage of empirical research in the field, specifically quantitative research (Castañer & Oliveira, 2020; Gazley & Guo, 2020; Varda et al., 2012; Williams, 2015). Most models and frameworks developed to describe the collaborative process are conceptual in nature, and some employ case studies when qualitative data collection is involved. This is problematic because, while case studies provide rich detail and analysis of a specific collaboration, they can be limiting in terms of generalizability. In fact, Williams (2015) argued that

> with a few notable exceptions (McNamara, 2008; Thomson, 2001), there has been little attempt at rigorous theoretical conception for the purpose of empirical research. This has led to a multitude of conceptual frameworks, typologies, definitions, and interchangeable terminology, many of which were developed in case studies. While many of these efforts

have merit, cumulative empirical research has suffered in the absence of standardized conceptualization and operationalization. (p. 15)

Scholars typically agree that academia has not reached consensus on the key dimensions of collaboration (Gazley & Guo, 2020; Huxham & Vangen, 2013). Thomson (2001) and Thomson and Perry (2006) made great progress in defining the process component by building on previous research across disciplines and synthesizing this information into what they identified as the five key dimensions that are essential to the collaborative process. They also empirically tested these dimensions and proposed a model to define and measure collaboration (Thomson et al., 2009). Their proposed dimensions include structural dimensions of governance and administration, social capital dimensions of mutuality and norms, and the autonomy dimension. However, research on understanding the balance between these dimensions and comparing their impact on collaboration in relation to each other has yet to be conducted. Thomson and Perry (2006) argued that this is because there is little consistency between cases of collaboration in this respect.

In summary, this section describes literature that focuses on the process of collaboration; the range of perspectives on this topic is extensive. Some scholars conceptualize collaboration as an interaction that occurs in phases (McGuire, 2006), while others view it as a series of transactional exchanges (Stout & Love, 2016). However, a common theme in the literature is the creative potential of the collaborative process (Keast et al., 2020). The synergistic collaborative process, which is at the core of creative collaboration, forms the focus of the proposed model for creative collaboration.

Outcomes of Collaboration

Outcomes of the collaborative process are widely discussed in the collaboration literature (Gazley & Guo, 2020; Stout & Keast, 2021). Table 5 provides an overview of how researchers have considered successes and failures in collaboration.

Table 5

Outcomes of Collaboration

Theory or perspective	Contribution	Support
Transaction costs	Success: increased financial stability	(Snavely & Tracy, 2002)
	Success: minimized risk	(Stout & Keast, 2021)
	Success: more effective	(Stout & Keast, 2021)
Social capital	Success: enhanced trust and social capital	(Kapucu & Demirhan, 2019)
	Success: increased social capital and expansion of existing network	(Morris et al., 2013)
	Success: increased problem-solving capacity without additional expenditures	(Morris et al., 2013)
Resource dependence	Success: access to reliable revenue streams	(Snavely & Tracy, 2002); (Suarez, 2011)
	Success: resource sharing (doing more with less)	(Stout & Keast, 2021)
	Success: eliminating redundancies	(Stout & Keast, 2021)
	Success: increased problem-solving capacity without additional expenditures	(Morris et al., 2013)
Power dynamics	Failure: participants can be inflexible to the changing needs of the collaborative, leading to the collaboration's demise	(Takahashi & Smutny, 2002)
	Success: enhancement of equity and democratic engagement	(Stout & Keast, 2021)
Partnership synergy	Success: multiplicative outcomes (greater than the sum of the parts)	(Bardach & Lesser, 1996); (Lasker et al., 2001); (Wilding, 2006)
New institutionalism and collective action	Failure: lack of cohesion	(Noonan et al., 2012)
	Success: collective benefits for the community and individual benefits for participants	(Jang et al., 2016)
	Failure: outcomes disproportionately benefit one participant	(Jang et al., 2016)
	Success: reduce service provision costs through economies of scale or scope of services	(Jang et al., 2016)
	Failure: mission drift	(Jang et al., 2016)
	Failure: loss of autonomy	(Jang et al., 2016)

(continued)

Table 5 (continued)

Outcomes of Collaboration

Theory or perspective	Contribution	Support
New institutionalism and collective action	Failure: bureaucratization	(Jang et al., 2016)
	Failure: increased reliance on external funding	(Jang et al., 2016)
	Success: exchange of information	(Menefee, 2015)
	Success: joint agreement	(Menefee, 2015)
Network perspective	Success: increase in network effectiveness (interorganizational trust and goal convergence, which are also the two main mechanisms to build social capital)	(Kapucu & Demirhan, 2019)
	Success: effective outcomes	(Provan & Milward, 1995) (Selden et al., 2006)
Interorganizational relations	Success: enhanced trust and social capital	(Kapucu & Demirhan, 2019)
	Success: best measures of outcome are multidimensional	(Gazley & Guo, 2020)
Game theory	Success: felt by all participants	(Jang et al., 2016)
Collaborative public management	Failure: goals not aligned among participants	(McGuire, 2006)
	Failure: negative relationships	(McGuire, 2006)
Collaborative Innovation	Failure: some participants benefit more than others	(McGuire, 2006)
	Failure: innovation does not always mean improvement	(Torfing, 2019)
Collaborative governance	Success: creation of public value	(Imperial, 2005)
	Success: synergies and innovation	(Stout & Love, 2016)
Collaboration perspective	Failure: cooperation not always a result of collaboration	(Bryer, 2009); (Varda et al., 2012)
	Failure: collaborative success not guaranteed	(Bryer, 2009); (Hu et al., 2016); (Varda et al., 2012)
	Failure: collaborative failures not carefully documented in the literature	(Gazley & Guo, 2020)
	Failure: does not address goals of the collaboration	(White & Wehlage, 1995)
	Failure: collaboration without a goal or purpose	(White & Wehlage, 1995)
	Success: performance evaluation measures for individual participants may differ from the collaboration as a whole	(Kapucu & Demirhan, 2019)
	Success: outcome better than what can be independently achieved	(Gajda, 2004); (Innes & Booher, 2010); (Mandell, 2002); (Stout & Keast, 2021)
	Success: creative/innovative solutions	(Stever, 1988); (Stout & Keast, 2021)
	Success: exchange of information	(Menefee, 2015)

Researchers' understandings of the benefits of collaboration (i.e., positive outcomes) greatly vary and are largely shaped by the theoretical perspective used in the analysis. For example, transaction cost theorists suggest that collaboration leads to increased financial stability (Snavely & Tracy, 2002). Kapucu and Demirhan (2019) emphasized that the most important collaboration outcome is enhanced trust and social capital. Morris et al. (2013) noted that the increase in social capital that results from collaboration leads to higher problem-solving capacity without additional expenditures and, ultimately, an expanded network. Moreover, the literature heavily emphasizes that collaboration fosters synergies that result in creative outcomes, which are understood to be as a whole more than the sum of their parts (Lasker et al., 2001).

In a comprehensive literature review, Williams (2015) highlighted the emergence of a stream of research that examines the evaluation of collaborative efforts. Evaluations are critical to collaboration because they present participants and other stakeholders with a critical analysis of progress and underline areas of improvement (Morris et al., 2013). Gazley and Guo (2020) argued evaluating a collaboration is challenging because meeting or failing to meet a goal cannot always be relied on as a standard measure of performance. Sometimes, the goals of collaboration participants overlap or even conflict. According to Gazley and Guo, the findings reported in the literature so far suggest that the best measures of a collaboration's effectiveness are multidimensional. Furthermore, measures of success for one participant may be different from the broader purpose of the network (Kapucu & Demirhan, 2019).

In summary, literature that focuses on the outcomes of collaboration is abundant but somewhat divergent. Scholars have placed varying levels of emphasis and focus on successes and failures in collaboration.

Weaknesses of the Field

Over 30 years ago, Wood and Gray (1991) convened a symposium with the goal of working towards an emerging collaboration theory. According to Mayer and Kenter (2016), they did so under the assumption that a consensus had been reached on a general definition for the construct, even if understanding remained somewhat vague. Upon reviewing the articles submitted to the symposium, they quickly discovered that there was still much work to be done in defining collaboration before tackling the development of a theory. Even still, disagreements and debates have only intensified since 1991 (Mayer & Kenter, 2016, p. 45).

Collective understanding of a concept cannot progress without solid empirical foundations and common defintions (Gazley & Guo, 2020). This may be due to a failure to reach a consensus on a term to describe the topic. In public affairs and civil society research alone, several systematic literature reviews have argued that many different terms, from “networking” to “information sharing,” “coordinating,” “teaming,” “partnering,” and “cooperating,” have been interchangeably used in discussions on what appears to be collaboration of some sort (Williams, 2015). While labels are somewhat arbitrary, they do provide researchers with a common language to discuss a topic (Williams, 2015).

Another weakness of the field is a lack of rigorous, empirically based research, with the exception of McNamara (2008) and Thomson (2001). This gap may be due to the tangled, disorganized state of the field. The absence of a cohesive conceptual definition undermines empirical research efforts to produce a generalizable theory (Gazley & Guo, 2020; Stout & Keast, 2021). Thus, collaboration researchers have repeatedly concluded their studies with calls for more empirical research with large sample sizes and definitional clarity on the concept of creative collaboration (Gazley & Guo, 2020; Stout & Keast, 2021).

Summary

The literature review described some of the main theories that have contributed to the field of collaboration research, including interorganizational relations, network theory, new institutionalism and collective action, and a multidimensional model. It also briefly discusses some weaknesses of the field. The next chapter articulates an enhanced model of creative collaboration based on a modified version of Thomson's (2001) existing model.

Chapter 3. Theoretical Model of Creative Collaboration

The current chapter presents a theoretical model of creative collaboration derived from both collaboration and creativity research. It begins with an overview of Thomson's (2001) model. Next, it makes a case for creative collaboration and proposes a conceptual model to describe or understand it. Finally, the chapter concludes by explaining how creative abrasion might mediate the interaction between diversity and conflict to produce creative collaboration.

Modeling Collaboration

To grapple with a construct as unwieldy and complex as collaboration, scholars have proposed models for either measurement or evaluation that organize the process into distinct dimensions, factors, and components (Alter & Hage, 1993; Bryson et al., 2006; McNamara, 2012; Thomson, 2001). As previously mentioned, most scholars who study collaboration would agree that the dimensions of the collaborative process—what occurs between antecedents and outcomes (Wood & Gray, 1991)—remain under active debate (Gazley & Guo, 2020). Several contending models exist, but there is room for additional study and definition. With the exceptions of models by Thomson (2001) and McNamara (2008), little has been done to develop a model that could be used in empirical research, specifically quantitative research (Williams, 2015).

Based on previous work by Edmondson (2006), LaRocco (1997), and Thatcher (2007), McNamara (2008) used the multiorganizational implementation model (MIM) to conceptualize collaboration as the most intense interorganizational interaction on a spectrum that also includes cooperation and coordination. Within this model, the dimensions of interorganizational infrastructure, organizational management, interorganizational policy objective, and interorganizational procedures determine where an observed interorganizational interaction

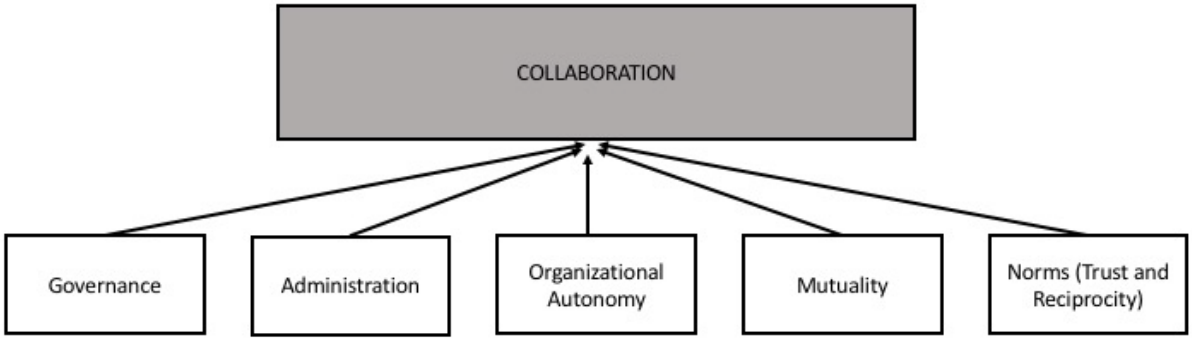
would fall on a continuum. While this model is useful for understanding how collaboration differs from other forms of interorganizational interaction, it does not shed light on collaboration as a distinct form of engagement. The MIM assumes that collaboration comprises the same dimensions as cooperation and collaboration, albeit in different amounts, and does little to explore why collaboration has the potential for creative synergy (Bardach & Lesser, 1996; Climer, 2016; Stout & Keast, 2021)

In addition to the model for measuring collaboration championed by Thomson (2001), Thomson and Perry (2006), and Thomson et al. (2008, 2009), the emergence of a second measurement model by Marek et al. (2015) has been noted (Dhanpat et al., 2017; Greenwald & Zukoski, 2018; Salignac et al., 2019). Both models take a multidimensional approach to understanding collaboration and define it according to latent concepts measured through observed indicators. A close examination of measurement tools within these two models demonstrates that many of the latent concepts (or dimensions) are measured with overlapping indicators. For example, trust is identified in both models as key to effective collaboration. In Thomson's (2001) model, indicators that describe trust are tied to the dimension of norms; in the Collaboration Assessment Tool envisioned by Marek et al. (2015), they are tied to the dimension of membership. This study uses Thomson's (2001) model because its indicators more closely track with components that the literature on the matter suggests may be necessary for the proposed model of creative collaboration. Furthermore, Marek et al.'s (2015) model is intended to measure the effectiveness of a collaboration rather than the active collaboration process itself. In attempts to understand how a collaboration results in creative outcomes, the proposed model of creative collaboration is assumed in this study to be limited to effective collaborations; the

focus is on creativity, not effectiveness. Thus, Thomson's (2001) model is the one that this study primarily seeks to expand on.

Similar to McNamara's (2008) process of developing a scale of interactions that included collaboration, Thomson (2001) empirically tested these dimensions and proposed a model (see Figure 1) to define and measure collaboration as a form of engagement. However, Thomson's (2001) model uses dimensions to describe an interaction that is completely distinct from others (Thomson, 2001; Thomson & Perry, 2006; Thomson et al., 2008, 2009). Further studies to understand the balance between these dimensions and compare their impact on collaboration in relation to each other is ongoing, with limited generalizability due to small sample sizes (Sedgwick, 2017). However, researchers have moved towards validating the model in other contexts (Dhanpat et al., 2017). Figure 1 illustrates the model for collaboration conceptualized by Thomson (2001); it is followed by a discussion of dimensions in the model.

Figure 1
Model of Conventional Collaboration, adapted from Thomson (2001)



Autonomy

The first dimension in Thomson's model of collaboration is autonomy, which describes the actors or "building blocks" of the collaborative process (Hill et al., 2014, p. 28). Some scholars have concluded that collaboration occurs between sovereign entities that work towards a

common goal as a group (Bedwell et al., 2012; Thomson et al., 2009; Wood & Gray, 1991). Participation in the collaboration is elective, and entities should willingly engage in the process (Gazley & Brudney, 2007; Hill et al., 2014). Collaboration researchers have observed that a situation in which one side dictates the participation of another entity is closer to work delegation or even coercion than it is to collaboration and that working together in a contractually bound relationship cannot be considered collaboration (Bedwell et al., 2012; Gazley & Brudney, 2007). In fact, some scholars assert that power asymmetries such as those found in contractual relationships can be barriers to effective collaboration (Gray, 1989; McGuire, 2006; Stout & Keast, 2021).

The use of the term "entity" to describe individuals, teams, functional areas, or even organizations that participate in collaborations is intentional and important to emphasize. Calling individual actors "team members" or another arbitrary label could limit the application of a collaboration construct. This is consistent with the assertion that collaboration can be considered at any level of analysis (Gazley & Guo, 2020). Furthermore, collaboration cannot be limited to interactions at the same level of analysis, as it may also occur across levels (Bedwell et al., 2012). For example, an individual who constitutes one level of analysis could and would work with a large organization.[1] Gazley and Guo's (2020) systematic literature review revealed that

[1] This idea is important to emphasize for a conceptual model, which can suggest relationships between levels of analysis (Williams, 2015). But, collaboration scholars have suggested that the potential for successful collaboration between and across levels of an organization has added to the confusion around how to consistently define the construct (Huxham & Vangen, 2013). Because collaborations are clearly multilevel, overlaying conceptual models onto standard levels of analysis such as individual, organizational, and interorganizational domain to make statistical inferences can be challenging (Scott, 2003). Perhaps this is one of the causes of lack of empirical research in the fragmented collaboration literature. Scholars have called for more empirical research that plainly states the preferred definition of collaboration and the level of analysis under consideration (Gazley & Guo, 2020; Lecy et al., 2012). While considerations are broader during this discussion of a conceptual model for creative collaboration, this study will commit to a level of analysis when moving to empirically test the proposed model.

most of the literature on collaboration only considers one level of analysis, which ignores the broader, multilevel nature of collaboration.

Different entities have unique needs that must be fulfilled to ensure that they are motivated to meaningfully participate in a collaborative effort. Although an autonomous entity remains part of the group, they must perceive that they are of value as an individual, which implies that their contributions are indispensable to the success of the project (Haas & Moretenson, 2016; Hill et al., 2014; Thomson et al., 2009). Participants simultaneously require intellectual and emotional space and engagement and connection to the overall group. As long as individual needs are satisfied while working towards a common goal, an essential balance between the individual and the group is realized (Hill et al., 2014). The tension between individual and collective self-interest is a reality that participants must face throughout the collaborative process (Thomson et al., 2009). Collaboration is reciprocal in that it requires mutual engagement between two or more actively participating entities, although contributions and levels of participation must not always be equal (Bedwell et al., 2012). This is what distinguishes collaboration from coordination, which does not always require reciprocity. Furthermore, all entities must perceive that they will benefit from the collaboration in some way, and these benefits must be clearly defined (Crosby et al., 2017).

The preservation of autonomy among participating entities is a defining characteristic of a collaborative project. Maintaining autonomy alongside a group identity requires a delicate, nuanced balance, such that stakeholders retain their independent decision-making powers even when agree to shared rules (Wood & Gray, 1991). Individual entities maintain simultaneous individual and group identities (Huxham, 1996; Ring & Van de Ven, 1994; Thomson et al., 2009; Wood & Gray, 1991). Participants who contribute to collaborative efforts understand that their

individual contributions will impact the outcome of the project, even if they are transformed during the process to the extent that they are no longer recognizable as their original contributions. Individual contributions are still valued, even if their ideas are largely rejected (Campbell, 2018; Haas & Moretenson, 2016; Hill et al., 2014). Wood and Gray (1991) specified that, while some entities can maintain complete autonomy or relinquish some amount of autonomy to the collaborative alliance, a minimal amount must be maintained. If all autonomy is surrendered, the process is no longer collaborative. Instead, it becomes something akin to a merger. According to Huxham's (1996) concept of the autonomy–accountability dilemma, individual entities not only require some level of control in managing their work (Haas & Moretenson, 2016), but they must also approach collaboration with a degree of accountability and flexibility that only comes with relinquishing some control. This is what enables them to consider newer solutions or approaches to problems than they would not otherwise consider on their own (Hill et al., 2014, p. 138).

When considering the identities of collaboration participants, it is important to emphasize that not all stakeholders in a particular problem domain need to participate in the process for collaboration to occur. In fact, Wood and Gray (1991) emphasized that the involvement of all stakeholders is inadvisable and could lead to unnecessary complexity. Full versus partial stakeholder representation has a differential—although not always more or less successful—impact on outcomes. While a smaller number of participating entities makes collaboration much easier to coordinate and thus more likely to succeed, the exclusion of stakeholders could interfere with the eventual adoption of outcomes that were agreed upon by participating entities. Moreover, participating entities may vary over time. Wood and Gray (1991, p. 146) suggested that stakeholders may have different interests at the beginning of a collaborative venture, which

may evolve over time. Nevertheless, stakeholders in a particular problem domain can only collaborate if a common beneficial outcome is identified along the way.

Governance and Administration

Collaboration is not a static structure but rather an observable activity that can be identified by its dynamic structure, which is composed of specific dimensions (Bedwell et al., 2012; Hill et al., 2014; Thomson & Perry, 2006). Researchers commonly conclude that, as a process, collaboration results in something—an action, decision, product, or other outcome (Kapucu & Demirhan, 2019). Furthermore, there is a general consensus among collaboration scholars that actors must willingly engage in the process with the intention to eventually reach an outcome or decision (Bedwell et al., 2012; Gazley & Brudney, 2007; McGuire, 2006). Collaboration is active rather than passive (Smith, 2016), and interactive processes and tasks are optimally designed to promote positive group dynamics and productivity (Gray, 2000; Haas & Moretenson, 2016). Collaborations are usually temporary and evolving structures (Gray, 2000), and some academics (Skilton & Dooley, 2010) have claimed that outcomes suffer in long-term collaborations. Nevertheless, Gray (2000, p. 148) contended that more permanent structures might also facilitate collaboration and that the duration of collaborative structures could even be a criterion for classifying diverse forms of collaborations. Through give-and-take between individual entities that are not in competition with each other (Hill et al., 2014), all participating stakeholders are involved in a change-oriented relationship of some duration (Wood & Gray, 1991, p. 148). The collaborative process can take many forms, but it most often manifests as a discussion that consists of a free flow of ideas and a series of meaningful, close interactions (Hill et al., 2014, p. 103).

Thomson (2001) made the distinction between a governance and administration dimension, but Dhanpat et al.'s (2017) validation of her model revealed that the difference between these two concepts is not as clear-cut as originally thought. According to Thomson et al. (2009), governance in collaboration is based on rules and structure, while administration focuses on implementation and management (Dhanpat et al., 2017). However, items that measure the presence of "supporting structures, policies, clarity of roles, goals and tasks and the existence of meetings and monitoring mechanisms" loaded onto one governance/administration factor in Dhanpat et al.'s (2017, p. 9). Along with other discussions in the existing literature (Marek et al., 2015; Mattessich et al., 2001), these results support the combination of these components into one factor or dimension—an approach that was adopted in this study. A discussion of a combined governance/administration dimension follows.

Explicit, shared rules are a critical dimension of collaboration, as they ensure that members focus on achieving the collective goal, discourage unproductive behaviors, and nurture positive dynamics and activities that foster collaboration (Haas & Moretenson, 2016; Hill et al., 2014; Thomson et al., 2009). By contrast, a lack of shared rules strains collaboration, as there is no agreement on identifying, evaluating, and implementing possible solutions. To move beyond and possibly leverage conflict to achieve better outcomes, stakeholders must typically agree on the rules that will govern the interactive process. Although collaboration is informal in many ways, it cannot be left up to chance (Haas & Moretenson, 2016; Thomson et al., 2009; Wood & Gray, 1991). In fact, when collaboration participants are heterogenous, explicit rules must be reiterated at regular intervals to ensure that participants with different backgrounds and skillsets remain on the same path (Smith, 2016). Shared rules describe actions that are permitted or constrained (Thomson et al., 2009). However, shared rules are not static, and there is no single

way to define the rules that are most appropriate for a specific collaborative event (Bedwell et al., 2012). Should collaboration veer off track, shared rules that dictate authority to make final decisions and refocus efforts are vital to a collaborative effort.

Leadership and administration are also critical to collaboration. They build organizational bridges by providing the regulation and guidance required to spur a collaborative effort towards decision, action, and outcomes (Hill et al., 2014; Thomson et al., 2009). Leadership not only forms the basis of collaboration but also lends it legitimacy (Wood & Gray, 1991, p. 149). Furthermore, administration focuses on implementation and management (Thomson et al., 2009). Thomson et. al (2009) wrote, "Collaborations are not self-administering enterprises. Organizations collaborate because they intend to achieve particular purposes" (Thomson et al., 2009, p. 26). Additionally, administration acts as a facilitator by encouraging the process and removing barriers to effective collaboration (Crosby et al., 2017).

Both administration and leadership can prove difficult because participation in collaboration is voluntary. Thus, a collaboration can quickly fall apart when individual goals outweigh collective goals (Campbell, 2018; Thomson et al., 2009). It is important to emphasize that leadership is typically horizontally distributed in a collaborative effort because, depending on the level of autonomy held by individual actors, hierarchy is less feasible and perhaps less important (Crosby et al., 2017; Thomson et al., 2009). While autonomy discourages standardization and routinization, moving from destructive to constructive conflict requires clarity of roles and responsibilities (Crosby et al., 2017).

In an attempt to offer practitioners a roadmap for the process, collaboration scholars have long debated how collaboration can be effectively led, with considerations of power and authority remaining central to the discussion (Crosby et al., 2017; Hill et al., 2014; Ran & Qi,

2018; Thomson et al., 2009). In practice, who holds power and authority must be clearly defined to maintain balance between dilemmas and tensions among the opposing forces that characterize collaboration (Ansell & Gash, 2007). Collaboration leaders should have the power and authority to convene participants who can meaningfully contribute to the effort (Crosby et al., 2017; Gray, 2000). Wood and Gray (1991) argued that leaders in collaboration only require informal authority (which may be based on informal influence, expertise, and knowledge) with stakeholders in the problem domain. Nevertheless, legitimacy is a key issue. Thomson and Perry (2006) emphasized the importance of shared rules and administration. The leader must have legitimacy among the stakeholders to move forward decisions and establish rules that will guide and mediate the collaborative process (Ansell & Gash, 2007; Mayer & Kenter, 2016; Thomson et al., 2009). In collaborative endeavors, legitimacy is rooted in social capital. Legitimacy increases with social capital, and collective goal congruence is possible (O'leary & Vij, 2012). Understanding the sources and uses of power on the part of the leader is critical, because these inform process formation and engagement (Huxham & Beech, 2008; Stout & Keast, 2021). Relations should promote group ownership in a structure that is horizontal rather than vertical. Superior/subordinate relationships must be avoided (Innes & Booher, 2010).

Mutuality

Before describing the mutuality dimension of collaboration, a discussion of social capital is warranted. In practice, social capital is viewed as the quality of relationships between entities, which gives them the confidence to engage in collaboration even when the process is frustrating and consumes resources. It empowers the acceptance of costs because "participants often enter what can be an incredibly time-consuming, frustrating process with the common understanding that it takes 100 ideas to find the right one. Thus, a collaboration forms where people feel

motivated and psychologically safe" (Hill et al., 2014, p. 143). Without social capital, participants may not withstand conflict and make themselves vulnerable by sharing ideas with the understanding that they will more than likely be rejected. Social capital establishes psychological safety, because "without social fabric, no ecosystem can survive long enough to achieve much" (Hill et al., 2014, p. 203).

The existing literature on social capital clearly positions it as critical to collaborative endeavors because it facilitates the transfer of knowledge and resources between entities (Steinmo & Rasmussen, 2018). As it relates to collaboration, social capital can be defined as "the sum of the actual and potential resources embedded within, available through and derived from the network of relationships possessed by an individual or social unit. Social capital thus comprises both the network and the assets that may be mobilized through the network" (Nahapiet & Ghoshal, 1998, p. 243). Morris and Miller-Stevens (2015) argued that social capital is critical to Thomson's (2001) model illustrating the mechanisms of collaboration. One of Thomson's (2001) conceptualizations of collaboration is "aggregative, in which collaboration translates private preferences into collective choices via a mechanism of rational utility maximization" (Morris & Miller-Stevens, 2015, p. 21). The other is "integrative, in which collaboration creates new and shared understandings and consensus over compromise" (Morris & Miller-Stevens, 2015, p. 21). In either case, social capital characterizes the relationships between entities that shape the mutuality and norms dimensions of collaboration (Morris & Miller-Stevens, 2015; Thomson, 2001).

Mutuality is perhaps one of the most important dimensions of social capital in collaboration because it helps collaborations leverage differences. Collaboration only occurs when individuals consider membership in a collaborative group to be a component of their

identity (Haas & Moretenson, 2016). Mutuality is grounded in interdependence, in which groups are aware that they are bound by a common need, goal, or purpose, along with shared rules of engagement (Hill et al., 2014; Thomson et al., 2009). Such bonds will unite entities even when conflict becomes intense (Hill et al., 2014, p. 143).

It is important to note that mutuality does not mean that participating entities in a collaboration must have all the same goals. A goal for a collaboration can go beyond a participating entity's individual mission. Perhaps even more confusing, participating entities in a collaboration may have seemingly contradictory missions. This is possible because mutuality is more about mutually beneficial relationships than adhering to the same goals. Collaboration outcomes can be complex and multifaceted; different facets of the outcome may meet one participating entity's needs but not those of others (Thomson et al., 2009). Wood and Gray (1991) wrote, "Collaboration can occur as long as stakeholders can satisfy one another's differing interests without loss to themselves" (p. 161). Thomson et al. (2009) wrote "Mutuality provides a foundation for forging common views out of differences" (p. 27). As actors consider themselves allies, mutuality discourages unproductive behaviors and decreases interpersonal conflict (Haas & Moretenson, 2016; Hill et al., 2014; Smith, 2016).

Norms

Similar to the rules of collaboration, social capital norms are critical for guiding interaction between individuals throughout the collaboration process (Hill et al., 2014; Thomson, 2001; Thomson & Perry, 2006). Within a collaboration, norms are typically highly contextual and can contradict norms outside of the collaboration. Thus, they dictate behavior that may initially appear unnatural to participants (Crosby et al., 2017; Hill et al., 2014). The understanding that all other entities will follow through on contributing to the collaboration

dictates a participating entity's behaviors and informs its contributions. Thus, the two facets of social capital norms that contribute to collaboration are reciprocity and trust (Crosby et al., 2017; Skilton & Dooley, 2010; Smith, 2016; Thomson & Perry, 2006). Thomson (2001) wrote "Reciprocity, from this perspective, manifests itself in different degrees of obligation such that organizations are willing to bear initial disproportional costs because they expect their partners will equalize the distribution of costs and benefits over time out of a sense of duty" (p. 92). Trust is closely related, as it shapes organizations' expectations of each other (Cummings & Bromiley, 1996). Hill et al. (2014) even concluded that trust is mandatory in a collaborative relationship. Thomson et al. (2009) discussed the important role of trust in moving from legal to psychological contracts. All actors who engage in collaboration must hold the common belief that others will make good faith efforts to adhere to both explicit and implicit commitments, remain honest throughout the collaborative process, and not exploit other participating entities or the collaboration as a whole, even when the opportunity presents itself. Trust relates to the shared goals and purposes that are also dimensions of collaboration in that actors trust that other participants prioritize mutual goals, purposes, and agendas (Hill et al., 2014).

In their discussion of Thomson's (2001) model, Thomson and Perry (2006) referred to the extensive line of researchers who have already come to the same conclusion: collaboration is complicated. Although Thomson's (2001) model appears to describe collaboration at face value and somewhat facilitates the identification of a starting point and subsequent way forward, this study takes the position that it does little to capture the complexity and conflict that are inherent to collaboration as a path to innovation and creativity. Further examination and synthesis of collaboration research suggests that a step beyond simple collaboration exists, as it has been used in the public sector. Lower-level collaboration as discussed by Thomson et al. (2009) appears to

address collaboration as a solution for limited resources, where an institution can leverage the diverse assets that each entity brings to the collaboration and deliver outcomes that would otherwise not be possible. While this is an important application of collaboration, it limits the construct to a lower level of engagement. Higher-level collaboration appears to apply in settings where creativity and innovation are required—that is, when creative collaboration is imperative. The essence of creative collaboration may rest in the interaction or tension between different ideas, backgrounds, and skills, which can be called creative abrasion (Hirshberg, 1998). This study proposes that creative abrasion mediates conflict and diversity, such that they can be productively rather than destructively added (Hill et al., 2014; Leonard, 1995; Leonard & Swap, 2011; Leonard-Barton & Swap, 1999) and carry collaboration to a higher level (i.e., creative collaboration), as determined by the four abovementioned dimensions.

Modeling Creative Collaboration

Wilding (2006) called collaboration outcomes multiplicative. In other words, when resources are combined through collaborative relationships, the final product is not simply two sets of resources added together. Something else happens. Some have recognized (Austin & Seitanidi, 2012) creative potential, in which outcomes are greater than the sum of their parts (Bardach & Lesser, 1996; Innes & Booher, 2010; Lasker et al., 2001; Stout & Keast, 2021). Theories that examine collaborative behavior on a continuum may be of some assistance in further conceptualizing. Placing collaboration on a linear, unidimensional scale implies that there are other behaviors that, while unique in some ways, are strikingly similar in others (Gajda, 2004; Imperial, 2005; Keast, 2016; McNamara, 2012; McNamara, 2008; McNamara, 2010; Sedgwick, 2017). In other words, the boundaries between behaviors are not black and white. Additionally, if continuums of collaborative behavior are conceptualized as beginning at a lower

level and moving up until they reach collaboration (Austin & Seitanidi, 2012; Keast et al., 2007; Mattessich et al., 2001), it is quite possible some behavior just beyond collaboration in terms of integration exists (Gajda, 2004; Gajda & Koliba, 2007). This study conceptualizes behavior beyond collaboration to be a more intense engagement that results in the creative spark leading to multiplicative outcomes. However, individualism and other factors in collaboration that prevent entities from completely merging, such as autonomy, remain important (Williams, 2015).

An additional body of research that might be of some use in this area concerns collaborative innovation, a concept championed by governance scholars (Agger & Sørensen, 2018; Crosby et al., 2017). Collaborative innovation theory brings together collaboration and innovation in one discussion as it pertains to the public sector. It has a slightly different perspective than this study's focus in that it prioritizes innovation over collaboration, as indicated by the name. In other words, it describes innovation that is collaborative (McGuire, 2006). In this study, creative collaboration prioritizes collaboration and describes it as a form of engagement that is creative (Torfing, 2016). Nevertheless, some concepts from the rapidly developing field of collaborative innovation and its implications for governance can inform the current model of creative collaboration.

