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Dedication

This dissertation is dedicated to my parents, Darrell and Karen, who with their love, support, example, and encouragement continually inspired me to attempt and accomplish this goal. Thanks for always encouraging and challenging me to pursue my goals.

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Abstract

Research for many years has been a large focus of higher education. While much of the research within higher education can be attributed to faculty members and departments, research centers also account for some of this work as well as other benefits to universities. However, research centers are often plagued with the uncertainty of financial funding for which leaders and boards must overcome. Thus, the purpose of this case study is to examine how leaders of research centers, along with the board, guide their center during periods of loss of funding. Additionally, this study examines how the board of the center assists leadership and plays an integral part in securing new funding.

This single, historical, interpretive case study focused on one research center that had experienced funding uncertainty during its 20 years of existence. To more fully understand the role of leadership and boards, this study used a conceptual framework of shared transformational leadership and resource dependency theory.

Findings suggest that leadership utilized shared transformational leadership characteristics, meeting structures, anticipated the need for new funding, and consulted and collaborated with experts and outside stakeholders when guiding their research center. Furthermore, boards had a positive impact on the center's financial standing through board membership, serving as external perspectives, and advocating within their connections. The board also assisted with securing new funding by serving as a think tank, utilizing their connections, and giving personal financial contributions. Ultimately, a center's leadership had a critical role in the center's funding and success. Additionally, while the board may not have played as critical a role, they still served a purpose in supporting, advocating, and connecting for the good of the center.

The findings of this study contribute to the studies on research centers as well as brings new understanding to the role of leaders and boards in the funding and sustainability of a research center.

CHAPTER I. INTRODUCTION

The impact of research innovation spans far and wide across society, and much is attributed to research occurring at universities. Day after day, with little thought, the masses use and rely upon inventions such as seat belts, toothpaste, GPS, and computers, which originated from university research (Staff Writers, 2012). The relationship between universities and research, while long-lasting, grew exponentially following World War II when the government began to sponsor academic research (Sá, 2008). Research has become so crucial to the higher education system that universities are classified according to research focus and productivity (The Carnegie Classification of Institutions of Higher Education, n.d.). Research-intensive universities have a primary focus on producing research and do so mainly through their academic departments. However, in the past several decades, universities rely additionally on research centers as an avenue to further increase productivity (Bozeman & Boardman, 2003; McCarthy & Hall, 1989).

Research centers can be found in virtually every field within the university system, from science to education (Bozeman & Boardman, 2003; McCarthy & Hall, 1989). In 2011, there were an estimated 17,000 research centers in the United States and Canada, with the majority located on university campuses (Hall, 2011). This number had amassed since World War II when the government became a significant sponsor for academic research (Sá, 2008). Nevertheless, even with their prevalence at universities, there is no unifying definition of a research center within the literature, though many have similar aspects and meanings. Fundamentally, a research center is a "formal organizational entity within a university that exists chiefly to serve a research mission, is set apart from the departmental organization, and includes researchers from more than one department (or line management unit)" (Bozeman & Boardman, 2003, p. 17). Hall's

(2011) definition denotes "units that may exist beyond and between academic departments" (p. 26). Despite no uniting definition, the value of research centers remains unchanging.

Research centers are notable both within and outside of higher education. For example, centers are often considered the bridge between universities and industry (Bozeman & Boardman, 2003; McCarthy & Hall, 1989; Sá, 2008) primarily as a result of being at the forefront of groundbreaking research - medical technology, climate and weather, and earthquake studies (Bozeman & Boardman, 2003) - and stakeholder buy-in. The national recognition of academic research has added to the value of research centers among stakeholders such as the government, field industry, the community, and policymakers (Sá, 2008).

Additionally, research centers continue to be important within higher education. This is because they increase university prestige (Feller, 2002; Geiger, 1990), generate revenue (Brint, 2005; Clark, 1998; Feller, 2002; Hall, 2011; Veres, 1988), and promote interdisciplinary collaboration (Aboelela et al., 2007; Boardman & Corley, 2008; Hays, 1991; Kumar, 2017; Mallon, 2006; Stahler & Tash, 1994). Centers generate revenue at a time when funding for higher education has diminished. Furthermore, these benefits are significant because university rankings and prestige often influence student enrollment and faculty recruitment, and faculty recruitment has been linked with research productivity (Chung et al., 2009). All of this addresses the advantage of and need for continued success and longevity of research centers within higher education.

However, the success of research centers is dependent upon the leadership of center administration (Stahler & Tash, 1994). Scholars have explored several factors, such as organizational culture, which influence an organization's performance; yet, leadership effectiveness is one of the key determinants, even influencing other elements, in the survival of

organizations (Fiedler & Garcia, 1987) as well as performance (Akbari et al., 2016; Jaskyte, 2004; Koohang et al., 2016; Zacarro et al., 2001). These findings coincide with the literature on research centers, which also discusses leadership as an essential component in the success and survival of centers (Hall, 2011; McCarthy & Hall, 1989; Stahler & Tash, 1994). While centers can succeed, they can also fail due to the leadership of the director or when leadership is lacking (Hall, 2011; McCarthy & Hall, 1989; Stahler & Tash, 1994). Researchers have suggested that centers are the embodiment of its director (Hays, 1991; Stahler & Tash, 1994). Based on the literature, leadership is a significant and appropriate lens through which to examine research centers (Fiedler & Garcia, 1987; Stahler & Tash, 1994).

Leadership, though, must utilize a variety of resources, such as an advisory board (Bozeman & Boardman, 2003; Hall, 2011; Ikenberry & Friedman, 1972; McCarthy & Hall, 1989) to ensure and further the growth and success of the center. An advisory board is typically comprised of volunteers from the community or prominent industry stakeholders (Dyer & Williams, 1991; Pearce & Rosener, 1985) who together perform essential roles for the betterment of the organization (Pearce & Rosener, 1985). Unlike a governing board that has legal authority in the management of an organization, an advisory board is mainly tasked, among other things, with offering advice to leaders (Dyer & Williams, 1991; Pearce & Rosener, 1985; Saidel, 1998). Despite this difference in authority, some researchers (Saidel, 1998) argue for the inclusion of advisory boards as a "crucial instrument of governance," specifically within nonprofit organizations supported by government grants or contracts (p. 422).

The relationship between leadership and advisory boards is interlocking. Boards, through their various responsibilities and tasks, are an advantage to leadership (Pearce & Rosener, 1985) and often fulfill similar roles to governing boards (Saidel, 1998). On the other hand, advisory

boards are managed by leadership and dependent upon them for organizational resources (Pearce & Rosener, 1985). Board effectiveness has been linked to leadership's expectations of the board (Lewis et al., 1978). Not surprisingly, leader support is also related to the board's impact and productivity (Pearce & Rosener, 1985). Despite this, advisory boards can play a core role in the success of an organization, to the extent that Dyer and Williams (1991) caution that leadership failing to heed the advice of the board could cause the organization to suffer. Subsequently, when studying research centers, it is crucial to examine both leadership and boards as they can be vital to the success of organizations and never as important as when challenges emerge.

Problem Statement

Literature suggests leaders encounter an assortment of challenges while leading a research center (Boardman & Bozeman, 2003; Friedman & Friedman, 1986; Friedman et al., 1982; Glied et al., 2007; Hall, 2011; Hays, 1991; Mallon, 2006; Sá, 2008; Stahler & Tash, 1994). These challenges revolve around center mission and purpose (Hall, 2011; Mallon, 2006; Stahler & Tash, 1994), the relationship with the academic department and university (Friedman & Friedman, 1982; Geiger, 1990; Hall, 2011; Ikenberry & Friedman, 1972; Mallon, 2006; Sá, 2008; Stahler & Tash, 1994), the management of staff (Boardman & Bozeman, 2003; Friedman & Friedman, 1986; Friedman et al., 1982; Glied et al., 2007; Hall, 2011; Hays, 1991; Mallon, 2006), the navigation of a variety of roles (Glied et al., 2007; Hall, 2011), and funding (Glied et al., 2007; Hall, 2011; Kumar, 2017; Sá, 2008; Stahler & Tash, 1994). Each challenge represents a different obstacle for which leaders must overcome.

However, there are differing opinions on which of these challenges is the most vital for leaders to overcome (Bozeman & Boardman, 2003; Hall, 2011). Hall (2011) states that planning, which should be done with the center's mission and values in mind, is the highest priority for

leaders; however, if leaders are unaware of how the center and its mission and values operate within the university setting the result could be damaging to the center. On another note, space allocation, which is negotiated through a relationship with the academic department, is also of importance because it is a sign of the health of a center (Hall, 2011). Furthermore, managing a wide range of employees, including researchers, is also labeled as "the most difficult task" for administrators (Bozeman & Boardman, 2003, p. 5). However, despite the significance of these challenges, none are as vital to a center as funding (Hall, 2011).

Hall (2011) recognizes the importance of funding, stating, "Loss of or insufficient center funding is ranked as the number one reason for center closure" (p. 35). While many centers do receive funding from the university, it typically represents a very minimal portion of the center's overall operating budget. Due in part to the current financial standing of higher education, there is an increased need to locate external funding to support research centers (Sá, 2008). Therefore, leaders are well-advised to locate external funding that can fully support the center while also ensuring that institutional resources are not drained (Sa, 2008). However, the need to continuously search for external funding often places added strain on center leadership (Sá, 2008). Acquiring funding can be challenging due to competitive research markets (Sá, 2008). Leaders must frequently redefine and adapt their mission and services to acquire those sources of funding (Hall, 2011; Ikenberry & Friedman, 1972). While this responsibility falls to leadership, boards, through their networking and connections within the industry, fundraising, and advice, can play an essential role in assisting this endeavor (Dyer & Williams, 1991; Saidel, 1998). Therefore, leaders, along with boards, must navigate challenging periods of lack of funding or funding loss to ensure center survival and prolong the benefits that centers contribute to their institutions (Geisler et al., 1990; Hall, 2005; Hall, 2011; Saidel, 1998).

Academic Gaps

As centers remain common on university campuses across the United States (Hall, 2011), so does the importance of our understanding of them. This study addresses several gaps in research center literature. From a general analysis, much of the literature on research centers is not current. Many of the existing studies were published between the 1970s and early 2000s (Boardman & Corley, 2008; Boardman & Bozeman, 2007; Bozeman & Boardman, 2003; Geiger, 1990; Geisler et al., 1990; Hays, 1991; Ikenberry & Friedman, 1972; Sá, 2008; Stahler & Tash, 1994). Additionally, the "empirical knowledge" of research centers is limited (Sabharwal & Hu, 2013, p. 1302), as well as knowledge of centers in general and their operations (Hall, 2005). A limitation of the existing studies is that they are approached from the perspective of large, stable research centers (Hall, 2005). Thus, studies on research centers and how they operate remain largely lacking within the field but yet continue to be a necessary topic for higher education leaders and administrators.

There are also literature gaps focusing on specific topics. The vast majority of research center literature focuses on identifying research center types as well as their challenges (Friedman & Friedman, 1986; Friedman et al., 1982; Glied et al., 2007; Hall, 2011; Hays, 1991; Mallon, 2006; Sá, 2008; Stahler & Tash, 1994) or ascertaining a center's characteristics of interdisciplinary collaboration and faculty research involvement (Boardman & Corley, 2008; Bozeman & Boardman, 2003; Geiger, 1990; Ikenberry & Friedman, 1972). Several of these studies (Friedman & Friedman, 1986; Friedman et al., 1982) are focused on the fields of engineering, science, or medicine specifically. Studies that discuss challenges or issues of leadership in research centers are limited in their in-depth exploration of leadership and the board through the lens of one specific issue, such as funding. These studies do not focus primarily on

one issue and thus do not fully address how leaders go about navigating that issue. Though mentioned in the literature (Friedman et al., 1982; Geles et al., 2000; Gray & Walters, 1998; Hall, 2011; Veres, 1988), there has not been an extensive study on the issue of funding. The lack of an extensive study on funding is problematic considering Hall (2011) found that sparse funding or loss of funding is the foremost reason for center closure. Thus, there is a need for further research that analyzes this important topic (Hall, 2011).

Furthermore, existing literature largely ignores boards of research centers and their potential impact. Literature that highlights center challenges does so primarily from the perspective of leadership (Boardman & Bozeman, 2007; Hall, 2011; Sá, 2008; Stahler & Tash, 1994), while occasionally concentrating on leaders' relationships with staff members (Davis & Bryant, 2010). However, boards of research centers are only briefly discussed in the literature and typically from a descriptive point of view (Ikenberry & Friedman, 1972). By examining how leaders work together with boards during a period of loss of funding, this study adds to the existing literature on boards of research centers. It offers a furthered understanding of the role boards play in the stability of centers.

Theoretical Framework

Theoretical frameworks used in this study provided a guide during the research. Because this study included two groups of participants, leaders and board members, there was a need for a theoretical lens that would allow for appropriate exploration of both groups. Since leadership theories do not also examine boards and their workings and theories on boards do not fully explain leadership, multiple theories were utilized in this study. For the leadership aspect, both transformational leadership and shared leadership were referenced to better understand shared transformational leadership. While there is not a unified definition for shared transformational

leadership, this theory is a merging of shared leadership and transformational leadership in that vertical and horizontal leadership work in a shared team capacity to transform the organization (Cho, 2014; Pearce, 2004; Sivasubramaniam et al., 2002).

Transformational leadership behaviors of the Four I's are displayed within the team, while shared leadership antecedents such as shared purpose, social support, and voice can also be found within the team (Pearce, 2004). Additionally, according to resource dependency theory, leaders use several means, such as a board, to lessen an organization's dependence on a resource such as external funding (Pfeffer & Salancik, 1978). A conceptual framework is provided in Chapter 3 to explain how shared transformational leadership and resource dependency theory together provide a framework to explain how leadership and boards at research centers work together during times of funding uncertainty.

Purpose Statement

The purpose of this case study is to examine how leaders of research centers, along with the board, guide their center during periods of loss of funding. Additionally, this study examines how the board of the center assists leadership and plays an integral part in securing new funding. Focusing on this issue through the lens of one research center, Center A, allowed for consideration of how leadership navigated internal and external relationships, networked, and located and secured new money for the Center.

This study addresses the following four research questions to add to the gap in the literature on leaders and boards during periods of loss of funding for research centers:

1. What leadership style does leaders of research centers exhibit?

2. How do leaders transform their research center through organizational performance?

3. How does the board reduce leaderships' dependence on resources for research center

survival?

4. How does the board assist in securing new funding for center survival?

Significance

This study addresses several gaps in the literature. Such a study is important not only because of the significance of research centers within higher education (Boardman & Corley, 2008; Bozeman & Boardman, 2003; Clark, 1998; Geiger, 1990; Stahler & Tash, 1994; Veres, 1988) but also because of the direct implication funding has on the survival and successful operation of centers (Glied et al., 2007; Hall, 2011; Sá, 2008; Stahler & Tash, 1994). Their ability to generate revenue, increase prestige, and promote interdisciplinary collaboration are strong benefits to institutions. They should be key reasons for ensuring centers' continual survival and growth across university campuses.

Therefore, this study contributes to the field of higher education not only with an understanding of how leadership and the board, as separate groups, work toward obtaining financial support, but it also explores how the two groups work in unison to ensure the financial stability and survival of Center A.

Definitions of Key Terms

Research Center

Research centers have been referenced throughout literature using a variety of terms such as organized research unit (Friedman & Friedman, 1984; Geiger, 1990; Hays, 1991), institute (Ikenberry & Friedman, 1972; Stahler & Tash, 1994), or research center (Aboelela et al., 2007; Boardman & Bozeman, 2007; Bozeman & Boardman, 2003; Geisler et al., 1990; McCarthy & Hall, 1989; Sá, 2008; Stahler & Tash, 1994). The current study uses the term research center. There are several scholarly definitions to explain research centers, which will be addressed

within the literature review; however, generally, research centers can be defined as organizations that operate under the structure of a department, college, or university with its purpose and mission. Additionally, these centers are focused on research and often promote interdisciplinary work with researchers from different departments (Boardman & Corley, 2008; Hall, 2011; Stahler & Tash, 1994). Additional literature on the characteristics and types of research centers is provided in the literature review in Chapter 2.

Leaders

Also commonly referred to as administrators, leaders are at the top of an organization's hierarchical chart. Leaders are responsible for guiding the organization, making major decisions, ensuring the mission of the organization is fulfilled, and serving as the final supervisor over all employees within the organization. Within the current study, leaders refer to the executive director, director, and associate directors of Center A. While each leader can exhibit leadership responsibilities, together these leaders form the leadership team for the research center and jointly fulfill all the responsibilities of leaders.

Boards

There are various types of boards, such as governing boards, advisory boards, or boards of advocates, each with its own responsibilities. Boards typically consist of industry stakeholders, experts, and others who could provide advice and guidance to leaders, and organizations establish boards for the benefits they provide. Research centers, if they have boards, have boards of advocates that advocate on behalf of the center and its mission and purpose.