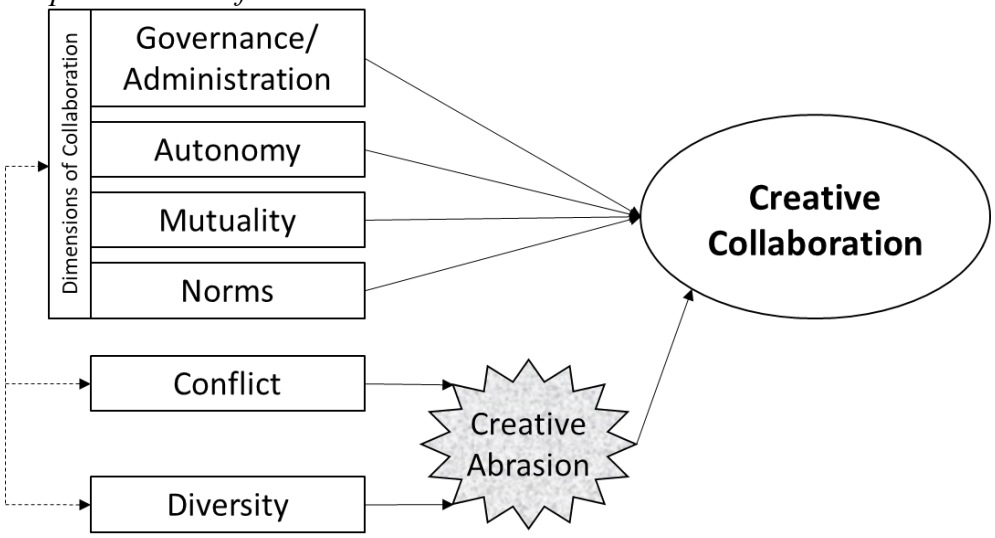
Collaborative innovation scholars have argued that collaboration is particularly well-suited to the public sector, as it brings together stakeholders from a variety of backgrounds and interests to create public value or make a public good (Bommert, 2010; Teece, 1992). In this case, the good comes from innovation, which they state is the implementation of creative ideas. Creative innovation researchers have asserted that creativity is the act of idea generation and is largely the cognitive process of a single individual (Nambisan, 2008; Torfing, 2016). Nevertheless, some have mentioned that teams can work together in the idea generation process;

thus, something occurs beyond the individual (Torfing, 2019). This study suggests that the "something" could be creative collaboration.

To address collaboration at a higher level, this study proposes a model of creative collaboration based on the model of collaboration conceptualized by Thomson (2001), expanded by Thomson and Perry (2006) and Thomson et al. (2008, 2009), and validated by Dhanpat et al. (2017). This potential model of creative collaboration retains the dimensions of collaboration from Thomson's (2001) model and combines the dimensions of governance and administration (similar to Dhanpat et al., 2017), while also adding three dimensions: creative abrasion, conflict, and diversity. It is possible that the dimensions of conflict and diversity interact in creative abrasion and, ultimately, result in creative collaboration. Thus, creative abrasion is the active component of the collaborative process in which "ideas jostle and contend with each other. As that happens, the ideas change, improve, and perhaps even spawn other, better ideas" (Hill et al., 2014, p. 121). By exploring how conflict and diversity engage in creative abrasion, a concept emerges that might be called creative collaboration—a higher level of engagement that results in truly innovative outcomes. Figure 2 illustrates the proposed theoretical model of creative collaboration.

Figure 2

Proposed Model of Creative Collaboration



Before discussing the relationships between components of the proposed model, creativity as a concept should be addressed, and a working definition should be established. Separate from collaboration, creativity has spurred decades of discussion and debate. Nevertheless, incorporating it into the context of collaboration suggests new implications and, ultimately, innovative results. Creativity is a complex social concept, but the focus in this study is on its relationship to governance. The literature review revealed several definitions and formative concepts of creativity. In developing a conceptual definition of creativity, distinguishing between creativity and organizational structures that foster and enable creativity is essential (Ansell & Gash, 2012; Ansell & Torfing, 2014). Furthermore, for this research, any definition of creativity must take into account organizational structure. Organizational structure is necessary for fostering creativity; however, it is not by definition an inherent component of creativity. Creativity is contextual; the organizational structure directly influences the possibility of innovation (Bommert, 2010; Lindsay et al., 2021). Then, creativity is an idea or concept that moves beyond established boundaries to provide some value to those affected (Torfing, 2019).

Leadership that nurtures and stimulates creativity while fostering collaboration establishes an organizational culture for individual and group creativity.

Another essential component of creativity is its role in adding value to a process, policy, object, or solution. Added value implies that creativity is not present if the outcome does not bring some benefit to the involved entities. For example, a new way to build a product is not creative if its production brings added value to management (e.g., greater profits),but not to workers (e.g., wages do not increase) or clients (e.g., the new product is not more useful). Similarly, ideas are only considered creative insofar as their implementation is feasible. Thus, innovation is the implementation of creative ideas (Myers, 1996; Stollberger et al., 2019). The added value of creativity is not only related to the unique context of the individual but also the plural context of the organization's values system. If an organization fosters creativity, the attitudes and behaviors of its employees will reflect creativity because they are encouraged to implement new ideas and are confident about seeking support and guidance from colleagues to produce creative outcomes (Shalley & Gilson, 2004). When creativity is considered in the context of collaboration, it can be understood as describing something new and unique that is also useful.

Chua et al. and other scholars who study teamwork have begun to use the term "creative collaboration" to explore how and when interactions of diversity and conflict result in creativity (Chua & Jin, 2020; Chua et al., 2012). However, they have focused more on creativity than collaboration. This study takes the position that deep exploration that prioritizes creativity over collaboration implies an oversight of not only the two critical dimensions undergoing creative abrasion (i.e., conflict and diversity) but also the entire collaboration component of the process. The proposed model for creative collaboration directly illustrates conflict and diversity as

dimensions of higher-level collaboration and suggests that a relationship, creative abrasion, exists between these dimensions, all resulting in the presence of creativity.

Similar to Thomson (2001), the case has been made for organizing lower-level collaboration into four dimensions: autonomy, governance and administration, mutuality, and norms. The following section specifies the interaction between the dimensions of diversity and conflict in creative abrasion and their role in creative collaboration. Each subsection provides an overview of the proposed variable (i.e., diversity, conflict, or creative abrasion), then presents researchable propositions that form the basis of the current study.

Creative Abrasion

Just as collaboration does not always result in innovative solutions, diversity and conflict do not always result in creative collaboration (Leonard, 1995). Instead, how these two dimensions are managed determines whether creativity is realized (Chua & Jin, 2020). Collaboration is not a simple brainstorming exercise undertaken to generate as many ideas as possible (Hill et al., 2014; Leonard & Swap, 2011; Wood & Gray, 1991). More needs to occur, which opens the door to creative abrasion. Creative abrasion is a descriptive term for researchers who seek to articulate the most beneficial way to utilize diversity and engage in conflict that leads to creativity (Chua & Jin, 2020; Chua et al., 2012; Hill et al., 2014; Leonard-Barton & Swap, 1999; Skilton & Dooley, 2010). Hill et al. (2014) defined creative abrasion as "a process in which potential solutions are created, explored, and modified through debate and discourse.… Abrasion in essence means simply that ideas and options compete in order for the best idea to emerge" (p. 138). Gray (1989) also discussed the concept but used different words to do so, describing a "constructive confrontation of differences" that results in creative potential (p. 12). Hirshberg's (1998) conceptualization of creative abrasion reflects a recognition of the value of

collaboration and the roles of conflict and diversity in collaboration. In fact, he directly addressed creative collaboration and suggested that it is the outcome of entities simultaneously considering and perhaps accepting vastly different ideas and viewpoints (Hirshberg, 1998, p. 33). According to Hirshberg (1998) and other scholars (Chua & Jin, 2020; Chua et al., 2012; Hill et al., 2014; Skilton & Dooley, 2010), creative abrasion describes "the ability of teams to bring together conflicting views, friction, or polarities in a positive way to further enhance creative outcomes" (Climer, 2016, p. 48).

Proactively seeking conflict may appear counterintuitive because the term is typically associated with antagonism, a true clash between two opposing entities. However, conflict marked by antipathy and ill will is not pertinent to the current study and other research that investigates creative abrasion (Leonard, 1995). Perhaps more importantly, creative abrasion is not merely constructive confrontation in which "corporate culture encourages employees to confront problems very openly and aggressively and not allow politeness to mask important differences in opinion and lapses in needed action. Such confrontation does not necessarily arise from different perspectives on the world" (Leonard, 1995, p. 64). As the interaction between conflict and diversity, creative abrasion is a more intentional debate process in which entities willingly propose ideas with the knowledge and wholehearted acceptance that a diverse team will provide fresh perspectives and indicate unforeseen weaknesses (Hill et al., 2014; Leonard-Barton & Swap, 1999; Todorova et al., 2020). Diversity presents a wider range of perspectives and increases the availability or information, which sparks conflict. The active and formative piece—the spark—is creative abrasion (Todorova et al., 2020). This is akin to the concept of idea sharing discussed in conflict and diversity literature. Some scholars have argued that idea sharing is distinct from conflict and diversity, as it goes beyond expressing differences in viewpoints to

capture new information that results from discussion and debate (Lovelace et al., 2001; Todorova et al., 2020).

In further specifying creative abrasion, collaboration leadership should be discussed. The creative collaboration leader understands the true value of the process, which can be difficult, frustrating, and time-consuming because it is based on conflict and abrasion (Gray, 2000). Research has explored leadership approaches that appropriately manage conflict and fully realize the potential of diversity among actors, although formal theories have yet to be clarified. Some scholars have concluded that collaboration leaders can be conceptualized as catalysts (Campbell, 2018; Hill et al., 2014; Lahat & Sher-Hadar, 2019; Truelove & Kellogg, 2016). Crosby et al. (2017) wrote "catalysts are people with formal or informal authority who can create an appropriate disturbance in and of the collaborative process in order to get the participants to think out of the box" (p. 8). Gray (2000) noted that a leader does not have to be a stakeholder in the problem domain or a participant in the collaborative effort; the most important leadership role is managing the tension that occurs (Hill et al., 2014, p. 28). Creative collaboration leaders are not mediators in the sense that they do not seek to minimize conflict. They foster disagreement and dissension by encouraging diverse thinkers to engage with each other—but only when it is constructive. Amplifying differences appears to be counterintuitive to typical leadership goals, but this activates the diversity of ideas that drives creativity. An effective creative collaboration leader can identify and redirect interpersonal conflict (Hill et al., 2014).

Moreover, all entities that participate in creative collaboration welcome criticism (or abrasion) because they see some benefits from it. While creative abrasion may sometimes be uncomfortable and frustrating, participating entities undertake it based on the position that diversity and conflict will lead to creative and novel ideas that no single entity could conceive on

its own. In other words, a group of entities that undertake the creative collaboration process do so with the acceptance that, although their ideas might be rendered unrecognizable or perhaps entirely excluded from the outcome, creative abrasion ensures that the best solution will prevail (Hill et al., 2014). Since creative abrasion is a critical component of creative collaboration, it should be central in a model of the process.

Proposition 1: Creative abrasion mediates the interaction of intellectual diversity and cognitive conflict.

Diversity

In creative collaboration, autonomous entities are part of a larger group. As previously discussed, creativity requires that diverse ideas interact in creative abrasion. Many scholars have called attention to the heterogeneity of creative groups, but they have also noted that these diverse groups with divergent thoughts are typically bound by a shared identity of working towards a common goal (Bedwell et al., 2012; Crosby et al., 2017; Haas & Moretenson, 2016; Hill et al., 2014; Silvia, 2018). Nevertheless, "creative abrasion is not equivalent to a celebration of diversity on the basis of gender, sexual preference, or ethnic background…. It requires more because merely introducing diversity in this general sense does not ensure that different types of creative problem solving will occur" (Leonard, 1995, p. 64).

Hill et al. (2014), Leonard and Swap (2011), and Leonard (1995) made a distinction between intellectual and demographic diversity, as they are involved in creativity and creative abrasion. Intellectual diversity describes people or entities who think differently, which may involve varying skills, knowledge, work styles, thought processes, and data analysis. Intellectual diversity may expose complementary skills, which lead to the most meaningful collaboration (Crosby et al., 2017; Haas & Moretenson, 2016; Thomson et al., 2009). Often, intellectual

diversity results in a beneficial combination of not only technical skills that are well-suited to the type of work being conducted but also social skills that are necessary to operate in a collaborative environment (Andrade et al., 2009; Campbell, 2018; Haas & Moretenson, 2016). Hill et al. (2014) suggested that such diversity attracts entities that are most successful in their fields because it marks an energetic, exciting environment. Furthermore, intellectual diversity increases creativity in collaborations and prevents participating entities from adopting a less effective idea simply because everyone else is doing so (Haas & Moretenson, 2016; Marek et al., 2015). Intellectual diversity facilitates collegial exchange and inquiry in which participants are subjected to dissonance through interactions between various ideas, then forced to address it in way that leads to cohesive, integrated outcomes (Hill et al., 2014). Thus, intellectual diversity is the type of diversity that is most critical to creative collaboration.

The other type of diversity, demographic diversity, describes social and economic categories such age, race and ethnicity, or income level. While these may result in different perspectives and approaches to problem solving, this is not always the case (Hill et al., 2014; Todorova et al., 2020). Diversity can create challenges for a collaboration, especially when it concerns demographic rather than intellectual diversity (Amirkhanyan, 2008). Demographic diversity can lead to the formation of subgroups and stereotyping, in which an “us versus them" mentality emerges. Creative collaboration calls for an appropriate mix and number of members, which are specific to each effort (Andrade et al., 2009; Crosby et al., 2017; Haas & Moretenson, 2016; Norris-Tirrell, 2012; Silvia, 2018). Some have suggested that collaborations should only include the minimum number of contributors to avoid dysfunction (Haas & Moretenson, 2016) and that demographic diversity can result in lower levels of creativity (Leonard & Swap, 2011). Diversity increases demands and the possibility of frustration, as individual entities engage with

others with different approaches. As a result, interactions may become combative (Todorova et al., 2020, p. 626). Participants must constantly inquire about and seek to understand different viewpoints, which may shake even the most foundational concepts and beliefs. At times, the costs of participation in a collaboration might outweigh its benefits (Hill et al., 2014, p. 142). Diversity can be difficult to manage in close interactions because humans are typically comfortable with familiarity and partial to their own viewpoints (Hill et al., 2014; Leonard & Swap, 2011). This is detrimental, as subgroups and fragmentation can occur (Todorova et al., 2020).

As a dimension of creative collaboration, diversity requires engaging with and even embracing different perspectives. The general consensus among collaboration scholars is that the right amount of diversity (not so much that no common ground can be identified and not so little that no new ideas or perspectives are incorporated) leads to creative collaboration (Huxham, 1996; Mena et al., 2009; Tidd, 1995; Wood & Gray, 1991). The right amount of diversity results in what has been called the requisite variety, which implies the development of enough options for at least one to be new, creative, and useful (Leonard & Swap, 2011, p. 20). Similarly, large collaborations are vulnerable to poor communication, fragmentation, and freeloading due to an overall lack of accountability (Haas & Moretenson, 2016). They also decrease the possibility that outcomes will satisfy the varied needs, which still exist despite the shared goal of each entity (Andrade et al., 2009; Thomson et al., 2009).

Todorova et al. (2020) noted that the mere presence is not enough to ensure creativity; instead, collaboration participants must be aware of and engage with it. This is called diversity salience. The awareness of diversity enables what Hill et al. (2014, p. 185) called the opposable mind. The latter is imperative to collaboration, as it makes space for the complexities that are

intrinsic to the process by simultaneously entertaining incompatible ideas without judgement. For diversity to positively contribute to collaboration, participants must allow internal tension to exist rather than attempt simplification. This divergence is where collaboration leads to outcomes that participants could not independently produce (Hill et al., 2014).

Because much of the literature on collaboration and creativity suggests that diversity positively impacts creative collaboration, the following proposition was examined and tested in the current study:

Proposition 2: Intellectual diversity positively influences creative collaboration.

Conflict

Conflict and confrontation are inevitable when entities with diverse ideas, backgrounds, and knowledge bases engage with each other—even in a process such as collaboration, in which common goals have been identified (Badke-Schaub et al., 2010; Cuppen, 2012; Mayer & Kenter, 2016; Stout & Keast, 2021). However, the negative connotations of conflict are undeniable, and conflict is frequently avoided altogether in an engagement (Chua & Jin, 2020). Understanding ways to minimize destructive conflict is important in both theory and practice because it has been associated with damaging interactions, negative emotions, and diminished productivity. Badke-Schaub et al. (2010) asserted that differences between individuals lead to avoidance and that similarities lead to attraction, an idea that has been labeled the attraction paradigm (Byrne, 2016). Nevertheless, research suggests that conflict in the form of recognizing differences can be leveraged in a collaboration to move towards creativity (Badke-Schaub et al., 2010; Stempfle & Badke-Schaub, 2002; Tjosvold, 1991). In fact, some scholars have claimed that the absence of conflict makes creativity impossible (Hill et al., 2014). Because conflict is unavoidable and can

be productive in creative collaboration (Bingham & O'Leary, 2006; McCullough et al., 2018; Wegrich, 2019), it should be considered as a critical dimension.

However, the role that conflict plays in collaboration is precarious. The wrong type and amount of conflict at the wrong time can make the failure of a collaboration inevitable. On the other hand, the right type and amount of conflict at the right time can result in successful and even creative outcomes. Although seeking conflict may appear counterintuitive in lower-level collaboration, in which the goal is to bring together people, ideas, and resources, creative collaboration demands conflict, as it can enrich thinking around complex problems (Amason et al., 1995; Chen, 2006; Garmston & Wellman, 2009; Todorova et al., 2020). However, only specific types of conflict that are managed in certain ways and occur at key moments of the collaboration result in creativity (De Dreu, 2006; Hülsheger et al., 2009; Jehn, 1995; Xie et al., 2014). Scholars have identified and explored different types of conflict, such as affective and task conflict. Task conflict includes both process and cognitive conflict (Badke-Schaub et al., 2010; Jehn, 1995). In short, affective conflict is akin to emotional personal attacks, while task conflict encompasses divergences, disagreements, and differences between and among collaborators about task specifics (Jehn, 1995). Affective conflict is completely destructive, whereas task conflict can result in creative collaboration (Todorova et al., 2020).

Process conflict, the first task-related conflict, has received the least attention from academics. This is perhaps due to its seemingly straightforward nature. Process conflict refers to a divergence of ideas or opinions over procedures for or methods of accomplishing a particular project or task (Chua & Jin, 2020). Procedures may include scheduling, timing, and planning (Badke-Schaub et al., 2010). Empirical research has demonstrated that process conflict can decrease productivity and the quality of outcomes (Jehn & Mannix, 2001). Similarly, affective

conflict has proven destructive to interactions such as collaboration. The negative impacts of affective conflict, or annoyances and personality clashes (Cuppen, 2012), include decreased motivation, receptiveness, flexibility, and communication (Amason & Sapienza, 2016).

Affective conflict is the type of conflict that entities seeking collaboration avoid because it is interpersonal (i.e., tied to negative emotions and relationships). Previous empirical studies have demonstrated that affective conflict, which is sometimes called relationship conflict, is destructive in collaborations. In a comprehensive study led by Jehn (1995), affective conflict was found to be completely detrimental to innovation and team performance. Although affective conflict was not negatively correlated with performance in Jehn's (1995) study, it resulted in decreased satisfaction with and commitment to the team on the part of individual collaborators. In short, participants were more likely to give up on a collaboration if affective conflict dominated interactions. Jehn (1995) observed that collaborations were satisfying to participants when group norms supported minimal affective conflict. However, to achieve creative collaboration, group norms should allow for some amount of task conflict while minimizing affective conflict.

The magnitude of the negative impact is often determined by the resources necessary to effectively manage and overcome conflict (Samba et al., 2018). Affective conflict directly opposes the social capital dimensions of lower-level collaboration. In creative collaboration, social capital helps overcome the conflict that is critical to creative abrasion (Hill et al., 2014, p. 121). Participants in creative collaboration often enter what can be a very time-consuming and frustrating process with the common understanding that many good ideas, perhaps hundreds, must be explored before settling on the right one. Thus, creative collaboration forms when people feel motivated and psychologically safe (Hill et al., 2014, p. 143). Without social capital,

participants may not move from conventional collaboration to creative collaboration, which results from withstanding conflict and making themselves vulnerable by sharing ideas with the understanding that they will likely be rejected (Andrade et al., 2009; Chua & Jin, 2020).

Proposition 3: Affective conflict negatively affects creative collaboration.

When conflict in a creative collaboration is not affective but cognitive, participants experience the psychological safety necessary to share dissenting ideas and know that they are not rejected even if their ideas are (Hill et al., 2014). Cognitive conflict is the most productive in collaboration because it aims to foster "learning and improving, not winning, losing, or dominating" (Hill et al., 2014, p. 139). While collaboration may result from passionate disagreement, conflict in creative collaboration cannot be an attack. Instead, conflict should reflect mutual respect and trust, along with shared goals and values, because this allows participants to look beyond interpersonal conflict and maintain focus on achieving the full potential of collaboration (Hill et al., 2014; Smith, 2016). Productive cognitive conflict calls for a distinction that participants must avoid falling back into cognitive dissonance. Cognitive dissonance occurs when an entity's beliefs or understanding is contradicted by those of another—an extremely uncomfortable experience (Badke-Schaub et al., 2010). Cognitive dissonance occurs on a much deeper level than a mere divergence of ideas, as an entity's core beliefs are challenged. The two contradictory viewpoints cannot be simultaneously accepted. Maintaining focus on the full potential of creative collaboration–innovation—rather than how the conflict challenges one's personal beliefs allows the entity to contemplate the possibilities of contradictory perspectives.

Proposition 4: Cognitive conflict positively influences creative collaboration.

When considering conflict in relation to collaboration, one must also acknowledge that identifiable phases exist in any problem-solving exercise. Some empirical studies have shown that task conflict has a negative correlation overall with team effectiveness (De Dreu & Weingart, 2003). When a task or project is examined as a whole, the argument that conflict is a critical dimension of creative collaboration can appear in direct opposition. However, dividing a collaboration into phases suggests that there are key moments in which cognitive conflict is integral to creative abrasion and, ultimately, creative collaboration. Furthermore, process conflict, affective conflict, and cognitive conflict are more likely to occur at different points of the creative collaboration process. Nevertheless, when social capital is in place, the creative collaboration team can overcome destructive affective and interpersonal conflict and leverage cognitive conflict at the right time to achieve true innovation (Badke-Schaub et al., 2010). In fact, Carnevale and Probst (1998) indicated that even the anticipation of cognitive conflict leads to increased flexible thinking on the part of collaboration participants. Difficult discussions are embraced, and creative tensions are brought to the forefront (Cairns et al., 2020, p. 1717).

Although one meta-analysis of the factors that impact creativity found that conflict was not statistically significant (Hülsheger et al., 2009), several empirical studies have identified stages in which task conflict is crucial to creativity and innovation (Chen, 2006; Farh et al., 2010; Leenders et al., 2003). The results revealed that process and cognitive conflict are beneficial to a certain degree at the beginning of collaboration. However, too much conflict could be destructive, as it might frustrate participants to the point that aggravation outweighs any benefits seen in the collaboration at that point. This is logical because diversity of perspectives and ideas, especially in approaches to solving a problem, is another critical component or dimension of creative collaboration. Later in the collaboration, after some level of convergence,

conflict of any type becomes more harmful because it counters the momentum generated at the outset, especially when participating entities are competitive rather than cooperative (Maltarich et al., 2016). Conflict here may appear counterproductive to the efforts of the collaboration as a whole and hold the group back from realizing its goals. This supports Jehn's (1995) empirical research on routine and nonroutine tasks. Nonroutine tasks that require creativity benefit more from cognitive and process conflict, whereas conflict in routine tasks is damaging. At some point, the focus must be on simple task completion. Debate on how to complete routine tasks is time-consuming, exasperating, and frustrating. Thus, creative collaboration is not helpful for these simple tasks.

Proposition 5a: Cognitive conflict positively affects creative collaboration at the beginning of the collaboration.

Proposition 5b: Cognitive conflict negatively affects creative collaboration at the end of the collaboration.

In addition to the timing and type of conflict, the extent or amount of conflict is a critical factor in determining whether collaboration can move from lower- to higher-level collaboration. A study by Xie et al. (2014) revealed that the appropriate amount of cognitive conflict in creative problem solving is based on an inverted U-curve. Too little conflict limits innovation, while too much conflict prevents resolution of the issue. High conflict results in lower information exchange, which is essential to creativity (De Dreu, 2006). In other words, "a moderate amount of task conflict leads to higher levels of innovation" (Climer, 2016, p. 44). Additionally, problem-solving skills enable participants to achieve the appropriate amount of task conflict to maximize innovation (De Dreu, 2006).

In another empirical study, Badke-Schaub et al. (2010) explored how responses to cognitive conflict impacted creative outcomes. They positioned collaboration as a potential response to conflict rather than conflict as a dimension of collaboration and compared it to competition and compromise. The results of their study were somewhat inconclusive; they noted that competition, which is defined by low cooperation and high assertiveness, and compromise, which is defined by moderate assertiveness and cooperation, are necessary at some point in creative problem solving. On the other hand, they observed that collaboration, which they positioned as highly assertive and highly cooperative, resulted in what they identified as groupthink and, subsequently, low levels of innovation. These conclusions might be a result of positioning collaboration as a response to conflict, rather than conflict as a dimension of collaboration. If one considers the possibility of creative collaboration and assigns an alternative label to the response of high assertiveness and high cooperativeness, then the focus can shift to how competition and compromise interact to result in innovative outcomes.

Conflicts and disagreements are productive in creative collaboration because they push participating entities to consider new approaches and ideas that might lead to solutions that could not be achieved alone (Climer, 2016, p. 48). Nevertheless, conflict can also be counterproductive in creative collaboration when it is affective and interpersonal. Furthermore, if conflict leads to cognitive dissonance, it can distract participating entities from the problem at hand and force them to reckon with extremely disruptive ideas or perspectives (Patterson, 2002). An appropriate amount of cognitive conflict and minimal amount of affective conflict are ideal and result in the achievement of higher-level creative collaboration. This equilibrium enables creative abrasion.

Framework for Testing the Model of Creative Collaboration

The public health community has long discussed the social determinants of health, and this framework has become especially relevant in evaluating the disproportionate impact of COVID-19 on rural communities (Ameh et al., 2020). The proposed model of creative collaboration was tested within this framework because it reflects how a wide range of factors, from economics to education, can interact to result in a positive outcome, health. The existing literature situates the discussion around addressing issues related to COVID-19 in rural communities in this same framework (Mishori & Antono, 2020; Ramsetty & Adams, 2020). Figure 3 illustrates the social determinants of health. The green tile represents economics, the dark blue tile represents education, the red tile represents healthcare, the light blue tile represents the built environment, and the yellow tile represents the social and community context.

Figure 3
Social Determinants of Health

Source: (Social Determinants of Health)

Events in China and Italy during the early stage of the COVID-19 pandemic demonstrated that social distancing was among the most effective ways to reduce transmission. It also became clear that changes to the clinical care delivery system were necessary, as it was primarily based on in-person evaluations. Telehealth, in which telephone or video conferences replace in-person clinic visits, became the only way to receive medical evaluation. This rapid shift in healthcare delivery exacerbated already apparent disparities between rural and urban areas (Thomson et al., 2021). To complicate matters, "those whose access was impeded were the most vulnerable to poor health outcomes related to COVID-19" (Ramsetty & Adams, 2020, p. 1147). Of the crisis, Ramsetty and Adams (2020) wrote,

> This was not unique to our community, and in fact it was repeated throughout the country when other hospital systems transitioned to telehealth as a sensible and efficient way to deliver healthcare while implementing social distancing to combat the spread of COVID-19. Simultaneously, the diminished accessibility to technology based on various societal and social factors, sometimes referred to as the digital divide, was being exposed at a critical time in a public health crisis. Frighteningly, there were no measures at the ready to address it. (p. 1147)

The use of telehealth has recently been on the rise and championed as a way to make healthcare more accessible to rural populations (Marcin et al., 2016). However, when viewed through the lens of the determinants of health, researchers and practitioners alike have observed that telehealth may actually increase disparities due to persistent social, economic, and political factors (Hirko et al., 2020; Ramsetty & Adams, 2020). Table 6, which was borrowed from Ramsetty and Adams (2020, p. 1148), places telehealth within the context of several relevant determinants of health. Clearly, the failure of telehealth to increase equity in access to healthcare

in rural areas is not related to broadband access alone. The issue is much broader; thus, the solution will require collaboration across the rural community network. This framework served as the lens through which a proposed model of creative collaboration was tested in the current study.

Table 6
Telehealth in the Context of Relevant Determinants of Health

	Built environment	Social and community context	Education	Economic stability	Health and healthcare access
Contributions to the digital divide in healthcare	Lack of broadband Regional broadband internet cability; limited access to free public Internet in community buildings such as libraries; absence of structural support/housing insecurity	Shared or cultural expectations about use of digital devices, telehealth, and telemonitoring; mistrust of technology and/or medical community	Literacy; varying degrees of digital literacy; inconsistent or unavailable education regarding changes in technology	Inability to purchase devices or upgrades; affordable devices may not have capability to work with proposed programs; inconsistent access to devices due to economic instability	Choices of technology and programs heavily tied to reimbursement; healthcare systems likely to pursue advanced technology that may outpace patient capability; patient comorbidities may affect ability to effectively use technology

Source: (Ramsetty & Adams, 2020, p. 1148)

Summary

This chapter specified a theoretical model for creative collaboration and outlined a model for lower-level collaboration with four dimensions based on Thomson's (2001) five-dimension model. Then, the case was made for a model of creative collaboration that adds three factors to the lower-level model: creative abrasion, diversity, and conflict. The chapter concludes by describing a public health framework for testing the proposed creative collaboration model. The next chapter provides an overview of the study's research design and methodology.

Chapter 4. Research Design and Methods

This chapter provides an overview of the research design and methodology used to test the proposed model of creative collaboration. As explained in Chapter 2, this model is based on a literature review across several disciplines, some of which are interdisciplinary. Thus, the proposed model responds to the calls of many collaboration scholars, both seminal (Gray, 1985, 1989; Wood & Gray, 1991) and contemporary (Gazley & Guo, 2020; Lecy et al., 2012; Voets et al., 2019), to consciously cross disciplinary boundaries and develop rigorous collaboration theory. The research plan, including the methodology, study participants, data collection procedures, data analysis methods, and ethical concerns, are also presented in this chapter.

Research Questions

The objective of this study is to empirically test a theoretical model of creative collaboration. It contributes to the understanding of creative collaboration by considering the following research questions (RQs):

RQ1: How does creative abrasion, in the presence of the critical dimensions of collaboration, impact creative collaboration?

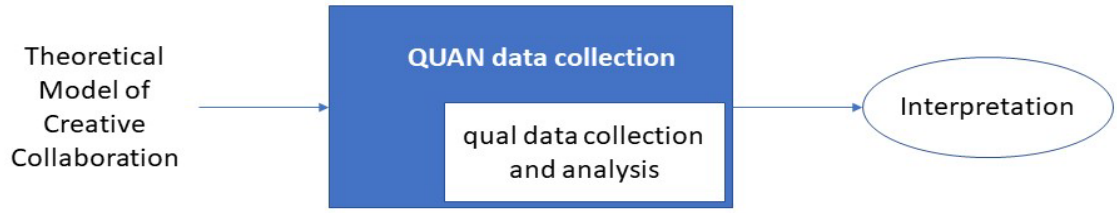
RQ2: How do diversity and conflict interact in creative abrasion?

Research Approach

Based on previous studies that focused on defining collaboration through empirical observations (Dhanpat et al., 2017; McNamara, 2008; Thatcher, 2007; Thomson, 2001; Thomson et al., 2009), the current research focuses further testing established dimensions of collaboration and adds additional dimensions to explore how creative collaboration can be realized. This study employs a deductive, embedded mixed-methods approach using cross-sectional data (Creswell & Creswell, 2017), as illustrated in Figure 4.

Figure 4

Nested Mixed Methods Research Approach, adapted from Cresswell and Cresswell (2017)



An in-depth literature review informed the theoretical model, which provided the basis for a covariance structure model that was used to test the construct validity of a multidimensional model of creative collaboration. The model was tested using quantitative data collected through an online questionnaire. Moreover, qualitative data were collected through interviews to further illuminate and elaborate on the creative collaboration process and outcomes. A nested mixed-methods approach was appropriate because it provides quantitative empirical data, which scholars have noted are missing from the field of collaboration research. Qualitative data were also considered to explore the context and experience of creative collaboration in greater depth. This provided more comprehensive evidence to support the description of a complex, multifaceted construct (Blaikie, 2009, p. 219). Blaikie (2009) indicated that different ontological assumptions can be made during mixed-methods research and cautioned against overlooking them (p. 224). This study was approached from a postpositivist worldview, as it aims to define creative collaboration through careful observation and perhaps measurement (Creswell & Creswell, 2017).

Research Design

A nested mixed-methods approach was used to collect cross-sectional data and explore the two research questions: How does creative abrasion, in the presence of the critical

dimensions of collaboration, impact creative collaboration? How do diversity and conflict impact creative abrasion?

Level and Unit of Analysis

As noted in the literature, collaboration can be studied at any level, from the supra-organizational to the individual (Williams, 2015). Many scholars have rejected committing to a level or unit of analysis (Thomson, 2001), which has added to confusion over the generalizability of collaboration research, as it is often unclear if findings or theories hold at multiple levels of analysis (MacKenzie, 2003; Scott, 1981). This is further complicated by the observation that a collaboration can span multiple levels of analysis, which often enriches the overall effort (Gazley, 2008; Provan & Lemaire, 2012). Nevertheless, to understand collaboration and how it can result in creativity, approaching the construct with some awareness of level of analysis is crucial (Selden et al., 2006). The level of analysis chosen for this study is the network. Following institutionalists, network theorists were one of the earliest and most frequent groups of contributors to the field of collaboration research (Morris & Miller-Stevens, 2016). The network perspective is useful for understanding collaboration because it addresses both the process and structure of collaboration (Thomson, 2001). In addition, it examines informal relationships and prioritizes connections within a specific context. Because of the multilevel nature of collaboration (Gazley & Guo, 2020), some respondents are not directly associated with an organization. For example, an individual who is unaffiliated with an organization could collaborate with a nonprofit. In such cases, the individual level of analysis could be combined with the network level.

Many of the ideas underlying the proposed model of creative collaboration are based on collaborative innovation, which values collaboration in the implementation of creative ideas by a

collective over the generation of creative ideas by an individual (Agger & Sørensen, 2018). Nevertheless, a minority of collaborative innovation scholars have acknowledged, albeit in passing, the possibility that a team or group of individuals can collaboratively engage in creativity or idea generation (Torfing, 2019). Thomson (2001) advocated for using the organization as the unit of analysis, especially since much of the collaboration literature to date has focused on interorganizational collaboration. She asked individuals to answer questions on a survey and interpreted their responses to be representative of the larger organization. Thus, while individuals within organizations are heterogeneous and collaboration depends on "how individuals behave, that behavior is constrained by organizational missions and culture, standard operating procedures, myths and rituals developed over time, and sanctions for non-compliance to organizational rules and myths" (Thomson, 2001, p. 54). Other examples of using the responses of individuals to reflect the organization can be found throughout the collaboration literature. In their systematic literature review, Gazley and Guo (2020) noted that most collaboration research pertaining to the public and nonprofit sectors uses the organization as the unit of analysis. While this study uses the organization as the unit of analysis to study collaboration on a broad, community-wide (or network) scale, the level of analysis is the network.

Operationalization

SEM begins with the specification of a conceptual model based on existing theory and literature. The model and illustrated relationships are tested through latent variables that cannot be directly observed. This is accomplished by directly measuring observed indicators, which are assumed to directly reflect the unobservable or latent concepts (Keith, 2019). Following precedent set in the literature (Collier, 2020; Dhanpat et al., 2017; McNamara, 2008; Thatcher,

2007; Thomson, 2001; Thomson et al., 2009), each of the dimensions (or latent concepts) is broad but meaningful to capture the "nature of collaboration as an aggregative and integrative process characterized by cycles of negotiation, commitment building, and implementation" (Thomson, 2001, p. 95). This is manifested by nuanced indicators that, according to theory, reflect the multifaceted latent construct.

A survey was developed based on Thomson's (2001) model of collaboration, including the following modifications:

- Dhanpat et al. (2017) validated Thomson's model in the context of South Africa. Thus, the indicators of collaboration that Dhanpat et al. (2017) found to be significant were utilized in this study but modified to suit the rural network context.
- Dhanpat et al. (2017) adapted Thomson's (2001) instrument to the context of intraorganizational collaboration by changing the term "organization" in the items to "teams." This study focuses on collaboration at the network level; accordingly, terms such as "entity" and "organization" were substituted as appropriate.
- To manage the length of the survey in a way that maximized the likelihood of participation by busy entities operating in rural networks, indicators from Dhanpat et al.'s (2017) instrument with low factor loadings (below .7) were removed.
- On the government/administration dimension in Dhanpat et al.'s (2017) instrument, two additional items with the lowest factor loadings (above .7) were removed.
    - One was Item 10 ("My team and other teams jointly agree about the goals of collaborative endeavors"), which had a factor loading of 0.713 (Dhanpat et al., 2017, p. 7). Existing empirical evidence on the necessity for all entities in a collaborative endeavor to jointly agree on all goals is somewhat contradictory.

While it has been noted that the identification of a common goal is an antecedent to effective collaboration (Bedwell et al., 2012; Morris et al., 2013; Thomson et al., 2009; Wood & Gray, 1991), researchers who have studied the evaluation of collaborations noted that participants in a collaboration sometimes have contradictory goals (Gazley & Guo, 2020). When entities have goals that overlap with or contradict each other, it is possible that motivation to collaborate is present when the benefits of collaboration outweigh its costs—even when these benefits are not the same (Jang et al., 2016; O'Regan & Oster, 2000; Sowa, 2009). Thus, the contradictory literature supported the removal of Item 10 as an indicator for the governance/administration dimension of collaboration.

    - The second item removed was item 3 ("Other teams adhere to agreed rules of engagement during collaboration"), which had a factor loading of 0.727 (Dhanpat et al., 2017, p. 7). Item 3 was very similar to Item 2, which also asked about rules of engagement and had a higher factor loading (0.812). Repetition was unnecessary; as a result, Item 3 was removed.

- Indicators for the additional dimensions, conflict and diversity, were developed based on the literature review and existing theory. The items that were used as observed indicators, along with their theoretical support, are presented in Table 7.
- Indicators for creative abrasion were developed based on the literature review and existing theory. The items that were used as observed indicators, along with their theoretical support, are presented in Table 7.

- Indicators of creative collaboration were developed based on the literature review and existing theory. The items that were used as observed indicators, along with their theoretical support, are presented in Table 7.

Table 7

Proposed Items to Evaluate Observed Indicators of Unobserved Latent Variables

Creative collaboration outcomes	
1. The outcomes of this collaboration are novel.	(Agger & Sørensen, 2018); (Climer, 2016); (Hill et al., 2014)
2. The outcomes overcame boundaries that were in place before this collaboration.	(Agger & Sørensen, 2018); (Stout & Keast, 2021)
3. No single entity involved in this collaboration could have achieved the outcomes alone.	(Agger & Sørensen, 2018); (Hill et al., 2014)
4. The outcomes of this collaboration are more than the sum of its parts.	(Bardach & Lesser, 1996); (Climer, 2016); (Hill et al., 2014); (Lasker et al., 2001); (Wilding, 2006) ;
5. The outcomes add value for entities involved in the collaboration.	(Imperial, 2005); (Jang et al., 2016)
Cognitive conflict	
6. Existing opinions and beliefs were challenged in this collaboration.	(Carnevale & Probst, 1998); (Hill et al., 2014)
7. Entities understood that they were not rejected even if their ideas were.	(Hill et al., 2014)
8. Entities focused on improving rather than winning.	(Hill et al., 2014); (Maltarich et al., 2016)
9. Entities considered new ideas and approaches to reaching the goal.	(Climer, 2016); (Kim et al., 2012)
10. Entities respected others' perspectives, even if they were different from their own.	(Hill et al., 2014); (Kim et al., 2012); (Smith, 2016)
11. Entities maintained focus on working together to achieve goals.	(Hill et al., 2014); (Kim et al., 2012); (Smith, 2016); (Maltarich et al., 2016)
12. Opinions and ideas were challenged at the end of the collaboration.	(Chen, 2006); (Chua & Jin, 2020); (Farh et al., 2010); (Leenders et al., 2003)
13. Opinions and ideas were challenged at the beginning of the collaboration.	(Chen, 2006); (Chua & Jin, 2020); (Farh et al., 2010); (Leenders et al., 2003)
Process conflict	
14. Entities disagreed about rules and procedures that applied specifically to this collaboration.	(Badke‐Schaub et al., 2010); (Chua & Jin, 2020); (Jehn, 1995);
15. Entities disagreed about scheduling and timing that applied specifically to this collaboration.	(Badke-Schaub et al., 2010); (Chua & Jin, 2020); (Jehn, 1995);
Affective conflict	
16. Entities felt personally attacked in this collaboration.	(Hill et al., 2014); (Jehn, 1995); (Mooney et al., 2007)
17. Entities were annoyed by each other in this collaboration.	(Amason & Sapienza, 2016); (Cuppen, 2012); (Hill et al., 2014); (Jehn, 1995)
18. Entities did not respect others' perspectives in this collaboration.	(Hill et al., 2014); (Jehn, 1995)
19. The collaboration was characterized by competition between entities.	(Hill et al., 2014); (Jehn, 1995); (Maltarich et al., 2016)
20. Entities focused more on disagreements than achieving goals.	(Hill et al., 2014); (Jehn, 1995)

(continued)

Table 7 (continued)

Proposed Items to Evaluate Observed Indicators of Unobserved Latent Variables

Organizational diversity[2]	
21. This collaboration consists of entities that think and solve problems differently.	(Hill et al., 2014) (Leonard-Barton & Swap, 1999) (Leonard & Swap, 2011)
22. This collaboration consists of entities with different skills and knowledge.	(Crosby et al., 2017); (Haas & Moretenson, 2016); (Hill et al., 2014); (Thomson et al., 2009)
23. This collaboration consists of entities with different work styles.	(Haas & Moretenson, 2016)
24. This collaboration is between entities from diverse sectors (i.e., government organizations, nonprofit organizations, for-profit organizations, grassroots organizations, unassociated individuals).	(Thomson, 2001)
25. The purposes of the entities involved are diverse (i.e., healthcare organizations, social service organizations, communities of faith, retail/restaurants, education providers).	(Thomson, 2001)
Creative abrasion	
26. Ideas generated in this collaboration cannot be traced to one individual or organization.	(Hill et al., 2014); (Hirshberg, 1998)
27. Open dialogue, with converging and diverging ideas, characterizes this collaboration's process.	(Hill et al., 2014); (Leonard, 1995); (Leonard-Barton & Swap, 1999)
28. In this collaboration, entities brainstormed solutions to mission-related problems facing the collaboration.	(Dhanpat et al., 2017); (Hill et al., 2014); (Thomson, 2001)
29. Partner organizations (including my organization) worked through differences to arrive at win-win solutions.	(Hill et al., 2014); (Hirshberg, 1998)
30. Ideas changed, improved, and resulted in new ideas during this collaboration.	(Hill et al., 2014); (Hirshberg, 1998)

The survey instructed respondents to answer questions based on a collaboration that they had experienced when confronting challenges associated with COVID-19. Thomson noted that many respondents in her study were confused about the activity on which to base their answers (Thomson, 2001). This is to be expected due to the current confusion surrounding the definition of collaboration, as discussed in the literature (Stout & Keast, 2021). During the questionnaire

[2] Intellectual diversity, for the purpose of this study, was thought of as organizational diversity. These two terms are used interchangeably.

development process, a description of the activity of interest, presented as a working definition for collaboration, was developed based on the literature.

The survey is included in Appendix A. The first survey questions were designed to collect information about the nature and purpose of the collaboration under consideration. The subsequent questions were designed to collect quantitative data about the characteristics of the collaboration, such as age and size. As in Thomson's (2001) study, this data contributed to the interpretation of the confirmatory factor analysis and served "as a rough check for any problems in data collection that might bias the results, such as whether respondents are able to identify a collaboration experience as the basis for answering the questionnaire" (p. 96). This section of the survey also contains questions about the outcomes of the activity, which measured perceived collaboration and creativity. These questions were based on a further literature review on the evaluation of collaboration and creativity. Currently, both concepts are difficult to evaluate because creative collaboration often involves groups or individuals with different missions and needs; thus, a successful outcome might not look the same across the board (Amirkhanyan, 2008). These questions preceded the bulk of the survey, which focused on measuring the observed indicators, as prescribed by current relevant theoretical and empirical literature. Each dimension comprised multiple indicators to fully explore the reliability and validity of the model. Appendix B contains the interview protocol.

The survey and interview protocol development process closely followed that of Thomson (2001), as it was grounded in theory and methodical in approach. The steps were as follows:

1. Review of existing instruments measuring collaboration and creativity
2. Review of draft questionnaire and interview protocol by dissertation committee

3. First revised questionnaire, cover letter, and interview protocol submitted to institutional review board for approval
4. Second revised questionnaire, cover letter, and interview protocol reviewed by representatives of Texas public health regions (PHRs) who were not part of the survey participant pool
5. Upload of questionnaire into online survey platform
6. Questionnaire distribution and interviews conducted via video conference (Microsoft Teams)

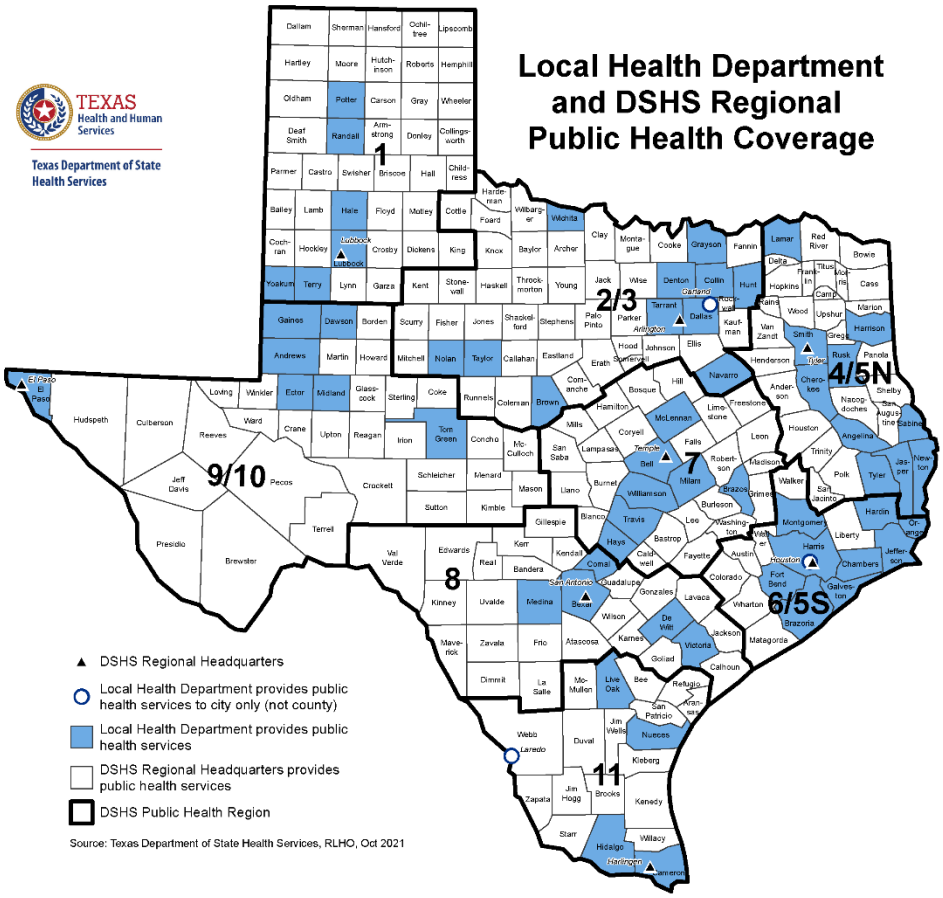
Survey Administration

This study analyzes the meaning and measurement of creative collaboration in rural communities that are facing challenges around access to healthcare. The administration of the questionnaire and the interviews heavily relied on the participation of representatives from PHRs in Texas. These individuals were consulted early in the research process and asked to review the questionnaire for clarity and understanding. The purpose was two-fold: to ensure the survey's clarity for participants and secure buy-in from the eight PHRs. The latter were interested in participating in this research because, as leaders in their region, they are among the main organizers and champions of rural healthcare. Figure 5 shows a map of the Texas PHRs.[3]

[3] The map of the Texas Public Health Regions shows that some areas have been grouped together under one region's jurisdiction. While 11 areas have been identified, there are only eight public health regions.

Figure 5

Map of Eight Public Health Regions in Texas



I asked the PHRs to distribute the survey to entities in their region that collaborated at the network level to identify and implement solutions to overcome barriers to healthcare access. Early in the distribution of the survey, I noticed a gap in collaborations that address access to mental health. Therefore, I made the same request to community mental health centers (CMHCs) because they operate in a similar manner as the PHRs but with a specific focus on mental health, behavioral health, and intellectual and developmental disabilities. Representatives of both the PHRs and CMHCs are well-known in the communities that they oversee. Since they coordinate healthcare in the absence of local mental health authorities (LMHAs) or local health authorities (LHAs), trust has already been established between CMHCs and entities working on the ground.

Thus, participation was more likely if the request came directly from CMHC offices. In cases in which the CMHC or PHR was either unable or unwilling to distribute the survey, I requested a list of collaborations or coalitions in which they participate. Then, I directly contacted these collaborations to request that they distribute the survey.

To increase the sample size for the study, requests were made to the Texas Organization of Rural and Community Hospitals, the Texas Rural Health Association, the Texas Association of Promotores and Community Health Workers (CHWs), and the Texas Association of Rural Health Clinics to distribute the survey to members who were leaders or decision makers for their organizations. Like the PHRs and CMHCs, the members of these professional organizations are heavily involved in promoting health-related wellness in rural areas and have first-hand knowledge of how collaboration is used. The Texas Association of Promotores and Community Health Workers declined to participate. Thus, CHWs had to be contacted through their employer. For example, rural hospitals and local mental health authorities distributed the survey to their CHWs. Additionally, I found that Area Health Education Centers (AHECs) were active in rural regions of Texas. I engaged them in the same manner as the PHRs, the CMHCs, and the professional organizations; I requested that they make suggestions for who could best participate in one-on-one interviews and distribute the survey. Due to the difficulty of securing participation in an email survey, data collection lasted approximately two months and required multiple rounds of follow-up and requests to recirculate the survey. A recruitment flyer is included in Appendix C.

Qualitative data were collected through one-on-one interviews with representatives of organizations from across Texas that collaborate on access to both mental and physical healthcare via telephone or Microsoft Teams. I requested that the director, deputy director, or

another qualified leader in the PHRs, CMHCs, AHECs, or professional organizations help me to identify and select the individuals who were best-suited to participate in the study. The individuals that I worked with are experts in the areas that they oversee, and one can assume that they intimately know the communities that are engaged in collaboration on health-related wellness. Furthermore, they know which community members can provide the most insight and enrich understanding of what occurs during the creative collaboration process. The interviews followed the preapproved interview protocol. They further examine network-level collaborations in rural communities and provide additional information and context. They also offer additional opportunities for analysis and help to overcome some of the shortcomings of SEM.

Data Analysis

The analytical technique used in the quantitative data analysis was SEM. While this is a complex and still emerging and evolving technique, academics have come to appreciate it because it enables hypothesized relationships between multiple variables to be simultaneously tested. Other techniques can only examine these relationships one at a time, which overlooks the opportunity to test relationships between the variables as a cohesive structure (Collier, 2020). Furthermore, SEM was especially useful for testing the proposed model for creative collaboration because it enabled the measurement of latent variables by estimating their relationships with observed indicators.

Statistical analysis occurred in three stages. Stage 1 focused on establishing the reliability and validity of the measurement model. Data collected from the survey were subjected to confirmatory factor analysis to empirically test the model using a maximum likelihood estimation procedure. The first step was to examine the single-factor measurement models in a first-order confirmatory factor analysis. This involved estimating the baseline single-factor

measurement models and testing their fit with the sample data. The models were evaluated using component and overall fit measures. Each single-factor measurement model was systematically respecified, one change at a time, until a best fit model emerged (Thomson, 2001). Stage 2 focused on the structural model through higher-order factor analysis. The baseline integrated model was estimated, tested, and respecified until the best fit integrated model emerged. The second part of Stage 2 began with an estimation and evaluation of fit for the baseline fully integrated, higher-order factor model. Additionally, alternative covariance structure models that fit the data were specified. All models were compared as different ways of conceptualizing creative collaboration. Finally, the model with the greatest theoretical and empirical support was chosen to test the previously outlined propositions.

Figure 6 depicts a path diagram of the theoretically specified structural model for creative collaboration. It illustrates a first-order and higher-order factor model. This model hypothesizes creative collaboration to be the higher-order factor. Since SEM assumes that observed variables reflect latent (i.e., unobserved) variables, the arrows move from the highest-order factor (creative collaboration), through the dimensions, to the observed variables. Thomson (2001) conceives of this "higher-order effect as the 'gestalt' of a concept" (p. 107)

Figure 6

Structural Model of Creative Collaboration

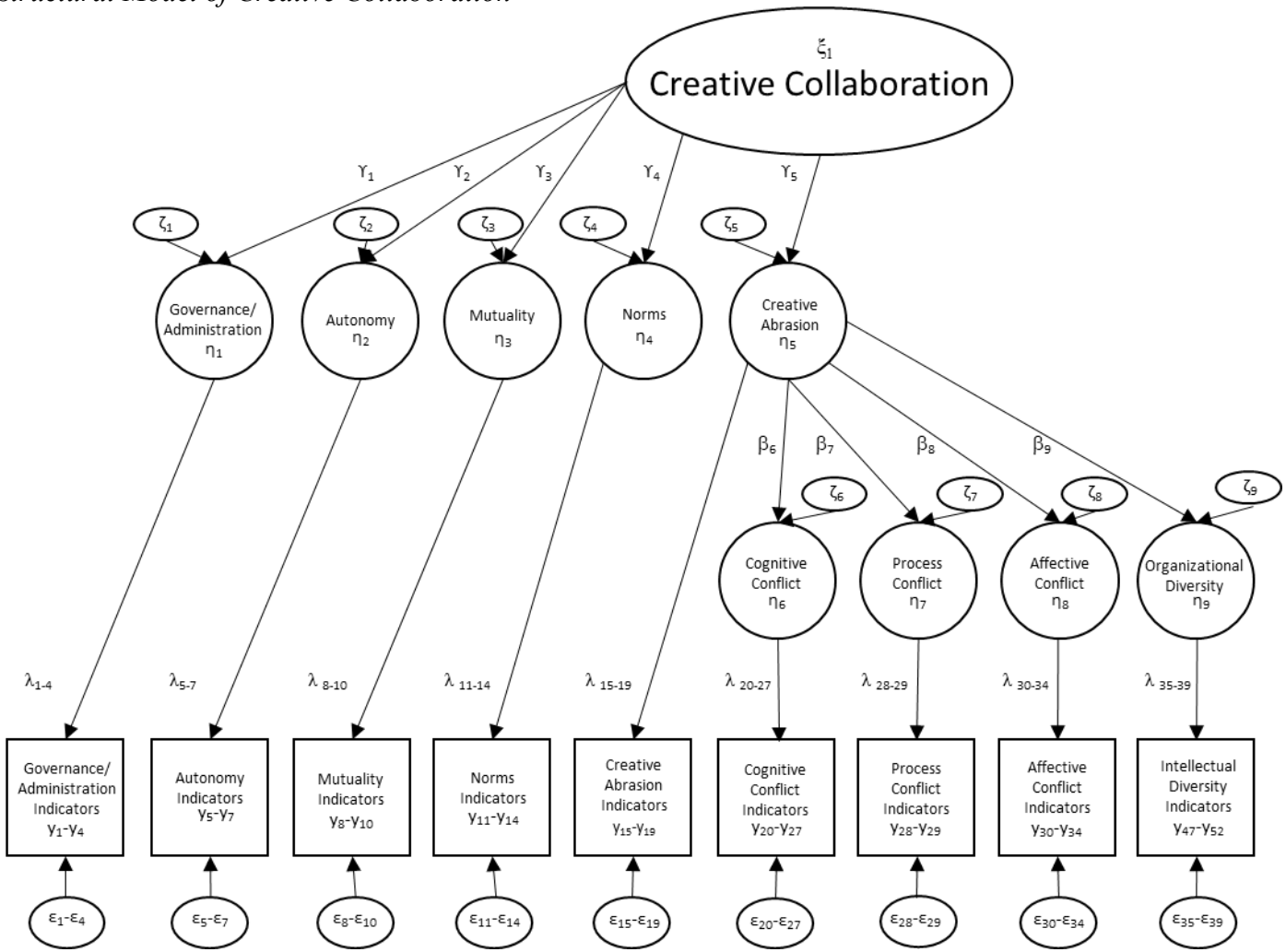


Figure 6 uses established SEM notation, in which squares are the indicator (or observed variables) of the unobserved factors. The unobserved factors in this model include creative collaboration, the four key dimensions of collaboration, creative abrasion, dimensions of conflict, dimensions of diversity, and errors or disturbances. The paths are specified relationships, which were drawn from existing theory. This path diagram is based on Thomson's (2001) model of collaboration. As in Thomson's (2001) study, the coefficients of interest are those of the paths that link the dimensions to creative collaboration and correlations between unobserved factors. This model is already large and complicated. Thus, the indicators are not specified in great detail and correlations between the dimensions are not drawn. However, it is assumed that the dimensions are correlated, as illustrated earlier in the theoretical model. The simplification of this path diagram follows the example set by Thomson's (2001) study.

Methodological Concerns

According to Groves (2004), researchers must attempt to minimize two types of errors: errors of nonobservation and observational errors. Errors of nonobservation concern sampling methods and the population under study. Observational errors occur when respondents' answers deviate from their true values. Groves (2004) wrote "In short, these are errors of omission and errors of commission" (p. 11). The following subsection uses these as a framework for exploring potential methodological concerns presented by the current study. These concerns directly informed the entirety of the study: data collection, analysis, and interpretation.

Errors of Nonobservation

Surveys aim to gather information about a population. Sampling is undertaken because conducting a census is frequently impractical, if not impossible, for the typical researcher. However, to make statistical inferences, "the sample must be drawn in such a fashion that one

can be confident that the sample is representative of the population and one can both calculate appropriate sample statistics and estimate their standard errors" (Fielding et al., 2017, p. 163). Groves (2004) stated that sampling error derive "from heterogeneity on the survey measures among persons in the population" (p. vi). In other words, a sampling error emerges because not all samples provide the same survey data (Fielding et al., 2017).

Rural community networks are dynamic and informal. To the best of my knowledge, there is no way for an outside observer to truly identify the sampling frame to enable probability sampling, which typically produces more generalizable results. Therefore, nonprobability sampling was used—specifically, a combination of purposive and snowball sampling. In this case, survey distribution was coordinated through PHRs and CMHCs in Texas. Within the state, PHRs and CMHCs serve as coordinating entities when no LHA or LMHA is present in their region. Thus, they are the best source of information on how rural community networks locally work together with regard to health and wellness (E. Carlson, personal communication, March 21, 2022). I worked with representatives of the regional offices to identify communities where entities collaborated to increase access to healthcare. This prevented coverage errors, as it ensured that entities were not omitted from the sampling frame. Some entities that I knew in each region or community center included in their outreach included governmental entities, nonprofit and social service organizations, public safety officials, community health workers and *promotores*, education-related organizations, private businesses, individuals, and communities of faith.

Groves (2004) wrote "Nonresponse error arises because some persons on the frame used by the survey cannot be located or refuse the request of the interviewer for the interview" (p. 11). To avoid nonresponse error, I requested that the PHRs, CMHCs, AHECs, and professional

organizations distribute the survey because they regularly work with the entities on the ground and are already trusted voices within their communities. In cases in which they were either unable or unwilling to directly distribute the survey, I asked them for a list of coalitions in which they participated. I used this list to directly contact the coalitions and request that they distribute the survey to their members. However, Sakshaug et al. (2010) observed that a researcher's attempts to decrease nonresponse error by contacting difficult-to-reach respondents and asking them to take a survey can lead to measurement error, which is discussed later. Therefore, it was even more important to work with organizations, PHRs, and CMHCs as trusted partners who frequently communicate with entities in rural communities to distribute the survey and encourage participation.

To increase the sample size for the study, I provided each organization in the first wave of outreach (i.e., PHRs, CMHCs, AHECs, and professional organizations) with a flyer and requested that they encourage anyone who received the survey to distribute it to others in their collaboration network. Snowball sampling is a commonly used methodology when the population under study is difficult to reach or hidden. Cohen and Arieli (2011) wrote, "Most of the cases in which SSM [snowball sampling] has been used are characterized by less than optimal research conditions where other methodologies are not applicable… the use of snowball sampling in some research environments may be the only effective method and the deciding factor whether research can be conducted at all" (p. 424). While I do not suggest that collaboration on healthcare is hidden, it is informal and often undocumented, which makes the population of interest difficult to reach. Snowball sampling proved to be the most effective way to engage these difficult-to-reach populations and ensured that I could move beyond

collaborations in which state agencies were involved to more informal interactions on the ground.

Nevertheless, all sampling methods introduce the possibility of bias and error, and purposive and snowball sampling are no exceptions (Fielding et al., 2017). According to Groves (2004), "sampling error arises because the statistic is computed on a subset of the population being studied. To the extent that different subsets exhibit different characteristics on the statistic of interest, the sample survey estimates will vary depending on which subset happens to be measured" (p. 11). It is critical to consider this when analyzing data and interpreting results. Previous collaboration researchers such as Thomson (2001) and Dhanpat et al. (2017) overcame sampling issues by very specifically clarifying how statistics can be interpreted and the generalizations that can be made. Thomson (2001) noted that her results could only be generalized to describe a specific nonprofit setting, while Dhanpat et al. (2017) underscored that their results were only applicable to a South African business context. Both sets of researchers openly discussed sampling issues, clearly articulated limitations related to the generalizability of their findings, and suggested ways in which researchers could further validate their study in other settings. The same approach was followed in the current study.

Observational Errors

Observational errors refer to problems with measurement, or "when the survey response differs from the 'true' response" (Fielding et al., 2017, p. 165). Sources of observational errors include the interviewer, the respondent, the instrument, and the mode. As potential sources of error, interviewers, respondents, and modes of data collection are considered together because they are somewhat related. Interviewers are a source of measurement error because they can influence respondents' answers to survey questions. In this study, the survey was self-

administered. Since respondents read and responded to questions without input from the researcher, it can be assumed that interviewer error was minimal. Furthermore, the interviews were based on collaborations identified by participants, and no guidance was provided on types of collaborations to be used. In this way, I attempted to minimize interviewer error in the one-on-one interviews.

The possibility of an error occurring due to the data collection methods (i.e., an online survey and interviews) should be noted. This was addressed by ensuring that the data collected through these two methods served different purposes. Data collected in the survey were used to test a conceptual model for creative collaboration, while data collected in the interviews were used to enrich understanding of creative collaboration and answer questions when the quantitative data fell short. Another consideration is errors that are attributable to respondents. Groves (2004) stated that the latter derive "from [participants'] inability to answer questions, lack of requisite effort to obtain the correct answer, or other psychological factors" (p. vi). The survey protocol and interview questions were both based on extensive review of literature, and deep consideration was given to who would take the survey and how it would be administered to minimize potential errors stemming from the interviewer, respondents, and data collection methods.

Since a model of creative collaboration was tested in this study, the possibility that instruments could be a source of error was of primary concern. Not only has the popularity of online data collection for survey research grown over the past few years due to the emergence of online survey platforms such as Survey Monkey, but an increasingly connected world and social distancing measures resulting from the COVID-19 pandemic have made people much more comfortable with virtual interactions (Kumar et al., 2021). While online data collection

considerably simplifies the collection of large amounts of data in a short amount of time, the literature cautions researchers against increased bias and reduced rigor (Ball, 2019). According to Ball (2019),

> Two important components of survey methodology (sample selection and question validation) are frequently overlooked by both casual and research users of online survey methodology. As a consequence, the data generated via online surveys can be extremely biased, and the results may not be replicable or robust. (p. 413)

Sample selection was addressed in the previous section. Thus, I now turn to validation of the questionnaire. With regard to survey validation, I previously noted that Dhanpat et al.'s (2017) revision of Thomson's (2001) tool provided the foundation for the instrument used in the current study. Several items were added based on an extensive literature review. Nevertheless, the instrument was reviewed in its entirety by researchers and practitioners. None of the reviewers were part of the respondent pool. Then, revisions were made based on the reviewers' comments prior to distribution of the survey to address the potential for instrument error.

Analytical Errors

The analytical method utilized in this study, SEM, is a popular statistical methodology because it enables the measurement of latent variables and simultaneously provides separate estimates of relationships between unobserved constructs and their indicators. Additionally, it facilitates the creation of a structural model through estimation of relationships between the constructs (Collier, 2020; Tomarken & Waller, 2005). Nevertheless, SEM is associated with potential pitfalls and weaknesses that were considered during the study. Some of these are related to underlying assumptions in SEM, which are discussed in more detail in Chapter 6. However, one of the most important issues bears mentioning in this section: the possibility of "overstating

the certainty and strength of the conclusions yielded by an SEM analysis" (Tomarken & Waller, 2005, p. 53). This can be minimized during analysis by explicitly acknowledging "the existence of plausible equivalent models when reporting and discussing results" (Tomarken & Waller, 2003, p. 583). In Chapter 6, I detail attempts to avoid this pitfall by closely checking each generated model against the existing literature and theory and only retaining items with adequate theoretical support.

Summary

This chapter provided an overview of the study's research and design methodology. First, it presented the research questions that guided the study, then outlined the research approach and design, including a brief overview of SEM, the analytical method used. The chapter concluded by describing some methodological concerns and potential pitfalls that were considered during data collection and analysis. The next chapter provides an overview of the context of healthcare collaborations in rural Texas.

Chapter 5. Healthcare in Rural Texas

In this study, a proposed model of creative collaboration in rural Texas communities was tested. The research examined how entities collaborated to fill gaps in and increase access to both mental and physical healthcare. As noted by the literature, collaboration is contextual. Thus, understanding the context of rural Texas is critical. This chapter provides an overview of healthcare in rural Texas communities and describes examples of existing collaborations.

First, it is useful to recall how I framed rural communities in this study. The U.S. Census Bureau (Census Bureau) labels a place "rural" when it is not or cannot be labeled "urban." According to the Census Bureau, urban areas have a population of at least 50,000 and urban clusters have a population of between 2,500 and 50,000 (2021). A second methodology for determining rural versus urban areas is used by the Economic Research Service at the U.S. Department of Agriculture (USDA-ERS). The USDA-ERS Rural-Urban Continuum Codes "distinguish metropolitan counties by the population size of their metro area, and nonmetropolitan counties by degree of urbanization and adjacency to a metro area" (Overview of Classification of Rural Areas). On the other hand, countless federal and state programs rely on the U.S. Office of Management and Budget (OMB) metro and nonmetro designations, which are defined at the county level. OMB maintains that metro and nonmetro designations are only intended for statistical purposes, but countless federal and state programs rely on them for funding and policy (Pipa & Geismar, 2021). For example, the Texas Department of State Health Services (DSHS) uses the terms "rural" and "urban" interchangeably with "metro" and "nonmetro" and the latter criteria in distinguishing between the two. Nevertheless, the Census Bureau specified that "nonmetro is not synonymous with rural" (Bureau, 2021). Most counties

contain a mix of urban and rural areas, with more than 50% of the rural population living in metro counties (Bureau, 2021).