Loss of Funding

While this term is not difficult to understand, there are parameters to the type of "loss of

funding," this study is researching. In order to properly research this topic, it is crucial then that the term or phrase "loss of funding" represents a loss of funding stream, grant, or other that make up a significant portion of the center's overall operating budget. Such a loss would produce a situation in which the center was struggling to survive. In contrast, losing one grant that represented a small portion of the budget would create no such struggle. This difference could potentially impact the way leaders and board members work and collaborate.

Conclusion of Chapter and Organization of the Dissertation

Research is an essential aspect of top-tiered universities across the United States, and research centers play a crucial part in furthering research standards. However, the survival of research centers is mainly dependent upon their financial success, which is impacted by leadership. This research seeks to provide a better understanding of the leadership of research centers, along with their board, by explicitly looking at periods of financial uncertainty.

This dissertation research is separated into six chapters. These chapters include the: introduction, literature review, theoretical framework, methodology, findings, and discussion and conclusion.

Chapter Two addresses the literature that establishes a base for the current study. This literature explains the context and development of research within higher education as well as the creation of the research center. Attention is given to a more encompassing description of a research center and the leaders and boards that contribute to a center's success.

Chapter Three discusses the theoretical frameworks this dissertation uses as a guide in the study. A description of transformational leadership and shared leadership are provided to understand how leaders utilize shared transformational leadership to bring about organizational performance. Resource dependency theory is also explained as a lens through which to

understand a board's contribution to an organization. The chapter concludes with the formation of a conceptual framework based on the described theories and an explanation of how the framework could be used in the current study.

Chapter Four details the research design for the study, including the methodology and methods. Additionally, a rationale for selecting the methodology is explained. Data collection and data analysis that contribute to the findings of this study are described in detail.

Chapter Five describes the findings of this study. First, this study found that leaders utilize shared transformational leadership to promote organizational performance. Descriptions of the leaders' shared transformational leadership characteristics are provided. Additional findings of this study are explained by research questions. Findings on leadership revealed that leaders utilized meeting structures, anticipated the need for new funding, and consulted and collaborated with experts and outside stakeholders to transform the research center. This study also found that boards can reduce resource dependency through board membership, board members' external perspectives, and advocacy among their connections. Finally, boards assist in the acquiring of new funding by serving as a think tank, utilizing member connections, and board members' personal financial contributions.

Chapter Six offers an analysis of the findings and discusses these findings in relation to the existing literature. The study's implications regarding how leaders, along with boards, guide research centers during funding uncertainty are described. The chapter concludes with study limitations and opportunities for future research.

CHAPTER II. LITERATURE REVIEW

This chapter provides an overview of relevant literature on research centers, including a look at leadership and boards. In order to provide a more accurate and complete understanding, this chapter begins with a section on a brief history of research within higher education and a history of research centers within the university setting. It is also necessary to provide an explanation of the importance of centers within the higher education system and, in doing so, solidify the value of the current study. This is followed by a description of research centers as well as the varying types found within higher education. Next, the leadership of these centers is discussed, including the challenges leaders encounter. Following this, a section addressing the importance and challenges of research center funding is presented. Just as leadership is explored, this literature review provides an analysis of boards and their benefits. This chapter concludes with a summary of the literature review.

History of Research Within Higher Education

Research within the setting of higher education has existed for many decades (Geiger, 2004). While American universities were initially intended to reflect their counterparts of Western Europe, American higher education also sought to serve their surrounding community (Geiger, 2004). Geiger (2004), in his history of American research universities, detailed the expansion and development of universities during the mid-1800s to early 1900s and suggested that the most significant growth in research universities occurred around this time. Furthermore, he suggested three factors that lead to a dedication of research, which includes an academic boom, influence from German universities, and the establishment of John Hopkins (Geiger, 2004). Besides, the founding of the Association of American Universities in 1900 contributed to the recognition of research universities within higher education (Geiger, 2004).

However, despite the progress toward a more research-centered university, there remained challenges, even up to the 1920s, regarding who would assume primary responsibility for research (Geiger, 2004). Though the federal government was spending an average of $11 million on scientific activities, research at this time was primarily outsourced to bureaus and other organizations, primarily driven by practicality rather than curiosity (Geiger, 2004). University research was mostly dependent upon private revenue sources such as wealthy individuals and foundations (Geiger, 1993). During the beginning decades, funding for research was generally university-specific, with very few foundations specifying departmental faculty to carry out the research (Geiger, 1993). It was not until 1930 that it became more common for funding to be given towards a specific research project (Geiger, 1993). By the end of the 1930s to 1940, the federal government was spending around $74 to $100 million on research (Geiger, 2004); however, the largest concentration of federal research funding was centered on agriculture (Ikenberry & Friedman, 1972). Not until the beginning of World War II did the government and universities develop a new, close relationship in this area (Geiger, 1993). The decade following WWII saw perhaps the most considerable growth of research centers due to a driving push by the government in academic science (Geiger, 1990; Sá, 2008).

More specifically, as war loomed, the government recognized the value university research could serve toward the country's national defense (Geiger, 1993) and collaborated with universities through grants and contracts. Following World War II, American universities emerged as a dominant presence in research and have continuously remained so even until the present day (Geiger, 2004). During this time, other organizations also voiced their support for research. In 1954, the American Council on Education stated support of research, suggesting it was a "fundamental part," and "essential" in defending the country and ensuring the health of

citizens (as cited in Ikenberry & Friedman, 1972, p. 12). Other eras such as the Cold War and the success of the Soviets have also furthered the government's reliance upon universities for research (Geiger, 2004).

As research universities expanded and multiplied, a means of recognizing levels of research at universities also emerged. A university's degree of commitment to research is often reported along with other demographic characteristics (The Carnegie Classification of Institutions of Higher Education, n.d). It can be a factor in an institution's rankings and prestige. With universities increasing their focus on research, the development of research centers has played a role in helping universities achieve an advanced level of research.

University Research Centers

The growth of research within higher education, coupled with the excessive demand for research by patrons, led to the establishment of research centers (Geiger, 2004). The concept and implementation of a research center on higher education campuses have been in existence for many decades. Forms of centers originated in the 1800s, with research being separately organized and financed (Geiger, 1993; Hays, 1991). However, it was not until the 1880s that centers expanded across college campuses (Hays, 1991). The first centers were not entirely reflective of today's centers but instead were founded to assist the needs of observatory instruments and museum collections (Geiger, 1993). The Harvard Observatory, founded around 1844, is one such example (Boardman & Bozeman, 2007).

The evolvement of today's recognized research center did not take place until much later in the 1950s and 1960s (Stahler & Tash, 1994). War and government contributed to the creation of research centers; however, the development of research centers was a result of the attention to problem-focused education within the American school system and belief that higher education

institutions were responsible for improving society and responding to the needs of the public (Breneman & Finney, 2001; Geiger, 1990; Hays, 1991; Ikenberry & Friedman, 1972). Today, centers are primarily located at prominent research universities, even though much of higher education research occurs within an academic department (Bozeman & Boardman, 2003). Despite this, research centers have maintained their value within the higher education setting. According to Stahler and Tash (1994), they are a "necessary organizational structure for bolstering a university's sponsored research program and for encouraging interdisciplinary collaboration" (p. 552).

Due to the ease of creating and reorganizing research centers in comparison to academic departments, it is no surprise that these centers have continued to increase in number (Hays, 1991). In 1991, Hays, via the Research Centers Directory, referenced an approximate number of 10,300 centers; however, that number grew to 17,000 centers both within Canada and the United States in 2011 (Hall, 2011). The vast majority of these reside at higher education institutions, where large universities average approximately 60 to over 200 research centers on campus (Hays, 1991).

What is the Research Center?

Previous studies have utilized a variety of terms to reference research centers, including organized research units, ORU, (Friedman & Friedman, 1984; Geiger, 1990; Hays, 1991) or institute (Ikenberry & Friedman, 1972; Stahler & Tash, 1994). However, the term research center has more commonly been used within literature (Aboelela et al., 2007; Boardman & Bozeman, 2007; Bozeman & Boardman, 2003; Geisler et al., 1990; McCarthy & Hall, 1989; Sá, 2008; Stahler & Tash, 1994). Therefore, the term research center is used in the current study. Literature suggests there is a lack of a single, reliable, and cohesive definition of a research center

(Bozeman & Boardman, 2003; Hall, 2011; Stahler & Tash, 1994). Hall (2011), in her dissertation on research centers, used one definition to establish an understanding of the research presented. She stated that "centers are defined as non-department entities, encompassing a broad range of sub-organizational structures in higher education: bureaus, clinics, institutes, laboratories, programs, and units" (p. 26). Bozeman and Boardman (2003) also offered another expanded definition of a research center as a "formal organizational entity within a university that exists chiefly to serve a research mission, is set apart from the departmental organization, and includes researchers from more than one department (or line management unit)" (p. 17).

Research centers have similarities but are also vastly different. There are contrasting views on the unifying factor among all research centers. Several scholars recognize that research centers share a mission of research (Hall, 2011; Stahler & Tash, 1994); however, other scholars believe the unifying factor is the intent to encourage collaboration with researchers, explicitly interdisciplinary research (Boardman & Corley, 2008). While all research centers are dedicated to research and include some elements of interdisciplinary collaboration, centers are different from one another in several ways (Hall, 2011; Stahler & Tash, 1994). For instance, research centers experience differences in the magnitude of outside support and research staff, distribution of faculty to professional research staff, degree of distance from the academic department, degree of incorporation within the university, degree of focus on interdisciplinary and multidisciplinary, the significance of applied research, and funding mix (Hall, 2011; Stahler & Tash, 1994). These characteristics look different at each research center depending, in part, on the type of research center (Stahler & Tash, 1994).

Research Centers vs. Academic Departments

Scholars describe centers in the literature by highlighting their differences to academic

departments (Boardman & Corley, 2008; Bozeman & Boardman, 2003; Friedman & Friedman, 1982; Geiger, 1990; Hays, 1991; Ikenberry & Friedman, 1972; Mallon, 2006; Sá, 2008; Stahler & Tash, 1994). Research suggests that a significant portion of an institution's research occurs within academic departments through faculty work (Bozeman & Boardman, 2003). However, research centers do engage in some of the same activities despite not being closely associated with a department. These differences are important to consider in fully understanding research centers. The extent of each center's degree of disconnection with departments is seen as one of their unique characteristics (Hall, 2011). The greatest contrast between the two is that of structure, operation, and research collaboration (Geiger, 1990; Hall, 2011; Hays, 1991). Centers are believed to have a more robust hierarchical means of operation than do academic departments (Hays, 1991). Besides, centers can engage faculty and individuals in research that is typically not realized at the departmental level, specifically through interdisciplinary research collaboration and resources (Geiger, 1990; Hays, 1991).

Types of Research Centers

Centers are classified into different categories (Geiger, 2004; Ikenberry & Friedman, 1972). According to Geiger (2004), the variety of centers includes large laboratories, centers that increase knowledge and function within a department, and those designed to serve the outside industry - including a focus on technology transfer centers. While these forms are recognized and discussed in the literature, they are not as structured as those of Ikenberry and Friedman (1972). Ikenberry and Friedman (1972), in their seminal work, *Beyond Academic Departments*, sought to provide a comprehensive understanding of centers and their many encompassing facets. In doing so, they described three types of centers. These types have been widely recognized and cited within research center literature, even among the most recent studies (Hall, 2011). Ikenberry and

Friedman's (1972) types of centers were a result of an analysis of a host of information including a revealing portrait of around 900 centers, a study on several centers at a single university campus, interviews with 25 university administrators, and descriptions provided by some 125 center directors. All of the centers that participated in their study were located at land-grant institutions, which the authors selected because of the vast number of these institutions as well as their diversity (Ikenberry & Friedman, 1972).

In conjunction with their study data, Ikenberry and Friedman (1972) utilized classifications from Becker and Gordon (1966) to establish types of research centers. Becker and Gordon's (1966) classifications were based on how an organization "stores its resources" as well as how the organization sets procedures for the use of those resources (p. 315). Ikenberry and Friedman (1972) believed that these two variables were dependent upon a third variable, which was the stability of center goals and tasks and the level of stability centers must have with resources to ensure goals and tasks are met. Resources, then, represent finances, materials, equipment, space, and staff (Ikenberry & Friedman, 1972). Space, though rarely considered, can be a critical determinant of the well-being of a center (Hall, 2011). Based on their analysis, Ikenberry and Friedman (1972) created the following three types: standard centers, adaptive centers, and shadow centers. A description of each type is presented below, as described in the relevant literature (Hall, 2011; Ikenberry & Friedman, 1972; Pfeffer & Salancik, 1978).

Standard centers. Research centers that have achieved stability in every facet of operation are recognized as standard centers (Ikenberry & Friedman, 1972). Partially because of that stability, they have the closest similarities, of all three types, to an academic unit within higher education (Hall, 2011). Not only do their goals and mission remain consistent (Ikenberry & Friedman, 1972), but they also have their own policies and procedures to ensure smooth

operation (Hall, 2011). Standard centers have a level of financial stability needed to hire and maintain a full administration, as well as a significant number of professional staff (Ikenberry & Friedman, 1972). Finally, standard centers, due in part to their stability, have boards that provide advice and guidance (Hall, 2011). Examples of such centers include computer centers (Hall, 2011; Ikenberry, & Friedman, 1972) and admissions offices (Hall, 2011). However, standard centers represent the smallest portion of research centers (Hays, 1991).

  Adaptive centers. Established centers with less stability are classified as adaptive centers. These centers are dependent on resources for survival (Pfeffer & Salancik, 1978) and operate on temporary funding, such as governmental grants (Hall, 2011). Thus, the transfer from one funding source to another brings with it a continuous process of change and adapting (Hall, 2011; Hays, 1991; Ikenberry & Friedman, 1972). According to Ikenberry and Friedman (1972), "Adaptive institutes undergo a continuous process of redefining their goals, initiating and terminating projects, securing and releasing staff: in short, adapting to a persistent instability" (p. 36). Hays' (1991) research corroborated this finding, suggesting that adaptive centers continue to operate but must frequently reexamine goals and transition staff to meet these changes. While adaptive centers typically have a small number of personnel that remains at the center during changes in funding sources, their leadership team is typically strong. It remains in place to guide the center through these challenges (Ikenberry & Friedman, 1972). Examples of these types of centers frequently include educational research centers, water resource centers, and other centers involving school services (Hall, 2011; Ikenberry & Friedman, 1972). Due to their strong dependence on financial resources, adaptive centers that have lost their financial support could become shadow centers (Hall, 2011; Ikenberry & Friedman, 1972).

  Shadow centers. The least structured and stable research centers are termed shadow

centers (Hall, 2011; Hays, 1991; Ikenberry & Friedman, 1972). Shadow centers have very

minimal budgets, if any, and have no recognizable achievements (Hall, 2011; Ikenberry &

Friedman, 1972). They are "instruments of faculty fantasy" (Ikenberry & Friedman, 1972, p. 37)

because they are seemingly unrecognizable as centers because other faculty and administrators

are often unaware of their existence (Ikenberry & Friedman, 1972). This is most likely due to, in

part, a lack of a physical location (Ikenberry & Friedman, 1972). Shadow centers have no

"central location" and are often housed entirely in a faculty member's filing cabinet drawer

(Ikenberry & Friedman, 1972, pp. 37-38). As such, they are also referred to as "paper centers"

(Hall, 2011, p. 30). Furthermore, these centers typically have limited or no professional staff

beyond the director (Ikenberry & Friedman, 1972). Both directors and any existing staff carry

out center related work as a part-time status (Ikenberry & Friedman, 1972). These directors

frequently contribute rarely any of their work time to the center (Ikenberry & Friedman, 1972).

Therefore, Hall (2011) suggested that the primary purpose of these centers is simply that they

serve as a means for providing an avenue for interdisciplinary faculty collaboration. Beyond this,

shadow centers also fulfill roles such as,

> The provisions of comfortable sinecures for faculty members and administrators
>
> the institution wishes to move out of the mainstream; the satisfaction of private
>
> and solely personal faculty ambitions; the luxury of faculty fantasy; and a means
>
> for institutional and self-deception. (Ikenberry & Friedman, 1972, p. 39)

Though Ikenberry and Friedman (1972) offered a strong perspective on the roles of

shadow centers, there continues to be some debate over whether they should be terminated once

their primary task has been completed. Even after completion of tasks, Ikenberry and Friedman

(1972) suggested these centers hold value specifically within the networks that were established.

Inactive shadow centers, with the proper funding and attention, can evolve into a more stable center such as an adaptive or standard center (Ikenberry & Friedman, 1972).