The Rural Health Information Hub charges researchers with selecting and consistently applying a precise definition of "rural" (What is Rural?, 2022). However, the varied and sometimes conflicting definitions used in practice have spilled over into academia, and identifying which definition is the most appropriate for a particular research study is a challenge (Bennett et al., 2019; Hart et al., 2005; What is Rural?, 2022). Thus, researchers should carefully consider the purpose of the study, data availability, and the applicability of the definition to the study (What is Rural?, 2022). Based on these three criteria, the definition of rural that underpins this study is much broader than population and density statistics. This is supported by literature that explores how rural is defined and the impact that the definition has had on health research. A paper by Bennett et al. (2019) argued that definitions of rural should move beyond population counts in geographic areas and incorporate other, more telling characteristics such as the deficits and assets of the region in question, socioeconomic characteristics, culture, and even the natural environment.

Accordingly, several attributes were recognized to reflect rurality. For example, researchers have noted that "residents of nonmetropolitan counties are generally older and in poorer health, compared to residents of metropolitan counties" (Bennett et al., 2019, p. 1987). Perhaps even more important to this study, which focuses on the collaborative process in social networks, is the recognition that rurality is tied to cultural characteristics and the feel of the community, which may be best defined by those who operate within the network rather than an external researcher. Furthermore, census-based designations matter little to residents, if at all. According to a Kaiser Family Foundation poll conducted in 2017, "about 6 in 10 U.S. adults who

consider themselves ‘rural’ live in an area classified as metropolitan… And 3 in 4 of the adults who say they live in a ‘small town’? They’re also in a metro area” (Van Dam, 2019). This sentiment is captured in a recent news article that describes how the Census Bureau defines rural. In it, rural residents are quoted as saying that population and numbers are not relevant to how a community operates. In other words, a community is rural if the community identifies it as such: “You are who you are. The number of people doesn’t matter. It’s the spirit of the community that matters” (Schneider, 2022). This sentiment is supported by academia. According to Bennett et al. (2019, p. 1990), “it is important to consider local residents’ perceptions. If a majority of the people living in an area believe that they are rural, a definition of rural should reflect that as well.” Bennet et al.’s (2019) proposed approach to defining rural is adopted in this study. During data collection, individuals were asked to respond to the survey or participate in an interview if they considered that the entity that they represented served rural communities. More specifically, they were asked to participate in the study if they were part of a network in which entities worked together to fill gaps in healthcare and increase access to ways to stay healthy in rural communities. The following section describes geographic areas with gaps in healthcare and some collaborations that occurred in communities that participants identified as rural.

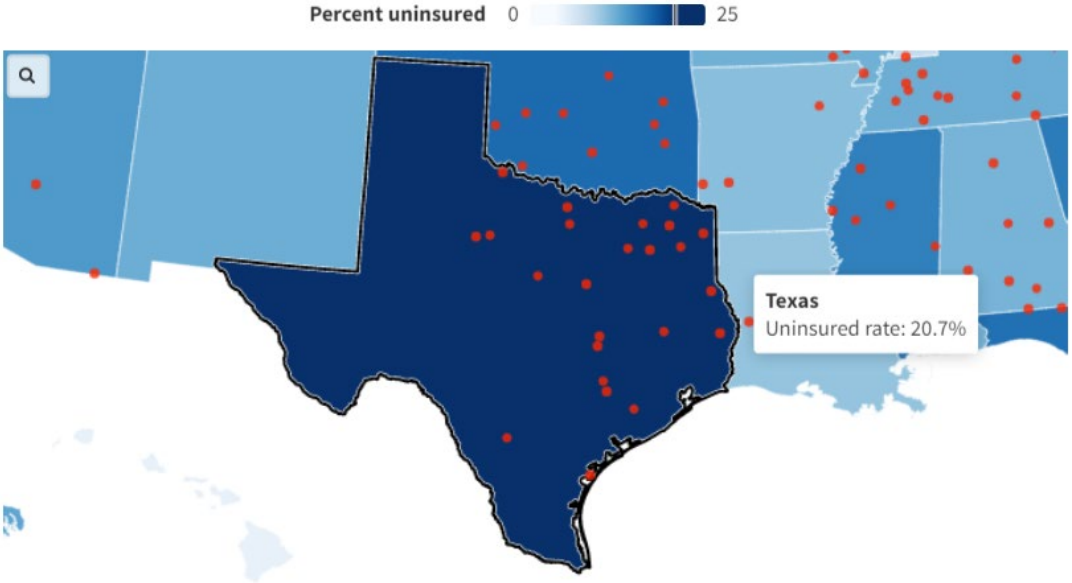
Gaps in Healthcare

Regardless of how one defines rural, it is critical to understand that more than 3 million Texans do not have access to healthcare (*Healthcare Issues Affecting Rural Areas in Texas*, 2021). All counties in Texas are designated as health professional shortage areas (HPSAs) for some type of healthcare (i.e., primary care, mental health, or dental health; *Health Professional Shortage Areas [HPSA]*, 2021). According to the Kaiser Family Foundation (2020), 17.5% of Texans are uninsured. Furthermore, the number of rural hospital closures and rural hospitals that

are at risk of closing is rising. Figure 7 shows a map of rural hospital closures between January 2006 and November 2021 in Texas. A significant factor is the rate of uninsured residents in rural Texas communities, which is reported to be 20.7%. Closures left 71 counties in Texas without a hospital, 11 of which also lacked an emergency medical services (EMS) station. Counties without a hospital and without a hospital or EMS station are illustrated in Figure 8.

Figure 7

Rural Hospital Closures and Rate of Uninsured Residents in Texas



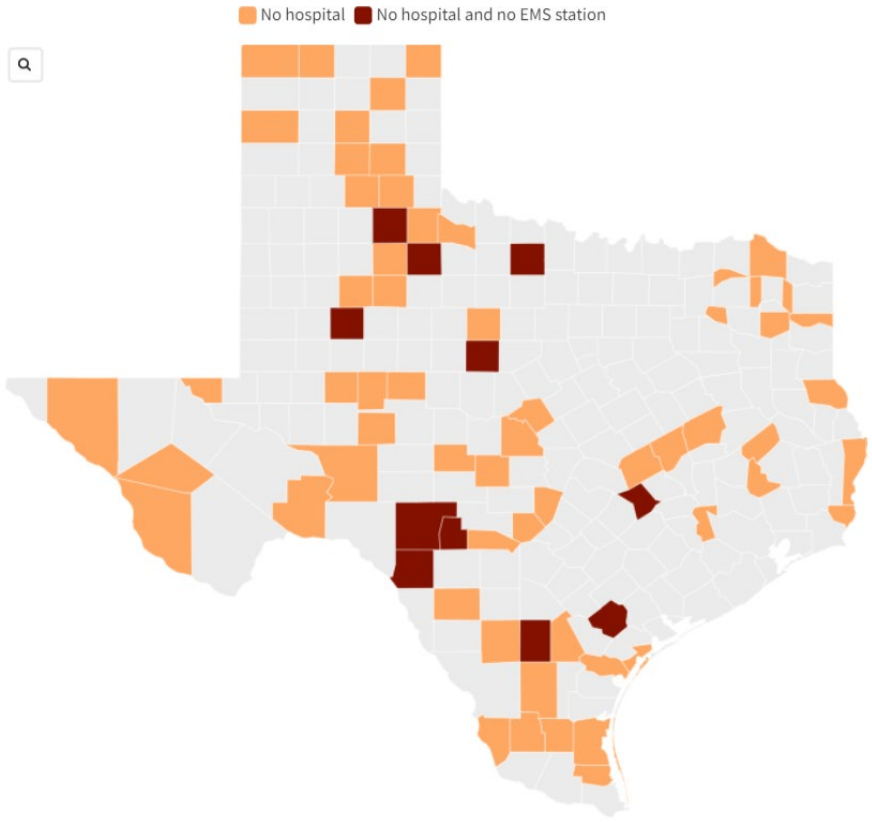
Note: Red dots indicate rural hospital closure between January 2005 and November 2021. Sources: APM Research Lab analysis of data from U.S. Census Bureau Small Area Health Insurance Estimates 2019, Cecil G. Sheps Center for Health Services Research • A rural hospital is any short-term, general acute, non-federal hospital that is located in a federally-designated rural area (Rural Urban Commuting Area type 4 or higher), or is federally-designated as a Critical Access Hospital, or is not located in a metropolitan county. Closures include rural hospitals that were converted into some other form of health care (e.g. urgent care, primary care, emergency care, long-term care).

A Flourish map

Source: Texas Public Radio (https://www.tpr.org/public-health/2021-12-20/the-other-texas-drought-rural-healthcare-in-jeopardy-as-hospitals-shutter)

Figure 8

Texas Counties Without a Hospital and Emergency Medical Services Station



Source: Texas Public Radio (https://www.tpr.org/public-health/2021-12-20/the-other-texas-drought-rural-healthcare-in-jeopardy-as-hospitals-shutter)

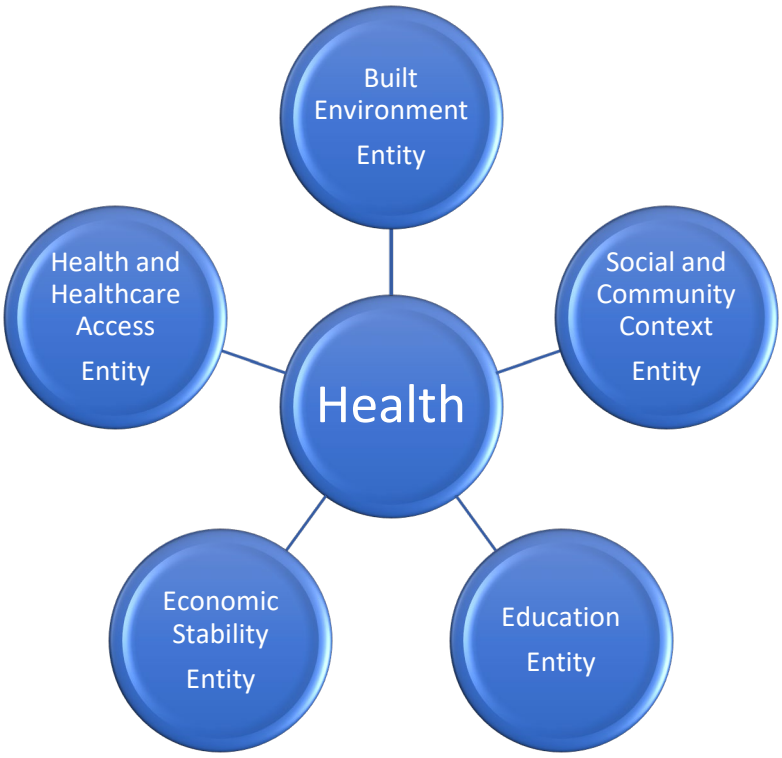
Collaboration Around Healthcare in Rural Texas Communities

The last section summarized gaps in healthcare that entities in rural Texas communities collaborate on. Thus, I now describe the context in which these collaborations exist. Since collaboration on healthcare in rural Texas communities is informal, contextual, and—for many reasons—undocumented, high-level summaries that are not too granular can be challenging. Thus, I used the social determinants of health framework described in Chapter 3 to discuss how groups work together to fill gaps in healthcare. Figure 9 depicts a simple adaptation of the social determinants of health framework. I added

the term “entity” to each of the surrounding circles to capture the ways in which different actors in a network collaborate to produce a particular outcome: health.

Figure 9

Collaboration Context Diagram Based on Social Determinants of Health Framework



Several examples of collaboration were uncovered during the study and can be unpacked within the framework for contextualization. One case focused on the design and implementation of an on-campus healthcare clinic in Laredo, Texas. Entities from all six social determinants of health were represented in this collaboration. The project was primarily conceived by Gateway Community Health Center, a federally qualified health center (FQHC), and administrators at Laredo College. Federally qualified health centers and rural health clinics are certified by the Centers for Medicare and Medicaid Services through the Health Center Program when they

provide comprehensive services to indigent, uninsured, and underserved individuals. The Rural Health Information Hub noted that they are collaborative and work with other entities to improve access to care and community resources. Thus, Gateway Community Health Center can be viewed as a healthcare, social, community, and economic stability entity. Laredo College, the education entity, had earmarked funds to build a student health center on its South Campus and was in the process of identifying a healthcare organization to manage the facility. Since the area in which the South Campus is located has long been considered a healthcare desert, Gateway Community Health Center had searched for a way to provide services to local residents, as noted by the center's chief executive officer (CEO; E. Lopez, personal communication, August 12, 2002). Both entities agreed that an FQHC could be located on campus if services were comprehensive and open to the public as well as students. once an agreement was reached and formalized through a memorandum of understanding, the community center was invited to work directly with the engineers and architects who were in the process of finalizing designs for the building (i.e., the built environment). All parties collaborated to ensure that the building would meet the needs of an FQHC. Furthermore, several of the health clinic's partners, who were involved in the provision of other services, were invited to provide input and participate in designing the space. The outcome of this collaboration is a building that facilitates access to healthcare for all.

A second collaboration that can be explored through the social determinants of health framework is the Multidisciplinary Community Response Team in Abilene, Texas. This endeavor involved several entities, including the Betty Hardwick Center, the Abilene Police Department, the Abilene Fire Department, Taylor County Sheriff's Department, and Hendrick Medical Center (J. Goode, Personal Communication, August 8, 2022). The Betty Hardwick Center is a

legislatively mandated CMHC and serves as the mental health and developmental disability authority for Callahan, Jones, Shackelford, Stephens, and Taylor Counties. The original discussion about a de-escalation team originated with the center. However, the idea was elevated to a community priority when a former Abilene police chief adopted the cause. He had identified successful crisis intervention programs in other areas and believed that more could be done to direct individuals with underlying health issues to treatment, thus breaking the all-too-often seen cycle in which an individual who struggles with mental health issues or intellectual and developmental disabilities goes to jail for committing a crime and remains untreated while in jail and therefore more likely to commit a crime upon release (Ollove, 2017). "The use of multidisciplinary community response teams (CRTs) shifts the focus of mental health crisis response from law enforcement to paramedics and health systems creating the same type of health-based response to mental health crises that are used for other health emergencies" (*City of Abilene Multdisciplinary Community Response Study Team*).

This CRT went beyond hotlines and referrals. Emergency operators and 911 dispatchers were specially trained to recognize opportunities for de-escalation. Thus, when a call came in from an individual who was experiencing a mental health crisis, the dispatcher could order the CRT to travel to the scene. The CRT was comprised of a police officer, a paramedic, and a behavioral health professional who worked together to "deescalate a crisis while protecting public safety, assessing both physical and mental health needs on the scene" (*City of Abilene Multdisciplinary Community Response Study Team*).

A third collaboration that illustrates the social determinants of health framework in action is the community-wide response to COVID-19 in Dallam County, Texas. Within the state, Dallam County was among the leaders in addressing the crisis early. Although members of the

public in Dallam County generally seek minimal government involvement in their lives, the county judge and other local elected officials, nonprofit organizations, schools, the local health department, healthcare providers, and other entities had community-wide support to collaborate on creative and effective solutions to overcome the unprecedented challenges brought by COVID-19 (W. Ritchey, personal communication, July 26, 2022). Early in the pandemic, local leaders formed an advisory committee that officially met every week but held many informal discussions every day. While the advisory committee was not unique, as counties and regions across Texas took similar steps, this committee was able to accomplish more than others. Dallam County Judge Wes Ritchey attributed this to the character of the community and committee. He noted that people in Dallam County are friendly to each other and willing to help others in any way possible. Furthermore, leaders worked together and focused on the task at hand—minimizing the impact of COVID-19—rather than winning or losing an argument. When the committee met, all members were respected for their expertise and trusted each other to act in the general best interests of Dallam County. This is how the committee identified meaningful ways to help people, such as creating a toilet paper pantry when there was a national toilet paper shortage. Additionally, Dallam County was among the first counties to effectively plan and execute a county-wide vaccine clinic. They were so successful that they exceeded their goal of vaccinating 900 people and vaccinated more than 1,200 people in one day. Judge Ritchey said, "Today has made me so proud to see the collaboration between the DHC [Dallam-Hartley Counties] Hospital District, the City of Dalhart Police, the Dallam & Hartley Counties Volunteer Fire Departments, AMR Paramedics, and our many residents who participated… All the groups worked together beautifully…" (Bezner, 2021).

A fourth collaboration that fits into this framework is the Healthy Mineral Wells initiative in Palo Pinto County, Texas. The Healthy Mineral Wells committee began as a group of community leaders from the City of Mineral Wells with an interest in the Blue Zones Project, a national program that "helps transform communities across North America into areas where the healthy choice is easy and people live longer with a high quality of life" (https://info.bluezonesproject.com/home). Although the committee determined that the Blue Zones Project was not the right program for Palo Pinto County, the idea of an initiative that supported community members in pursuing a healthy lifestyle appealed to its members. Therefore, the committee formed Healthy Mineral Wells to energize the local community through a grassroots campaign. Their goal was to become the "Wellness Capital of Texas" (C. Perdue-Hays, personal communication, August 17, 2022). Healthy Mineral Wells holds monthly meetings (which one member called "brainstorming sessions") with its diverse committee members, who range from economic development professionals to educators, private businesses owners, and local church leaders. One noteworthy initiative that resulted from Healthy Mineral Wells is Let's Grow Crazy, a nonprofit organization dedicated to helping residents grow their own food. While much of its work focuses on educating the public, there are community gardens in which people can rent space to start a garden of their own. The concept is spreading throughout Mineral Wells, and businesses with large open spaces are allowing Let's Grow Crazy to use them for gardening. Healthy Mineral Wells seeks to expand its work county-wide by building a strong foundation in Mineral Wells and moving outward (C. Perdue-Hays, personal communication, August 17, 2022).

Summary

This chapter provided an overview of the study's context: healthcare in rural Texas. First, it explained how the term "rural" is used in this study–namely, much more broadly than a matter of population or density. Next, it summarized existing gaps in healthcare in rural Texas to demonstrate the need for creative solutions. Lastly, the chapter provided several examples of collaborations in Texas that were explored during the one-on-one interviews with representatives. The next chapter presents the study's findings and analysis.

Chapter 6. Data Analysis

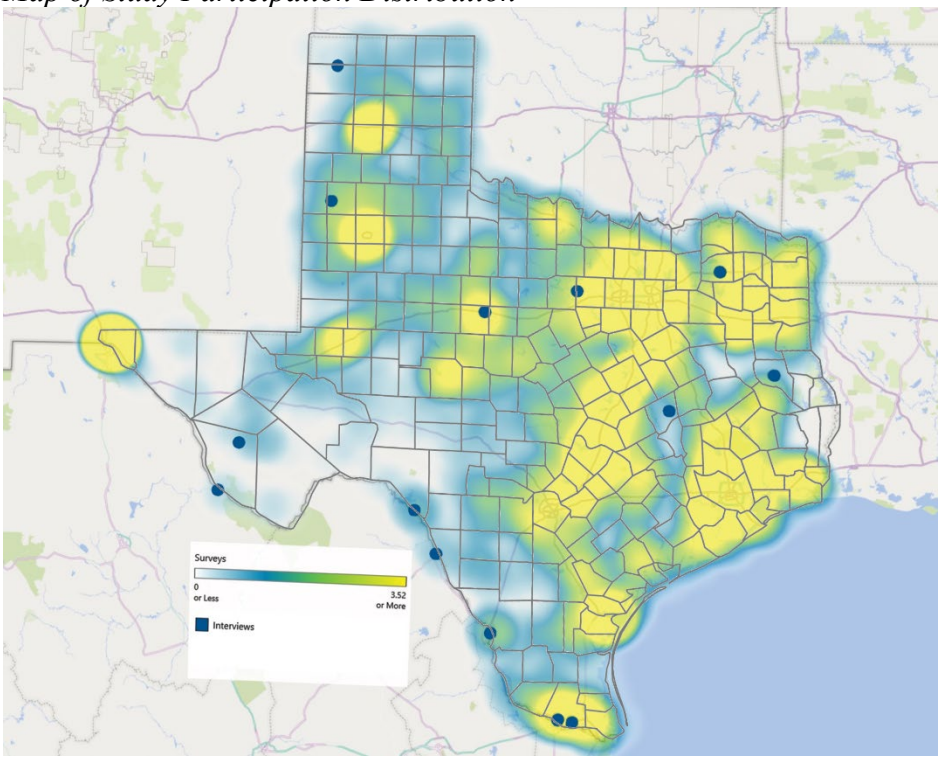
Chapter 5 contextualized creative collaboration on healthcare in rural Texas communities. In this chapter, I report my findings and analysis from the qualitative and quantitative data collection. The purpose of the qualitative analysis was to understand the details and context of creative collaboration in rural Texas communities. There were two sources of qualitative data. Some qualitative data were collected through the survey and used to understand the survey sample. The second source of qualitative data, where the bulk of it was collected, was interviews. The findings from the interviews were used to answer questions that the quantitative data analysis could not and when the quantitative findings were unclear. The purpose of the quantitative data was to make progress in understanding creative collaboration by empirically testing the proposed model. The covariance structural model presented in Figure 6 illustrates the proposed model of creative collaboration, which includes nine factors. Four factors were derived from earlier research in which governance and administration (Dhanpat et al., 2017; Thomson, 2001), mutuality, norms, and autonomy (Thomson, 2001) were tested as factors for a model for collaboration. The literature on collaboration and creativity suggests that several factors—specifically, creative abrasion, which was conceived as the interaction between conflict (cognitive, affective, and process conflict) and organizational diversity—can be added to Thomson's (2001) model of collaboration to build a model of a construct that I call creative collaboration.

All participants in this study collaborated on healthcare in rural Texas communities in one way or another. Nevertheless, despite their shared goal of helping people access ways to stay healthy, the participants were extremely diverse. They came from all sectors (public, nonprofit, and private), and the types of organizations that they represented were equally heterogeneous,

from faith-based to social service, healthcare, and education organizations and even private businesses such as retail establishments and restaurants. This reflects the size and diversity of the State of Texas. Throughout the study, I constantly evaluated the geographic distribution of participants to ensure that I captured as many of these distinct communities as possible. Figure 10 shows a map of study participants (both survey respondents and interviewees). The blue, green, and yellow heat map represents the survey respondent count; yellow marks the areas with the most respondents, green marks areas with a medium number of respondents, and blue marks the areas with the fewest respondents. The dark blue circles represent the locations of interview participants.

Figure 10

Map of Study Participation Distribution



Qualitative data were collected through one-on-one interviews and met several broad needs. The first purpose of the one-on-one interviews was to collect a separate dataset to enhance the rigorousness and reliability of the study. The second was to build relationships and trust in rural communities. As described in Chapter 4, both quantitative and qualitative data collection in this study were relationship-driven. Interviews gave participants the opportunity to discuss their collaborations with me. Our conversations not only secured their buy-in for the study but also made them feel more confident about sharing the survey with others. After the interviews, I consistently asked participants to share the survey with their networks. Many participants reported having a better grasp on the study after the interviews, which increased their comfort in forwarding the survey to others. The third and perhaps most important purpose of the interviews was to uncover the richness of understanding that quantitative data could not. The interviews added context and revealed the complexity of creative collaboration, thus filling gaps in previous collaboration research. In this chapter, I first discuss the qualitative findings and explain five themes that emerged. While many more themes were identified during the interviews, I only cover those that were most relevant to the study and the proposed creative collaboration model. The others were well beyond the scope of the research questions but may provide grounds for future research and exploration.

Qualitative Analysis

Throughout the data collection stage, I spoke informally with 67 individuals from all of the PHRs to determine who would be best-suited to participating in one-on-one interviews. Additionally, some interview participants were identified when they contacted me through the email address included at the end of the survey. Individuals were eligible to participate in the interviews if they were at least 18 years of age and had worked with other entities within the past

three years to identify and/or implement solutions in their community to address a lack of access to ways to stay physically and/or mentally healthy. Additionally, they had to have either been involved with an organization as a decision maker or had authority to speak as a representative of the organization; alternatively, they could be unaffiliated with an organization but had to have contributed to the network's identification and/or implementation of solutions to problems at the community level. The recruitment process resulted in 14 completed interviews. Two participants requested to be interviewed together. Thus, a total of 13 sessions were held. All interviews were conducted over Microsoft Teams. Although conducting interviews face-to-face is typically preferred, COVID-19 precautions and limited resources prevented travel across Texas for interviews. The interviews varied in length, with the shortest lasting approximately 30 minutes and the longest lasting approximately 80 minutes. The interview protocol is included in Appendix B. Table 8 summarizes the interview participants, their role, and their geographic location

Table 8
Interview Participants

Entity	Role	Geographic coverage*
Rural health clinic	Community engagement director	Bailey County
Office of Border Public Health	Binational coordinator	Brewster, Brooks, Cameron, Crockett, Culberson, Dimmit, Duval, Edwards, El Paso, Frio, Hidalgo, Hudspeth, Jeff Davis, Jim Hogg, Kenedy, Kinney, La Salle, Maverick, McMullen, Pecos, Presidio, Real, Reeves, Starr, Sutton, Terrell, Uvalde, Val Verde, Webb, Willacy, Zapata, and Zavala Counties
Community mental health center	Executive director	Callahan, Jones, Shackelford, Stephens, and Taylor Counties
Transit Provider	Transportation director	Cameron, Hidalgo, Starr, Willacy, and Zapata Counties
County government	County judge	Dallam County
County government/community mental health center	Sheriff	Franklin County
Community mental health center	Board member	Hood, Johnson, Palo Pinto, Parker, and Somervell Counties
Rural hospital	Nurse	Hopkins County
Federally qualified health clinic	Chief executive officer	Laredo
Department of State Health Services, Public Health Regions 9 and 10	Community health worker	Marfa
Rural hospital	Chief executive officer	Nacogdoches
Rural hospital/community nonprofit	Community education coordinator, family nurse practicioner	Palo Pinto County
Department of State Health Services, Public Health Regions 9 and 10	Community health worker	Presidio County
Area health education center	Director	Val Verde, Edwards, Real, Kinney, Uvalde, Maverick, and Zavala Counties

Note. *All participants provided services in rural Texas communities. For a full definition of how I defined rural in this study, see Chapter 5.

The interview participants represented a wide range of interests. Several participants were healthcare providers, but other represented entities included the Texas Department of Health and Human Services (HHS), CHWs, healthcare administration, law enforcement, county government, and a transportation agency. The participants were geographically dispersed and the collaborations that they discussed varied widely, as noted in Chapter 5. Nevertheless, five common themes that are relevant to this study emerged.

Analysis was conducted using thematic coding. Because a key purpose of the qualitative data was to provide both clarification when the quantitative data were unclear and a richer understanding of creative collaboration, the approach was deductive–namely, a set of themes that tracked the proposed dimensions of creative collaboration was established based on the existing theory and literature. I manually coded rather than using software to ensure that I could adjust the codes as needed based on the ideas and themes that emerged from the interviews. Furthermore, this allowed me to further explain findings from the quantitative data. This "backwards and forwards" approach to coding is common among qualitative researchers (Gibbs, 2018, p. 62). In a practical guide to coding, Gibbs (2018) stated,

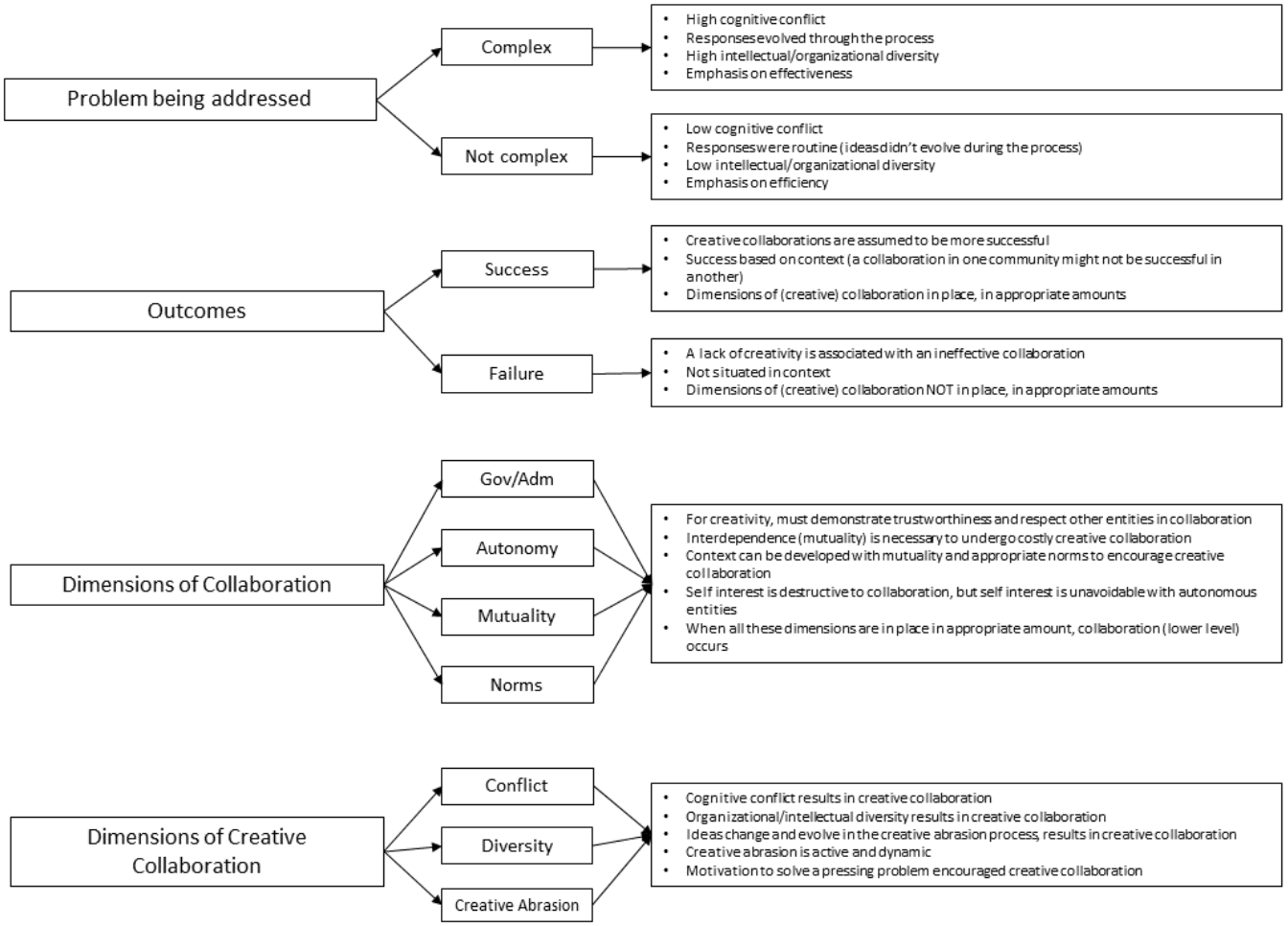
> The possibility of constructing codes before or separately from an examination of the data will reflect, to some extent, the inclination, knowledge and theoretical sophistication of the researcher… This is not to say that [the original codes] will be preserved intact throughout the project… the trick here is not to become too tied to the initial codes you construct. (p. 62)

An outline of the codes that resulted from this process and their explanations are included in Figure 11. Additional codes were identified; however, as with the themes, only codes that were

relevant to the study are included in this chapter. The following subsections elaborate on the themes identified in the qualitative data.

Figure 11

Qualitative Themes and Descriptions



Theme 1. The complexity of the problem may determine the presence of creative abrasion.

Three participants discussed collaborations that were straightforward. They reported little to no conflict, ideas that did not evolve during the process, and little organizational diversity. However, this did not mean that they did not successfully collaborate. On the contrary, all three participants reported that their collaborations effectively filled a gap in healthcare, but this gap appeared to be more straightforward, or they had precedents to follow. One participant said, "I wish I could tell you that we came together and did all this creative stuff, but I would be lying to you. People showed up and did what they were supposed to do. We had done this many times before, so we knew how to get it done." In these cases, the collaborations exhibited all of the dimensions of what I call lower-level collaboration (agreed-upon rules and procedures, mutuality, norms, etc.), but they lacked the creative spark. This is perhaps because the collaborations did not require it; the problem was not complex enough to make creative abrasion, which the literature noted to be a challenging and sometimes uncomfortable process, sensible or worthwhile. In other words, creativity was not present, but it was also unnecessary. Therefore, the success of a collaboration does not always appear to be tied to creativity.

Another important piece of this theme is the value attached to creativity and collaboration. Participants' responses reflected the idea that creative and/or collaborative processes are automatically more successful or in some way better than those that are not creative and/or collaborative. This theme emerged when five participants expressed discomfort with calling their work collaborative or creative. When I directly asked one participant whether he believed that the outcomes of his collaboration were creative, he confirmed their novelty and utility (how creativity is defined in this study) but said, "I wouldn't call them creative. I am sure someone, somewhere else was doing things like we were [adopting measures to increase access

to ways to stay healthy during the COVID-19 pandemic]. We just did what we had to do to make ends meet." This response demonstrates a level of modesty and perhaps a concern with being labeled boastful or arrogant had he called his work creative. As with the word "conflict," there are values and connotations tied to these words. Especially when considering creative collaborations that are not more successful than lower-level collaborations or perhaps fail altogether, further study is warranted. Nevertheless, Theme 1 is meaningful for this study because it reflects that responses to the survey may have been slightly distorted by the values associated with creative and collaboration.

Theme 2. Trust and respect are key in creative collaboration.