Impact of research center type. Evident in the descriptions provided above, the type of center impacts stability and survival (McCarthy & Hall, 1989). While standard centers operate with the highest level of stability and funding resources, adaptive centers and shadow centers face continual challenges of discovering financial resources (Ikenberry & Friedman, 1972; Sá, 2008). Adaptive and shadow centers are dependent upon external financial resources, such as federal grants (Hall, 2011; Ikenberry & Friedman, 1972). Time-bound funding sources, such as grants, create a state of financial instability, which impacts their ability to survive. The reliance of these types of research centers on temporary grants is concerning considering inadequate funding or loss of funding is the primary reason for the closure of centers (Hall, 2011). Also, adaptive and shadow centers must handle other challenges, which are sometimes an outcome or result of the loss of funding and instability. These include changing projects, modifications of goals, and a revolving door of staff (Ikenberry & Friedman, 1972). These all represent challenges for leadership teams (Ikenberry & Friedman, 1972) in addition to the issue of a lack of funding (McCarthy & Hall, 1989).

In conclusion, Hall (2011) suggested that each type of center, whether standard, adaptive, or shadow, comes with advantages and disadvantages, both functionally and structurally. For example, standard centers are institutionally recognized organizations with constant and devoted professional staff; however, they lack flexibility (Hall, 2011). While adaptive centers have the advantage of flexibility, they do not have consistency with resources and personnel. They are also dependent upon the retrieval of continual funding, which requires the center to adapt to industrial needs (Hall, 2011). Shadow centers have the advantage of being better equipped to

gather resources for specific projects but are disadvantaged by a lack of connected resources and permanent professional staff (Hall, 2011).

Because the current study examines leadership, boards, and loss or lack of funding, it is vital to select an adaptive or shadow center to study. These types of centers will provide the best venue to understand funding within research centers fully. However, due to the lack of structure and the size of shadow centers, an adaptive center would be ideal for the current study.

Significance of Research Centers

Despite their position in contrast to academic departments, research centers have maintained their value within higher education (Boardman & Corley, 2008; Geiger, 1990; Sá, 2008; Stahler & Tash, 1994). According to Stahler and Tash (1994), they are a "necessary organizational structure for bolstering a university's sponsored research program and for encouraging interdisciplinary collaboration" (p. 552). Due to the ease of creating and reorganizing research centers in comparison to academic departments, it is no surprise that these centers have continued to increase in number (Hays, 1991). In 1991, Hays via the Research Centers Directory listed approximately 10,300 centers; however, Hall in 2011 references some 17,000 centers both within Canada and the United States. The vast majority of these reside at higher education institutions where large universities could average anywhere from 60 to over 200 research centers on the campus (Bozeman & Boardman, 2003; Hays, 1991).

Literature (Boardman & Corley, 2008; Botha, 2016; Bozeman & Boardman, 2003; Clark, 1998; Geiger, 1990; Sá, 2008; Stahler & Tash, 1994; Veres, 1988) suggests that research centers bring added benefits to the university system. According to existing studies, centers bring benefits such as: revenue generation (Brint, 2005; Clark, 1998; Feller, 2002; Hall, 2011; Stahler & Tash, 1994; Veres, 1988), interdisciplinary collaboration (Aboelela et al., 2007; Boardman &

Corley, 2008; Hays, 1991; Kumar, 2017; Mallon, 2006; Ponomariov & Boardman, 2010; Stahler & Tash, 1994), faculty benefits (Ponomariov & Boardman, 2010; Sabharwal & Hu, 2013), and prestige (Brint, 2005; Feller, 2002; Geiger, 1990; Hall, 2011; Matkin, 1997; Stahler & Tash, 1994; Veres, 1988). Such benefits strengthen an argument toward the creation, support, and maintenance of these centers on university campuses.

Revenue Generation

As the age of federal funding for higher education diminishes, universities are forced to seek resources from other avenues for financial security (Sá, 2008). Because research centers generate revenue (Brint, 2005; Clark, 1998; Feller, 2002; Hall, 2011; Stahler & Tash, 1994; Veres, 1988), they are valuable to universities during a state of "privatizing" of higher education, as some researchers refer to it (Breneman & Finney, 2001). Not only do centers generate additional funding, but they can also be some of the most significant financial contributors on the university campus (Stahler & Tash, 1994). For example, Stahler and Tash's (1994) study on the fastest-growing research universities found that three of the observed research centers accounted for more money than any of the academic departments at the university, and one research center had funding that was equivalent to the rest of the university.

Interdisciplinary Collaboration

Research is an essential component of the mission of universities, and because of that, research centers play a pivotal role in fulfilling that mission (Geiger, 2004). Stahler and Tash (1994) found that universities with a successful expansion of research funding relied on research centers "as a major vehicle for enhancing their research productivity" (p. 550). Furthermore, Geiger (2004) stated, "adding largely self-contained and often self-financed units has allowed universities to perform a host of different tasks related to academic knowledge" (p. 9). Furthering

academic knowledge is often done within the center through the avenue of interdisciplinary research and faculty involvement (Aboelela et al., 2007; Boardman & Corley, 2008; Hays, 1991; Kumar, 2017; Mallon, 2006; Ponomariov & Boardman, 2010; Stahler & Tash, 1994).

The purpose of interdisciplinary research is "to develop new knowledge or solve a relevant human problem by combining the skills and perspectives of multiple disciplines" (Aboelela et al., 2007, p. 63). It is perhaps one of the most recognized benefits of research centers cited within literature because of the value it brings to the university. Because interdisciplinary research is such a wide occurrence among research centers, Boardman and Corley (2008) heralded this collaboration as potentially the "singular feature" that unifies all centers (p. 900) as well as the sole reason for which some research centers were established (Sabharwal & Hu, 2013). Because of interdisciplinary collaboration among faculty from across the university, centers can accomplish research projects that require expertise in several areas (Aboelela et al., 2007; Boardman & Corley, 2008; Hays, 1991; Kumar, 2017; Mallon, 2006; Stahler & Tash, 1994).

However, there has been criticism of the ability of research centers to truly engage in interdisciplinary collaboration as well as the ability to utilize faculty to the fullness of their intellectual potential (Friedman & Friedman, 1984; Hay, 1991; Orlans, 1972). Critics suggested this type of collaboration may not occur at all types of centers, and when it does occur, there have been questions about the authenticity of the interdisciplinary collaboration (Friedman & Friedman, 1984; Hay, 1991; Orlans, 1972). More specifically, it would be difficult for adaptive and shadow centers to truly engage faculty in this type of research due to a lack of stable infrastructures (Hays, 1991). However, the literature also indicates that a lack of collaboration could be the result of a faculty member's willingness to engage and not necessarily a reflection

of the research center (Glied et al., 2007).

Faculty Benefits

While interdisciplinary collaboration can be valuable for research centers, there are conflicting findings within the literature regarding the benefits faculty actually receive from engaging with research centers. Findings on faculty benefits have shown mixed results within the literature. Some literature (Boardman & Corley, 2008; Bunton & Mallon, 2006; Corley & Gaughn, 2005; Gaughan & Ponomariov, 2008; Mallon, 2006; Sabharwal & Hu, 2013; Ponomariov & Boardman, 2010) shows that faculty experience positive benefits such as resources, additional funding, extra space, interdisciplinary collaboration, and increased publications. However, scholars (Gaughn & Ponomariov, 2008) also found that these benefits are not always consistent, and the impact of a faculty's engagement could be negative. Faculty benefits do not always coincide with one another. For example, Gaughn and Ponomariov (2008) found that faculty affiliated with centers saw increased collaboration, and yet, their productivity in publications did not increase. However, in a different study, Ponomariov and Boardman (2010) found that faculty were able to produce more publications when associated with a research center. Access to center resources and opportunities was a key factor in publications, but the strongest impact was that of collaboration (Ponomariov & Boardman, 2010). Similarly, Sabharwal and Hu (2013) studied 402 faculty members finding that faculty connected with a research center were more likely than those who were not to compose more books and chapters, articles, and grants. However, this finding changes when controlling for a variety of factors (Sabharwal & Hu, 2013). Aside from this, faculty engagement with research centers levels the playing field for female and male researchers (Corley & Gaughn, 2005).

Prestige

The success of the research, revenue streams, and centers makes universities more prestigious (Brint, 2005; Feller, 2002; Geiger, 1990; Hall, 2011; Stahler & Tash, 1994), which ultimately impacts university recruitment and rankings. Centers first widened research and the reputations of the institutions following the postwar era (Geiger, 1990; Stahler & Tash, 1994). They continue to play a critical role in building an institution's prestige. They do so in several ways. The creation of research centers allows universities to be competitive with other universities and continually drives institutional improvement (Geiger, 1990). Additionally, larger research centers host workshops, seminars, and conferences, which not only promote scholarly activities but also increases prestige (Matkin, 1997; Veres, 1988). The larger the footprint of the research center, the more prestige it brings to a university.

Leadership for Research Centers

Leadership is vital to the success of a research center. Centers are reflections of the director and the director's interests and goals (Hays, 1991; Stahler & Tash, 1994). As a result, research centers typically thrive or fail based upon the leadership of the director (Stahler & Tash, 1994). Glied et al. (2007) wrote, "In the case of a center, leadership and existence are intertwined" (p. 35); therefore, "centers need an entrepreneurial champion with vision and passion for their purpose" (Hall, 2011, p. 33). Literature offers a portrait of leadership.

Often referred to as center directors, these individuals are typically faculty members or non-faculty professionals (Hall, 2005). In comparison to a department chair, the center director is "more limited in terms of internal management," such as tenure and promotions (Bozeman & Boardman, 2003, p. 19). Bozeman and Boardman (2003) described a center director as the individual to which the researchers or principal investigators report; however, principal

investigators can also serve as center directors, which is more common in smaller centers with fewer staff members (Boardman & Ponomariov, 2014). The management of a center director who is also a principal investigator is different from the management of directors who are non-principal investigators. Center directors who are also principal investigators lead their centers with a structured and authoritative approach when the director has more management knowledge, including previous center experience or administrative personnel (Boardman & Ponomariov, 2014).

In addition to the center director, a more massive center could have a leadership team, for which leaders are responsible for specific center services or areas. Principal investigators, if they are not center directors, might still retain leadership responsibilities as part of the leadership team. Leadership teams are more likely to be found at standard and adaptive centers, due to size. All adaptive centers may not have this team, which could be dependent again on their size, structure, and level of stability. The benefits of a leadership team are that it is a unit that can be consulted in the decision-making process and may even make decisions over their original areas. The leadership team is a mediating factor, removing some of the stress that a center director might experience as he or she encounters a variety of challenges.

Challenges

The demands of directing a center can be time-consuming and challenging (Glied et al., 2007). Unlike academic departments and colleges, research centers are not burdened by the same or as many restraints and are more easily created (Bozeman & Boardman, 2003; Hays, 1991); yet, center directors and leaders continue to face challenges that require careful consideration. Boardman and Ponomariov (2014) claimed that centers are "as known for their management challenges as for their productivity" (p. 76). Challenges that center directors face include issues

such as role strain (Boardman & Bozeman, 2007), center mission and purpose (Mallon, 2006; Stahler & Tash, 1994), the relationship with the academic department and university (Friedman & Friedman, 1982; Geiger, 1990; Sá, 2008), the management of staff (Boardman & Bozeman, 2003; Hays, 1991; Mallon, 2006), and funding (Glied et al., 2007; Hall, 2011; Kumar, 2017; McCarthy & Hall, 1989; Sá, 2008; Stahler & Tash, 1994).

Role strain. Role strain, a daily reminder for center directors, is defined as "the circumstance in which individuals are subject to competing demands in the workplace, in the home, or elsewhere" (Boardman & Bozeman, 2007, p. 440; Hall, 2011). Role strain can be evident within shadow and adaptive centers where the center is dependent upon resources for survival (Boardman & Bozeman, 2007; Hall, 2011), and center directors must fulfill many different roles.

Mission and purpose. Centers need to solidify their mission and purpose if the center is to be sustained for any length of time (Hall, 2011). When directors understand the center's mission, they are better able to focus their attention toward appropriate stakeholders or organize projects such as workshops and conferences that help promote the center and bring visibility (Matkin, 1997; Veres, 1988). A director that is misinformed about this information and the center's mission could prove "detrimental" to the success of the center (Hall, 2011, p. 34). Furthermore, because a center director is the "key point person," it is important for the director to understand the institution, its guidelines, and how the center fits in with these (Hall, 2011, p. 34). Research shows that it is more advantageous for directors to operate within the university's guidelines (Friedman & Friedman, 1984; McCarthy, 1990; Veres, 1988).

Academic department. There is much literature that compares research centers with academic departments (Boardman & Corley, 2008; Friedman & Friedman, 1982; Geiger, 1990;

Hays, 1991; Ikenberry & Friedman, 1972; Mallon, 2006; Sá, 2008; Stahler & Tash, 1994). While there are differences and similarities between the two, academic departments continue to exist as the primary hub through which faculty is employed, and the university mission realized. Due to some of these similarities, research centers can compete with academic departments (Mallon, 2006). This presents a challenge for directors to navigate the relationship between the center and the academic department. Literature suggests that any conflict that may exist is typically centered on space allocation, funding, prestige, faculty recruitment, hiring, and faculty time (Mallon, 2006; Sá, 2008; Stahler & Tash, 1994). For instance, in one study, participants expressed concern over centers recruiting faculty who might not be a good fit for the academic department and would have a negative result in tenure and promotion decisions (Mallon, 2006). Additionally, the reliance of some centers upon funding from their academic department or college could generate an unhealthy relationship or added strain that directors must overcome (Sá, 2008). It is important that directors successfully navigate these relationships and, when necessary, utilize their resources off-campus as well (Hall, 2011).

Management of staff. Hiring and managing staff can present a challenge for center directors (Hall, 2011; Hays, 1991). These are dependent, in part, on the type of center as well as the center's resources to hire staff (Hall, 2011). Some centers may have several staff members, and others have very few if any. One of the challenges associated with managing staff is in the ability to hire quality individuals who are capable of self-management (Friedman & Friedman, 1986; Friedman et al., 1982; Hall, 2011). In addition to professional staff, Bozeman and Boardman (2003) suggested that one of the most challenging tasks for directors, if not the most challenging, is supervising individual researchers, who they say have different concerns than center leaders and desire independence. In some cases, this challenge is reliant on the diversity

and the ease with which they work together (Bozeman & Boardman, 2003). Generally, it is more advantageous for directors to promote and value teamwork, which is one reason centers may be successful when academic departments are not (Hall, 2011).

Funding. The previous issues are challenging for directors; however, none of those challenges are as grave to the sustainability of a research center as the impact of the loss of funds or insufficient funding sources (Friedman et al., 1982; Glied et al., 2007; Hall, 2011; Hays, 1991; McCarthy, 1990; Sá, 2008; Stahler & Tash, 1994; Veres, 1988). Even though centers are valuable for universities (Sá, 2008), the potential for failure is present when funding and leadership are lacking (Hall, 2011; McCarthy & Hall, 1989). Hall's (2011) study with center directors found that issues with funding were rated the number one cause for closures of centers, even stating "it can make or break a center" (p. 35). Though there are multiple sources through which revenue can be generated, the inability to rely upon one of the revenue sources for an extended period creates uncertainty and instability within a center.

In recent years, this has become a more pronounced issue as the funding for higher education has diminished, and the competition for grants increased (Sá, 2008). Kumar (2017) noted that, generally, centers receive funding from three primary sources: universities, endowments, and self-funding such as consulting projects; however, grant funding is also an abundant source of monetary funds. Typically, the most established centers, standard centers, receive more university funding than adaptive or shadow centers (Ikenberry & Friedman, 1972). Endowment funding is usually given at the founding of the center and is not a source upon which leaders can rely. Self-funding sources are the least desirable alternative because it is the most demanding (Kumar, 2017). Therefore, it is expected that larger centers are supported through research grant funding in order to survive (Sá, 2008).

Ordinarily, adaptive and shadow centers are primarily funded through cyclical or temporary methods such as grants. Because many of the funding sources available are short-term, adaptive and shadow research centers live in a state of instability, which leads to a difficulty in planning for the center and maintaining the staff commitment to the center (Hall, 2011; Friedman et al., 1982). Even more so, Glied et al. (2007) also noted that some centers that rely on grant funding have difficulty acquiring "bridge funds" when the center is in between grants (p. 32). Thus, it is best for a center to be funded through a variety of sources because directors are better able to navigate the periods of transition (Glied et al., 2007; Hall, 2011; Sá, 2008).

Leadership and Financial Performance

While much of the existing literature has focused on exploring the impact of specific leadership styles, studies have shown that leadership has a significant, direct impact on an organization's performance (Aldrich, 2009; Bradshaw & Fredette, 2009; Carson et al., 2007; Cherian & Farouq, 2013; Green et al., 2001; Hendricks et al., 2008; Judge & Piccolo, 2004; Krishnan, 2004; Pawar, 2003; Pearce & Conger, 2003; Wang et al., 2014; Wells et al., 2009; Zaccaro et al., 2001). Organizational performance has been linked to financial performance, and thus, leaders have a direct impact on an organization's financial performance (Bass, 1985; Avolio et al., 1999; Green et al., 2001; Ocak & Ozturk, 2018). Because leadership is essential to develop research centers (Hall, 2011; Stahler & Tash, 1994) and funding is a significant challenge (Glied et al., 2007; Hall, 2011; McCarthy, 1990; Sá, 2008;), it is not hard to recognize leadership's impact on the financial performance of a research center.

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Boards

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Boards can serve an essential role in the success of an organization, specifically with the

securing of financial resources (Dyer & Williams, 1991; Saidel, 1998). Scholars state that the organization could suffer if leaders fail to listen or heed the advice of the board (Dyer & Williams, 1991). Within research center literature, boards are discussed very briefly and mainly from the perspective of grant mandated boards, not boards of research centers (Bozeman & Boardman, 2003; Ikenberry & Friedman, 1972; McCarthy & Hall, 1989). Because of a lack of research in this area, it is necessary to review literature about boards in higher education and nonprofit organizations. There are also many types of boards or board responsibilities both within higher education and nonprofit organizations that can be examined for a better understanding of boards of research centers. It is crucial, then, to first examine the differences between governing boards and advisory boards, followed by a look at these types of boards within higher education and nonprofit organizations. Following a description of boards, a review of the brief literature on boards of research centers is provided.

Governing and Advisory Boards

There are two main types of boards, governing and advisory boards, and while they can fulfill some of the same primary functions, they are also very different (Dyer & Williams, 1991). Other terms, such as committee, council, or commission, have been used within the literature in place of the term board (Dyer & Williams, 1991). A governing board "governs the programs or management of an organization" and has the legal authority for operation and management of the organization (Dyer & Williams, 1991, p. 2). Thus, they are occasionally referred to as policymaking or administrative boards. In addition to these responsibilities, governing boards monitor mission statements, activity planning, make strategic plans and monitor progress, set goals, develop resources like fundraising, exercise fiduciary care, advocate, develop community links, and assess the performance of executive leader (Dyer & Williams, 1991).

An advisory board, on the other hand, "offers advice to an individual, group, or body responsible for programs or management of an organization" (Dyer & Williams, 1991, p. 1) and "bring a higher level of visibility and credibility" to organizations (Saidel, 1998). These boards perform many of the same functions as governing boards but do not have the final or legal authority over the organization. Advisory board roles might include assisting with policymaking, organizing the community around the organization activities, improving public relations, assisting in evaluating programs, fundraising, and advocating on behalf of the organization (Dyer & Williams, 1991; Saidel, 1998). Advisory boards consist of volunteering, non-organizational members appointed by an organization's leadership to represent the community or related industries (Pearce & Rosener, 1985; Saidel, 1998). Saidel (1998) described this appointment to the board as "a means by which organizations co-opt important actors in their environments and build strategic support among key stakeholder groups" (p. 428). Unlike the governing board, advisory board members are asked to meet fewer times throughout the year (Saidel, 1998).

Boards within Higher Education

Boards are not an uncommon concept within higher education. They can be seen everywhere from the highest level to the lowest level. The most recognizable boards within higher education, of course, are those of governing boards, often referred to as the board of regents or trustees, over whole universities (American Association of University Professors (AAUP), 1966). There is a significant amount of research about boards of regents. This board serves as the ultimate authority over the university (AAUP, 1966). The Association of Governing Boards of Universities and Colleges, AGB (2013), referred to this governing board as the "guardians" of higher education (p. 1). The board of regents is tasked not only with the hiring and firing of university presidents but also oversees the direction of the university and upholds

academic standards (AAUP 1966). Furthermore, these boards are responsible for, among others, ensuring the university's fiscal integrity, fundraising, philanthropy, regularly interacting with university administrators, being informed about the university, understanding the role of the university in the public interest, maintaining the mission of the university, assisting in enhancing the image of the university, and encouraging trust and transparency with board and leadership (AGB, 2013). In addition to these officially recognized responsibilities, a study (Hung, 1998) over what academia identifies as board roles revealed six categories of board responsibilities: coordinating, strategic, control, maintenance, linking, and support.

The selection of board members and the composition of the whole board is critical to board effectiveness. Regarding governing boards of institutions, the AGB (2013) stated, "Boards can be no more effective than the character, competence, commitment, and dedication of their individual members" (p. 1). Members of boards of regents, specifically those of public universities, are determined based upon the discretion of the presiding governor. However, AGB has published information regarding the general statistics of governing boards. Based on their research, most institution boards comprise 12 members with a range of 12% to 32% women members and around 23.9% ethnic minorities (Association of Governing Boards of Universities and Colleges [AGB], 2016). Additionally, board members that range between the ages of 50 and 69 account for 66.2% of public institution boards, with board members serving for approximately six years (AGB, 2016).

While there is one board of regents for each university, individual colleges within the university may also have a board (Coe, 2008; Kilcrease, 2011). These types of boards constitute more of an advisory board and can take many forms like an alumni board, professional board, community board, development board, or emeritus faculty board (Olson, 2008). College advisory

boards are made up of individuals from for-profit and nonprofit environments that should, through their collective experiences, engage in planning and strategy for a specific area within a university (Andrus & Martin, 2001; Kilcrease, 2011). According to Coe (2008), the engaged advisory board should make an impact on curriculum, faculty, community, accreditation, and students. According to Boorom et al. (2003, as cited in Kilcrease, 2011), this includes a focus on ensuring students are attaining the required skills needed to be competitive.

Further research identifies the most critical functions of these boards as fundraising, public relations, alumni relations, curriculum issues, mission development, strategic planning, suggesting new programs, and securing internship opportunities (Baker et al., 2007; Coco & Kaupins, 2002; Fogg & Schwartz, 1985). The effectiveness of these boards is dependent upon a number of factors, such as the support of and communication between board members, faculty (Andrus & Martin, 2001; Dorazio, 1996), and other college personnel (Parvatiyar & Sheth, 2000). Other research found that valuable boards are formally structured ones (Flynn, 2002). Research shows these boards can be useful to university colleges.

Boards of Nonprofit Organizations

Research centers operate and function very similarly to nonprofit organizations. Thus, an analysis of nonprofit boards can be useful in understanding boards of research centers, even though centers are not classified as nonprofits. Additionally, the literature base for nonprofit boards is significantly larger than that of boards of research centers, which is almost non-existent.

Nonprofit organizations are required to have a voluntary governing board (Pearce & Rosener, 1985). Nonprofit literature shows the existence of both governing boards (Iecovich, 2004; Lakey, 1995) and advisory boards (Dyer & Williams, 1991; Pearce & Rosener, 1985;

Saidel, 1998). Occasionally these boards are constructed based on funding agencies. A vast

amount of governing board literature has either produced a list of board responsibilities

(Iecovich, 2004; Lakey, 1995) or analyzed these responsibilities within a theoretical framework

(Brown, 2005; Miller-Millesen, 2003; Pfeffer & Salancki, 1978). For example, researchers such

as Iecovich (2004) and Lakey (1995) published their categories explaining responsibilities, and

though phrased differently, many of the activities are fundamentally the same. Generally, these

responsibilities include strategic planning, conceptualizing or visualizing the mission, finance

and fundraising, building and maintaining relationships with industry, and creating policy (Guan,

2003; Iecovich, 2004; Lakey, 1995). Price (1963) found that instead of monitoring organizational

management, the board members more often acted as a barrier between staff and industry when

the organization's legitimacy is questioned. Additionally, governing boards are created to control

or govern the organization, but scholars have found that this is not always true. Mace (1948)

found that these boards only controlled organizations in times of dependence in areas like

fundraising. Further research shows that the board members, because they were part-time, were

turning to leaders for guidance (Pearce & Rosener, 1985), and these leaders, in turn, evaluated

the board members instead of vice versa (Mace, 1948).

It is valuable to note that there are often differing points of view as to the level of board

involvement or which responsibilities are deemed most beneficial for the board to fulfill

(Iecovich, 2004). Literature suggests that this difference occurs between directors and board

chairs (Iecovich, 2004). A study done by Iecovich (2004, p. 6) revealed differences specifically

within the areas of "relationships with the task environment" and financial issues (Liu, 2010).

The difference in views can be challenging to analyze, considering there is a lack of studies that

approach board responsibilities from the perspective of directors (Brown & Guo, 2010)

thoroughly. However, Brown and Guo's (2010) study on executive's opinions of boards

addressed this gap and found 13 specific roles that boards fulfill. The most important of these,

which relate directly to this study, include fund development, public relations, providing

guidance and expertise, facilitating respect, and strategic planning (Brown & Guo, 2010). It is

also important to note that although these are recognized roles, both from the perspective of

board members and directors, board members do not always fulfill these roles and occasionally

take on roles that "did not belong to them" (Liu, 2010, p. 104).

Like any actual working organization, roles and responsibilities can, at times, be changed

or altered to ensure the success of the organization. Likewise, the literature indicates that board

roles are influenced by extenuating factors (Brown & Guo, 2010; Hendry & Kiel, 2004; Miller-

Millesen, 2003). Examples of outside mediating factors include uncertainty of different actions, a

lack of information equity, and the power a board has over the director (Henry & Kiel, 2004).

However, there are only two influencing factors that are relevant to the current study, resource

issues and organizational life cycle. Miller-Millesen (2003) proposed that within settings in

which organizations have insufficient resources, boards are proactive in taking on a role in

assisting with accessing necessary resources even though members may not have been actively

engaged in this area previously.

Similarly, the life stage at which an organization is operating can have a substantial

impact on the tasks expected of board members (Liu, 2010). For example, a few studies (Dart et

al. 1996; Withal & Wood, 1992, as cited in Liu, 2010) found that when an organization is "aged"

or in a state of maturity, board members are less likely to be concerned with programs and

mission and more attentive to leadership roles. Furthermore, a board's composition strongly

impacts the effectiveness of a board in its responsibilities.

The composition of a board is critical to the board's effectiveness and ability to monitor and advise organization leadership (Andrés-Alonso et al., 2009; Callen et al., 2003). However, according to research (Robinson, 2001; Stone, 2005), no set composition structure is thriving across all organizations but instead is based upon organizational settings (Cornforth, 2001; Miller-Millesen, 2003). There is a gap of literature addressing the connection between organizational context and board characteristics (Miller-Millesen, 2003). Andrés-Alonso et al. (2009) stated, "the ideal composition and size of any board is the result of a progressive adjustment to the needs of the organization" (p. 788). Consequently, there is also limited literature that speaks specifically to the most effective type of board composition (Andrés-Alonso et al., 2006; Callen et al., 2003).

However, studies (Andrés-Alonso et al., 2009) provide recommendations as to what board characteristics typically resemble. Andrés-Alonso et al. (2009) suggested that the majority of board composition literature is divided into four groups based upon how the board is constructed. According to these scholars, boards are formed as a result of a combination of external and internal organizational circumstances such as one of the following: organizational complexity, the relationship between directors and board members, "specific monitoring conditions of the activity," and ownership structure (Andrés-Alonso et al., 2009, p. 787). The ownership structure speaks explicitly to the board being structured in alignment with donor contributions, similar to a corporate board (Andrés-Alsono et al., 2009). Large donors on nonprofit boards help monitor the organization similar to shareholders found on for-profit boards (Fama & Jensen, 1983).

Many nonprofit organizations also utilize advisory boards. The Economic Opportunity Act of 1964 mandated that nonprofit organizations, which focus on areas like education, social

services, and energy, have an advisory board to ensure citizen's voices. These boards are made up of citizens or local activists appointed by organization leaders (Pearce & Rosener, 1985). This type of board's primary responsibility is that of advising organization leadership (Pearce & Rosener, 1985). Literature shows that these boards fulfill many of the same responsibilities as the governing boards; however, they do not have the legal authority or control over the organization (Dyer & Williams, 1991; Pearce & Rosener, 1985; Saidel, 1998). Despite this, Saidel (1998) argued for expansion in the understanding of the governance construct to include advisory boards because of the critical roles they fulfill. Because advisory boards are formed by leadership and have no legal authority, they are mostly dependent upon leadership for resources and information regarding the organization, even more so than governing boards (Pearce & Rosener, 1985). Therefore, the effectiveness of these boards is significantly dependent upon leadership support (Pearce & Rosener, 1985).

Boards of Research Centers

The literature review of governing and advisory boards within higher education and non-profit organizations is useful in providing an understanding of boards of research centers, especially considering the literature base for boards of research centers is virtually non-existent. Based on the literature that does exist, boards of research centers fulfill a role closer to that of an advisory board. Most of the literature in this area is concerned with explaining boards according to Ikenberry and Friedman's (1972) types of centers or describing agency boards that oversee grant funding (Bozeman & Boardman, 2003; McCarthy & Hall, 1989). Available literature seems to suggest that the existence of a board of a research center is dependent, in part, on the type of research center and the center's mission and area of research (Ikenberry & Friedman, 1972). For example, boards of research centers are primarily found among standard centers as a

formally structured board (Hall, 2011; Ikenberry & Friedman, 1972); however, adaptive centers could also have a board but are more likely to exist in an unstructured format (Ikenberry & Friedman, 1972) or are informally established (Hall, 2011). Shadow centers with no physical office lack the stability, among other things, that necessitate the board.

It is also important to note the difference between the boards of research centers and external boards from funding agencies. Agency boards are associated with the funding organization and are loosely associated with research centers solely as a result of receiving the agency's grant. Boards of research centers, however, are the designated board for the center and remain intact despite changes in funding sources. For example, centers involved in scientific research that have acquired federal grants, such as those from the National Science Foundation, NSF, are often required to report to or adhere to the guidelines and policies of the funding agency board (Bozeman & Boardman, 2003; McCarthy & Hall, 1989). Whereas research centers from the social sciences fields do not generally have these types of boards (Ikenberry & Friedman, 1972).

The lack of literature on this topic has made it difficult to fully understand the roles and responsibilities of boards of research centers. Nevertheless, based upon literature about research centers, university boards, and nonprofits, one can assume that roles and responsibilities are dependent upon the type of board as well as the period in the life of the center. Within the limited literature, there have been suggestions that the boards of research centers are beneficial for evaluating project ideas (Hall, 2011). While the current study addresses this gap in the literature, preliminary ideas are that these boards serve to advise, guide, network, and fundraise, much like advisory boards in both higher education and nonprofit organizations.

It is also important to take into consideration the idea that although a research center may

have a structured board, the board may play no vital or necessary role in assisting and bettering

the center and leadership. In one study on research centers, the authors found that out of the 94

centers with boards, around 25 percent of the directors revealed that their board was

"nonfunctional" (Ikenberry, & Friedman, 1972, p. 92). While the period in the life of the center

could impact the functionality and usefulness of the board, research (Ikenberry, & Friedman,

1972) ultimately shows that boards continued to be influential for the center, which increases

following the creation of the center. This study addresses this issue and helps establish a better

understanding of this debate.

Finally, board composition is fundamental toward overall board effectiveness. It is,

therefore, essential that board members be chosen thoughtfully and with good reason. While

center directors have very little, if any, a voice in selecting board members for boards of funding

agencies, leaders do have the responsibility of determining board members that would produce

the most advantageous board for the center. Ikenberry and Friedman (1972) found that the most

frequent board composition consisted entirely of individuals from the university campus.

Influential campus administrators can be valuable assets in promoting the center within the

university. However, centers focused on reaching their industry affiliates should ensure adequate

representation of industry experts serving on the board (Ikenberry & Friedman, 1972). In some

instances, these industry experts can be found on the local university campus. Regardless, center

leadership should be mindful of selecting influential individuals that could help the center grow

and expand.

Boards and Financial Performance

Literature (Brown, 2005; Olson, 2000; Verschuere & De Corte, 2014) indicates that a

board can impact an organization's financial performance, which is sometimes done through

reducing an organization's dependence on resources (Crittenden, 2000; Hillman et al., 2009; Hodge & Piccolo, 2005; Johnson et al., 1996). Within resource dependency, boards help mitigate an organization's dependence on resources but also help in acquiring resources such as funding (Johnson et al., 1996). The board impacts financial performance through its various roles and responsibilities, such as personal financial contributions, fundraising, and its connections (Brown, 2005; Miller-Millesen, 2003). Several board characteristics such as board size and gender diversity, as well as the number of board meetings, can influence the board's impact on financial performance (Dalton et al., 1999; Hillman et al., 2009; Ikenberry & Friedman, 1972; Naseem et al., 2017; Provan, 1980; Sanders & Carpenter, 1998).

Leadership and Boards

There is no denying that leaders are instrumental in the success of research centers (Hays, 1991; Stahler & Tash, 1994). However, similar to higher education and nonprofit literature (Kilcrease, 2011; Pearce & Rosener, 1985; Saidel, 1998), advisory boards also fulfill an essential role within the research center setting. For example, Hall (2005) suggested that center leadership consult advisory boards in order to understand the industry better. Unfortunately, leaders, in their training, have little experience in working with boards or in understanding them (Fletcher, 1992). Nevertheless, it is advantageous for leaders to utilize such boards for the betterment of their organization. Saidel (1998) found that the absence of an advisory board would cost the organization in ways such as visibility, expertise, information, volunteer talent, legitimacy, and loss of revenue.