All respondents noted that collaborators must trust and respect each other to creatively work together. Trust and respect appear to be interconnected, even inseparable, in collaboration. Interviewees often remarked that they respected members of their collaboration network because they knew that they could trust them. Moreover, they reported a high level of respect for their counterparts' opinions even when they differed from their own, because they trusted that everyone worked towards achieving a mutual goal. Furthermore, interview participants reported that entities involved in the collaboration trusted and respected each other due to demonstrated reliability and dependability. Accountability seemed to be a critical component of trust and respect. In addition, interview participants reported that collaborators trusted in the capabilities of others in their collaboration network. One interviewee said, "We brought all the stakeholders together, and everyone trusted each other to follow through and do what was best for the community… We were successful because we let everyone be the expert in their area. School leaders knew how things would work in an education setting. The health departments knew the

medical side of things. We respected the experts and were able to support one another in shaping solutions in a variety of contexts."

Theme 3. Creative collaboration is contextual.

All respondents mentioned the context in which they operated in discussions of collaboration. According to the literature, collaboration is shaped by the context in which it occurs; this theme emerged in the one-on-one interviews. One participant indicated that many collaboration processes that are successful in one community are not always effective in another. She described creative abrasion and how vaccine administration procedures had to be adapted through a collaborative process. Another participant described collaborations on the Mexico–United States border in Texas and said that all education materials had to be tailored to the culture in which they would be used. These examples illustrate that context influences creative collaboration. Furthermore, those who routinely operate in a specific context are valuable to collaboration networks in that community because they can contextualize the outcomes. In other words, they can ensure that all collaboration outputs, whether they are ideas or objects, are adapted for the community. Collaboration must be authentic and situated in the context to be creative. This means that high levels of trust and respect are essential and that creative abrasion must be present for creative collaboration to occur.

Theme 4. Creative abrasion, cognitive conflict, and organizational diversity lead to creative outcomes.

Creative abrasion is critical to creative collaboration. Simply sharing resources and cooperating can characterize a productive partnership, but the integration must be at a higher level for outcomes to be creative. Without naming the interweaving of ideas that characterizes creative abrasion such, most of the interviewees calling their collaboration creative described the

process. They discussed the evolution of ideas and how they converged and diverged to form new ideas. Sometimes, these new ideas were better; other times, they were not. Nevertheless, interviewees who reported creative abrasion noted that motivation to solve a daunting problem, coupled with a tight-knit collaboration network, continually pulled them back to the collaboration to continue trying, even when their ideas failed. A key aspect of this discussion is that creative abrasion is active and dynamic. Interviewees used verbs such as "doing," "working," "brainstorming," and "acting together" to describe the process.

Theme 5. Affective conflict and tension resulting from autonomy can be destructive in collaboration.

A final theme that emerged from the qualitative data analysis was the negative impact of affective conflict on creative collaboration. Furthermore, affective conflict was closely related to self-serving behavior, which has also been tied to autonomy in the literature. Three participants reported that collaborations were unsuccessful in rural communities due to high levels of competition between organizations, especially over scarce resources. One interviewee said, "Instead of working together, some of these groups feel like they have to keep everything to themselves. When this happens, we all fail." Another participant shared his belief that rural communities are better-suited for collaboration because relationship conflict is not as pervasive as it appears to be in urban communities. "When everyone knows their neighbors, they are more likely to make sure that person has what they need. In urban areas, you just don't have that. There is much more conflict and people wanting to take credit. They don't want to work together because they want to show they did it all on their own."

Quantitative Analysis

The last section summarized five themes drawn from 14 interviews. In this section, I focus on quantitative data collected through the survey. The statistical tool used in this analysis was SPSS AMOS, which was employed to estimate a covariance matrix predicted by the model using a sample covariance for the observed indicators. Model fit was determined by how close the two matrices were to each other (Collier, 2020; Thomson, 2001). Overall, this study was a confirmatory factor analysis but sometimes leaned towards exploratory analysis by relying on a commonly accepted piecewise jigsaw technique to "systematically estimate multiple models of [creative] collaboration to arrive at a model that best fits the sample data" (Thomson, 2001, p. 113). Before discussing the findings, I provide an overview of the sample. This is an analysis of the quantitative and qualitative data collected through the survey. The questionnaire is included in Appendix A. It begins with several open-ended questions that invite respondents to describe a collaboration in which their entity had participated and the role that they played. Table 9 reports univariate statistics, including mean and standard deviation, for all variables in the sample, excluding categorical variables.

Table 9
Univariate Statistics

Variable	Mean	Std. deviation
Out1 - The outcomes of this collaboration are novel.	2.80	1.708
Out2 - The outcomes overcame boundaries that were in place before this collaboration.	2.38	1.505
Out3 - No single entity involved in this collaboration could have achieved the outcomes alone.	2.19	1.650
Out4 - The outcomes of this collaboration are more than the sum of its parts.	1.96	1.471
Out5 - The outcomes add value for entities involved in the collaboration.	1.83	1. 340
CreAbr1 - Ideas generated in this collaboration cannot be traced to one individual or organization.	2.88	1.819
CreAbr2 - Open dialogue, with converging and diverging ideas, characterizes this collaboration's process.	2.22	1.529
CreAbr3 - In this collaboration, entities brainstormed solutions to mission-related problems facing this collaboration.	2.15	1.449
CreAbr4 - Partner organizations (including my organization) worked through differences to arrive at win-win solutions.	2.11	1.462
CreAbr5 - Ideas changed, improved, and resulted in new ideas during this collaboration.	2.05	1.423
OrgDiv1 – This collaboration consists of entities that think and solve problems differently.	2.17	1.369
OrgDiv2 - This collaboration consists of entities with different skills and knowledge.	1.85	1.374
OrgDiv3 - This collaboration consists of entities with different work styles.	1.88	1.286
OrgDiv4 - This collaboration is between entities from diverse sectors.	2.18	1.604

(continued)

Table 9 (continued)
Univariate Statistics

Variable	Mean	Std. deviation
OrgDiv5 - The purposes of the entities involved are diverse.	2.29	1.660
CogCon1 - Existing opinions and beliefs were challenged in this collaboration.	2.77	1.538
CogCon2 - Entities understood that they were not rejected even if their ideas were rejected.	2.50	1.485
CogCon3 - Entities were focused on improving rather than winning.	2.13	1.502
CogCon4 - Entities considered new ideas and approaches to reaching goals.	2.08	1.435
CogCon5 - Entities respected others' perspectives, even if they were different from their own.	2.22	1.489
CogCon6 - Entities maintained focus on working together to achieve goals.	2.12	1.473
CogCon7 - Opinions and ideas were challenged at the beginning of the collaboration.	2.64	1.663
CogCon8 - Opinions and ideas were challenged at the end of this collaboration.	3.36	1.869
ProcCon1 - Entities disagreed about rules and procedures that applied specifically to this collaboration.	4.48	1.840
ProcCon2 - Entities disagreed about scheduling and timing that applied specifically to this collaboration.	4.49	1.872
AffCon1 - Entities felt personally attacked in this collaboration.	5.65	1.616
AffCon2 - Entities were annoyed by one another in this collaboration.	5.37	1.800
AffCon3 - Entities did not respect others' perspectives in this collaboration.	5.56	1.772
AffCon4 - This collaboration was characterized by competition among the entities.	5.63	1.717

(continued)

Table 9 (continued)
Univariate Statistics

Variable	Mean	Std. deviation
AffCon5 - Entities focused more on disagreements than achieving goals.	5.82	1.688
Norm1 - The people who represent other organizations in this collaboration are competent.	1.89	1.283
Norm2 - The people who represent partner entities in this collaboration are consistent.	2.07	1.334
Norm3 - My organization can count on each partner entity to meet its obligations to this collaboration.	2.04	1.412
Norm4 - The people who represent the partner entities in this collaboration are trustworthy.	1.89	1.333
Mut1 - My organization shares information with partner entities that will strengthen their operations and programs.	1.93	1.301
Mut2 - I feel that what my organization brings to this collaboration is appreciated and respected by partner entities.	1.99	1.424
Mut3 - My organization achieves its own goals better working with partner entities than working alone.	2.14	1.562
Aut1 - This collaboration hinders my organization from meeting its own organizational mission.	5.38	2.030
Aut2 - My organization's independence is negatively affected by having to work with partner entities on activities relate	5.44	1.970
Aut3 - I, as a representative of my organization, feel pulled between trying to meet the expectations of both my own organization and this collaboration.	5.22	2.028
GovAdm1 - Rules of engagement are mutually agreed upon for this collaborative endeavor.	2.38	1.409
GovAdm2 - Other organizations adhere to the rules of engagement during collaboration.	2.37	1.452

(continued)

Table 9 (continued)
Univariate Statistics

Variable	Mean	Std. deviation
GovAdm3 - This community's network structure supports collaboration.	2.30	1.557
GovAdm4 - The existing policies and procedures in this community network support collaboration between organizations.	2.33	1.494

I undertook all of the requisite data cleaning steps, and transformations were necessary. SEM is a powerful analytical method. However, as with any statistical technique, there are several assumptions that any researcher should be aware before beginning data analysis, including continuous dependent variables, linearity between variables, no multicollinearity, a complete dataset, and a multivariate normal distribution for indicators. First, I checked for skewedness and kurtosis. While kurtosis was not a problem, Norm1, Norm4, Mut1, and Mut2 all exhibited skewed data. A common solution for this is to run the maximum likelihood estimation with a bootstrap sample (Collier, 2020). A bootstrap sample was also necessary to determine mediation. Thus, I relied on Collier's (2020) recommendation that a bootstrap sample of 5,000 is sufficiently large. At this stage, I also remedied missing data. Around 300 surveys were completed, but several responses lacked an excessive amount of data.[4] Therefore, I deleted any surveys that were less than 80% complete. Research has demonstrated that between 20% and 30% of missing data can be remedied through imputation and still have acceptable parameter

[4] A high level of incomplete surveys could be because the open-ended questions appeared first in the survey. During survey testing, two practitioners recommended that I move the open-ended questions to the end of the survey, saying that people are less likely to finish a survey when they are asked to write at the beginning. But, qualitative data collected during this study and literature tells us that collaboration is contextual (Hill et al., 2014). Thus, one could argue that the descriptions about the collaborations themselves are even more important to this study and understanding creative collaboration than the Likert scale questions that make up the majority of the survey. Furthermore, the qualitative questions helped respondents determine a collaboration to inform their answers to later questions. For these reasons, I left the open-ended questions at the beginning of the survey, even though doing so may have negatively affected the survey completion rate.

estimates, as long as the missing data is random, such as when a respondent inadvertently skips a question (Collier, 2020). Therefore, I imputed the missing data for surveys that were at least 80% complete if the missing data were random. The most frequently used imputation method is to replace missing data with the series median for the indicator. However, this also is the least favorable approach because it can reduce variance. Therefore, I used the linear interpolation method to impute missing data recommended by Collier (2020). The SPSS output reflected that no more than 15 observations were replaced, which means that no more than 7.4% of the data for each indicator was remedied through linear interpolation.

Description of Sample

The sample for this study came from across Texas and included entities that reported collaboration on increasing access to ways stay healthy, both mentally and physically, in rural Texas communities. In Chapter 5, I briefly outlined the context of mental and physical health in rural Texas. There is extensive information on healthcare shortages in rural areas. This is especially true in Texas, where millions of people consider themselves rural residents, even if they live in an area that the U.S. Census defines as metropolitan. As described in Chapter 4, survey participants were recruited through Texas PHRs, CMHCs, AHECs, and professional organizations. The sampling methods used were purposive and snowball (referral) sampling.

After several waves of distribution and data cleaning, the final sample size was 216. There is little consensus over the appropriate sample size for SEM. It is commonly believed to require a large sample size, especially relative to other statistical methods, because researchers typically follow overgeneralized rules of thumb (Collier, 2020). One of these is that 10 observations are required for every indicator (Nunnally & Bernstein, 1994). A second rule of thumb ties the sample size to the number of parameters to be estimated, including error terms

and path coefficients. A sample size is adequate if there are 15 observations for each parameter (Bentler & Chou, 1987). A third rule of thumb is that 200 observations is the minimum sample size on which SEM can be accurately performed. Although frequently cited, this rule does not take into account the specifics of the model being tested (Wolf et al., 2013). Soper (2022) made available an a priori sample size calculator for SEM that has been cited hundreds of times in the literature. Using this calculator, it was determined that a sample size of 216 would be adequate for estimating the covariance structure model in this study, which includes nine factors and 39 indicators (Soper, 2022).[5] No response rate was determined because snowball sampling, in which participants were expected to share the survey with their networks, was used (Daniel, 2012).[6] Entities in networks in which the PHRs, CMHAs, and LMHAs operated were oversampled, also due to snowball sampling. Thus, the findings are somewhat limited and should be tested in follow-up research with probability-based samples that contain many observations.

Several survey questions were intended to gather information about the collaborations that respondents based their answers on. Because I requested that participants respond to the survey only if they could speak as a representative of their organization and were involved in the decision-making process, all of them were assumed to hold managerial positions if they were not answering questions as an individual. For example, in rural hospitals, many respondents served as CEOs or administrators. Other respondents worked as clinical healthcare providers, such as

[5] Soper's (2022) calculator uses several parameter values to calculate the minimum sample size given the structural complexity of the model. I used 0.30 for the anticipated effect size, 0.80 for the desired statistical power level, and 0.05 for the probability level. These are all considered typical values for social sciences. For number of latent variables, I included 9. I also added in the 39 observed variables (indicators) specified during the literature review. The minimum sample size to detect effect was reported to be 184. The minimum sample size for model structure was reported to be 89. The recommended minimum sample size was 184. Thus, my sample size of 216 was above the 200 minimum observations rule of thumb and Soper's (2022) recommended minimum sample size.

[6] Since the sampling method for this study was not probability based, findings will be limited in terms of generalizability. Future research will be able to use this study as a basis for determining a universe size and probability sampling can employed. These recommendations will be made in the conclusions to follow.

doctors or nurses. Table 10 contains a summary of survey respondents' roles, which are grouped into broad categories. The two most common groups—director/CEO/owner/superintendent and managerial/coordinator—collectively accounted for more than half of respondents. These groups may appear to be closely related, but I classified executives into one category (i.e., director/CEO/owner/superintendent). I view them as handling high-level matters that are more associated with administration than on-the-ground activities. An example of an administrative activity is making decisions about annual plans and budgets. Participants in the second group, managerial/coordinator, were placed together because they all managed (or coordinated) on-the-ground activities related to the provision of healthcare or access to ways to stay healthy. They were considered to occupy the middle level between direct care providers and executives. It is important to note that the care provider group not only consisted of clinical healthcare providers such as physicians, nurses, or emergency medical technicians (EMTs) but also other roles, such as community educators and law enforcement officers. This is because they are involved in connecting people to ways to stay healthy. Lastly, the elected official category included judges and appointed governmental committee members.

Table 10

Survey Respondent Categories

Position	Percentage of respondents
Director/CEO/owner/superintendent	34%
Managerial/coordinator	28%
Care provider	14%
Elected official	13%
Board member	6%
Individual	5%

$N = 216$.

The collaborations that respondents based their survey responses on were varied. Many were not healthcare-related. In fact, 27.1% of respondents answered "no" to Question 7 ("Is your

organization healthcare-related?"). Respondents were asked to indicate the types of organizations involved in the collaboration and could select all applicable categories. Of the respondents who answered this question, 76% selected more than one type of organization. Table 11 summarizes the breakdown of organization type by percentage of all collaborations featured in this study (count of selection of the organization type divided by total count of organization type selections). Of the organization types selected by respondents, 25.51% were healthcare-related. This was closely followed by nonprofit (19.25%) and government organizations (17.68%). This organizational diversity reflects the social determinants of health framework described in Chapter 4 (Ramsetty & Adams, 2020). Health is not only determined by doctor visits but a complex mix of components, from education to the built environment. Thus, connecting people to ways to become or remain healthy requires some form of interwoven effort. The collaborations that respondents based their answers on reflect this very idea.

Table 11
Types of organizations involved in collaborations

Type of organizations involved	Percentage
Healthcare	25.51%
Nonprofit	19.25%
Government	17.68%
Education	10.95%
Business	10.64%
Faith-based	9.09%
Grassroots	3.91%
Other	2.97%

N = 643.

A review of responses to the open-ended questions, which asked respondents to describe the goals or expected outcomes of their collaboration and the activities involved, underscores the diversity of the featured collaborations. While several responses were related to COVID-19 (as

expected due to the recent pandemic), many were not. Other collaborations focused on mental health problems, behavioral health issues, parental issues (e.g., knowledge on how to safely install car seats), the Zika virus, care provider recruitment, drowning prevention, women's health issues, routine immunizations, accessibility issues (e.g., transportation), and assisted living. This demonstrates that collaboration on increasing access to healthcare in rural Texas communities is much broader than solving problems related to COVID-19. Rural communities are working to address shortcomings in many of the social determinants of health; the types of organizations involved in collaborations and the problems that they are solving support this assertion.

Covariance Model Analysis

The current subsection focuses on the evaluation of the covariance model for creative collaboration. I begin by assessing the measurement model, which involves an examination of how the dimensions of creative collaboration and creative collaboration as a higher-order factor were measured. I use the established piecewise jigsaw technique, in which the model is first disaggregated into its component parts and the validity of each latent variable is established. Then, all components are combined into a full model and evaluated (Bollen, 2000; Bollen & Davis, 2009). Thomson (2001) wrote, "The piecewise technique corresponds to the basic structure of the covariance model itself"(p. 129). It is useful when focusing on the measurement component of a complex covariance structure model, as the primary goal at this stage is to assess the relationship between each latent variable and its indicators.

The findings are organized according to the piecewise jigsaw technique (Bollen, 2000). First, I separate the creative collaboration measurement model into its component parts. As the established factors of autonomy, mutuality, norms, and governance/administration have already been subjected to testing and validation, I primarily focus on the factors that I added to

conceptualize creative collaboration: creative abrasion, cognitive conflict, affective conflict, and organizational diversity. The fifth factor, process conflict, was the least discussed in the literature and consequently could not be well-specified in a theoretical model. The resulting two indicators left the model underidentified as its own model. Thus, I tested it when I reconstructed the full measurement model of creative collaboration. Testing it later still revealed problems with this latent variable, as specified here, because it was one of the least statistically significant and valid indicators. As a result, it was ultimately removed from the model. This supported findings on process conflict in the literature—namely, that it has the lowest impact (if any) on collaboration.

After the four best fit models emerged, I reassembled the parts into a horizontally integrated measurement model for creative collaboration that included process conflict, autonomy, mutuality, norms, and governance/autonomy to assess how all of the indicators measured the latent variables when they were integrated into a single model. Again, I removed the least theoretically important and statistically significant indicators. Finally, I evaluated the relationships between the indicators and present my findings from the structural model analysis.

Although the overall analysis remained confirmatory, analysis became somewhat exploratory at times since I systematically tested each indicator and eliminated those that did not have adequate theoretical and statistical support (based on the evaluation of fit measures). This approach was warranted because the model under analysis contained several constructs with relatively little empirical research to support them. It is common practice in SEM to begin with a relatively large number of indicators, as some may be eliminated. However, elimination is only warranted when it is supported by theory (Bollen & Davis, 2009; Collier, 2020).

Assessing Model Fit and Modification Indices

Assessing model fit involves evaluating how closely the theoretically specified model fits the observed data. There are many ways to assess model fit in SEM, and little consensus about the best path forward. I closely followed the recommendations of Collier (2020) and the steps taken by Thomson (2001). First, I carefully reviewed the output, taking particular note of the factor loadings. I used standardized validity coefficients because they are more commonly reported than unstandardized factor loadings in this step (Collier, 2020). Next, I determined whether they were statistically significant by examining *p*-value. I also determined whether their values and directions (positive or negative) aligned with the literature. The closer the factor loading is to 1, the more valid the indicator. Furthermore, the closer the indicator's R-squared is to 1, the more reliable it is, because R-squared indicates how much variability in each indicator "is accounted for by the unobserved factor" (Thomson, 2001, p. 131). I also evaluated the component fit by examining the standardized residuals to determine any problematic relationships that were not adequately accounted for in the model. Lastly, I assessed the overall fit by using the most reported indices—chi-square value (CMIN/df), the goodness of fit index (GFI), the comparative fit index (CFI) and the root mean square error approximation (RMSEA). According to Collier (2020), a model fit is considered acceptable if CMIN/df < 3, GFI > 0.90, and CFI > .90. Recently, a CFI threshold of 0.95 has been advised to be representative of a model with a good fit (Hu & Bentler, 1999). Browne and Cudock's (1993) RMSEA threshold of 0.10 was used, although it should be noted that there is no consensus on this value. Collier (2020) stated that an excellent model has an RMSEA below 0.05, but this is not always achievable. Since I used a combination of four model fit indices, using the more relaxed RMSEA and CFI thresholds was acceptable (Lacobucci, 2010).

SPSS Amos provides modification indices with suggested covariances that could improve model fit. In some cases, I incorporated these when they theoretically made sense, and I did not covary error terms across constructs or between latent variables (Collier, 2020). According to Collier (2020), error terms for indicators can be covaried if theory supports doing so. While the literature indicates that all indicators in each component measurement model are likely to be correlated because they measure the same latent variable, the modification indices suggested that there is some covariance between these two indicators that were unaccounted for in the model. For example, there could be an additional variable in play (Hermida, 2015). This is because the covariance is between the two error terms. Thus, the influence of the variable is accounted for without actually including it in the model (Fornell, 1983). When the addition of a correlation does not markedly change factor loadings, it can be said that the covariance is due to an extraneous variable rather than a substantive variable that should be included in the model. If the correlation had been significant or greater than > .70, then a literature review to investigate the possibility of misspecification may be advisable. For each model analyzed in SPSS Amos, I meticulously reviewed the model fit and modification indices. I only considered modification indices that would substantially improve model fit. Furthermore, I systematically made one change at a time when it was supported by the literature and carefully observed how each modification impacted the model and other factor loadings. Thus, I feel confident that I identified a model grounded in the literature and that fit the data as much as possible. However, Hermida (2015) noted that covariance between error terms uncovered during data analysis could be due to sampling error and other issues with the data. Therefore, it should be noted that, while any final model requires further validation with additional data and a larger, separate sample, this is especially true when modification indices are used.

Measurement Model

The current subsection discusses the four measurement components, which I individually assessed. As noted, these findings follow the piecewise jigsaw technique of disaggregating the measurement model into its individual components and first reviewing how each dimension was measured. Then, I combined the individual components into a single higher-order factor model and examined how the individual components behaved once they were combined, paying close attention to any spurious relationships that were unaccounted for by the theoretically specified measurement model. Table 12 summarizes the individual component measurement models that were examined in this study.

Table 12
Individual Component Measurement Models

Constructs		Standardized Factor Loading	r^2	t-value	P
Creative Abrasion	Cronbach's alpha = 0.931; C.R. = 0.933; AVE = 0.777				
CreAbr2_1	Open dialogue, with converging and diverging ideas, characterizes this collaboration's process	0.791	0.625	**	
CreAbr3_1	In this collaboration, entities brainstormed solutions to mission-related problems facing this collaboration.	0.893	0.798	17.688	***
CreAbr4_1	Partner organizations (including my organization) work through differences to arrive at win-win solutions.	0.935	0.874	15.464	***
CreAbr5_1	Ideas changed, improved, and resulted in new ideas during this collaboration.	0.869	0.756	14.388	***
Model fit statistics (PCMIN/df = 2.921; GFI = .993; CFI = .997; RMSEA = 0.095)					
Cognitive Conflict	Cronbach's alpha = 0.9574; C.R. = 0.957; AVE = 0.819				
CogCon2_1	Entities understood that they were not rejected even if their ideas were rejected.	0.782	0.612	**	
CogCon3_1	Entities were focused on improving rather than winning.	0.907	0.823	15.585	***
CogCon4_1	Entities considered new ideas and approaches to reaching their goals.	0.930	0.865	16.156	***
CogCon5_1	Entities respected others' perspectives, even if they were different from their own.	0.966	0.933	17.046	***
CogCon6_1	Entities maintained focus on working together to achieve.	0.928	0.861	16.116	***
Model fit statistics (PCMIN/df = .405; GFI = .997; CFI = .999; RMSEA = ***)					

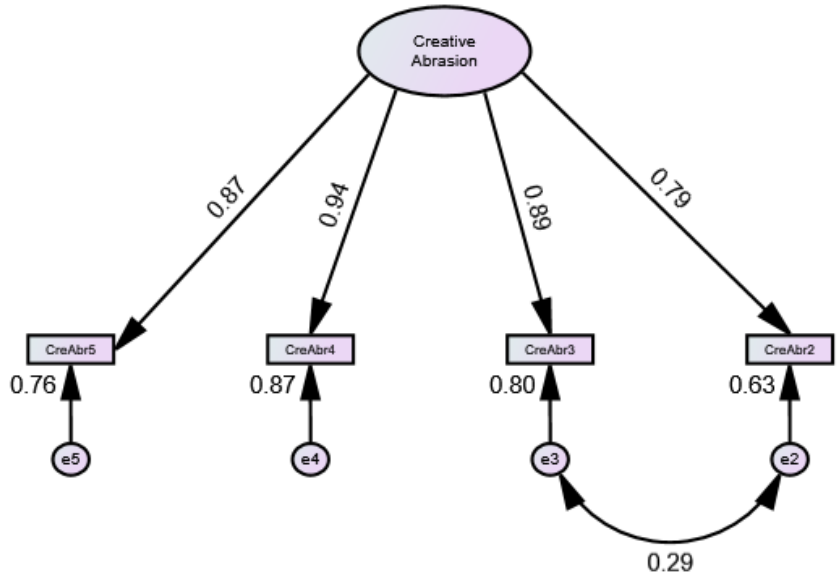
(continued)

Table 12 (continued)
Individual Component Measurement Models

Constructs		Standardized Factor Loading	r^2	t-value	P
Affective Conflict	Cronbach's alpha = 0.961; C.R. = 0.961; AVE = 0.833				
AffCon1_1	Entities felt personally attacked in this collaboration.	0.927	0.859	**	
AffCon2_1	Entities were annoyed by one another in this collaboration.	0.888	0.788	21.131	***
AffCon3_1	Entities did not respect others' perspectives in this collaboration	0.935	0.874	25.810	***
AffCon4_1	This collaboration was characterized by competition among entities.	0.920	0.847	23.603	***
AffCon5_1	Entities focused more on disagreements than achieving goals.	0.924	0.854	23.953	***
Model fit statistics (PCMIN/df = 0.332; GFI = .999; CFI = .999; RMSEA = ***)					
Org Diversity	Cronbach's alpha = .911; C.R. = 0.912; AVE = 0.677				
OrgDiv1_1	This collaboration consists of entities that think and solve problems differently.	0.875	0.766	**	***
OrgDiv2_1	This collaboration consists of entities with different skills and knowledge.	0.875	0.765	17.576	***
OrgDiv3_1	This collaboration consists of entities with different work styles.	0.926	0.857	19.367	***
OrgDiv4_1	This collaboration is among entities from diverse sectors.	0.729	0.531	12.833	***
OrgDiv5_1	The purposes of the entities involved are diverse.	0.684	0.468	11.663	***
Model fit statistics (CMIN/df = 1.188; GFI = 0.991; CFI = 0.999; RMSEA = 0.03)					

Note. **= Item constrained for identification purposes.
*** = <.001

Figure 12
Best Fit Model of Creative Abrasion

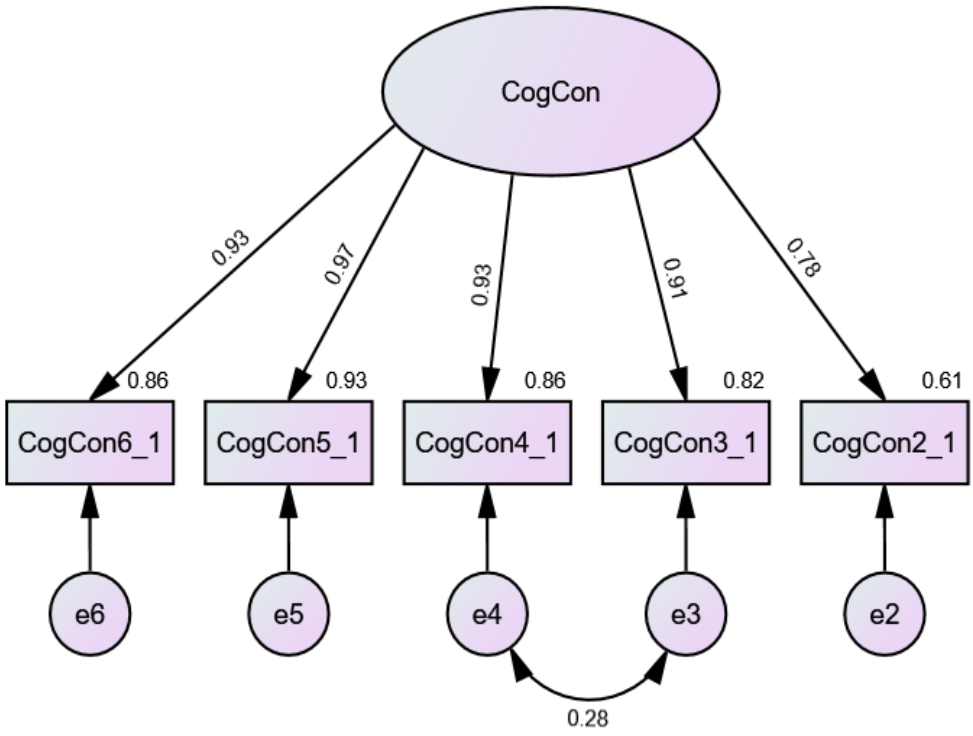


The first component measurement model was creative abrasion. Figure 12 depicts the resulting best fit model. The theoretically specified model of creative abrasion included five indicators. This number was reduced to four because CreAbr1 ("Ideas generated in this collaboration cannot be traced to one individual or person") had a low factor loading and the weakest theoretical significance.[7] The removal of this indicator was further supported by qualitative data collected during the interviews. When asked about the attribution of creative ideas to a single individual or entity in a collaboration, several interview participants noted that ideas tended to originate with one person. This did not prevent them from evolving or changing as the collaboration progressed, nor did it mean that the outcome was not collaborative. The remaining four items were CreAbr2 ("Open dialogue, with converging and diverging ideas, characterizes this collaboration's process"), CreAbr3 ("In this collaboration, entities

[7] See Table 7 for a full review of theoretical support for all indicators.

brainstormed solutions to mission-related problems facing collaboration"), CreAbr4 ("Partner organizations, including my organization, worked through differences to arrive at win-win solutions"), and CreAbr5 ("Ideas changed, improved, and resulted in new ideas during this collaboration"). CreAbr2 and CreAbr3 were covaried as recommended in the modification indices to improve model fit because they were closely linked in the literature (Dhanpat et al., 2017; Hill et al., 2014; Leonard, 1995; Leonard-Barton & Swap, 1999). The addition of this correlation did not markedly change the factor loadings. Thus, it can be said that the covariance was due to an extraneous variable rather than a substantive variable. If this correlation had been significant (> .70), then it may have been advisable to perform a literature review to investigate the misspecification. As indicated by Hermida (2015), covariance between error terms could be due to sampling error and other issues with the data. These results would require further validation with another dataset. The final model fit indices for creative abrasion were mixed. PCMIN/df was below the 3.0 threshold, at 2.921. GFI and CFI were both above the 0.90 threshold, at 0.993 and 0.997, respectively. RMSEA was below the 0.10 threshold, at 0.095.

Figure 13
Best Fit Measurement Model of Cognitive Conflict

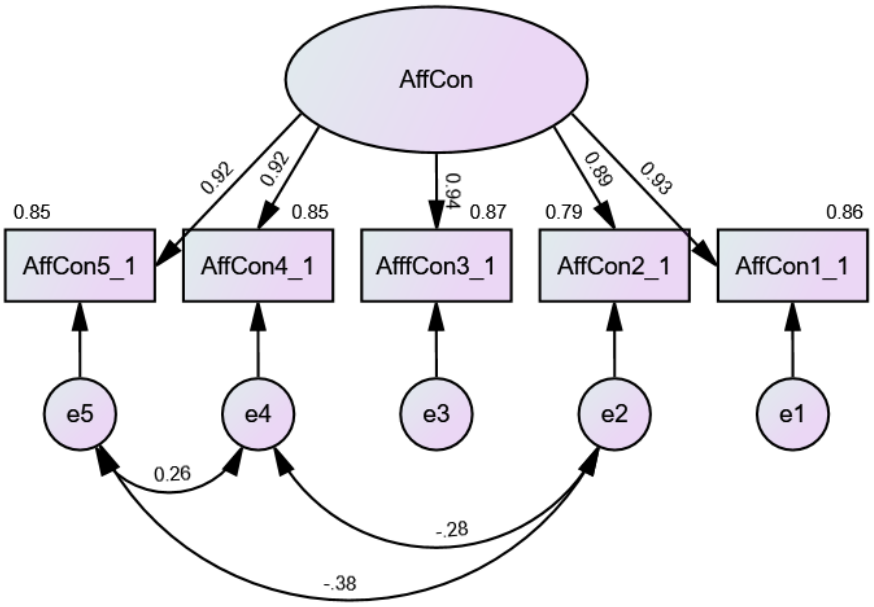


The second measurement component analyzed was cognitive conflict (CogCon). The best fit measurement model is illustrated in Figure 13. The theoretically specified model included eight indicators, but only five withstood statistical scrutiny. I removed the following indicators due to weak factor loadings: CogCon1 (“Existing opinions and beliefs were challenged in this collaboration”), CogCon7 (“Opinions and ideas were challenged at the beginning of this collaboration”), and CogCon8 (“Opinions and ideas were challenged at the end of this collaboration”). Again, the further a factor loading is from 1, the less valid it is. All three of these indicators were close measures of the same concept: challenging ideas, beliefs, and opinions. Therefore, they were similarly—and possibly poorly—worded. The remaining indicators, CogCon2 (“Entities understood that they were not rejected even if their ideas were”), CogCon3

("Entities focused on improving rather than winning"), CogCon4 ("Entities considered new ideas and approaches to reaching goals"), CogCon5 ("Entities respected others' perspectives, even if they were different from their own"), CogCon6 ("Entities maintained focus on working together to achieve goals") all had strong theoretical support as indicators of cognitive conflict. Moreover, reliability and validity measures for each of these indicators were strong, as demonstrated in Table 6.5. CogCon3 and CogCon 4 were covaried as suggested in the modification indices, which substantially improved the model fit scores. Again, these covariances were only included because the literature provided theoretical support that they should be covaried.[8] All final model fit indices, which are listed in Table 12, were within the excellent range. Therefore, this model was reliable as a reasonable measure of cognitive conflict.

[8] See Table 7 for a full review of theoretical support for all indicators.

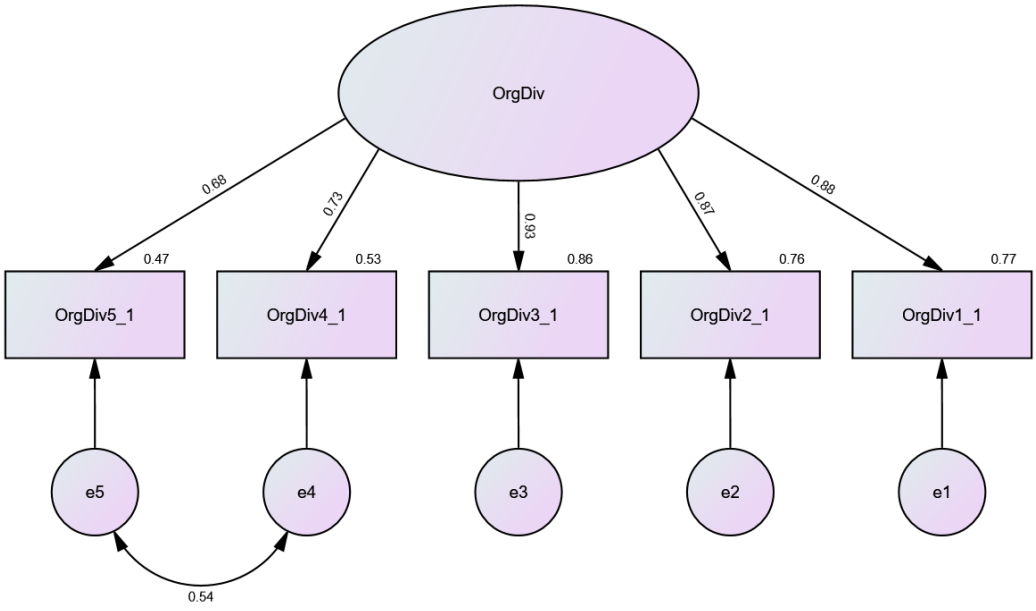
Figure 14
Best Fit Measurement Model of Affective Conflict



The third measurement component analyzed was affective conflict (AffCon). The best fit measurement model is illustrated in Figure 14. The theoretically specified model included five indicators: AffCon1 ("Entities felt personally attacked in this collaboration"), AffCon2 ("Entities were annoyed by each other in this collaboration"), AffCon3 ("Entities did not respect others' perspectives in this collaboration"), AffCon4 ("This collaboration was characterized by competition between entities"), and AffCon5 ("Entities focused more on disagreements than achieving goals"). All five of these indicators achieved significant factor loadings and acceptable reliability and validity measures. Three covariances were added based on modification indices: AffCon2 to AffCon4, AffCon2 to AffCon5, and AffCon4 to AffCon5. This was supported by the

literature.[9] The final model fit measures were excellent. Thus, the theoretically specified model with five indicators was statistically supported as the best fit measurement model of affective conflict.

Figure 15
Best Fit Model of Organizational Diversity



The final component model investigated was organizational diversity. Except for process conflict, this was the most challenging creative collaboration dimension to theoretically specify. Figure 15 illustrates the best fit model for organizational diversity. The literature on organizational diversity, which is conceptualized as intellectual diversity, is not as robust as the literature on demographic diversity. Hill (2014) noted that demographic diversity can lead to

[9] See Table 7 for a full review of theoretical support for all indicators.

intellectual diversity, but this is not always the case. This raises the question of when intellectual diversity can be measured with demographic diversity indicators. Demographics are the lens through which average people appear to be most comfortable framing diversity of any type. Therefore, when exhibited survey items aimed at one person evaluating differences in how others think about a problem, obtaining reliable and valid responses proved difficult. This was underscored in the interviews. Participants heavily relied on demographic diversity to answer questions about organizational diversity because this is how they were most comfortable framing the construct. Despite these challenges, the statistically supported best fit model that emerged was consistent with the theoretically specified model. All five originally specified indicators—OrgDiv1 ("This collaboration consists of entities that think and solve problems differently"), OrgDiv2 ("This collaboration consists of entities with different skills and knowledge"), OrgDiv3 ("This collaboration consists of entities with different work styles"), OrgDiv4 ("This collaboration is between entities from diverse sectors"), and OrgDiv5 ("The purposes of the entities involved are diverse")—were retained because they were found to have satisfactory statistical support. Only OrgDiv5 had a slightly low factor loading (0.68), but it was retained due to a strong backing in the literature. The literature also supported one covariance suggested in the modification indices: between OrgDiv4 and OrgDiv5. These were linked closely in the literature, and similar wording likely derived from intertwined ideas about intellectual and demographic diversity, which is reflected in my conceptualization of organizational diversity. Reliability and validity statistics were all excellent: CMIN/df = 1.188, GFI = 0.991, CFI = 0.999, and RMSEA = 0.03.

Full Creative Collaboration Model

In keeping with the piecewise jigsaw technique, it was appropriate to combine all of the theoretically specified creative collaboration dimensions into one model to analyze how they interact after determining the best fit measurement models for creative abrasion, cognitive conflict, affective conflict, and organizational diversity. According to Thomson (2001) and Bollen (2000), this step is critical because it ensures that no spurious relationships are obscured by treating the component models separately in the piecewise jigsaw technique. Treating component models separately can also lead to increased Type I errors (false positives). Bollen (2000) noted that researchers often repeatedly respecify models in an attempt to improve model fit indices. However, if respecification is hastily undertaken without serious regard for the underlying theory and literature, the testing fully moves from confirmatory to exploratory. The "consequence is that the probability levels for the tests of statistical significance must be regarded as approximations" (Bollen, 2000, p. 296). In this step, I again focused on confirmatory factor analysis because there was less of an emphasis on removing ill-fitting indicators and more on confirming that the relationships underscored those illustrated in the theoretical model. I performed the confirmatory factor analysis with SPSS Amos to test the measurement model. The findings are summarized in Table 13.

Table 13

Best Fit Creative Collaboration Measurement Model

Constructs		Standardized Factor Loading	r^2	t-value	P
Creative Abrasion	Cronbach's alpha = 0.931; C.R. = 0.933; AVE = 0.777				
CreAbr2_1	Open dialogue, with converging and diverging ideas, characterizes this collaboration's process	0.833	0.694	16.749	***
CreAbr3_1	In this collaboration, entities brainstormed solutions to mission-related problems facing this collaboration.	0.894	0.799	19.419	***
CreAbr4_1	Partner organizations (including my organization) work through differences to arrive at win-win solutions.	0.914	0.835	20.432	***
CreAbr5_1	Ideas changed, improved, and resulted in new ideas during this collaboration.	0.884	0.781	**	***
Cognitive Conflict	Cronbach's alpha = 0.9574; C.R. = 0.957; AVE = 0.819				
CogCon2_1	Entities understood that they were not rejected even if their ideas were rejected.	0.783	0.614	**	***
CogCon3_1	Entities were focused on improving rather than winning.	0.904	0.818	15.620	***
CogCon4_1	Entities considered new ideas and approaches to reaching their goals.	0.929	0.864	16.248	***
CogCon5_1	Entities respected others' perspectives, even if they were different from their own.	0.962	0.926	17.104	
CogCon6_1	Entities maintained focus on working together to achieve.	0.934	0.872	16.367	***
Affective Conflict	Cronbach's alpha = 0.961; C.R. = 0.961; AVE = 0.833				
AffCon1_1	Entities felt personally attacked in this collaboration.	0.933	0.870	**	***
AffCon2_1	Entities were annoyed by one another in this collaboration.	0.866	0.751	20.568	***
AffCon3_1	Entities did not respect others' perspectives in this collaboration	0.941	0.885	26.710	***
AffCon4_1	This collaboration was characterized by competition among entities.	0.910	0.751	23.677	***
AffCon5_1	Entities focused more on disagreements than achieving goals.	0.912	0.870	23.841	***

(continued)

Table 13

Best Fit Creative Collaboration Measurement Model

Constructs		Standardized Factor Loading	r^2	t-value	P
Organizational Diversity	Cronbach's alpha = .911; C.R. = 0.912; AVE = 0.677				
OrgDiv1_1	This collaboration consists of entities that think and solve problems differently.	0.863	0.744	11.455	***
OrgDiv2_1	This collaboration consists of entities with different skills and knowledge.	0.895	0.801	11.814	***
OrgDiv3_1	This collaboration consists of entities with different work styles.	0.917	0.840	12.037	***
OrgDiv4_1	This collaboration is among entities from diverse sectors.	0.731	0.534	14.630	***
OrgDiv5_1	The purposes of the entities involved are diverse.	0.679	0.461	**	
Governance/ Administration	Cronbach's Alpha = 0.921; C.R. = 0.899; AVE = 0.691				
GovAdm1_1	Rules of engagement are mutually agreed upon for this collaborative endeavor.	0.790	0.624	**	***
GovAdm2_1	Other organizations adhere to the rules of engagement during collaboration.	0.815	0.664	17.067	***
GovAdm3_1	This community's network structure supports collaboration.	0.863	0.745	13.495	***
GovAdm4_1	The existing policies and procedures in this community network support collaboration between organizations.	0.855	0.731	13.302	***
Process Conflict	Cronbach's Alpha = 0.899; C.R. = 0.888, AVE = 0.799				
ProCon1_1	Entities disagreed about rules and procedures that applied specifically to this collaboration.	0.893	0.797	14.520	***
ProCon2_1	Entities disagreed about scheduling and timing that applied specifically to this collaboration.	0.895	0.836	**	***

(continued)

Table 13
Best Fit Creative Collaboration Measurement Model

Constructs		Standardized Factor Loading	r^2	t-value	P
Norms	Cronbach's alpha = 0.935; C.R. = 0.929; AVE = 0.766				
Norm1_1	The people who represent other organizations in this collaboration are competent.	0.840	0.705	**	***
Norm2_1	The people who represent partner entities in this collaboration are consistent.	0.806	0.649	19.332	***
Norm3_1	My organization can count on each partner entity to meet its obligations to this collaboration.	0.883	0.780	17.099	***
Norm4_1	The people who represent the partner entities in this collaboration are trustworthy.	0.963	0.927	20.022	***
Autonomy Cronbach's alpha = 0.880; C.R. = 0.778, AVE – 0.847					
Aut1_1	This collaboration hinders my organization from meeting its own organizational mission.	0.882	0.778	**	***
Aut2_1	My organization's independence is negatively affected by having to work with partner entities on activities related to this collaboration.	0.957	0.671	17.927	***
Mutuality	Cronbach's alpha = 0.861; C.R. = 0.868; AVE = 0.767				
Mut1_1	My organization shares information with partner entities that will strengthen their operations and programs.	0.819	0.671	**	***
Mut2_1	My organization achieves its own goals better working with partner entities than working alone.	0.929	0.862	17.245	***
Model fit indices (CMIN/df = 2.548; GFI = 0.758; CFI = 0.918; RMSEA = .085)					

Note. **= Item constrained for identification purposes.
*** = <.001

I assessed factor loadings for each indicator in the model of creative collaboration. The *p*-values were excellent; all were less than .001. Therefore, all relationships indicated in the measurement model were statistically significant. The factor loadings were generally high,

ranging from 0.679 (OrgDiv → OrgDiv5, "The purposes of the entities involved are diverse") at the lowest to 0.963 (Norms → Norm4, "The people who represent the partner entities in this collaboration are trustworthy") at the highest. Cognitive conflict and affective conflict each had four indicators with factor loadings above 0.90. However, Aut3 ("I, as a representative of my organization, feel pulled between trying to meet the expectations of both my own organization and this collaboration") exhibited a problematic residual covariance (< -2) with several other indicators. Thus, it was deleted. The model fit measures were assessed with regard to CMIN/df (2.548), RMSEA (0.085), and CFI (0.918). Thus, they were all within the acceptable range. A CFI greater than 0.95 is preferrable, but this creative collaboration model is complex and contains many components. Thus, a borderline CFI is acceptable. Additionally, RMSEA was marginal at 0.085. RMSEA can be artificially inflated due to a small sample size and could be improved through a follow-up study with a larger sample size. This is underscored by the fact that the proposed creative collaboration measurement model is new, and subsequent validation testing is warranted in further research. GFI (0.758) was near the cutoff of .90. Researchers have reported that GFI can be artificially suppressed with small sample sizes (Rakotoasimbola & Blili, 2019). Thus, further testing with a larger sample size could improve these two model fit indices.

Construct reliability was assessed using Cronbach's alpha and composite reliability. Each dimension had a Cronbach's alpha and composite reliability over the required score of 0.70. Thus, the constructs were reliable. Convergent validity was established using average variance extracted (AVE). Each dimension's AVE was above the 0.50 threshold. Thus, convergent validity was established. Discriminant validity was evaluated through the heterotrait-monotrait (HTMT) ratio, which has a cutoff of 1.0. The norms and mutuality dimensions had an HTMT ratio above the limit of 1.0 (Collier, 2020). Upon further investigation, the high HTMT ratio was decreased

by removing Mut3 (“My organization achieves its own goals better by working with partner entities than working alone”), which had a low factor loading onto mutuality. The ratio was only reduced to 0.922, and there is some debate over whether this may still be too high of an HTMT ratio to establish discriminant validity (Henseler et al., 2015). Therefore, a second model with mutuality and norms indicators, the two factors with the lowest HTMT ratio, loaded onto one latent variable were nested into my assessment of the creative collaboration structural model. HTMT ratios for the best fit creative collaboration measurement model are listed in Table 14.

Table 14

Heterotrait-monotrait Ratios

Variable	HTMT Ratio
Norm-Mut	0.922
Norm-Aut	-0.377
Norm-GovAdm	0.782
Norm-OrgDiv	0.671
Norm-ProCon	-0.211
Norm-CogCon	0.859
Norm-AffCon	-0.543
Norm-CreAbr	0.806
Mut-Aut	-0.404
Mut-GovAdm	0.774
Mut-OrgDiv	0.675
Mut-ProCon	-0.215
Mut-CogCon	0.872
Mut-AffCon	-0.551
Mut-CreAbr	0.818
Aut-GovAdm	-0.283
Aut-OrgDiv	-0.320
Aut-ProCon	0.544
Aut-CogCon	-0.340
Aut-AffCon	0.740
Aut-CreAbr	-0.416
GovAdm-OrgDiv	0.638
GovAdm-ProCon	-0.143
GovAdm-CogCon	0.821
GovAdm-AffCon	-0.452
GovAdm-CreAbr	0.745
OrgDiv-ProCon	-0.102
OrgDiv-CogCon	0.695
OrgDiv-AffCon	-0.320
OrgDiv-CreAbr	0.772
ProCon-CogCon	-0.227
ProCon-AffCon	0.636
ProCon-CreAbr	-0.142
CogCon-AffCon	-0.529
CogCon-CreAbr	0.884
AffCon-CreAbr	-0.456

Model 1 – Eight dimensions and 31 indicators. Having established a best fit measurement model, it was appropriate to evaluate the structure or relationships between the

dimensions. I moved forward with the main model of creative collaboration (CreCol), which contained eight dimensions and 31 indicators. Figure 16 illustrates the structural relationships in Model 1, with the validity and reliability scores associated with each path. The overall fit measures for Model 1 are summarized in Table 15.

Figure 16

Structural Model 1 of Creative Collaboration

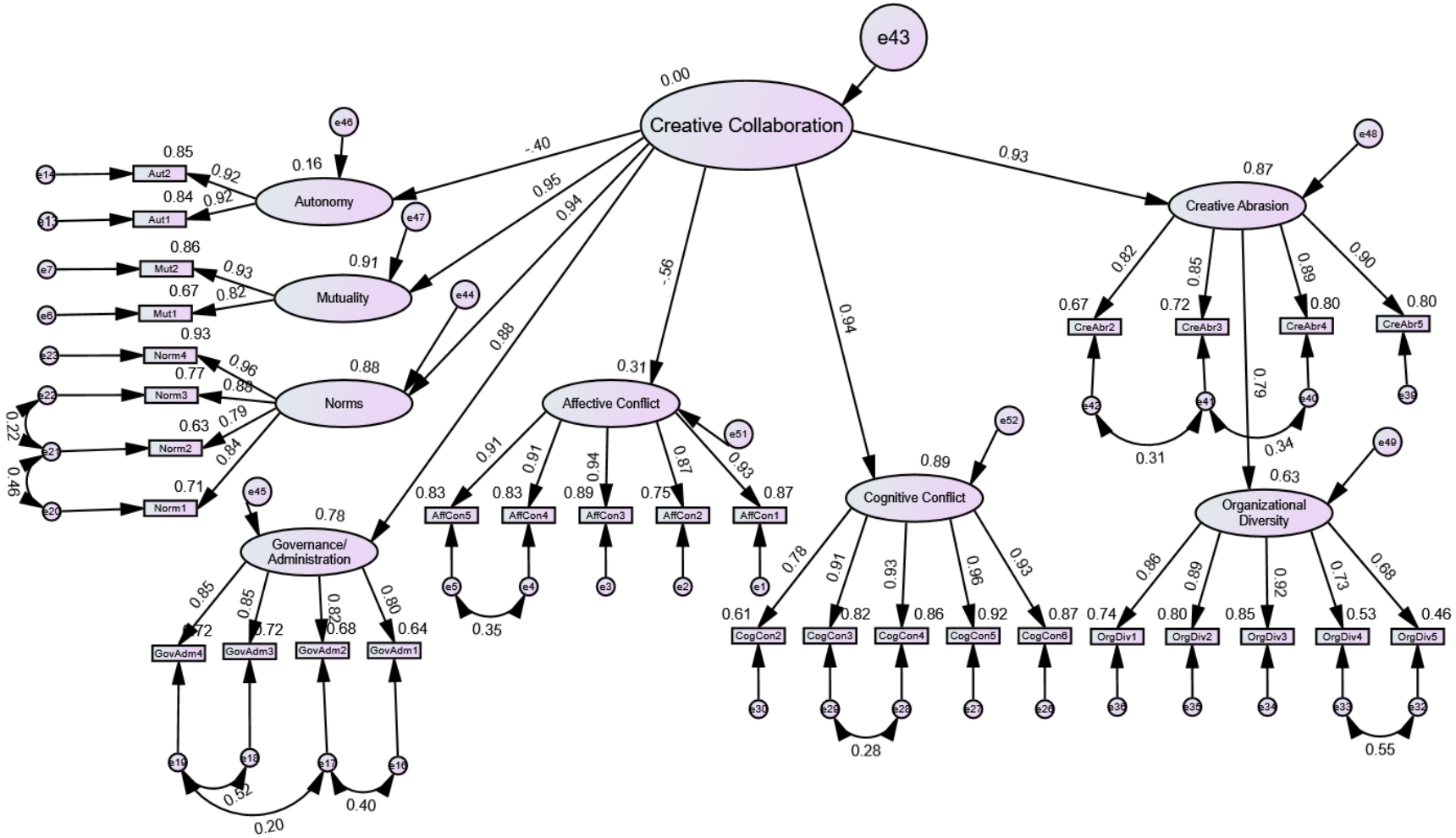


Table 15

Validity and Reliability Indicators of Model 1

	Creative collaboration	Creative abrasion	Affective conflict	Cognitive conflict	Organizational diversity	Governance/ administration	Autonomy	Mutuality	Norms	R-squared
CreAbr	0.933									0.871
Norm	0.939									0.881
GovAdm	0.881									0.776
Aut	-0.396									0.157
Mut	0.954									0.910
CogCon	0.944									0.890
AffCon	-0.560									0.310
OrgDiv		0.794								0.631
CreAbr5		0.897								0.804
CreAbr4		0.894								0.799
CreAbr3		0.848								0.719
CreAbr2		0.819								0.671
AffCon1			0.931							0.866
AffCon2			0.867							0.751
AfffCon3			0.943							0.889
AffCon4			0.910							0.828
AffCon5			0.911							0.829
CogCon6				0.934						0.871
CogCon5				0.962						0.925
CogCon4				0.929						0.863
CogCon3				0.907						0.822
CogCon2				0.784						0.614
OrgDiv5					0.679					0.460
OrgDiv4					0.729					0.531
OrgDiv3					0.919					0.845

(continued)

Table 15 (continued)

Validity and Reliability Indicators of Model 1

	Creative collaboration	Creative abrasion	Affective conflict	Cognitive conflict	Organizational diversity	Governance/ administration	Autonomy	Mutuality	Norms	R-squared
OrgDiv2					0.894					0.800
OrgDiv1					0.861					0.742
GovAdm1						0.802				0.644
GovAdm2						0.823				0.677
GovAdm3						0.851				0.724
GovAdm4						0.847				0.717
Aut1							0.917			0.841
Aut2							0.920			0.847
Mut1								0.820		0.672
Mut2								0.928		0.861
Norm1									0.842	0.709
Norm2									0.793	0.630
Norm3									0.878	0.771
Norm4									0.964	0.929

Note. Model fit indices (CMIN/df = 2.932 GFI = 0.740, CFI = 0.902, RMSEA = 0.095).

Three of the overall fit measures were within the acceptable range (CMIN/df = 2.932, CFI = 0.902, and RMSEA = 0.095). At 0.740, GFI was not, although it was close. As explained in the measurement model analysis, the small sample size could have skewed GFI. Follow-up testing with a larger sample size may greatly improve these results. After examining the modification indices, the dimension of process conflict (ProCon) was removed. The factor loadings were very low (i.e., below 0.18) for process conflict, which suggests an overall lack of statistical support, as specified here for process conflict as a dimension of creative collaboration. Again, this could be due to a misspecification of the process conflict component, but there was little consensus on the matter in the literature. Thus, there was little basis for retaining process conflict in a confirmatory analysis. Further refinement of this concept is necessary before it can be included in an accurate creative collaboration model. Model fit indices and standardized validity coefficients were greatly improved with the removal of process conflict as a dimension. This suggests that the inclusion of the poorly specified indicator of process conflict was problematic for the rest of the model.

Except for changes caused by the removal of process conflict (ProCon), there were no large shifts in parameter estimates between the measurement model and Model 1. Further testing included an evaluation of the role of creative abrasion (CreAbr) as a mediator between creative collaboration (CreCol) and the dimensions of conflict (AffCon and CogCon) and diversity (OrgDiv). The mediating role of creative abrasion (CreAbr) on intellectual diversity (OrgDiv) in creative collaboration (CreCol) was found to be statistically significant, while its effect on cognitive conflict (CogCon) was not. Table 16 summarizes this study's mediation analysis.

Table 16
Mediation Analysis of Creative Abrasion

Relationship	Direct effect (*p*-value)	Indirect effect	Confidence interval		*p*-value	Conclusion
			Lower bound	Upper bound		
CreCol --> CreAbr --> OrgDiv	0.14 (.556)	0.5874	0.296	1.199	0.001	Full mediation
CreCol --> CreAbr --> CogCon	0.68 (.001)	0.2492	-0.016	0.549	0.069	No mediation
CreCol --> CreAbr --> AffCon	- .84 (.002)	0.2581	-0.132	1.046	0.165	No mediation

Note. Unstandardized coefficients reported. Values in parentheses are *t*-values. Bootstrap sample = 5,000 with replacement.

The indirect effect of organizational diversity (OrgDiv) on creative collaboration (CreCol) through creative abrasion (CreAbr) was positive ($b = 0.5874$) and statistically significant ($p = 0.001$). The direct effect of organizational diversity (OrgDiv) on creative collaboration (CreCol) was not statistically significant (p = 0.556). Furthermore, the direct effects of cognitive conflict (CogCon) and affective conflict (AffCon) were statistically significant in the presence of the mediator (CreAbr), with *p*-values of 0.001 and 0.002, respectively. The indirect effects were not significant. In summary, statistical support was present for creative abrasion's (CreAbr) full mediation of the effect of organizational diversity (OrgDiv) on creative collaboration (CreCol). However, it was not present for mediation of cognitive conflict (CogCon) and affective conflict (AffCon).

Once the mediating role of creative abrasion (CreAbr) was analyzed, I turned to the other parameter estimates. The estimates remained stable when moving from the component measurement models to the full measurement model, then to the full structural model. Examining

the values of the validity measures (factor loadings) yielded mixed results. Two of the factor loadings—those for creative collaboration (CreCol) to autonomy (Aut) and creative collaboration (CreCol) to affective conflict (AffCon)—were below the recommended value of 0.70, with values of -0.396 and -0.560, respectively. This means that they were the least valid of the creative collaboration dimensions. Four of the dimensions loaded onto creative collaboration (CreCol) with high factor loadings above 0.90: creative abrasion (CreAbr), mutuality (Mut), norms (Norm), and cognitive conflict (CogCon). Only one of the indicators had a factor loading below 0.70 for its respective latent variable: OrgDiv5 ("The purposes of the entities involved are diverse"), which also had a factor loading below 0.70 in the measurement model. Overall, the 31 indicators in Model 1 established high validity.

High reliability was also demonstrated for Model 1. The smallest dimension R-squared values derived from autonomy (Aut) and organizational diversity (OrgDiv), at 0.152 and 0.313, respectively. These also exhibited the lowest factor loadings for their relationships with creative collaboration (CreCol). The indicator with a factor loading below 0.70 also has the smallest R-squared value: OrgDiv5 ("The purposes of the entities involved are diverse"; 0.462). This means that less than half of the variance in OrgDiv5 was explained by the model. As previously discussed, values for OrgDiv5 were near acceptable levels. Thus, it was retained.

Table 17 summarizes the higher-level Model 1 of creative collaboration. Most of the correlations were expected because the literature indicates that the dimensions of creative collaboration are highly correlated. However, neither organizational diversity (OrgDiv) nor autonomy (Aut) was highly correlated with each other or the other proposed dimensions of creative collaboration (CreCol). The findings for autonomy (Aut) were similar to those of Thomson (2001) and Dhanpat et al. (2017), but the researchers suggested that this could be

attributable to their particular samples. These weak findings inform the third model nested into Model 1, in which the autonomy (Aut) factor was removed from the creative collaboration model altogether.

Table 17
Inter-Factor Correlations for Model 1

	CreCol	CreAbr	Norm	Mut	Aut	GovAdm	OrgDiv	CogCon	AffCon
CreCol	1.000								
CreAbr	0.933	1.000							
Norm	0.939	0.876	1.000						
Mut	0.954	0.890	0.895	1.000					
Aut	-0.396	-0.370	-0.372	-0.378	1.000				
GovAdm	0.881	0.823	0.827	0.841	-0.349	1.000			
OrgDiv	0.741	0.794	0.696	0.707	-0.294	0.653	1.000		
CogCon	0.944	0.881	0.886	0.900	-0.374	0.832	0.699	1.000	
AffCon	-0.556	-0.519	-0.522	-0.531	0.220	-0.490	-0.412	-0.525	1.000

$N = 216$.

Model 2 – Seven dimensions and 31 indicators. The current subsection discusses Model 2, in which I attempted to address the lack of discriminant validity between norms (Norm) and mutuality (Mut), as indicated by a low HTMT ratio. These two dimensions had an HTMT ratio of 0.922. While this is within the acceptable range for some (i.e., under 1.0; Collier, 2020), others have asserted that this value should be under 0.90 or even 0.85 to confirm true discriminant validity (Collier, 2020; Henseler et al., 2015). One suggestion for overcoming a high HTMT ratio is to investigate the combination of two variables (Henseler et al., 2015). Thus, Model 2 retains all 31 indicators but combines norms (Norm) and mutuality (Mut) into one latent variable (Norm/Mut). This step is supported by the literature, as it closely links these two factors.

The path diagram for Model 2 is illustrated in Figure 17. Compared to Model 1, model fit indices were not significantly improved. GFI (0.766) for Model 2 still fell beyond the recommended value (> 0.90; Collier, 2020). However, this was not unexpected given Thomson (2001) and Bollen's (2000) indication that model fit indices are not always sensitive to model misspecification. Therefore, this possible change in specification was certain to change the model fit.

Figure 17
Structural Model 2 of Creative Collaboration

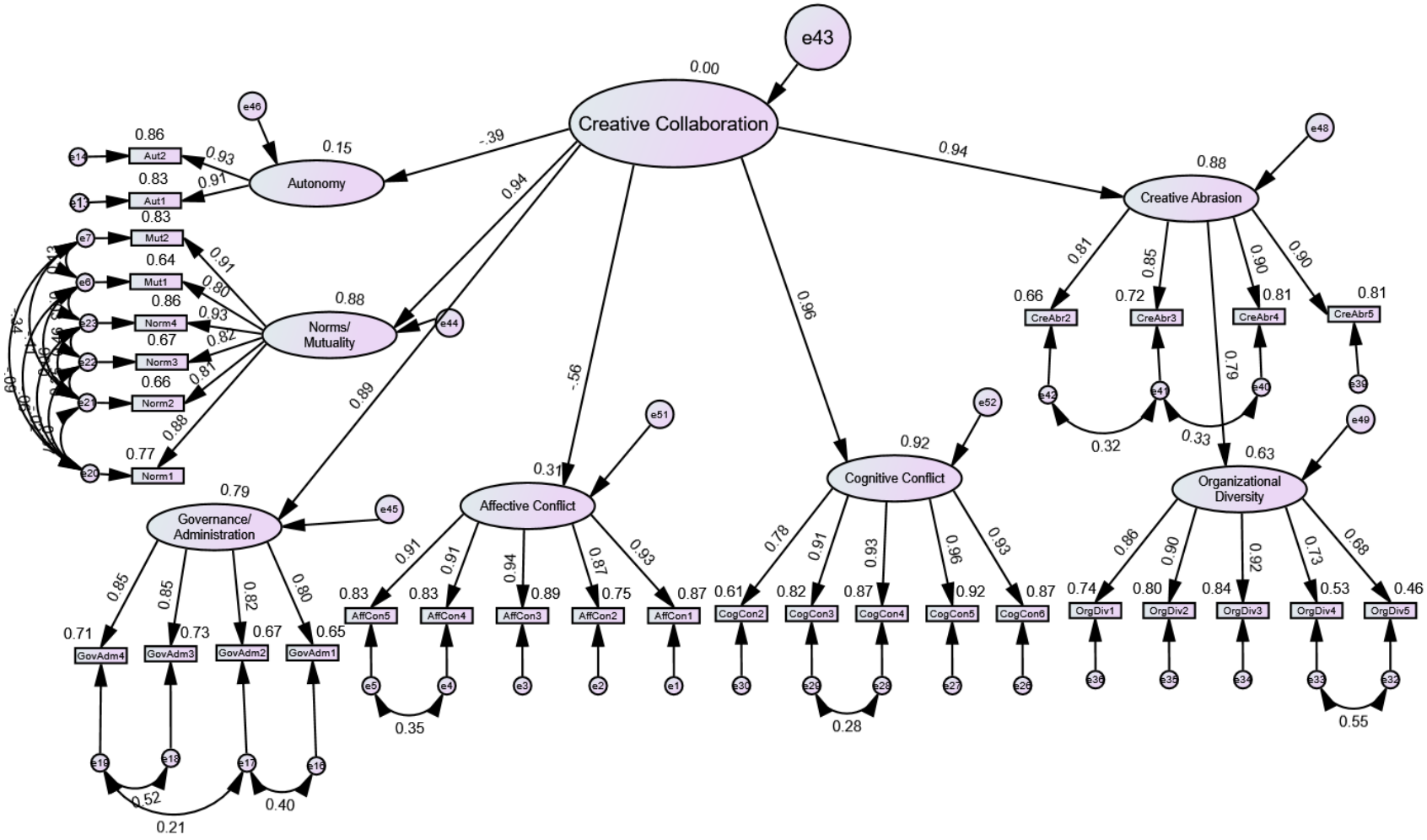


Table 18

Validity and Reliability Indicators for Model 2

	Creative collaboration	Creative abrasion	Affective conflict	Cognitive conflict	Organizational diversity	Governance/ administration	Autonomy	Norms/ mutuality	R-squared
CreAbr	0.937								0.879
Norm/Mut	0.940								0.884
GovAdm	0.888								0.789
Aut	-0.393								0.154
CogCon	0.962								0.925
AffCon	-0.559								0.313
OrgDiv		0.793							0.629
CreAbr5		0.899							0.809
CreAbr4		0.898							0.807
CreAbr3		0.849							0.721
CreAbr2		0.810							0.655
AffCon1			0.930						0.866
AffCon2			0.867						0.751
AfffCon3			0.943						0.889
AffCon4			0.910						0.828
AffCon5			0.911						0.829
CogCon6				0.933					0.871
CogCon5				0.961					0.923
CogCon4				0.932					0.868
CogCon3				0.905					0.820
CogCon2				0.784					0.614
OrgDiv5					0.678				0.460
OrgDiv4					0.729				0.532
OrgDiv3					0.918				0.842

(continued)

Table 18 (continued)

Validity and Reliability Indicators for Model 2

	Creative collaboration	Creative abrasion	Affective conflict	Cognitive conflict	Organizational diversity	Governance/ administration	Autonomy	Norms/ mutuality	R-squared
OrgDiv2					0.896				0.803
OrgDiv1					0.862				0.744
GovAdm1						0.804			0.647
GovAdm2						0.820			0.673
GovAdm3						0.852			0.725
GovAdm4						0.845			0.715
Aut1							0.911		0.829
Aut2							0.927		0.859
Mut1								0.798	0.637
Mut2								0.913	0.833
Norm1								0.877	0.769
Norm2								0.811	0.658
Norm3								0.819	0.671
Norm4								0.927	0.860

Model fit indices (CMIN/df = 2.877, GFI = 0.751, CFI = 0.907, RMSEA = 0.093).