Furthermore, a lack of a board with new and former members would cause the organization to "lose connection to the past and to the future" (Saidel, 1998, p. 432). The critical roles advisory boards perform for the organization and leaders are that of advising, fundraising,

and serving as a link between organization and industry, among others (Dyer & Williams, 1991; Pearce & Rosener, 1985; Saidel, 1998). All of these can be significant in times of financial crisis, but leaders must make a conscious decision to utilize the board. The impact the board makes on the organization is dependent upon leadership because leaders establish the board, serve as the mediator between the board and organization, and provide the necessary resources and information for the board in their work (Pearce & Rosener, 1985; Saidel, 1998).

Conclusion of Chapter

This chapter reviews the current and relevant literature across several critical components of this study. A brief historical portrait of the American research university is provided along with an explanation of research centers within higher education. While there is literature on research centers, there is a lack of research on the leadership of research centers, specifically when examining financial uncertainty despite the significance of leadership to the development of research centers. The same can be said for the role that boards have in the success of research centers. Because of similarities in the two organization types, this study draws from nonprofit literature to strengthen the recognition of leadership and boards within the research center environment. The next chapter examines theories that provide a framework for the analysis of leadership and boards.

CHAPTER III. THEORETICAL FRAMEWORK

Because this study examines the issue at hand through two separate groups of individuals, the use of one theory would not readily or holistically provide a lens in our understanding of the loss of research center funding. While theories on leadership do not typically involve the component of board members, the theories on boards do not fully account for leadership to the level necessary for this study. Thus, a conceptual framework of shared transformational leadership and resource dependency theory is discussed as a framework to better understand how the two groups join to better the center. Shared transformational leadership is used in this study due to its combination of shared leadership and transformational leadership theories and their utilization within nonprofit literature. As such, both transformational leadership and shared leadership are described in detail as a means of providing a more in-depth understanding of those theories as well as shared transformational leadership. This section begins with an explanation of the transformational leadership, followed by a description of shared leadership and shared transformational leadership and resource dependency theory. Finally, the conceptual framework of shared transformational leadership and resource dependency theory is described.

Transformational Leadership

Transformational leadership as a theory has been widely researched and used for several decades (Bass, 1999). Burns' (1978) work, which compared transactional leadership and transformational leadership, provided a foundation for this research. The theory was further expanded and revised in 1985 when Bass published his theory, which drew from Burns' earlier work and House's (1976) research on the charismatic leader. While Burns (1978) viewed transactional and transformational leadership as two opposite ends of a continuum, Bass (1985) differed, in part, by suggesting that a leader could possess both transactional and

transformational leadership aspects simultaneously but at varying levels. Thus, it is important to understand transactional leadership and charisma if one is to understand Bass' (1985) transformational leadership theory.

Transactional Leadership

Transactional leadership concentrates on the exchange between leaders and followers (Northouse, 2013), which is meant to meet each one's self-interest (Avolio, 2011; Bass, 1999). It is an interchange of valued outcomes in which both the leader and follower receive something of value (Kuhnert & Lewis, 1987). The leader explains to the follower the goal that needs to be achieved and what the reward will be when the goal is achieved, and the follower is rewarded when he or she achieves the specific goal (Bass, 1985; 1999). Thus, transactional leadership operates within a reward system (Northouse, 2013). Burns (1978, as cited by Bass, 1985) suggested this type of exchange accounts for many leader-follower relationships. However, research shows that more successful leaders, while possessing aspects of both leadership styles, are more transformational than transactional in their leadership approach (Bass, 1985; 1999).

Although transformational leadership has been proven as the more effective leadership style (Avolio, 2011), it would be unwise to discard transactional leadership altogether. In fact, the dynamics between transactional and transformational leadership is one of interest. Avolio (2011) wrote, "without the more positive forms of transactional leadership such as setting expectations and goals, as well as monitoring performance, leaders and those led would be limited in their ability to succeed" (p. 49). Whereas outcomes produced without the impact of transactional leadership would be limited, outcomes produced without the impact of transformational leadership would not reach the highest level possible (Avolio, 2011). Simply stated, transactional leaders can help yield positive performance, but this is only enhanced when

leaders are also transformational (Avolio, 2011). As a result, both leadership styles are needed.

Charismatic Leadership

Charisma is a vital aspect of a transformational leader (Bass, 1985). These types of leaders have an incredible effect on their followers or employees. Such that Bass (1985) stated, "Charismatic leaders inspire in their followers unquestioning loyalty and devotion without regard to the followers' own self-interest. Such leaders can transform the established order" (p. 35). House (1976), who developed the charismatic leadership theory, posited that personality characteristics included "being dominant, having a strong desire to influence others, being self-confident, and having a strong sense of one's own moral values" (Northouse, 2013, p. 188). Charismatic leaders serve as role models for their morals and values and can communicate their goals, which are based upon their morals, clearly to followers (Northouse, 2013). While they have high expectations of their followers and belief in the followers' abilities to succeed, charismatic leaders build a relationship of trust (Northouse, 2013). Finally, these leaders make a connection between the follower's identity and that of the identity of the organization (Northouse, 2013).

Though there are many similarities between charismatic leadership and transformational leadership, to the point of the terms being used interchangeably (Northouse, 2013; White-Alsup, 2016), there exists one point of difference between the two (White-Alsup, 2016; Yukl, 1999). Transformational leadership leads to organizational change, including its members, while charismatic leadership does not (White-Alsup, 2016). Thus, charisma is necessary for transformational leadership (Yammarino, 1993).

Transformational Leadership

In considering both transactional leadership and charisma, one can arrive at a fuller

understanding of transformational leadership. There is much that can be synthesized across the literature (Northouse, 2013) and used to define transformational leaders. Transformational leaders motivate followers toward achieving one's goals and a higher level of performance (Bass & Avolio, 1990) and inspire them to undertake more than what is required (Bass, 1985). Transactional leadership is achieved by increasing the followers' awareness of the importance of goals, convincing followers to place the interests of the organization above their own, and pushing toward achieving a higher level of needs and wants (Bass, 1985). Both Burns (1978) and Bass (1985) mostly agreed on these; however, Bass (1985) provided three specific areas of difference, which are essential toward understanding Bass's model. Bass (1985) not only expanded what he considered needs and wants, but he also stated that transformation was not necessarily in an uplifting direction (Bass, 1985). Lastly, leaders can possess attributes of both transactional and transformational leadership (Bass, 1985).

Therefore, Bass (1985; 1999) combined both transactional and transformational leadership in the same model. According to his model, which is often referred to as the Full Range of Leadership model, there are seven factors, which include four transformational, two transactional, and one nonleadership known as laissez-faire (Avolio, 2011; Bass & Avolio, 1994; Northouse, 2013). Within the transformational component, leaders utilize one of the following: idealized influence, inspirational motivation, intellectual stimulation, or individualized consideration (Bass & Avolio, 1994; Northouse, 2013).

Idealized influence represents the charismatic element in which the leader serves as a robust role model, morally and ethically, who places the needs of his or her followers above their own (Bass & Avolio, 1994; Northouse, 2013). Within this element, leaders are respected and trusted, and followers want to imitate their leader (Bass & Avolio, 1994; Northouse, 2013).

Idealized influence can be measured by an attributional component or a behavioral component (Northouse, 2013). This component is typically regarded as charisma (Bass, 1999; Northouse, 2013). Meanwhile, inspirational motivation, which is frequently referred to as just inspiration, involves leaders motivating followers to achieve the high expectations leaders have communicated (Bass & Avolio, 1994; Northouse, 2013). Team spirit is a crucial aspect of this component as well as encouraging follower buy-in in the organization's shared vision and goals (Bass & Avolio, 1994; Northouse, 2013). Bass and Avolio (1994) suggested that leaders give the work meaning and challenge while also engaging enthusiastically and optimistically to inspire followers toward achieving the shared vision.

Within the intellectual stimulation component, leaders encourage follower creativity and innovation in their work (Bass & Avolio, 1994; Northouse, 2013). Followers are supported in their effort to problem-solve while identifying various unexplored solutions, even though some efforts may lead to mistakes. Although sometimes contradictory to the leader, their ideas are welcomed, valued, and considered part of the team (Bass & Avolio, 1994; Northouse, 2013). On the other hand, during the individualized consideration component, transformational leaders engage with each follower differently and uniquely. Thus, taking on the title as coach or mentor (Bass & Avolio, 1994; Northouse, 2013). In this role, the leader is responsible for and concerned with ensuring that each follower is advancing to his or her next level of growth and achievement (Bass & Avolio, 1994; Northouse, 2013). In order to do so, the leader must listen attentively to and understand each follower to assign him or her tasks that are appropriately challenging, to grow the follower, while also supporting them through completion of the project (Bass & Avolio, 1994; Northouse, 2013).

The next component of the Full Range of Leadership model focuses on the transactional

components of contingent reward and management by exception (Bass & Avolio, 1994; Northouse, 2013). Within this portion of the model, there is no concern with personal growth and needs are not individualized (Northouse, 2013). With the contingent reward component leaders seek to identify goals to be accomplished and then communicate with followers the rewards he or she will receive for satisfactory completion of the tasks (Bass & Avolio, 1994; Northouse, 2013). Conversely, management-by-exception refers to the negative feedback or criticism given by leaders. During the active form of management-by-exception, leaders observe followers for violations or mistakes and then engage in corrective action. Leaders using the passive form act when a standard is not met or a problem arises (Bass & Avolio, 1994; Northouse, 2013). Finally, Bass's (1985) model includes the nonleadership or laissez-faire factor (Bass & Avolio, 1994; Northouse, 2013). It represents the absence of leadership in which the leader gives up responsibility and puts off decision-making. This leader is not concerned with follower development or fulfillment of their needs and thus rarely provides feedback (Bass & Avolio, 1994; Northouse, 2013).

Transformational leadership and organizational performance. Organizational performance is impacted by leadership style (Green et al., 2001; Pawar, 2003; Judge & Piccolo, 2004; Krishnan, 2004). Over the decades, researchers have begun examining the effectiveness of transformational leaders through the analysis of organizational performance or outcomes (Aldrich, 2009; Bass, 1990; Bradshaw & Fredette, 2009; Collins & Porras, 1996; Goleman, 2000; Hendricks et al., 2008; Wells et al., 2009). Most of them not only found that this leadership style was effective but also that the two were successfully correlated.

Howell and Frost's (1989) study found that those with transformational leaders had a moderately higher performance and task satisfaction than those who did not. Bennis and Nanus'

(1985) research on directors of organizations from various fields found that components of transformational leadership were critical in the success of their organizations, especially when the organization experienced periods of uncertainty and doubt. The study also found that these leaders needed to possess the ability to develop and communicate a vision for which the employees could understand and support (Bennis & Nanus, 1985). Bass (1985) suggests that a transformational leader who operates with an ethical code can successfully create organizational change, which enhances center viability, the satisfaction of workers and other stakeholders, and increases the worth of organization products. In fact, as a means of determining organizational performance, several scholars have researched it through the lens of financial performance (Bass, 1985; Avolio et al., 1999; Green et al., 2001). More specifically, Ritchie and Kolodinsky's (2003) study utilized fiscal performance, the efficiency of fundraising, and public support, including contracts, grants, and gifts, to measure financial performance.

It is necessary to consider the critical differences in for-profit and nonprofit organizations when studying leadership. For-profit leadership is concerned mainly with increasing financial profits, and while this is consistent across settings, nonprofit leaders are additionally concerned with the organizational mission (Yukl, 2012). Transformational leadership, when applied to the nonprofit organizational setting, allows for a consideration of both financial performance and a leader's vision and focus on mission (White-Alsup, 2016).

Transformational leadership in research centers. The lack of leadership theories within research center literature suggests a gap in understanding, which leadership theories could be successfully applied. Research shows that transformational leadership is valid within all organizations and their levels (Avolio, 2011). The success transformational leadership has had within the field of nonprofit organizations in explaining leader effectiveness, specifically during

times of uncertainty, provides a valid argument toward its application within research center studies. The uncertainty and periods of change and adaptation that centers face create an environment in which transformational leadership could be studied. Furthermore, the work of researchers in studying leader effectiveness through the analysis of organizational performance or outcomes, particularly financial performance, establishes a solid basis for the current study. Thus, transformational leadership provides a preliminary framework for the present study.

Shared Leadership

Shared leadership as a theory has been in existence within the research for quite some time. Pearce and Conger (2003), in their seminal work, documented the origins of shared leadership, suggesting the theory has been influenced by work on human relations and social systems, co-leadership, social exchange theory, and emergent leadership theory, among others. Unlike other leadership theories, however, shared leadership focuses on the distribution of leadership among a group of individuals and not only the influence of the top leader to his or her subordinates (Pearce, & Conger, 2003). They explained that the "influence process often involves peer, or lateral, influence and at other times involves upward or downward hierarchical influence" (Pearce & Conger, 2003, p. 1, 286). Instead, it is a "concept of leadership practice as a group-level phenomenon" (Pearce & Conger, 2003, p. 22). Carson, Tesluk, and Marrone (2007) explain that with shared leadership team members both lead and follow during different emerging situations. Because of this, they described the leadership theory as a relational one in which there is a mutual influence between individuals in their work toward organizational productivity (Carson et al., 2007). While there is a collective understanding of shared leadership, the literature demonstrates some differences.

Throughout the years of research, this theory has been closely connected with other

leadership theories, such as distributed leadership, collective leadership, and team leadership (Avolio, Walumbwa, & Weber, 2009; D'Innocenzo et al., 2016; Routhieaux, 2015). While distributed leadership and collective leadership have been used interchangeably with shared leadership, Avolio, Walumbwa, and Weber (2009) noted differences with team leadership. Specifically, they explained that team leadership has commonly been researched concerning the team leader, but shared leadership research is viewed more from the process aspect (Avolio et al., 2009). Routhieaux (2015) observed that the main similarity among existing definitions for these theories is the aspect of shared decision-making.

Similar to the variety of related terms for the theory, literature also reports a lack of a unified definition for shared leadership (Carson et al., 2007; D'Innocenzo et al., 2016). Carson, Tesluk, and Marrone (2007) charted the variety of shared leadership definitions, highlighting seven different ones. The most widely cited definitions, however, are those of Pearce and Conger (2003) and Yukl (2012). Yukl (2012) described shared leadership as "the process of influencing others to understand and agree about what needs to be done and how it can be done effectively, and the process of facilitating individual and collective efforts to accomplish shared objectives" (p. 7). While Pearce and Conger (2003) explained it as "a dynamic, interactive process among individuals in groups for which the objective is to lead one another to the achievement of group or organizational goals or both" (p. 1). These definitions are similar in that they both discuss shared leadership as a process and a team effort to accomplish mutual organizational goals.

In their review of literature, D'Innocenzo, Mathieu, and Kukunberger (2016) found the following five similarities across definitions: "locus of leadership," "formality of leadership," "equal and nonequal distribution," "temporal dynamics," and "the involvement of multiple roles and functions" (p. 1966). Locus of leadership refers to the origination of leadership, either

internally or externally, from the team. Next, the formality of leadership examines whether the organization has formalized leadership or no leader responsibility. There can also be different levels of participation by team members, considered equal and nonequal distributions. Fourth is the understanding that team members can assume leadership roles simultaneously or at different points. Finally, the last aspect recognizes that leaders fulfill different roles and responsibilities, which can be shared across the team (D'Innocenzo et al., 2016). As a result, D'Innocenzo et al. (2016) constructed the following definition: "shared leadership is an emergent and dynamic team phenomenon whereby leadership roles and influence are distributed among team members" (p. 1968). Because of the differences in definitions, D'Innocenzo and colleagues (2016) predicted that existing differences in shared leadership definitions could have an impact on the actual effect of shared leadership on team performance.

Team Effectiveness

Many research studies have found a relationship between shared leadership and team effectiveness (Carson et al. 2007; D'Innocenzo et al., 2016; Pearce & Conger, 2003). O'Connor and Quinn (2004) described effectiveness that results from shared leadership as "more a product of those connections or relationships among the parts than the result of any one part of that system (such as the leader)" (p. 423). Generally, literature has reported a positive impact of shared leadership on team effectiveness; however, D'Innocenzo et al. (2016) argued that there were inconsistencies within the literature. They suggest this could be the result of differences theoretically or conceptually (D'Innocenzo et al., 2016). Wang et al. (2014) also conducted an extensive meta-analysis over 42 studies and found a "moderately strong positive relationship" between the two, while also finding different levels of impact based on effectiveness criteria. For example, shard leadership had a stronger relationship with behavioral or attitudinal outcomes

rather than performance measures, and knowledge-based work produced a stronger relationship with outcomes and shared leadership (Wang et al., 2014). Drescher et al. (2014), in their study of 142 groups across four months, found that a growth of shared leadership leads to the establishment of trust, which then contributed to positive group performance. Carson et al. (2007) also found that shared leadership had a positive impact on team performance, particularly within a network-based method. More importantly, their study suggested that in order to establish shared leadership within an organization, there must be a shared purpose, social support, voice, and external coaching, when the internal team environment is not supportive (Carson et al., 2007). In another study, Cho (2014) suggested that a critical antecedent of shared leadership is actually leadership itself and the leader's ability to create an environment conducive to teams. In contrast, one of the latest studies that did not find a positive impact of shared leadership on team performance was that of Boies et al. (2010). In this study, Boies et al. (2010) explored shared and transformational leadership and found that this type of leadership does not always have a positive impact on team performance.

Shared Leadership in Higher Education

Shared leadership has also been used within higher education literature (Akbari et al., 2016; Bolden et al., 2015; Pearce et al., 2018). Akbari et al. (2016) suggested that shared leadership within higher education contributed to team commitment as well as team productivity. Bolden et al. (2015), studying United Kingdom and Australia higher education, reported that shared leadership can be used to develop and grow higher education leadership, serving as an avenue of inclusivity. Furthermore, Pearce et al. (2018) argued against top-down leadership within higher education in favor of shared leadership, specifically with the incorporation of the faculty's voice in the decision-making process. They suggested that incorporating short-term task

forces that could focus on the mission would lead to shared leadership behaviors of trust, proactive, innovative decision-making, and commitment (Pearce et al., 2018). These scholars believed that utilizing shared leadership in higher education would lead toward a sustainable future for universities, specifically through realizing visions (Pearce et al., 2018). Kezar and Holcombe (2017) also found that shared leadership could be beneficial for higher education. However, they found that in order to create a shared leadership environment there must be supportive culture, clear definition of roles, team empowerment, autonomy, shared purpose, external coaching, internal expertise structures for accountability, interdependence, fairness of rewards, shared cognition, and support from vertical leaders (Kezar & Holcombe, 2017). Still, others have looked at the connection of higher education to closely related leadership theories such as distributed leadership (Bolden & Petrov, 2014). As distributed leadership is similar to shared leadership, Bolden and Petrov's (2014) study provided additional findings through which to understand the potential connection between shared leadership behaviors and research center leadership.

Shared Transformational Leadership

There is much research on transformational leadership (Avolio, 2011; Bass, 1985; 1999; Northouse, 2013) and shared leadership (Avolio et al., 2009; Carson et al., 2007; D'Innocenzo et al., 2016; Pearce & Conger, 2003; Routhieaux, 2015) as separate, stand-alone leadership theories. However, research indicates that several leadership behaviors can be displayed by top leaders or shared across teams (Pearce, 2004). Specifically, empowering, directive, transactional, and transformational leadership behaviors can be shared across team members as well as originate from top leadership (Pearce, 2004; Sivasubramaniam et al., 2002). Thus, shared transformational leadership is the conjunction of leaders engaging in shared leadership such as

shared decision-making and shared purpose while also incorporating the transformational leadership behaviors of idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration. It is a move to a team effort in transforming an organization when scholars (Pearce & Manz, 2005) voiced that one leader would not possess all of the skills or knowledge necessary to produce outcomes. It is the joint use of both leadership theories.

Within the literature, shared transformational leadership has been described in several different ways. Some studies highlight vertical and horizontal leadership, such that transformational leadership aligns more with vertical leadership, and horizontal leadership aligns more with shared leadership. Other studies (Pearce & Sims, 2002) have discussed vertical leadership and shared leadership and found a close relationship between the two. Still, others have simply said shared leadership and transformational leadership. While some studies utilize the term shared transformational leadership (Pearce, 2004), they are few. Thus, there is not a recognized definition for shared transformational leadership. Perhaps one of the most explicit illustrations of what shared transformational leadership looks like comes from Cho (2014).

In a thesis on shared and transformational leadership within 142 teams in South Korean companies, Cho (2014) illustrated the connection between the transformational Four I's and the shared leadership antecedents of shared purpose, social support, and voice, among others. More specifically, shared purpose can be connected with idealized influence, social support with individualized consideration, and voices with transformational leadership as a whole (Cho, 2014). For example, transformational leadership behaviors, specifically idealized influence, promote the internalization of leadership by team members in which members share the purpose and visions of their leaders. Leaders portray social support for team members by individually considering each team member's needs, which in turn inspires team members to commit to the

shared vision and purpose. Finally, the encouraging and valuing of members' voices, along with the recognition of all voices, is demonstrated across transformational leadership and shared leadership, respectively (Cho, 2014).

Other scholars (Mayo et al., 2003) have explained shared transformational leadership. Mayo et al. (2003) reported that transformational leadership within shared leadership occurs when team members identify with team goals and are thus more willing to commit and increase their effort. However, it should be noted that Ishikawa's (2012) study over 119 Japanese R&D research teams reported positive and negative relationships between the two leadership styles, specifically in regard to the organization's norm for ensuring the importance of consensus. For example, transformational leadership increases the norm of consensus, which hurts shared leadership (Ishikawa, 2012).

Although there may be many aspects that impact the development of shared transformational leadership within an organization, such as the maturity of the team (Cho, 2014; Pearce, 2004), vertical leadership has a significant impact (Pearce, 2004; Pearce & Sims, 2002). Studies (Pearce, 2004; Pearce & Sims, 2002) reported that vertical leadership contributes to the establishment of shared leadership within an organization. While decision-making and purpose can be shared, vertical leadership is still important in the establishment of conditions that would encourage shared transformational leadership. Regarding transformational leadership behaviors, vertical leadership behaviors influence the team's behaviors (Cho, 2014). Top leaders must display transformational leadership behaviors in order for the team to display those behaviors (Pearce and Sims, 2002).

Shared Transformational Leadership and Team Performance

Studies report a mix of the effectiveness of shared transformational leadership and team

performance. Because shared transformational leadership literature is minimal, studies from across for-profit and nonprofit were referenced. Although shared leadership and transformational leadership individually have been directly linked with positive team performance (Pearce & Sims, 2002), some studies suggest the same may not be true for shared transformational leadership. Pearce and Sims (2002) reported that shared transformational leadership is positively related to team effectiveness. Sivasubramaniam et al. (2002), in their study over undergraduate working teams, suggested that within the team level, transformational leadership has the potential to increase potency feelings within the team, which is described as an important cognitive component in a team's performance. It is through shared leadership that team performance is bettered. However, some findings suggest that shared transformational leadership may not be the best predictor of team outcomes in comparison with shared leadership and shared responsibility (Cho, 2014).

Regardless of the disagreement within the literature on whether shared transformational leadership positively impacts team performance, research indicates a need for additional studies on this topic. For example, several scholars (Pearce & Conger, 2003; Nicolaides et al., 2014; Pearce & Sims, 2002) called for more studies that could provide an understanding of when vertical and shared leadership are utilized jointly, as well as how vertical leadership impacts shared leadership. Other literature also argues for more research on team level transformational leadership and how the team builds trust, commitment to tasks, and identification (Sivasubramaniam et al., 2002). The current study provides a furthered understanding of shared transformational leadership from the perspective of a leadership team within a research center.

Shared Transformational Leadership and Research Centers

Shared transformational leadership is applicable to research centers because both shared

leadership and transformational leadership have been connected to organizations similar to that of a research center (Akbari et al., 2016; Avolio, 2011; Bolden et al., 2015; Pearce et al., 2018). Shared transformational leadership also has the potential to be applicable based on the organizational structures of research centers. Centers have both vertical leadership but may also have the horizontal leadership that allows for a shared decision-making process. Additionally, there is some literature (Pearce & Sims, 2002) that suggests shared transformational leadership can impact team performance, which influences financial performance. There is the potential for shared leadership to positively influence a research center's funding through leadership's shared decision-making to commit to a shared purpose and mission of the center.

Resource Dependence Theory

Pfeffer and Salancik (1978), through their work, *The External Control of Organizations A Resource Dependence Perspective,* first established resource dependency as a theory. Resource dependency theory (RDT) has received a vast amount of attention and has been used throughout organizational and strategic management literature (Hillman et al., 2009). Pfeffer and Salancik (1978, p. 2) stated that "the key to organizational survival is the ability to acquire and maintain resources;" however, organizations also rely upon contingencies from external contexts (Hillman et al., 2009; Pfeffer & Salancik, 1978). This dependency is extremely important for an organization, such that Hodge and Piccolo (2005) stated that the theory explains, "how an organization's strategy, structure, and survival depend on its resources and dependency relationships with external institutions" (p.172).

Resource dependence is most important for organizations where resources are problematic (Johnson et al., 1996), such as nonprofits like research centers. The depth of an organization's dependency on an external resource is related to the resource of which it is dependent (Hodge &

Piccolo, 2005). More specifically, it is the concentration and importance of the resource that explains the level of dependency (Froelich, 1999). Closely related literature on strategy development portrays resources as items such as knowledge of the industry (Conner & Prahalad, 1996) and capital equipment (Schroeder et al., 2002). However, social service literature shows financial support to be one of the main resources (Bigelow & Stone, 1995; Grant, 1991; Hodge & Piccolo, 2005). Much like a nonprofit organization's need for financial resources for survival (Hodge & Piccolo, 2005), adaptive and shadow research centers rely upon external revenue to fund the center.

Even still, there are different types of financial sources for nonprofit organizations that lead to varying levels of dependency (Brooks, 2000). These include public financing such as government grants; individual, corporate, or foundation donations or grants; and funding from the sale of services or memberships (Hodge & Piccolo, 2005). Government funding is viewed as the most stable option for nonprofits. However, Hodge and Piccolo (2005) warned that the high demand to meet the grant needs often leaves organizational leadership, focusing their tasks around the fulfillment of the grant and not on acquiring additional funding. Although private funding allows for flexibility strategically, it is not reliable as a year-to-year source of revenue and requires the assistance of board members in times of unreliability (Hodge & Piccolo, 2005). Finally, services and memberships provide organizations with the least amount of dependency on resources; however, those that acquire most of their funding through this means are occasionally viewed as compromising their mission and goals (Hodge & Piccolo, 2005).

While organizations do encounter dependence on resources, this theory recognizes and explores the efforts of leaders to lessen this dependence (Hillman et al., 2009). However, it is important to note that as Pfeffer (1987) explained, these attempts of lessening the dependence are

not always successful and, in some cases, develop new and different forms of dependency. In establishing RDT, the authors presented five means of limiting resource dependency: organization mergers, inter-organizational relationships, a board of directors, political step, and replacing executives (Pfeffer & Salancik, 1978). Literature that utilizes RDT largely engages just one of these five elements. Since this case study looks at the board or board member roles in aiding leaders and aiding during periods of loss of funding, it is essential to understand RDT from the aspect of the board of directors.

In their comprehensive review of literature, Hillman, Withers, and Collins (2009) suggested that the board of directors is the RDT's most significant influence, as well as perhaps the most successful framework for comprehending the board. RDT's stance and inclusion of the board, in theory, is straightforward: boards assist in reducing an organization's dependence on a resource as well as assist in securing resources (Johnson et al., 1996). Boards assist in mitigating the strain of resource allocation by providing leaders with special access to resources, sources of information between the organization and industry, guidance and advice, and legitimacy (Pfeffer, & Salancik, 1978). The role of boards of nonprofit organizations is that of maintaining and acquiring revenue (Herman & Heimovics, 1990). Miller-Millesen (2003) simplified the board's potential role stating, "Board members, through personal and/or professional contacts, are a benefit to the organization because they can access information and reduce uncertainty" (p. 522). Boards are recognized as "boundary spanners" and as such operate within four main roles (Miller-Millesen, 2003, p. 533). First, the board develops relationships or "exchange relationships" with external constituents and make certain the organization is adaptive to the industry at large (Miller-Millesen, 2003, p. 533). Third, the board ensures the industry does not intrude on the organization by only providing leaders with information that is needed for

operation. Lastly, the board serves as a representative of the organization for the outside industry (Miller-Millesen, 2003).

Considering this, it is easily understandable that the board's size (Dalton et al., 1999; Sanders & Carpenter, 1998), as well as the identity and importance of its members (Boyd, 1990; Ikenberry & Friedman, 1972; Provan, 1980), are determining factors in how beneficial a board is to the organization. Board members who have a plethora of information and connections within their realm of influence provide more benefits to organizations, so long as board members have this access within industries or fields that are pertinent to the organization's focus (Hillman et al., 2009; Ikenberry & Friedman, 1972; Peng, 2004). Furthermore, there has been some research categorizing types of board members, such as "business experts" and "community influential," and suggest that the success of each type could be linked with the type of organization or the organization's main source of funding (Hillman et al., 2000; Kroll et al., 2007).

Finally, the literature also draws an important connection between the period of the organization's development and the importance of the benefit of the board (Hillman et al., 2009). Boards are important both during the early stages (Gabrielsson, 2007) and declining stages (Daily, 1996) in the life of an organization (Hillman et al., 2009). Boards serve as a reliable means of acquiring funding during the creation and early development stages of an organization in addition to the stages where the organization's resources are reduced (Hillman et al., 2009).

This theoretical framework, while rarely, if at all used in analyzing research centers, has been utilized within the education field (Davis & Cobb, 2010) and more specifically and widely used to analyze nonprofit boards (Hillman & Dalziel, 2003; Pfeffer & Salancik, 1978).

Although resource dependency does not fully allow for an analysis of all board roles (Brown & Guo, 2010; Hung, 1998), it applies to the study at hand for several reasons. First, the

center chosen for this study operates similarly to a nonprofit organization (Heimovics et al., 1993; Hodge & Piccolo, 2005), which, based upon previous literature, suggests that RDT serves as an appropriate framework. Second, this theory directly speaks to an organization's need or dependence on resources for survival (Pfeffer & Salancik, 1978) and in this case, a center's need for financial support to survive. It suggests that boards serve to mitigate this dependence on funding through the life cycle of an organization, including the loss of funding (Pfeffer & Salancik, 1978). Lastly, Hung (1998) suggested, through research, that resource dependency theory is consistent with or reflective of recognized board roles.

Conceptual Framework

This study utilizes a conceptual framework encompassing concepts from shared transformational leadership (Pearce & Sims, 2002), specifically shared leadership (Avolio et al., 2009; Carson et al., 2007; D'Innocenzo et al., 2016; Pearce & Conger, 2003; Routhieaux, 2015) and transformational leadership (Avolio, 2011; Bass, 1985; 1999; Northouse, 2013), and resource dependency theory (Hillman et al., 2009; Pfeffer & Salancik, 1978). I used these concepts jointly in the conceptual framework to examine how leadership and boards impact a research center's financial performance and guide centers through financial uncertainty.

Figure 1

STL and RD Conceptual Framework

Transformational Leadership

Idealized Influence (II)
Inspirational Motivation (IM)
Intellectual Stimulation (IS)
Individualized Consideration (IC)

Shared Transformational Leadership

II/SDM/SP
IM/SP
IS/SS/V
IC/SS/V

Shared Leadership

Shared Decision-Making (SDM)
Shared Purpose (SP)
Social Support (SS)
Voice (V)

Resource Dependency
Advice/Counsel
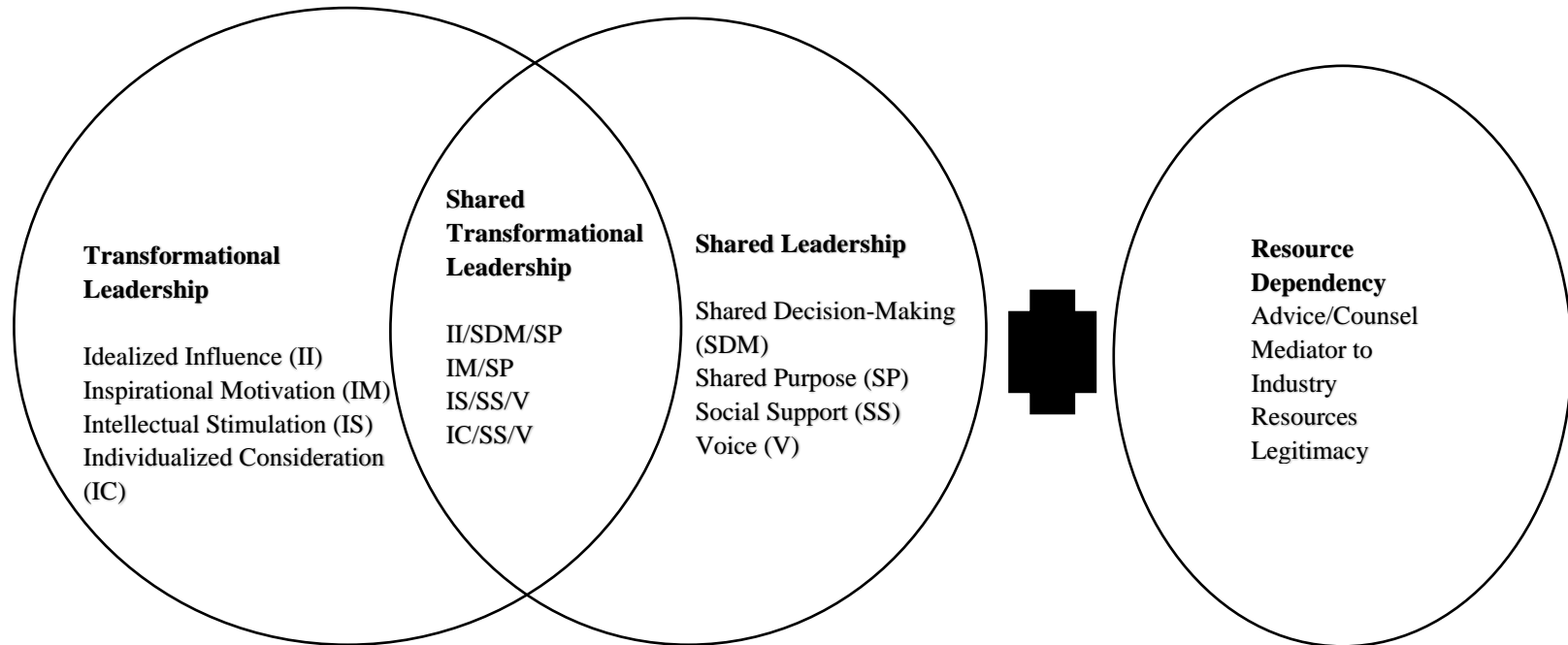Mediator to Industry
Resources
Legitimacy

Figure 1 demonstrates the conceptual framework of shared transformational leadership and resource dependency. The framework first recognizes the contributions of transformational leadership and shared leadership through their leadership behaviors and antecedents. Next, shared transformational leadership is shown as the bridge between transformational leadership and shared leadership, where the shared leadership antecedents are aligned with the leadership behaviors of transformational leadership. Finally, shared transformational leadership is used in conjunction with resource dependency, which shows how boards contribute. This conceptual framework is utilized in the analysis of this study's data.