Examination of Model 2 reveals that all of the indicators and latent variables were significant and aligned with the expected direction, as summarized in Table 18. There were no noteworthy shifts in factor loadings or R-squared values. As in Model 1, reliability and validity appeared to be fairly high. Table 19 summarizes the inter-factor correlations between all dimensions of creative collaboration in Model 2. Again, autonomy (Aut) and affective conflict (AffCon) were problematic and not highly correlated with each other or other factors. As noted, previous studies have demonstrated that autonomy (Aut) may not be a strong factor in collaboration (Dhanpat et al., 2017). Thus, autonomy (Aut) could be safely removed to specify a third nested model, but similar testing has not been performed on affective conflict (AffCon) despite strong theoretical support for its inclusion. Therefore, it was retained in Model 3. Furthermore, affective conflict (AffCon) is the focus of Proposition 4, which is discussed momentarily. Therefore, testing a third model that retains affective conflict (AffCon) but removes autonomy (Aut) is an appropriate way to further understand the structure of creative collaboration.

Table 19

Inter-Factor Correlations for Model 2

	CreCol	CreAbr	NormMut	Aut	GovAdm	OrgDiv	CogCon	AffCon
CreCol	1							
CreAbr	0.937	1						
Norm/Mut	0.940	0.882	1					
Aut	-0.393	-0.368	-0.369	1				
GovAdm	0.888	0.833	0.835	-0.349	1			
OrgDiv	0.743	0.793	0.699	-0.292	0.660	1		
CogCon	0.962	0.901	0.904	-0.378	0.854	0.715	1	
AffCon	-0.559	-0.524	-0.526	0.220	-0.497	-0.416	-0.538	1

$N = 216$.

Model 3 – Six dimensions and 29 indicators. Figure 18 illustrates Model 3, while Table 20 summarizes the validity and reliability scores and model fit indices. Table 21 summarizes the inter-factor correlations. The removal of the autonomy dimension led to very little change in the validity and reliability scores and a slight decrease in the model fit indices. This suggests that, for this sample, continued inclusion of the autonomy dimension creates a model that best fits the observed data. Continued inclusion of the autonomy dimension is also further supported by the qualitative data collected during this study. Open-ended questions at the beginning of the survey described organizations that do not experience much tension between their own interests and the collective interests of the collaboration. Their missions appeared to align, benefit the community, and support people. Furthermore, the questions at the beginning of the survey demonstrated a wide range of organizational diversity, but there was a general focus on helping people access healthcare. For this reason, organizational diversity could have been overlooked by many respondents in the Likert scale questions. More organizational diversity was uncovered during the one-on-one interviews, in which participants could discuss organizational diversity in more detail.

Figure 18
Structural Model 3 of Creative Collaboration

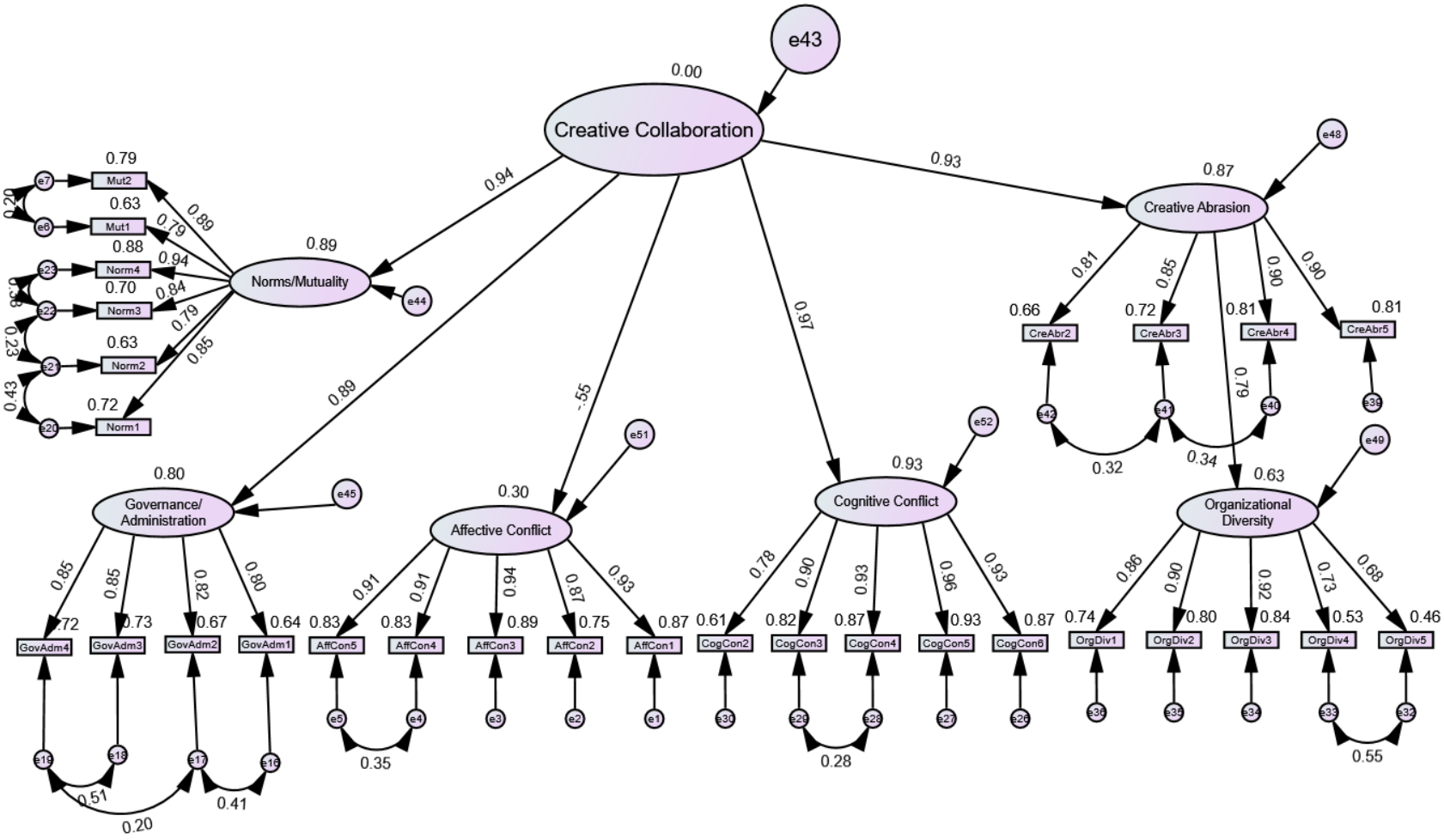


Table 20

Validity and Reliability Indicators for Model 3

	Creative collaboration	Creative abrasion	Affective conflict	Cognitive conflict	Organizational diversity	Governance/ administration	Norms/ mutuality	R-squared
CreAbr	0.935							0.873
Norm/Mut	0.944							0.891
GovAdm	0.892							0.795
CogCon	0.967							0.934
AffCon	-0.548							0.300
OrgDiv		0.794						0.630
CreAbr5		0.900						0.810
CreAbr4		0.898						0.806
CreAbr3		0.846						0.715
CreAbr2		0.810						0.656
AffCon1			0.930					0.866
AffCon2			0.867					0.752
AffCon3			0.943					0.889
AffCon4			0.910					0.828
AffCon5			0.911					0.829
CogCon6				0.933				0.870
CogCon5				0.962				0.926
CogCon4				0.931				0.867
CogCon3				0.905				0.819
CogCon2				0.784				0.615
OrgDiv5					0.678			0.460
OrgDiv4					0.729			0.532
OrgDiv3					0.918			0.842
OrgDiv2					0.896			0.802
OrgDiv1					0.862			0.742

(continued)

Table 20 (continued)

Validity and Reliability Indicators for Model 3

GovAdm1	0.800		0.640
GovAdm2	0.819		0.671
GovAdm3	0.855		0.730
GovAdm4	0.849		0.720
Mut1		0.791	0.626
Mut2		0.891	0.795
Norm1		0.849	0.721
Norm2		0.794	0.631
Norm3		0.837	0.700
Norm4		0.937	0.879

Model fit indices (CMIN/df = 2.731, GFI = 0.763, CFI = 0.920, RMSEA = 0.090).

Table 21
Inter-Factor Correlations for Model 3

	CreCol	CreAbr	Norm/Mut	GovAdm	OrgDiv	CogCon	AffCon
CreCol	1						
CreAbr	0.935	1					
NormMut	0.944	0.882	1				
GovAdm	0.892	0.833	0.841	1			
OrgDiv	0.742	0.794	0.7	0.661	1		
CogCon	0.967	0.903	0.912	0.862	0.717	1	
AffCon	-0.548	-0.512	-0.517	-0.488	-0.406	-0.529	1

N = 216.

Summary

This chapter reported findings from the quantitative and qualitative data. Five themes that were relevant to this study and its propositions emerged: Theme 1 (The complexity of a problem may determine the presence of creative abrasion), Theme 2 (Trust and respect are key in creative collaboration), Theme 3 (Collaboration is contextual), Theme 4 (Creative abrasion leads to creative outcomes), and Theme 5 (Affective conflict and tension resulting from autonomy can be destructive in creative collaboration). Findings from the quantitative data collection were also presented in this chapter. The model was first broken into components, and new dimensions were carefully evaluated for validity and reliability. Then, the best fit component models were reintegrated into one measurement model that was subsequently evaluated. One overall structural model and two nested structural models were explored. Model 1 was the overall structural model that directly emerged from the analysis of the measurement model. It consisted of eight dimensions and 31 indicators. In response to the borderline low discriminant validity between mutuality and norms, the second model included seven dimensions and 31 indicators. Mutuality and norms were loaded onto one factor. The third model removed the factor with the lowest factor loadings and R-squared values, autonomy. The model fit indices and reliability and validity scores were not substantially improved in any of the examined alternative models. Next,

I consider the six propositions presented in this study with Model 1 (eight dimensions and 31 indicators).

Chapter 7. Discussion and Conclusion

I began this study by seeking to understand how collaborations achieve creativity. Collaboration has been conceptualized in a variety of ways, but this study leveraged Thomson's (2001) collaboration model for meaning and measurement and integrated into it the idea that collaboration exists on a continuum of interactions (Keast et al., 2020; Morris & Miller-Stevens, 2015; Sedgwick, 2017). I suggest that many interactions labeled collaboration actually constitute lower-level collaboration but may align well with Thomson's (2001) model. However, this does not appear to account for the multiplicative potential of collaboration (Bardach & Lesser, 1996; Lasker et al., 2001; Wilding, 2006) or higher-level collaboration, which is labeled creative collaboration in this thesis. I proposed and tested an enhanced model that includes creative abrasion, conflict, and diversity as dimensions of creative collaboration. This study contributes to a growing body of creativity and collaboration research by considering the following research questions:

RQ1: How does creative abrasion, in the presence of the critical dimensions of collaboration, impact creative collaboration?

RQ2: How do diversity and conflict interact in creative abrasion?

As discussed shortly, the main strength of this study is that I took an abstract multidimensional concept (creative collaboration) and systematically and comprehensively tested a theoretical model by examining the relationships between observed indicators and multiple latent variables. Thomson (2001) argued that this approach is informed by a social constructivist view of collaboration, but she focused on the potential of measuring collaboration to understand its meaning. By contrast, I approached the current study from a postpositivist worldview by aiming to define creative collaboration through careful observation and perhaps measurement (Creswell

& Creswell, 2017). Measurement is a critical component of defining constructs because it is "the process by which a concept is linked to one or more latent variables [that are then] linked to observed variables. The concept can vary from one that is highly abstract… to one that is more concrete" (Bollen, 1989, p. 180). The idea that creative collaboration, as a latent construct, can be measured is further supported by the epistemological position that "collaboration exists as a uniform, objective phenomenon that can be apprehended by independent, external observers, rather than only as a subjective interpretation in the minds and experiences of stakeholders" (Gray, 2000, p. 6). This position may appear problematic to some. Thomson (2001) asserted,

> A central question this epistemological position raises is whether collaboration, as a network form of organizing, is fluid, temporary, with porous boundaries or whether it has a defined structure that can be institutionalized. If collaboration is, by nature, fluid and temporary, how can measurement occur? (p. 161)

Comments made by participants during the interviews echoed this sentiment. Four participants expressed concern over choosing an appropriate collaboration on which to base their responses. For example, they asked questions about how to determine the boundaries of their collaboration, especially with regard to identifying the goals and purpose of the collaboration. On the other hand, the survey respondents and other interviewees did not raise the same question, which suggests that creative collaboration "may have sufficient enough boundaries to warrant such an epistemological position" (Thomson, 2001, p. 162).

During the development of a theoretical model based on a rigorous literature review, six propositions were outlined and tested using quantitative and qualitative data. The study was purposefully comprehensive because creative collaboration is itself broad in nature. The commonalities that emerged in the literature review and subsequently in the observed creative

collaborations in rural Texas communities further supported the search for key dimensions and ways to operationalize them.

The choice of a practical problem through which to test the model was also deliberate. Access to healthcare in rural Texas communities is an ongoing issue. Communities are aware that collaboration enables them to do more with fewer resources to address this complex issue, but there is little clarity on the best way to engage in collaboration. Some communities use creative collaboration to address these issues, and some do not. Communities that seemingly avoid collaboration do so for a variety of reasons, including competition between entities with similar purposes. However, communities that do engage in creative collaboration have identified and implemented innovative solutions to address complicated problems. Existing collaborations on healthcare in rural Texas communities have been prominently featured in practical guidebooks and websites. One example mentioned in Chapter 1 describes entities in Pottsboro, Texas that worked together to provide greater access to telehealth medicine (*Rural COVID-19 Innovations: Providing Health Services*, 2022). A clear component of this collaboration description is the spark that resulted in innovative outcomes, which was labeled creative abrasion in this study. Healthcare in rural Texas communities provides fertile ground for studying creative collaboration.

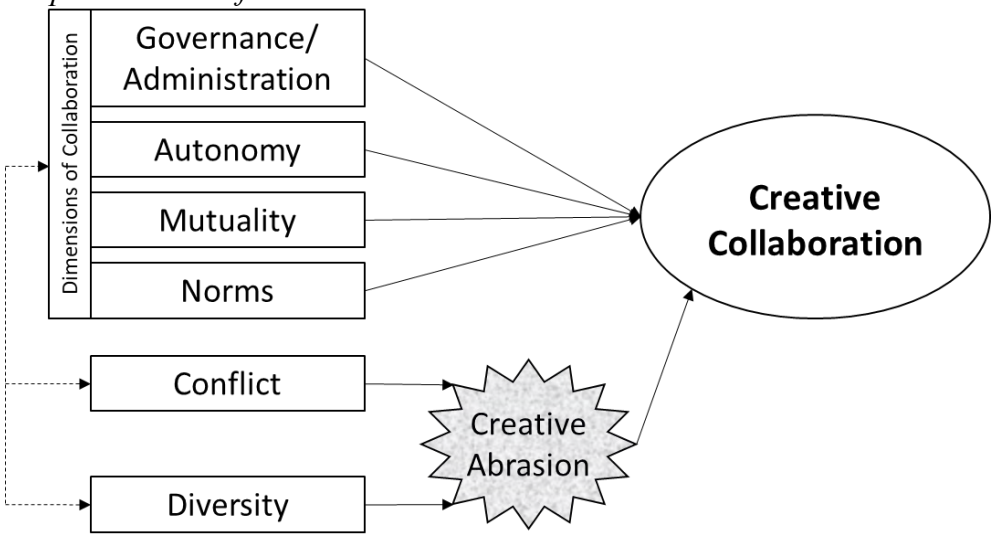
The research design for this study consisted of multiple phases, beginning with model specification through an intensive literature review and ending with the exploration of six propositions that emerged from the literature. The first phase, which was primarily described in Chapters 3 and 4, involved the specification of a multidimensional creative collaboration model and identification of nine factors from the literature. Figure 19 illustrates the proposed model. Seven factors are depicted in the figure, but I conceptually divided conflict into cognitive,

process, and affective conflict within the structural model. At the same time, I outlined six propositions that reflect different aspects of the model:

- Proposition 1: Creative abrasion mediates the interaction between intellectual diversity and cognitive conflict.
- Proposition 2: Intellectual diversity positively influences creative collaboration.
- Proposition 3: Affective conflict negatively affects creative collaboration.
- Proposition 4: Cognitive conflict positively influences creative collaboration.
- Proposition 5a: Cognitive conflict positively affects creative collaboration at the beginning of the collaboration.
- Proposition 5b: Cognitive conflict negatively affects creative collaboration at the end of the collaboration.

Figure 19

Proposed Model of Creative Collaboration



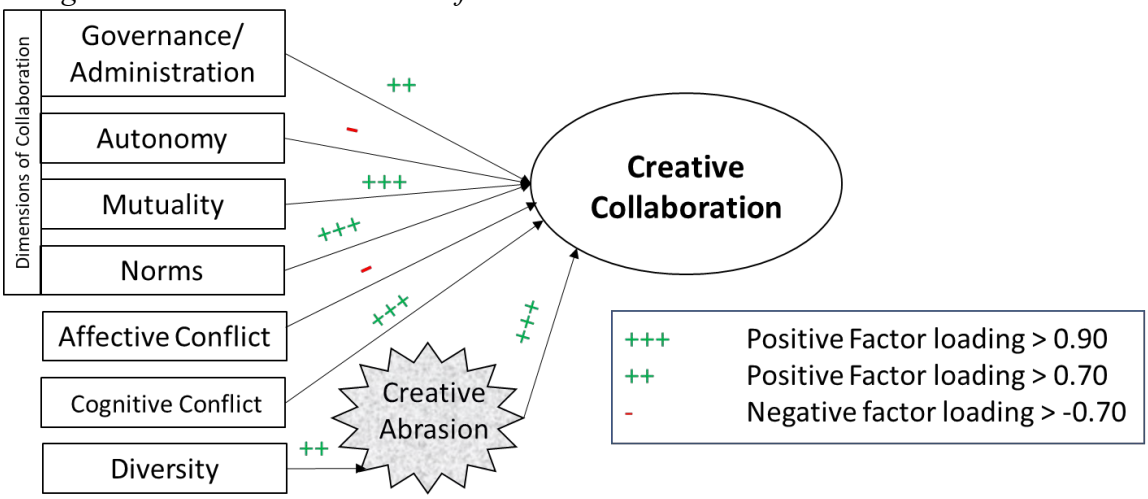
Next, I operationalized the model by developing 39 indicators that were also drawn from prior research and theory. All nine factors (i.e., governance/administration, autonomy, mutuality,

norms, creative abrasion, cognitive conflict, process conflict, affective conflict, and organizational diversity) and 39 indicators are shown in the structural model in Figure 6. The model was empirically tested using cross-sectional quantitative and qualitative data. Quantitative data were collected through a survey administered to entities in rural communities that have used creative collaboration to identify and implement solutions to increasing access to healthcare and ways to stay healthy. Qualitative data were collected through one-on-one interviews with individuals who could discuss collaboration as a representative of their organization. They provided local knowledge and descriptions of collaborations, contextualizing how rural communities in their regions collaborate to address health-related wellness and ultimately enriching understanding of creative collaboration. I was deliberately comprehensive in my approach because creative collaboration is not always bound by written rules and regulations. One interviewee knowingly said that creative collaboration is "hiding in plain sight."

The quantitative data were analyzed using SEM, and a series of propositions were tested to assess relationships between dimensions of creative collaboration and outcomes. The measurement model was tested first and articulated the relationship between the latent variables and their observed indicators. The structural component of the model was tested second and allowed me to study relationships between the latent variables, also known as the proposed creative collaboration dimensions, and the higher-order factor of creative collaboration (CreCol). One model and two nested models were tested. Figure 20 illustrates the modified structural model of creative collaboration that emerged. All statistically significant relationships are indicated with arrows, and the strength and direction of these relationships are indicated with the symbols + and –. For a review of the reliability and validity scores of these factors, see Figure 16 or Table 15. All propositions derived from the literature review are illustrated in this model.

Figure 20

Modified Higher-Order Structural Model of Creative Collaboration



While examination of validity and reliability scores for certain components can shed light on the individual propositions, identifying statistical support for all of them first depends on the fitness of the model being used. Table 22 presents overall fit indices for this model. As the values indicate, this model meets the CMIN/df, CFI, and RMSEA criteria for fitness. However, GFI was slightly low at 0.740. Nevertheless, this model was accepted, as explained in Chapter 6. Therefore, it was deemed appropriate for use in the evaluation of the propositions.

Table 22

Overall Fit Measures for the Modified Higher-Order Factor Model of Creative Collaboration

Model	Chi-square (prob.)	CMIN/df	GFI	CFI	RMSEA
Eight factors 31 indicators	1219.82 (0.000)	2.932	GFI = 0.740	0.902	0.095

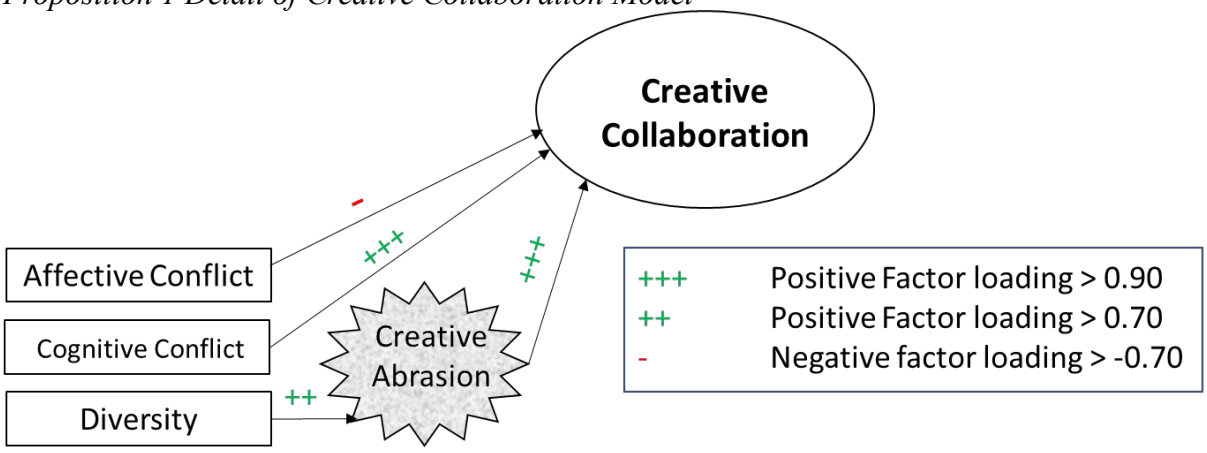
$N = 214$, df = 416.

Proposition 1: Creative abrasion mediates the interaction of intellectual diversity and cognitive conflict.

Proposition 1 posits the role of creative abrasion (CreAbr) as a mediator in creative collaboration (CreCol). Thus, it is tied to the mediation analysis conducted during the evaluation of Model 1, which examined the impact of creative abrasion (CreAbr) on three relationships: the relationships between cognitive conflict (CogCon) and creative collaboration (CreCol), intellectual diversity (OrgDiv) and creative collaboration (CreCol), and affective conflict (AffCon) and creative collaboration (CreCol). In addition to adequate model fit indices, adequate support for Proposition 1 would include significant indirect relationships between CreCol and AffCon, OrgDiv, and CogCon. Figure 21 depicts the modified higher-order factor analysis of creative collaboration relevant to Proposition 1.

Figure 21

Proposition 1 Detail of Creative Collaboration Model



There is mixed statistical support for Proposition 1. The indirect effect of diversity (OrgDiv) on creative collaboration (CreCol) via creative abrasion (CreAbr) was significant. However, the mediating effects of creative abrasion (CreAbr) on cognitive conflict (CogCon) and affective conflict (AffCon) were not statistically significant in this sample, as shown in Table 23. Nevertheless, the direct effect of cognitive conflict (CogCon) on creative collaboration (CreCol) was strong. The direct effect of affective conflict (AffCon) on creative collaboration (CreCol) was also significant but not as strong.

Table 23
Creative Abrasion Mediation Analysis

Relationship	Direct effect	Indirect effect	Confidence interval		*p*-value	Conclusion
			Lower bound	Upper bound		
CreCol --> CreAbr --> OrgDiv	0.14 (.556)	0.5874	0.296	1.199	0.001	Full mediation
CreCol --> CreAbr --> CogCon	0.68 (.001)	0.2492	-0.016	0.549	0.069	No mediation
CreCol --> CreAbr --> AffCon	- .84 (.002)	0.2581	-0.132	1.046	0.165	No mediation

Note. Unstandardized coefficients reported. Values in parentheses are *t*-values. Bootstrap sample = 5,000 with replacement.

The qualitative data also provided empirical support for Proposition 1. Participants noted that ideas changed and improved over time in collaborations. While hosting a county-wide vaccine clinic, one participant reported that procedures evolved throughout the process. A federal entity had a rigid plan for rapidly administering vaccines, but the plan did not work in the community in question. Therefore, the process evolved. Thus, the findings from this study are mixed in terms of statistical support for Proposition 1 and require follow-up validation. Although the questionnaire was tested for common method bias, other biases may be present in the data. For example, sampling bias could have occurred because the sampling was not probability-based. Furthermore, although theoretically adequate, the sample size was relatively small (Soper, 2022). Therefore, follow-up research is necessary to further explore these results.

In summary, the quantitative and qualitative data provided mixed support for Proposition 1. There is empirical evidence that creative abrasion mediates the positive relationship between creative collaboration and intellectual diversity. On the other hand, empirical evidence was not as strong for positioning creative abrasion as a mediator between creative collaboration and conflict

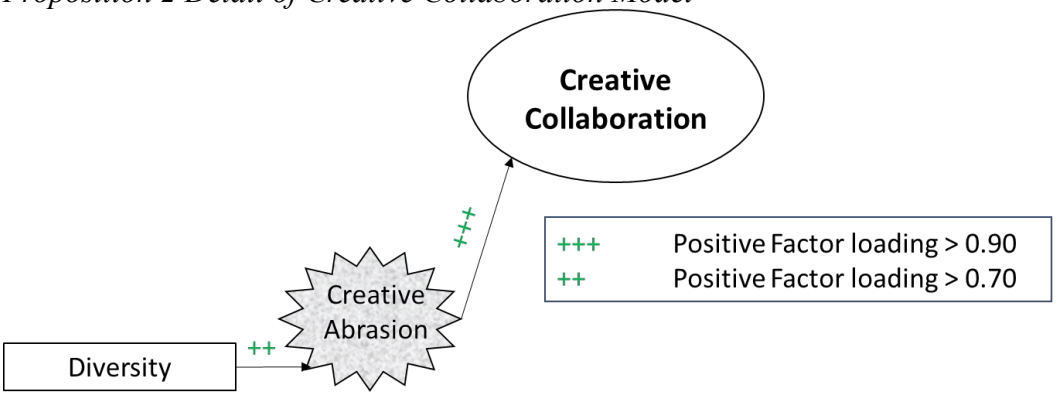
(cognitive and intellectual). Therefore, Figure 21 illustrates the observed direct positive relationship between creative collaboration and conflict (cognitive and intellectual). While cognitive conflict and intellectual conflict remain part of creative collaboration, they are not mediated by the creative abrasion process.

Proposition 2: Intellectual diversity positively influences creative collaboration.

As discussed with Proposition 1, some statistical support was found for the mediating effect of creative abrasion (CreAbr) on intellectual diversity (OrgDiv). This also speaks to Proposition 2 because it describes the relationship between diversity and creative abrasion, which was found to be statistically significant and positive. The indirect effect of organizational diversity (OrgDiv) on creative collaboration (CreCol) via creative abrasion (CreAbr) was 0.587 (B = 0.578*;* t = 10.22; p = .001). Table 23 summarizes the mediation analysis. The data revealed that, for every one-unit increase in organizational diversity, creative collaboration would increase by 0.5874 units. The qualitative data further supported the statistical findings. Most participants who described intellectual diversity in their collaborations were also adamant that the outcomes were creative. Figure 22 illustrates empirical findings on the relationship between diversity (OrgDiv) and creative collaboration (CreCol), as mediated by creative abrasion (CreAbr).

Figure 22

Proposition 2 Detail of Creative Collaboration Model

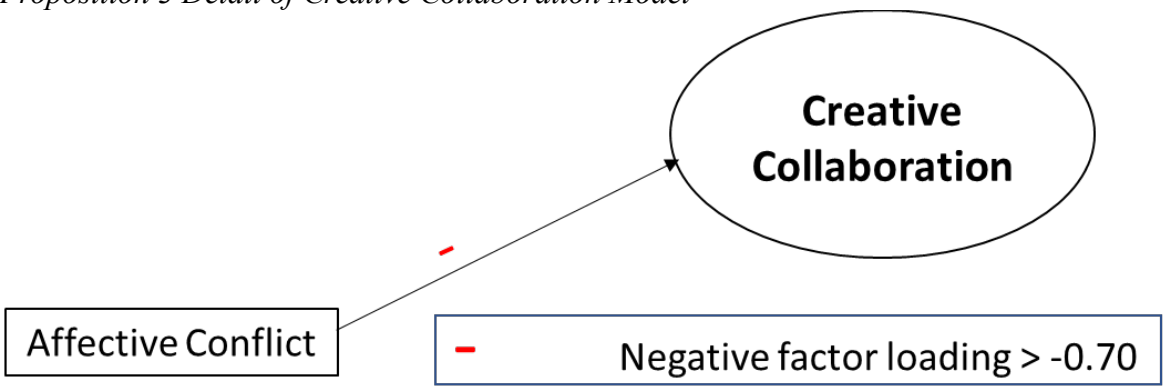


Proposition 3: Affective conflict negatively affects creative collaboration.

Using Model 1, I identified statistical support for Proposition 3 in the study sample. I found that the direct effect of affective conflict (AffCon) on creative collaboration (CreCol) was significant and negative ($\beta = -0.56$; $t = -8.611$; $p < .001$). This means that, for every standard deviation increase in affective conflict (AffCon), creative collaboration (CreCol) decreased by .56. The qualitative findings further supported this proposition. At least four interview participants noted that competition between entities that could better fulfill their mission through collaboration was truly destructive. One respondent reported that such situations often required a coordinating organization to diffuse affective conflict to enable entities to work together. Another respondent reported that competition in the presence of scarce resources prevented many newer organizations from "getting off the ground." Thus, while its factor loading did not exceed the 0.70 threshold, there was still strong empirical evidence that affective conflict negatively affected creative collaboration. Figure 23 illustrates the empirical findings that support Proposition 3.

Figure 23

Proposition 3 Detail of Creative Collaboration Model

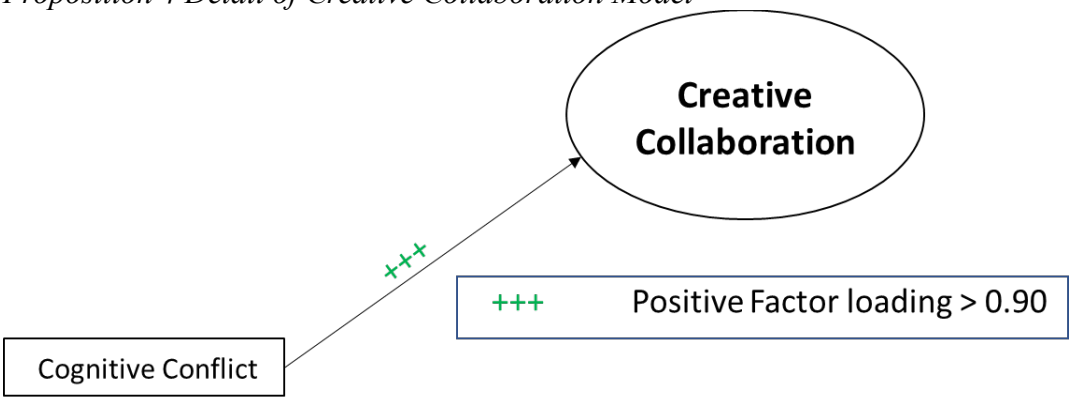


Proposition 4: Cognitive conflict positively influences creative collaboration.

Proposition 4 had strong empirical support (both quantitative and qualitative) for the strong impact of cognitive conflict (CogCon) on creative collaboration (CreCol). The literature suggests that cognitive conflict may be mediated by creative abrasion, but the statistical analysis revealed that cognitive conflict (CogCon) had a statistically significant, substantial, direct, and positive impact on creative collaboration (CreCol) in this sample ($\beta = 0.961$; $t = 14.172$; $p < .001$). The qualitative findings also strongly supported this proposition. The most frequently occurring theme in the one-on-one interviews was that creative collaboration increases when collaboration partners are more focused on improving rather than winning. One respondent noted that, for creative collaboration to occur, all participants should be trusted to follow through with their responsibilities and be respected as experts in the field, community, or space in which they work. Moreover, the collegial skepticism that Hill et al. (2014) described was confirmed, especially when trust and mutuality were established. Figure 24 summarizes support for Proposition 4.

Figure 24

Proposition 4 Detail of Creative Collaboration Model



Proposition 5a: Cognitive conflict positively affects creative collaboration at the beginning of the collaboration.

Proposition 5a lacked statistical support in this sample. An indicator that was intended to measure Proposition 5 (CogCon7, "Opinions and ideas were challenged at the beginning of the collaboration") was removed from the measurement model of the cognitive conflict component (CogCon) due to an extremely weak factor loading. During the one-on-one interviews, some respondents noted that brainstorming sessions occurred early in the collaboration but said little about whether these continued to the end. The lack of empirical support for Proposition 5 might be explained by the cross-sectional nature of this study. Data were collected at a single point in time and relied on respondents' perceptions of a past collaboration. Judging an abstract concept such as cognitive conflict and identifying when it occurred seemed to be a challenge. These indicators require follow-up research, and longitudinal data would be especially helpful in exploring this proposition.

Proposition 5b: Cognitive conflict negatively affects creative collaboration at the end of the collaboration.