Conclusion of Chapter

Leadership and boards are significant components in the success of organizations, specifically research centers. This chapter explains both shared transformational leadership and resource dependency theory as a joint conceptual framework through which leadership and boards can be studied within research centers. Though these theories have not been applied within the current area of focus, the application of them within nonprofit literature suggests they could be relevant to research center leadership and boards. For example, transformational and shared leadership have been correlated with organizational performance, such as financial performance. Furthermore, the resource dependency theory portrays boards as a mediator in leaders' dependence on external revenue. Therefore, a conceptual framework of shared transformational leadership and resource dependency provides a framework for the current study. The design of this study is explained in the following chapter.

CHAPTER IV: RESEARCH DESIGN

This chapter discusses the case study methodology and is separated into six sections. First, the chapter provides a brief description and explanation of qualitative research, followed by a brief statement of researcher identity, and finally, an explanation of case study methodology. Second, a description of the selected case, as well as participants, is presented, followed by the third section, data collection. Data and how it is collected is discussed in detail in this section. Fourth, an explanation of the data analysis process is given and a discussion of trustworthiness. Finally, the researcher positionality is described so as to provide further clarification and transparency.

Methodology

This study uses a qualitative research design. Despite the difficulty of identifying one all-encompassing definition for qualitative research, Creswell (2014) defines it as a "means for exploring and understanding the meaning individuals or groups ascribe to a social or human problem," in which there is a strong "focus on individual meaning, and the importance of rendering the complexity of a situation" (p. 246). There is a concern for making "sense of their world and the experiences they have in the world" (Merriam, 2007, p. 6). This type of research involves the process of establishing a research question, collecting data, analyzing data, constructing emerging themes, and interpreting the data (Creswell, 2014). Such research is appropriate and necessary for a variety of reasons. One of these reasons is the desire to further comprehend the environment in which individuals handle issues or the need for a more intricate and exact understanding of the issue at hand (Creswell & Poth, 2018). Given there is a lack of literature that adequately represents leadership and board processes, rationales, and decisions during periods of loss or insufficient funding for their research center (Boardman, & Bozeman,

2007; Boardman, & Corley, 2008; Hall, 2011), a qualitative approach provides the strongest

avenue through which to explain processes, rationales for responses and decisions, contexts,

thoughts, and behaviors (Creswell & Poth, 2018).

Case Study

As writers on qualitative research methodology, Creswell and Poth (2018) describe case

study as "a qualitative approach in which the investigator explores a real-life, contemporary

bounded system (a case) …over time, through detailed, in-depth data collection involving

multiple sources of information… and reports a case description and case themes" (pp. 96-97).

They suggest the following key characteristics that are shared in all case studies: a focus on a

phenomenon or individual, the use of the natural context with space and time delineators,

defining the study as intrinsic or instrumental, determining a variety of data for collection,

deciding how to undertake data analysis, detailed description and diverse sources, identify

emerging themes, and explaining patterns from the case (Creswell & Poth, 2018; Hancock &

Algozzine, 2016).

The leading researchers of the case study, Yin (2014), Stake (1995), and Merriam (2007),

provide their own definitions and explanations of case study research. Yin (2014) states, "case

study research involves the study of a case (or cases) within a real-life, contemporary context or

setting" and suggests this as a method that addresses "how" and "why" questions (Yin, 2014, as

cited by Creswell, & Poth, 2018; Yazan, 2015). While Stake (1995) does not provide a

recognizable definition (Yazan, 2015), Merriam (2007) produces the following definition for the

qualitative case study, "an intensive, holistic description and analysis of a bounded phenomenon

such as a program, an institution, a person, a process, or a social unit" (p. xiii). Furthermore,

from Merriam's (2007) perspective, case studies can be particularistic. This perspective suggests

that the study could adhere to any of the following statements: tells the reader how to or not to proceed in similar situations, analyzes a specific example while bringing attention to a common problem, and could be influenced by the researcher's bias (Merriam, 2007).

Yin (2014) and Stake (1995) are leading scholars on case study research and are frequently referenced in related studies; however, this study follows the case study design laid out by Sharan B. Merriam (2007). In a comparative study over the three scholars' approaches to the case study, Yazan (2015) explains differences in their epistemology, definitions, data collection, and data analysis. While there are several comparable ideas among the researchers, Yazan (2015) argues that Yin's approaches to research with positivistic elements and Stake and Merriam from constructivist leanings. Yazan (2015) makes this assumption even though Yin does not specifically state a positivist stance. It should be noted that other scholars, such as Baxter and Jack (2008), suggest that Yin's approaches are from a constructivist stance. Despite this, Merriam's (2007) case study design is chosen because of its approach from constructivism, and its detailed process for data collection and data analysis, which Stake does not clearly explain. This more detailed explanation of the process provides a helpful tool for the successful completion of the research project.

The purpose of this study fits within the perimeters of a qualitative case study approach. The case study allows for an "intensive, holistic" exploration and analysis of a phenomenon within a specific setting (Merriam, 2007, p. xiii). Thus, this case study allows for an in-depth analysis of leadership and boards leading research centers during financial uncertainty. Binding the case specifically to one research center advances an understanding of this topic (Creswell & Poth, 2018; Merriam, 2007). Furthermore, a personal connection with an interest in the topic contributes to strengthening the reasoning for using this approach. Hancock and Algozzine

(2006) state that "a situation that has particular relevance for a researcher would be appropriate" for a case study approach (p. 17). My positionality, as a researcher, is discussed further later.

   The first step towards a case study is identifying the unit of analysis or case (Baxter, & Jack, 2008; Creswell, & Poth, 2018). Merriam (2007) points out that the case is a "bounded phenomenon such as a program, an institution, a person, a process, or a social unit" (p. xiii). Based on her descriptions, anything could qualify as a case so long as it has boundaries (Merriam, 2007). She indicates that a case could be chosen because it is an issue or intrinsically interesting for the researcher (Merriam, 2007). For this study, the case is leaders and boards of university research centers leading when funding is uncertain, as well as working toward financial security for the center. The case is both interesting for me and also an issue based on literature (Glied et al., 2007; Hall, 2011; Kumar, 2017; Sá, 2008; Stahler & Tash, 1994).

   The case must be a bounded system, or it does not constitute a case (Merriam, 2007). Binding a case is important not only because it helps define the sample for the study, but it also establishes the broadness and depth of the study (Baxter & Jack, 2008). The act of binding a case means that "it can be described or defined within certain parameters" (Creswell & Poth, 2018, p. 97). Furthermore, it ensures that researchers do not encounter the dangers of a broad topic or one with an abundance of objectives (Baxter & Jack, 2008). Baxter and Jack's (2008) survey of case study literature suggests that cases may be bounded according to "time and place," "time and activity," or "definition and context" (p. 546). However, time and place appear to be the most widely used parameters for binding (Creswell & Poth, 2018; Hancock & Algozzine, 2006). Merriam (2007) does not specifically state the criteria for which a case should be bound but suggests there should be a limit to the number of individuals that could be interviewed for the study.

This case is bounded by time and place (Baxter & Jack, 2008). One research center was chosen for this study based on the characteristics of an adaptive research center (Ikenberry & Friedman, 1972). A description of why the selected center is considered an adaptive center is addressed in the following section. In addition, a description of the center and why it was chosen is provided. The study was also bounded by time in that data collection was originally limited to the first 10 years of the center; however, based on preliminary discussions with the center gatekeeper, the study was extended to the first 20 years. The center's board was not established until the 10th year of the center, so the study as it was originally planned would not have allowed for data collection or analysis on the board. This revised time frame allowed for analysis of how leaders and boards ensured the center was successful during its beginning years. It also allowed for an examination of funding beyond the initial development stages, a time which likely would have seen changes in funding sources.

According to Merriam (2007), types of case studies are defined by their disciplinary orientation, the intended outcome, and multi or single cases. As is suggested above, this study is a single case study because just one research center is included. Merriam (2007) describes the following disciplinary types, ethnographic, historical, psychological, or sociological. In a historical type of case study, the idea is to examine the "phenomenon over a period of time," while presenting a description and analysis of the case from a historical perspective (Merriam, 2007, p. 35). The historical case study is applicable to contemporary events in which interviews and observations could be conducted (Merriam, 2007). This study follows this type of case study because it focuses on the time frame of the first 20 years of Center A, which is historical. This study also applies to elements of the psychological type in that the focus is on the individual and not on a description of the chosen research center (Merriam, 2007).

When classifying case studies based upon the intended outcome, there are three types, descriptive, interpretive, and evaluative (Merriam, 2007). Interpretive case studies provide detailed descriptions that produce categories or support or challenge theories (Merriam, 2007). This study takes an interpretive approach where data is analyzed, and categories are produced that could allow for a better understanding of the phenomenon. While there are no theories that adequately explain the phenomenon, the categories will be examined, in the conclusion section, considering the theoretical frameworks utilized in this study.

Case Selection

One research center located at a research-intensive university within the Midwestern region of the United States was selected for this study. This research center was chosen for this study based on the characteristics of an adaptive research center (Ikenberry & Friedman, 1972). It is necessary to focus on this type of center because of its relationship with funding, which is a state of instability (Hall, 2011; Hays, 1991; Ikenberry & Friedman, 1972; Pfeffer & Salancik, 1978). The selected center could be classified as an adaptive research center for several reasons. First, the center has a strong leadership team but has a medium-sized staff in comparison to no staff like shadow centers or a significant number of staff like standard centers (Ikenberry & Friedman, 1972). Perhaps the most important reason the center is adaptive is that the main source of its revenue is government grants, both state and federal (Hall, 2011). Because of this, the number of staff decreases when a grant ends, if no additional funding has been garnered (Hays, 1991). Additionally, this type of center adapts its services to acquire new funding (Ikenberry & Friedman, 1972).

Other necessary considerations helped in identifying this as the center for the study. First, I have easy access to the center and have already built a rapport with the center and potential

participants. Second, the selected center must have an established leadership team that makes the financial decisions for the center. The center's formalized organizational chart is presented in Figure 3. The center must also have a formal board of leaders and influential members from the field. Not all adaptive centers have boards or structured boards, which contributes to the importance of selecting this center for data collection. Finally, based upon the previously stated design of this study, the research center should be in existence for at least 10 years. The selected center meets all of these characteristics. To maintain confidentiality, specifically for participants, for the remainder of the study this center is referred to as Center A.

Center A Context

At the conclusion of this study, university leadership, where Center A is located, publicly acknowledged the value of and support for research centers. Additionally, leadership announced the creation of university policies that would govern all research centers. This speaks to the significance of the current study.

Center A is an educational center at a tier-one, flagship university within the Midwest. At its inception, the Center was not a recognized university-wide center but instead was housed and operated out of the founding director's office. The founding director was a professor at the time of the creation of the Center. With only one source of funding, that of a foundation, the Center consisted of only two employees, the director and a student worker. Following five years of funding, the funding foundation, due to changes with their own policy, had to withdraw their financial support from all but one of the locations it was funding. Thus, Center A lost its sole source of funding.

This change of funding forced the director to make difficult decisions regarding the direction of the Center. Ultimately, the director chose to be recognized as a university research

center, which provided benefits such as the potential for university support, recognition, resources, partnerships, and support. However, becoming a university center also came with additional requirements and stress over which funding sources would be sought and the need for center growth. Through grant writing and additional partnerships, leadership at Center A was able to secure funding to expand the Center. By the 7th year of the grant, the Center had grown to five people. According to board meeting minutes, where leadership provided the board with updates, Center A progressively expanded with larger grants and funded projects, which allowed for the growth of employees from 5 to 19 to 42 to 58 to 100.

Throughout the growth, Center A has moved three to four times to different physical locations, expanding their allotted space each time. The Center is currently housed at its largest space, a physical resource, secured through a collaborative effort of directors and board members. Several participants, however, referenced a loss of funding of a major grant, which greatly diminished the number of employees, that occurred in the past five years. This loss of funding ultimately threatened the Center's ability to continue residing within its physical space. Such an example provides a strong illustration of the importance of funding for a Center.

Figure 2 shows Center A's timeline as described by participants and detailed in data collected. Important events that occurred during the history of the Center, which are pertinent to the current study, are shown on the timeline. However, the timeline does not capture all important events or the full history of funding, which would be too large to include in the current figure. Additionally, a timeline of the growth in the number of employees is shown. Very little is shown from years 20 to 25, as it is outside of the scope of this study. However, it is important to show that Center A continues to exist and continues to experience challenges typical of research centers.

Figure 2

Center A Timeline
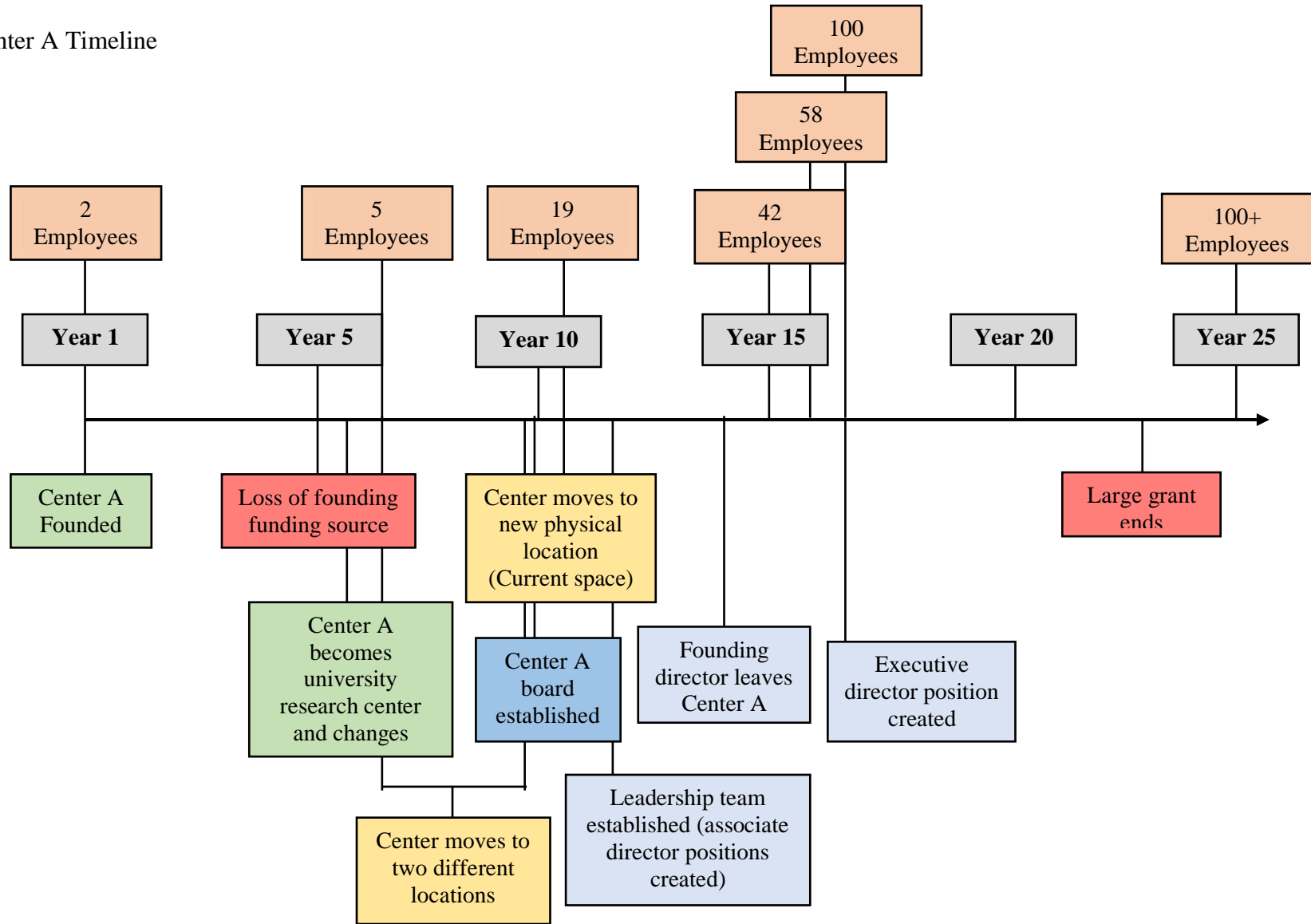
Leadership

When Center A was first created, there was only one employee and thus only one leader. As the Center began to grow with additional funding, more leaders were added to the Center. Ultimately, an organizational structure was developed. After securing the second major source of revenue for the Center, the founding director hired a few individuals to serve as directors over the various projects. However, the organizational structure as it is today did not develop until about 10 to 11 years after the creation Center A. At that point, the founding director and director of the Center organized the second level of leadership, labeling those positions as associate directors or ADs.