Like Proposition 5a, Proposition 5b lacked statistical support. Its indicator (CogCon8, "Opinions and beliefs were challenged at the end of this collaboration") was removed during analysis of the cognitive conflict component measurement model due to an extremely weak factor loading. In addition, the qualitative data lacked any real evidence pertaining to this matter. Thus, Proposition 5b requires follow-up research on the timing of cognitive conflict in a creative collaboration.

Putting It All Together: What is Creative Collaboration?

The findings from this study are promising and provide a richer understanding of creative collaboration through the two research questions. Figure 20 illustrates the modified model of creative collaboration with the most theoretical and empirical support, which guides my discussion of conclusions that can be drawn from the findings. First, I discuss RQ2 ("How do diversity and conflict interact in creative abrasion?") because it forms the basis of conclusions about this study's primary research question, RQ1 ("How does creative abrasion, in the presence of the critical dimensions of collaboration, impact creative collaboration?").

RQ2 focuses on creative abrasion, or the spark of innovation mentioned in the literature that makes creative collaboration truly creative (Hill et al., 2014). How do diversity and conflict interact in creative abrasion? Researchers have already noted that creative collaboration is not a simple brainstorming exercise (Hill et al., 2014; Leonard & Swap, 2011), as diversity and conflict do not always result in creativity. Instead, the literature suggests that creative abrasion must be present to actively manage the interaction between conflict and diversity (Hill et al., 2014). Creative abrasion has been described as a constructive confrontation of differences (Gray, 1989), debate and discourse (Leonard & Swap, 2011), competition between ideas (Hill et al., 2014), and friction between concepts (Climer, 2016). The literature characterizes creative abrasion as the interaction between cognitive conflict and intellectual diversity. This study uncovered mixed empirical support for this conceptualization of creative abrasion.

Proposition 1 was designed to investigate creative abrasion in greater depth. The statistical analysis supported the assertion that diversity plays a role in creative abrasion, but it did not support the role of cognitive conflict or affective conflict in creative abrasion. On the other hand, cognitive conflict was found to directly impact creative collaboration in this sample.

These findings provide slight pause in light of the literature, as theory and past research have emphasized the role of cognitive conflict and intellectual diversity in creative abrasion. Some of the qualitative findings may shed light on this topic. Respondents provided similar descriptions of creative abrasion and cognitive conflict during the one-on-one interviews. Several interviewees used the same example to discuss both dimensions. Furthermore, demographic diversity was often incorporated into discussions. This suggests that the boundaries between these dimensions and their indicators are fluid. Nevertheless, these findings only slightly redirect our conclusions with regard to the overarching research question:

> RQ1: How does creative abrasion, in the presence of the critical dimensions of collaboration, impact creative collaboration?

This study is built on the argument that, to move towards understanding creative collaboration, one must have some grasp of the construct's dimensions. To this end, a theoretical model was specified and empirically tested. The modified model that emerged from this process contains my proposed definition (see Figure 20):

> Creative collaboration is a process where the critical dimensions of collaboration interrelate with cognitive conflict and creative abrasion, the active interaction of intellectual diversity, to create a thing or idea that is new, unique, and useful.

Overall, my findings from this sample, which included representatives of entities that collaborated on access to healthcare in rural Texas communities, demonstrate substantial empirical support for this definition. I first return to the concept of creative potential, when outcomes are greater than the sum of their parts (Stout & Keast, 2021). Collaboration is particularly well-suited to the public sector because it involves autonomous stakeholders from a variety of backgrounds and interests (Bommert, 2010) coming together to create something.

However, creative collaboration is multiplicative (Bardach & Lesser, 1996). Therefore, even if one were able to add together the resources of each entity, the outcome would still be greater than the sum of the parts. This point was reinforced throughout this study, as the quantitative and qualitative data illustrated the creative capacity of collaboration.

I already described the role of creative abrasion as a mediator of demographic diversity and explained why this relationship is critical to the conceptualization of creative collaboration. This study demonstrated that creative abrasion, which mediates demographic diversity, can have a strong (the factor loading was close to 1) and positive impact. Now, I turn to another dimension that distinguishes creative collaboration from lower-level collaboration: cognitive conflict. While my original theoretical model positioned creative abrasion as a mediator of conflict and diversity, I found that cognitive conflict had a strong, positive, and direct effect on creative collaboration in this sample. This means that creative collaboration increases with cognitive conflict. If one sets aside creative abrasion and only considers the relationship between cognitive conflict and creative collaboration, these findings can be reinforced through the literature. Theory indicates that conflict (in the form of recognizing differences and incorporating them into the engagement process) can be leveraged to move a lower-level collaboration towards creative collaboration (Badke-Schaub et al., 2010). Rather than acting as a destructive force in collaboration, cognitive conflict can enrich our thinking around complicated problems (Todorova et al., 2020).

The literature distinguishes between productive cognitive conflict and affective conflict tied to feelings of ill will, negative emotions, and animosity. Previous empirical studies demonstrated that affective conflict can be destructive in collaboration (Jehn, 1995). In this sample, affective conflict did not have as strong of an impact on creative collaboration as other factors. Because of this, affective conflict was not explicitly mentioned in the proposed definition

of creative collaboration. However, this relationship requires more exploration, especially in creative collaborations where levels of mutuality, norms, cognitive conflict, and creative abrasion are all high.

Moreover, the findings from this study reinforced four established dimensions of collaboration, which is perhaps even more encouraging: mutuality, norms, governance/administration, and autonomy. The dimensions that demonstrated the most impact on creative collaboration in this sample were mutuality and norms. Both exhibited high factor loadings (above 0.90) in the quantitative data analysis. In the one-on-one interviews, trust, respect, and knowledge that the collaboration would result in mutual benefits were all important for creating an environment in which creativity is likely to occur. In many cases, mutuality and norms had been in place before the creative collaboration occurred. This has important policy implications, which are discussed in the next section.

Implications of the Study for Practice and Policy

The implications of this study's findings for practice and policy relate to the potential of creative collaboration to provide solutions to a variety of challenges. I began this dissertation by suggesting that a failure to clearly define collaboration—specifically, how it pertains to creativity—effectively dilutes its potential as a useful tool in practitioners' toolboxes. Indeed, the one-on-one interviews conducted during this research repeatedly confirmed that collaboration is used in countless ways to define an immeasurable number of processes, interactions, and organizational structures. The risks of leaving such a potentially powerful tool vague and ill-defined include little understanding of steps that can be taken to engage in creative collaboration among practitioners. Through this study, my intention was to progress towards understanding the

factors that move collaboration from cooperation or teamwork to the next level of engagement: creative collaboration.

One important implication for practice and policy is the key role that mutuality and norms play in creative collaboration. The quantitative and qualitative analyses revealed a high level of support and validation for the results of previous studies on how these two dimensions impact lower-level collaboration (Dhanpat et al., 2017; Thomson, 2001). Their continued role in creative collaboration appears to be equally important, as these two dimensions must be in place for collaboration participants to not only willingly relinquish precious resources and make tradeoffs during the collaboration but also undergo the costly (in terms of time, energy, and other resources) and sometimes frustrating process of creative abrasion. In terms of policy, it is important for practitioners to establish norms on how to act in a trustworthy way and a sense of mutuality within a collaboration network that undertakes creative collaboration. The dimensions of norms and mutuality, which are closely tied to social capital, could be established through lower-level collaboration to ensure a solid foundation for creative collaboration.

Another significant implication of this study—and perhaps the most promising finding—is that practitioners who face challenges in which creative collaboration would be useful should seek out creative abrasion, cognitive conflict, and demographic diversity. There is a substantial body of research that has explored the ways in which destructive conflict can be avoided in all types of settings. According to the literature, conflict can be avoided by identifying and emphasizing similarities rather than leveraging differences. However, there is less research on the potential benefits of creative abrasion, cognitive conflict, and intellectual or organizational diversity. When seeking creative collaboration, practitioners should purposefully engage in creative abrasion and cognitive conflict and create environments rich in organizational or

intellectual diversity. However, this is not an easy task, as suggested by the literature and supported by the findings from this study. Creative collaboration can be costly, and creative abrasion can be messy; therefore, the process should not be undertaken lightly. It is imperative to understand the other dimensions when creating a structure for creative collaboration.

Strengths and Weaknesses of the Study

As with any research, the current study has both strengths and weaknesses. One strength is its comprehensive nature. As noted in Chapters 2 and 3, a limited number of studies have investigated collaboration with large datasets. Most research relies on case studies, which results in limited generalizability. In this study, I strove to be as comprehensive and inclusive as possible when seeking to understand collaboration on the ground in rural Texas communities. This not only resulted in an adequate dataset for performing SEM, which is known to require a larger sample size, but also increased understanding of creative collaboration, which is informal by nature.

The comprehensive nature of this study is closely tied to the systematic approach that I adopted to theoretically specify and empirically test a model of creative collaboration. As previously mentioned, there is little research on this type on collaboration and perhaps even less on creativity as it relates to collaboration. Through a systematic, comprehensive literature review, I developed a model firmly grounded in existing theory that reasonably fit the observed data. When outputs proved problematic, I took a systematic approach to more exploratory data analysis and only made one change at a time. These changes were backed by existing theory and literature. While I do not claim that the model presented in this study is the definitive definition of creative collaboration because it is reasonably valid and reliable, I do propose that it represents progress towards achieving a greater understanding of creative collaboration and how

it is impacted by creative abrasion, cognitive conflict, and organizational diversity. However, further research and validation are needed to overcome this study's weaknesses, which also derive from its systematic and comprehensive approach.

The first weakness of this study is its cross-sectional design. Other studies on collaboration have had the same issues (Thomson, 2001). As previously mentioned, data were collected at a single point in time, and there was no way to distinguish the creative collaboration process from its antecedents and outcomes. As Thomson (2001) wrote,

> This is clearly problematic and underscores again the analytical difficulty so prevalent in the literature of distinguishing antecedent, process, and outcome variables when studying collaboration. (p.189)

As in Thomson's (2001) study, this momentary glimpse at collaborations around increasing access to ways to stay healthy in rural Texas communities cannot possibly capture the dynamic and adaptive nature of the collaborations that study participants described in both the survey responses and one-on-one interviews.

A second weakness of the study is its relatively small sample size and potential for selection bias. While data collection is often a challenge for any research, it was especially challenging in this study because of its focus on healthcare. In my survey design, I was careful to avoid collecting any information that was potentially sensitive or covered by privacy laws, but I still encountered some unanticipated barriers to data collection that resulted in a smaller sample size than originally planned. Additionally, selection bias was likely present; it occurs when a sample is taken in such a way that it alters the population from which observations are drawn. Study participants were recruited through referrals and snowball sampling. Thus, participants forwarded the survey to others in their collaboration networks, who likely collaborated in similar

ways. Furthermore, participants were drawn from existing collaborations. Thus, the study did not take into account collaborations that failed for one reason or another.

A third weakness is the questionnaire. On the surface, process conflict was poorly specified and could not be included in the model analysis. Moreover, the questionnaire itself was lengthy and confusing at times. Respondents often reported that they wanted to participate in the study but did not think that they were a good fit for the survey because they were not creative or did not authentically engage in collaboration. These comments appeared to stem from the formal descriptions of collaborations on the questionnaire. Creative collaboration is informal and not necessarily bound by strict rules. Therefore, the wording of the questions could have been confusing or overwhelming. Although most responses to the questionnaire were not tied to these conversations, it is important to consider this issue when assessing how it could be later used to measure creative collaboration.

Ideas for Future Research

The weaknesses of this study gave rise to ideas for future research. Follow-up studies and research are critical to sustain progress in understanding creative collaboration. The model should be tested with other independent samples and a larger number of observations. At least one follow-up study is planned as of this writing, and it is my sincere hope that more will be undertaken in the future. Furthermore, additional refinement of process conflict and other dimensions is necessary. Additional understanding of process conflict could begin in case study research to build a stronger theoretical base before it is added back into the multidimensional model of creative collaboration. The role of affective conflict and autonomy in creative collaboration should also be investigated. Finally, longitudinal data should be collected to explore questions about when cognitive conflict is most productive in creative collaboration.

Conclusion

Creative collaboration holds tremendous potential for identifying solutions to today's most challenging issues. However, without a firm grasp of what it is and, specifically, what distinguishes it from lower-level collaboration, relationship conflict and costs could increase and outweigh any mutual benefits because entities in the collaboration network do not know how to engage in creative collaboration. To address this issue, this study explored how creative abrasion impacts creative collaboration in the presence of the critical dimensions of collaboration. A definition of creative collaboration was proposed based on theoretical and empirical evidence. Further examination and collaboration would benefit academics and practitioners in the continued search for creative collaboration.

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Appendix A

Questionnaire

UNIVERSITY OF TEXAS ARLINGTON

Consent to Participate

1. My name is Kate Lattimore Norris, and I am asking you to participate in a UT Arlington research study titled "Creative Collaboration in Rural Texas Communities."
2. The goal of this study is to learn about how rural communities might be able to use diversity and conflict constructively to engage in creative collaboration. This study will help rural communities in Texas tell their story about how the community worked together to identify and implement creative solutions to overcome complicated healthcare challenges.
3. You may want to participate in this study to help other rural communities understand how to engage in creative collaboration. You may not want to participate in this study if you do not have time to complete this questionnaire. There are 50 questions on this survey, and it should take about 20 minutes to complete.
4. The following questionnaire is VOLUNTARY. Should you decide not to participate in the study, there will be no impact on any benefits or services that you would normally receive. Even if you choose to begin the study, you can also decide without any consequences not to go forward.
5. Please take this survey if you are at least 18-years-old and have worked within the last three years with other entities to identify and/or implement solutions in your community that address a lack of access to ways to stay healthy and stop the spread of disease. Additionally, you must fit in one of these groups:

   a. You are involved with an organization as a decision-maker. This means that you have the authority to make decisions about how the organization fulfills its mission. You also have the authority to speak as a representative of the organization.

   OR

   b. You are an individual unaffiliated with an organization, acting on your own accord, but you engage at the community level to contribute to the network's identification and/or implementation of solutions to community problems.

1. The goal of this study is to learn about how rural communities might be able to use diversity and conflict constructively to engage in creative collaboration. This study will help rural communities in Texas tell their story about how the community worked together to identify and implement creative solutions to overcome complicated healthcare challenges. You may want to participate in this study to help other rural communities understand how to engage in creative collaboration.
2. You will not be paid for completing this survey. Although you probably won't experience any personal benefits from participating, the study activities are not expected to pose any additional risks beyond those that you would normally experience in your everyday life. There are no alternative options to this research project.
3. All data collected in this survey will be aggregated with data from other data collections. The results may be published or presented, but your responses will not be attributable. While absolute confidentiality cannot be guaranteed, the research team will make every effort to protect the confidentiality of your records as described here and to the extent permitted by law. If you have questions about the study, you can contact me at Kathryn.Lattimore@mavs.uta.edu (mailto:Kathryn.Lattimore@mavs.uta.edu). For questions about your rights or to report complaints, contact the UTA Research Office at 817-272-3723 or regulatoryservices@uta.edu (mailto:regulatoryservices@uta.edu).
4. You are indicating your voluntary agreement to participate by clicking on the "Accept" button below.
5. Thank you for your valuable time spent answering these questions.

☐ I Agree

Instructions

Identify a collaboration experience in which your organization has been involved at any point in time over the last three years. If you are an individual who is not associated with an organization, identify a collaboration experience where you worked with organizations. If you are not directly involved in this collaboration, please give the survey to the person in your organization who is.

The collaboration you use to answer this survey should be one in which entities worked together to identify and/or implement solutions in your community that address a lack of access to ways to stay healthy and stop the spread of disease.

- The term ***entity*** means a single unit in a network that participates in the collaboration. An entity can be an individual unaffiliated with an organization acting with complete personal autonomy or an organization acting as one.
- The term ***partner entity*** means those directly involved in the collaboration endeavor.
- The term ***community network*** means the group of informally interconnected entities (individuals and organizations).

Please answer all questions as a representative of your entity

(either yourself or your organization) participating in the collaboration.

Overview

What is your organization's mission or purpose (*write individual if you are not associated with an organization*):

What is the primary zip code in which this organization operates? If the area in which the organization operates is too large to name one zip code, please describe where it operates in general terms (i.e. city, county, region).

What is your position or role in this organization (*write individual if you are not associated with an organization)*:

Briefly describe this collaboration experience.

Purpose / Expected Outcome(s) of the Collaboration:

Current Joint Activities (what does this collaboration do):

Number of entities involved in the collaboration:

Types of organizations represented in this collaboration (Check as many as apply):

- [ ] Nonprofit
- [ ] Government
- [ ] Business
- [ ] Faith-based
- [ ] Grassroots
- [ ] Education Institution
- [ ] Healthcare-related
- [ ] Other (please describe)

Is your organization healthcare-related?

- ○ Yes
- ○ No

- The term ***entity*** means a single unit in a network that participates in the collaboration. An entity can be an individual unaffiliated with an organization acting with complete personal autonomy or an organization acting as one.
- The term ***partner*** entity means those directly involved in the collaboration endeavor.
- The term ***community network*** means the group of informally interconnected entities (individuals and organizations).

How strongly do you agree with the statements below?

TO A GREAT EXTENT.		Strongly Agree.	Agree.	Somewhat Agree.	Neutral.	Somewhat Disagree.	Disagree.	Strongly Disagree.	NOT AT ALL.
The outcomes of this collaboration are novel.	○	○	○	○		○	○	○	
The outcomes overcame boundaries that were in place before this collaboration.	○	○	○	○		○	○	○	
No single entity involved in this collaboration could have achieved the outcomes alone.	○	○	○	○		○	○	○	
The outcomes of this collaboration are more than the sum of its parts.	○	○	○	○		○	○	○	
The outcomes add value for entities involved in the collaboration.	○	○	○	○		○	○	○	

- The term ***entity*** means a single unit in a network that participates in the collaboration. An entity can be an individual unaffiliated with an organization acting with complete personal autonomy or an organization acting as one.
- The term ***partner entity*** means those directly involved in the collaboration endeavor.
- The term ***community network*** means the group of informally interconnected entities (individuals and organizations).

How strongly do you agree with the statements below?

TO A GREAT EXTENT.

		Strongly Agree.	Agree.	Somewhat Agree.	Neutral.	Somewhat Disagree.	Disagree.	Strongly Disagree.
Ideas generated in this collaboration cannot be traced to one individual or organization.	○	○	○	○		○	○	○
Open dialogue, with converging and diverging ideas, characterizes this collaboration's process.	○	○	○	○		○	○	○
In this collaboration, entities brainstormed solutions to mission-related problems facing this collaboration.	○	○	○	○		○	○	○
Partner organizations (including my organization) work through differences to arrive at win-win solutions.	○	○	○	○		○	○	○
Ideas changed, improved, and resulted in new ideas during this collaboration.	○	○	○	○		○	○	○

- The term ***entity*** means a single unit in a network that participates in the collaboration. An entity can be an individual unaffiliated with an organization acting with complete personal autonomy or an organization acting as one.
- The term ***partner entity*** means those directly involved in the collaboration endeavor.
- The term ***community network*** means the group of informally interconnected entities (individuals and organizations).

How strongly do you agree with the statements below?

TO A GREAT EXTENT.							NOT AT ALL.
	Strongly Agree.	Agree.	Somewhat Agree.	Neutral.	Somewhat Disagree.	Disagree.	Strongly Disagree.
This collaboration consists of entities that think and solve problems differently.	○	○	○	○	○	○	○
This collaboration consists of entities with different skills and knowledge.	○	○	○	○	○	○	○
This collaboration consists of entities with different work styles.	○	○	○	○	○	○	○
This collaboration is among entities from diverse sectors (i.e. government organizations, nonprofit organizations, for-profit organizations, grassroots organizations, unassociated individuals).	○	○	○	○	○	○	○
The purposes of the entities involved are diverse (i.e. healthcare organizations, social service organizations, communities of faith, retail/restaurants, education providers).	○	○	○	○	○	○	○

- The term ***entity*** means a single unit in a network that participates in the collaboration. An ***entity*** can be an individual unaffiliated with an organization acting with complete personal autonomy or an organization acting as one.
- The term ***partner entity*** means those directly involved in the collaboration endeavor.
- The term ***community network*** means the group of informally interconnected entities (individuals and organizations).

How strongly do you agree with the statements below?

TO A GREAT EXTENT.	Strongly Agree.	Agree.	Somewhat Agree.	Neutral.	Somewhat Disagree.	Disagree.	Strongly Disagree. NOT AT ALL.
Existing opinions and beliefs were challenged in this collaboration.	○	○	○	○	○	○	○
Entities understood that they were not rejected even if their ideas were rejected.	○	○	○	○	○	○	○
Entities were focused on improving rather than winning.	○	○	○	○	○	○	○
Entities considered new ideas and approaches to reaching goals.	○	○	○	○	○	○	○
Entities respected others' perspectives, even if they were different from their own.	○	○	○	○	○	○	○
Entities maintained focus on working together to achieve goals.	○	○	○	○	○	○	○
Opinions and ideas were challenged at the beginning of the collaboration.	○	○	○	○	○	○	○
Opinions and ideas were challenged at the end of this collaboration.	○	○	○	○	○	○	○

- The term **entity** means a single unit in a network that participates in the collaboration. An entity can be an individual unaffiliated with an organization acting with complete personal autonomy or an organization acting as one.
- The term ***partner entity*** means those directly involved in the collaboration endeavor.
- The term ***community network*** means the group of informally interconnected entities (individuals and organizations).

How strongly do you agree with the statements below?

TO A GREAT EXTENT.	Strongly Agree.	Agree.	Somewhat Agree.	Neutral.	Somewhat Disagree.	Disagree.	Strongly Disagree. NOT AT ALL.
Entities disagreed about rules and procedures that applied specifically to this collaboration.	○	○	○	○	○	○	○
Entities disagreed about scheduling and timing that applied specifically to this collaboration.	○	○	○	○	○	○	○

- The term ***entity*** means a single unit in a network that participates in the collaboration. An entity can be an individual unaffiliated with an organization acting with complete personal autonomy or an organization acting as one.
- The term ***partner entity*** means those directly involved in the collaboration endeavor.
- The term ***community network*** means the group of informally interconnected entities (individuals and organizations).

How strongly do you agree with the statements below?

TO A GREAT EXTENT.							NOT AT ALL.
	Strongly Agree.	Agree.	Somewhat Agree.	Neutral.	Somewhat Disagree.	Disagree.	Strongly Disagree.
Entities felt personally attacked in this collaboration.	○	○	○	○	○	○	○
Entities were annoyed by one another in this collaboration.	○	○	○	○	○	○	○
Entities did not respect others' perspectives in this collaboration.	○	○	○	○	○	○	○
This collaboration was characterized by competition among the entities.	○	○	○	○	○	○	○
Entities focused more on disagreements than achieving goals.	○	○	○	○	○	○	○

- The term ***entity*** means a single unit in a network that participates in the collaboration. An entity can be an individual unaffiliated with an organization acting with complete personal autonomy or an organization acting as one.
- The term ***partner entity*** means those directly involved in the collaboration endeavor.
- The term ***community network*** means the group of informally interconnected entities (individuals and organizations).

How strongly do you agree with the statements below?

TO A GREAT EXTENT.	Strongly Agree.	Agree.	Somewhat Agree.	Neutral.	Somewhat Disagree.	Disagree.	Strongly Disagree. NOT AT ALL.
The people who represent other organizations in this collaboration are competent.	○	○	○	○	○	○	○
The people who represent partner entities in this collaboration are consistent.	○	○	○	○	○	○	○
My organization can count on each partner entity to meet its obligations to this collaboration.	○	○	○	○	○	○	○
The people who represent the partner entities in this collaboration are trustworthy.	○	○	○	○	○	○	○

- The term ***entity*** means a single unit in a network that participates in the collaboration. An entity can be an individual unaffiliated with an organization acting with complete personal autonomy or an organization acting as one.
- The term ***partner entity*** means those directly involved in the collaboration endeavor.
- The term ***community network*** means the group of informally interconnected entities (individuals and organizations).

How strongly do you agree with the statements below?

TO A GREAT EXTENT.	Strongly Agree.	Agree.	Somewhat Agree.	Neutral.	Somewhat Disagree.	Disagree.	Strongly Disagree. NOT AT ALL.
My organization shares information with partner entities that will strengthen their operations and programs.	○	○	○	○	○	○	○
I feel that what my organization brings to this collaboration is appreciated and respected by partner entities.	○	○	○	○	○	○	○
My organization achieves its own goals better working with partner entities than working alone.	○	○	○	○	○	○	○

- The term ***entity*** means a single unit in a network that participates in the collaboration. An entity can be an individual unaffiliated with an organization acting with complete personal autonomy or an organization acting as one.
- The term ***partner entity*** means those directly involved in the collaboration endeavor.
- The term ***community network*** means the group of informally interconnected entities (individuals and organizations).

How strongly do you agree with the statements below?

TO A GREAT EXTENT.							NOT AT ALL.
	Strongly Agree.	Agree.	Somewhat Agree.	Neutral.	Somewhat Disagree.	Disagree.	Strongly Disagree.
This collaboration hinders my organization from meeting its own organizational mission.	○	○	○	○	○	○	○
My organization's independence is negatively affected by having to work with partner entities on activities related to this collaboration.	○	○	○	○	○	○	○
I, as a representative of my organization, feel pulled between trying to meet the expectations of both my own organization and this collaboration.	○	○	○	○	○	○	○

- The term ***entity*** means a single unit in a network that participates in the collaboration. An entity can be an individual unaffiliated with an organization acting with complete personal autonomy or an organization acting as one.
- The term ***partner entity*** means those directly involved in the collaboration endeavor.
- The term ***community network*** means the group of informally interconnected entities (individuals and organizations).

How strongly do you agree with the statements below?

TO A GREAT EXTENT.	Strongly Agree.	Agree.	Somewhat Agree.	Neutral.	Somewhat Disagree.	Disagree.	Strongly Disagree.	NOT AT ALL.
Rules of engagement are mutually agreed upon for this collaborative endeavor.	○	○	○	○	○	○	○	
Other organizations adhere to the rules of engagement during collaboration.	○	○	○	○	○	○	○	
This community's network structure supports collaboration.	○	○	○	○	○	○	○	
The existing policies and procedures in this community network support collaboration between organizations.	○	○	○	○	○	○	○	

Appendix B

Interview Protocol

Interview Protocol

INTRODUCTION AND PROJECT OVERVIEW

Thank you for participating in this interview. My name is Kate Lattimore Norris, and I am asking you be a part of a UT Arlington research study titled, "Creative Collaboration in Rural Texas Communities."

The goal of this study is to learn about how rural communities might be able to use diversity, conflict, and creative abrasion constructively to engage in creative collaboration. This study will help rural communities in Texas tell their story about how the community worked together to identify and implement creative solutions to overcome complicated healthcare challenges.

You may want to participate in this study to help other rural communities understand how to engage in creative collaboration. You may not want to participate in this study if you do not have time to complete this interview. I have planned this interview to last no longer than one hour.

Participation in this study is VOLUNTARY. Should you decide not to participate, there will be no impact on any benefits or services that you would normally receive. Even if you choose to begin the study, you can also decide without any consequences not to go forward.

You will not be paid for participating in this study. Although you probably won't experience any personal benefits from participating, the study activities are not expected to pose any additional risks beyond those that you would normally experience in your everyday life. There are no alternative options to this research project.

You have been selected for participation in this study because you are a representative of an entity working in the XX (fill in region here) Public Health Region in Texas. I worked directly with XX (name of regional representative) to identify candidates for interviews who are at least 18 years old and have worked within the last 3 years with other entities to identify and/or implement solutions in their community that address a lack of access to ways to stay healthy, either physically or mentally. Additionally, you fit into one of these groups:

A. You are involved with an organization as a decision-maker. This means that you have the authority to make decisions about how the organization fulfills its mission. You also have the authority to speak as a representative of the organization.
   OR
B. You are an individual unaffiliated with an organization, acting on your own accord, but you engage at the community level to contribute to the network's identification and/or implementation of solutions to community problems.

Please answer all questions a representative of your entity, either yourself or your organization, in the collaboration.

Your input collected today will be aggregated with data from other sources to enrich understanding of creative collaboration. Since we are using your insights to answer questions that qualitative data cannot, I may need to use a quote from this interview in the final report. But, I will maintain your anonymity by generalizing quotes to remove any information that could be personally identifying. Should we discuss situations or details you do not wish to share in a published report, please let me know what those comments are so that I do not include them as a quote. Thus, if you notify me that you do not want certain situations or details published in a report, I will make sure this input is only included as part of an aggregate of data.

While absolute confidentiality cannot be guaranteed, the research team will make every effort to protect the confidentiality of your records as described here and to the extent permitted by law. If you have questions about the study, you can contact me at Kathryn.Lattimore@mavs.uta.edu. For questions about your rights or to report complaints, contact the UTA Research Office at 817-272-3723 or regulatoryservices@uta.edu.

Do you have any questions?

To facilitate my note taking, I would like to record our conversation through Microsoft Teams, which will simultaneously create an automatic transcription where the interview is typed, word-for-word. At times, automated transcriptions can be inaccurate. So, I will review the transcript and my notes at the conclusion of the interview for accuracy. Once I have confirmed the interview was accurately transcribed, I will destroy the recording by deleting it from the UTA encrypted storage. If you prefer that I stop recording at any time during this interview, please let me know and I will turn off the recording feature in Microsoft Teams. You will be notified by Microsoft Teams anytime I start or stop recording. Do you have any questions about how the recordings of this interview will be used, maintained, and destroyed?

You are indicating your voluntary agreement to participate by beginning this virtual interview. I will now start recording.

INTERVIEW

Before we begin, I will define several terms that I will use in specific ways during this interview. Please let me know if you would like for me to repeat these definitions at any time during the interview.

- The term *collaboration* means entities worked together to identify and/or implement solutions in your community that address a lack of access to ways to stay healthy.
- The term *entity* means a single unit in a network that participates in the collaboration. An entity can be an individual unaffiliated with an organization acting with complete personal autonomy or an organization acting as one.
- The term *partner entity* means those directly involved in the collaboration endeavor.
- The term *community network* means the group of informally interconnected entities (individuals and organizations).

Please answer all questions a representative of your entity (either yourself or your organization) participating in the collaboration.

1. Tell me about the organization you represent. What is its purpose? What does it do?
2. Tell me about your role in the organization. How many years have you been a part of the organization?

In answering the following questions, please consider a collaboration in a rural community in your region where entities worked, or are still working, together to address health-related problems or increase access to mental or physical healthcare. These can be problems that primarily affect an individual such as not having access to healthcare. Or, they can be a problem that affects the larger community such vaccination acceptance and rates. Once you decide on a collaboration, please answer the remainder of the questions in the interview as they pertain to this collaboration.

3. Do you have any questions? Do you have a collaboration or two in mind?
4. Please tell me about goals or problems being addressed.
    a. How long had the problem been present?
    b. Tell me about the community. Where? What size?
    c. Did the community generally support working together?
5. How did the collaboration form?
    a. Quickly, all at once? Or over time?
    b. Was the collaboration formal or informal?
6. What entities were involved in the collaboration?
    a. Were they businesses? civic organizations? faith-based? government-related? Individuals acting without associating with an organization?
    b. Was there an identifiable leader?
    c. Had any of these entities worked together before?

The goal of this study is understanding how rural communities might be able to use diversity, conflict, and creative abrasion constructively to result in creative collaboration. Now, I am going to ask some questions related to each of these dimensions. The type of diversity on which I am focused in this study is intellectual diversity. Intellectual diversity describes variation between the way people think, solve problems, or accomplish tasks. It can be tied to demographic diversity (think of age, sex, race and ethnicity, income) but not always. To explore intellectual diversity as it relates to the collaboration you are discussing, let's go back to your responses to the previous group of questions.

7. For the entities described above, to the best of your ability, please describe:
    a. Overall mission/goals, or role in the community
    b. Skills/training of the people who represent the entity
    c. Budget/Income
    d. Problem-solving approach
8. Is this collaboration characterized by intellectual diversity? How so?

Another component that I believe to be a part of creative collaboration is conflict. For the purpose of this study, I am distinguishing between three different types of conflict.

9. The first type is task conflict, which is divergences, disagreements, and differences between and among collaborators about the specifics of the tasks-at-hand. Please describe any task-related conflict related to this collaboration.
10. The second type of conflict is affective conflict, which is interpersonal disagreements tied to negative emotions and relationship. Affective conflict often includes annoyances or personal attacks. Please describe any affective conflict related to this collaboration.
11. The third type of conflict is cognitive conflict, which is divergent thinking, gentle friction between ideas, or collegial skepticism. It occurs when the focus is on differences in ideas or approaches rather than the individuals who hold them. Please describe any cognitive conflict related to this collaboration.

The last dimension that interests me is creative abrasion, which can be thought of as the active component of the collaborative process, where ideas jostle and contend with each other. As that happens, the ideas change, improve, and perhaps even spawn other, better ideas.

12. Tell me about the collaboration process. How did ideas or approaches change, improve, or lead to other, better ideas in this collaboration?

My last two questions relate to outcomes.

13. What were the outcomes of this collaboration?
14. Were the outcomes of this collaboration new, unique, and useful? How so?

This concludes our interview. Do you have any additional input or observations about creative collaboration that you would like to share at this time?

Again, thank you so much for your time and input today. If you think of additional comments to share regarding the questions I asked, please send me an email.

Appendix C

Recruitment Materials

Give a voice to rural Texas communities facing complicated challenges around healthcare!

Have a minute?

A doctoral candidate at the University of Texas at Arlington is setting out to learn about how rural communities might be able to use diversity and conflict to collaborate more creatively and succesfully. Tell your story about how your community has worked together to identify and implement creative solutions to today's most critical healthcare problems.

Take the survey
https://utaedu.questionpro.com/CreativeCollaboration

Questions? Want to hear more about the study?
email kathryn.lattimore@mavs.uta.edu

THE UNIVERSITY OF TEXAS AT ARLINGTON

CAPPA COLLEGE OF ARCHITECTURE, PLANNING AND PUBLIC AFFAIRS