The number of ADs has ranged from three to five, with each of them having "different responsibilities." (Participant G) For example, associate directors have held titles associated with k-12 partnerships, leadership programs, research, community partnership, innovative technologies, and college and career readiness. Within this structure, associate directors served as direct or second level supervisors for all other employees. Depending upon the Center's level of funding and current grants, there have been directors of specific projects or grants at the Center. However, these directors report directly to one of the associate directors. Ultimately, the Center's director is the head supervisor of all employees.

Over the years, there have been four directors of Center A, with one of them serving only a one-year interim director term. In more recent years, the organizational structure has looked like an executive director, director, and four associate directors. The executive director position was added around year 17 and served as the direct supervisor for the director of the Center. The executive director position was created following the promotion of the Center's director within the university; however, he remained involved with the Center as the executive director. Beyond

that role, the director holds the responsibility of the daily operations of the Center.

All of the directors, including associate directors, had experience within the educational field before joining the Center. Many of them held administrative positions within their public school or school district. The founding director began Center A through the position of a higher education faculty member or researcher. The other three directors came to the Center through their involvement with education; however, they also, during their time at the Center, occupied some sort of faculty or adjunct faculty member position within the College of Education. Along with having worked on and earned their Ph.D. in education during their tenure at the Center, the director's engagement in education allowed them to have a better understanding of the research side and function of the Center within the larger university system. As a result, each director has strongly encouraged other members of the leadership team or other staff members to pursue their doctorate degrees while working at the Center and have provided the flexibility in order to do so.

Figure 3 illustrates Center A's organizational chart following the creation of the executive director position. This chart is reflective of the Center's current organization of leadership. Bold lines indicate the chain of command and supervision within the leadership team of Center A. The dotted lines denote that a relationship and avenues of communication are open among all members of the leadership team, regardless of the chain of command.

Figure 3

Center A Organizational Chart
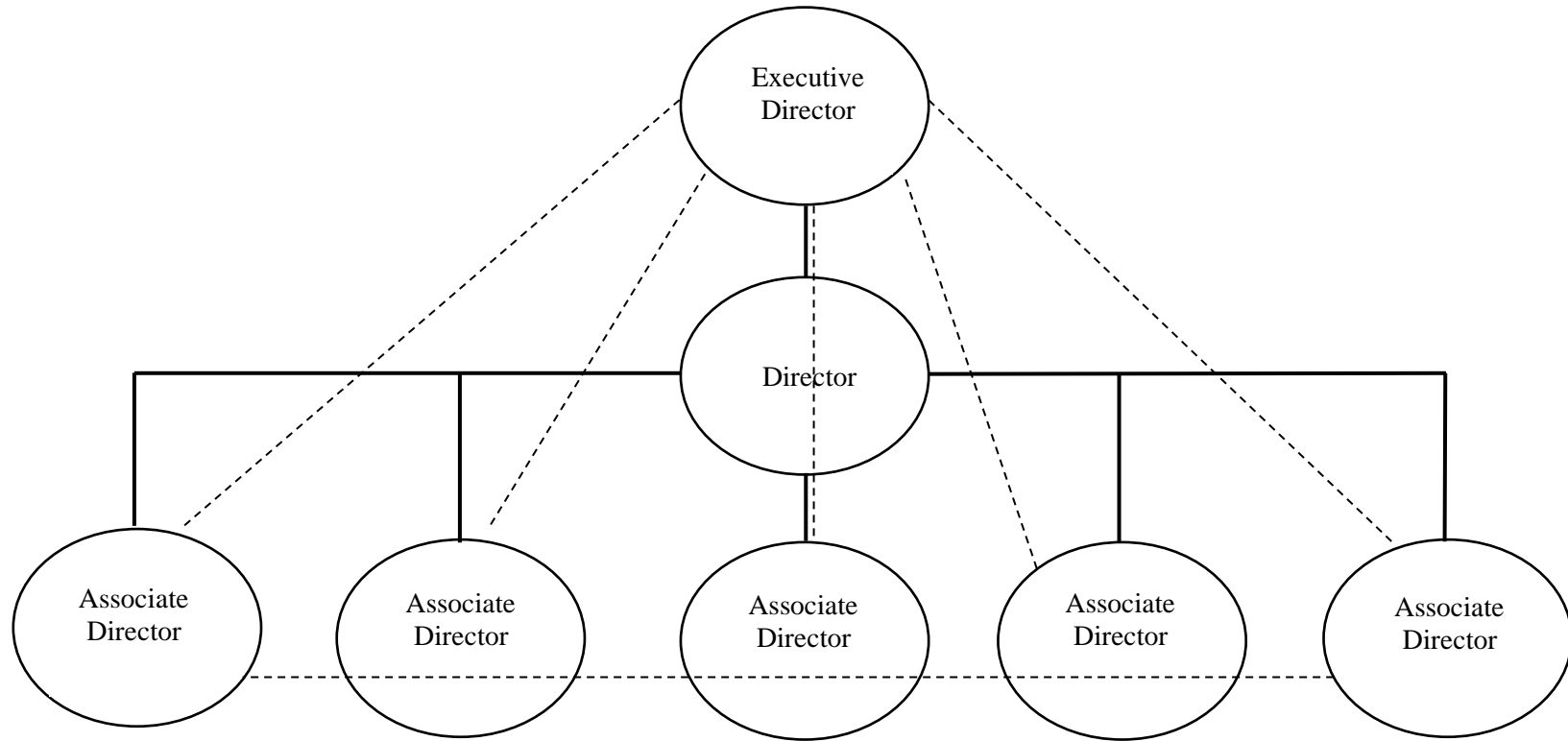
Note. This figure illustrates the hierarchy of leadership within Center A as well as the relationships among leaders.

Board

The formation of the board took place well after the creation of the Center. In fact, it was ten years, after the initial creation of the Center and six to seven years following the Center becoming a recognized university-wide center, before the board was created. It was at this point in time that Center A received one of its larger and more stable grants as well as several smaller grants. An excellent networker and connector, the founding director formulated the idea of a board for the Center based on her close work with the various college boards across the university. In fact, at the university, each college had its own sitting committee, typically called a board of advocates or advisors. Based on this model, the founding director set out to create a board for Center A. In developing such a board, the founding director enlisted other individuals to help recruit members and create a board of advocates. According to Center A's board bylaws, the board is limited to 30 members, with an executive committee of chairman, vice-chairman, and secretary. All new members must be recommended and approved by the Center director and executive committee of the board.

The founding director knew the importance of bringing together key individuals and influencers from across the university. The collaboration of these individuals and influencers could establish or grow a wide-reaching partnership within the different structures of the university. Because of this, several of the original board members were deans of colleges, other high-ranking administrators, or well-known donors who were key influencers. Over time there remain some remnants of these individuals in regard to deans. However, many of the original board members have largely been replaced with their current counterparts or have retired from their work with the board. Other board members included geographical neighbors who were able to provide expertise in some aspect of Center work. Other board members were identified and

asked to serve if they were directors of education-related associations or if they were influential employees within their company and shared a similar interest and passion for the Center's work. Participant G explained that board members were recruited

> any time that there's that natural fit with the type of work that another organization or business or whatever does. When we see that direct connection to have some representation on the board from that group or organization or specific role really has helped facilitate having all of those voices heard.

Participant E also shared about the strong interest of board members to the Center's work, which motivates board members to continue the work. He shared "the people that are on the board are committed to doing what they can to help because they really believe in what the Center's doing and it's making a difference."

Once the board was more established with its members, the founding director felt it would be important to bring in an outside expert who could help walk members and leadership through the process of identifying and defining the purpose, mission, and expectations of the Center's board of advocates. Establishing the board's mission and purpose was an important step in solidifying the board and unifying all in work. One of the documents collected for this study showed the board's bylaws were revised in 2011. According to the bylaws, the goal of the board is "to provide guidance to the director and associate directors...in representing the interest of" educational communities "in the work and mission" of the Center. This is done by promoting Center programs to the public, providing direction, and institutionalizing programs following initial funding. The bylaws continue by listing the main purposes of the board as to "support and promote the mission of" and programs at the Center, as well as "serve as an advocate."

Over the years, the board has been broken into sub-working committees that allow for a

more in-depth focus on a single topic. These smaller committees are often engaged during board meetings. The board typically meets two times each year, with one of those meetings being held at Center A's annual conference, which provides an opportunity for the board members to be exposed to the most current Center programs and work. Regular meetings last between two to four hours. Usually, they include a mix of Center updates, grants being written, and an activity that will help the board in its future outreach and advocacy of the Center. Some of these activities include learning about new programs or brainstorming sessions within their smaller working committees. More information about the board will be discussed in the findings sections for research questions three and four.

Figure 4 illustrates the organization of Center A's board, as described in board bylaws and interviews. Leaders are grouped as a leadership team in this figure to ensure a focus on the board. However, each leader has a relationship with the board and each board member. The solid, black lines indicate lines of communication from an official hierarchical perspective. However, the dotted, black lines illustrate that communication does not always flow through formal communication lines but instead is fluid and changing. Leaders have personal and working relationships with board members, which is reflected in communication patterns.

Figure 4

Center A Board
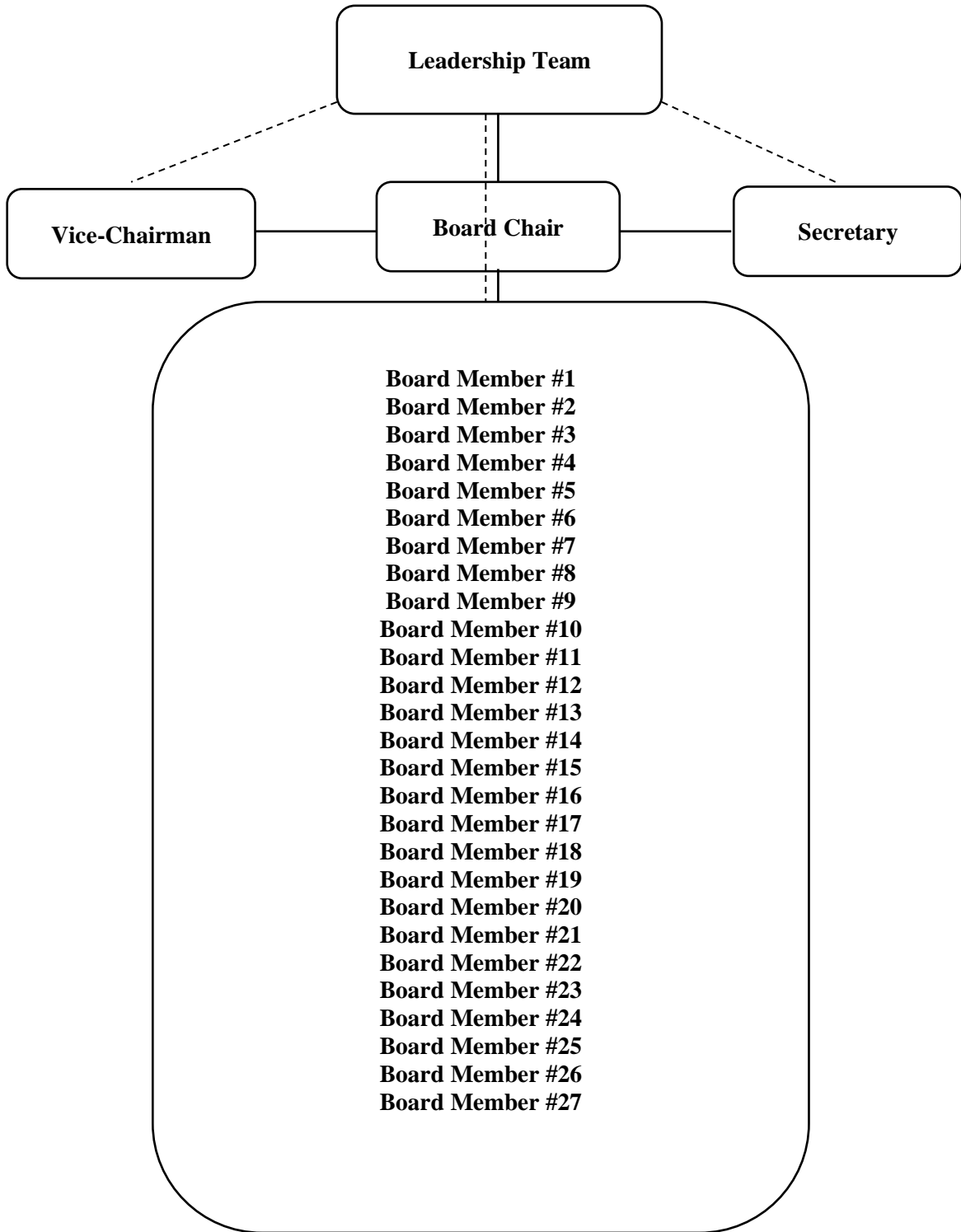
Funding

The Center has ranged from 95 to 99 percent soft-funded, solidifying the need for external funding. Throughout the life of the Center, there have been roughly 39 grants or funded projects. These have come through federal, state, and local funding sources such as the US Department of Education, the Bill and Melinda Gates Foundation, the US Department of Agriculture, National Science Foundation, USDE Math Science Partnership, US Department of Defense, and the Howard Hughes Medical Institute. The Center has received several state grants and about 1 to 3 percent of funding from the university, which has fluctuated over the years. As several participants have noted, university funding has been largely for employee salaries and never amounted to enough to sustain the Center.

Thus, every participant strongly emphasized the importance of external funding for not only the growth of the Center but also, more importantly, the actual survival of the Center. For example, Participant C simply shared that funding was "obviously critical." Participant J helped reveal how important funding is, "Yes, we worried about that [funding] regularly." Participant H also voiced that without external funding, the Center would be small and, most likely, not a formal Center. In addition to being concerned about sustaining the Center, participants were also interested in how funding could help achieve the mission of the Center through services. Participant F captured this sharing, "having grants is extremely important to sustain the Center and the services we provide." A participant suggested that additional external funding was important in continuing the good work that was being done. Other participants similarly related the funding to the continuation of services. For example, participant G shared, "to continue the work and to fulfill the mission and vision...to provide the services we want to we have to have funding for those projects to happen...we don't do the work without funding."

Asking participants about a loss of funding sheds light on the importance of funding for the Center. Participant C shared examples of several different grants that provided funding for nine years; however, they communicated that "After those nine years, the money was gone. It was over. I mean, the services have to stop if the funding source isn't there." Similarly, participant G indicated, "the reality is you have to find a replacement if you want to continue exactly that work. You have to find replacement funds or ways to tie that into other work and other revenue sources." One participant expressed her thoughts with a funny but realistic scenario. Participant F laughed, stating, "A loss of funding would be I would be retired immediately," but she quickly added, "Well, depends on which funding you're losing." Her statement suggests that a loss of grant funding would have a different impact on the Center based on how much money is provided and, ultimately, how many staff members were employed by the grant. The loss of a largely funded grant can have a significant impact on a center. For example, Participant J shared, "you lose people, continuity, and support for change in education when you lose funding." However, when a center has multiple sources of funding, it is better able to withstand periods of loss of funding. Participant H emphasized that with multiple sources of funding, the loss of one grant is not as devastating as when you have only one grant. She continued, sharing that without that additional external funding leadership of the Center would have to begin thinking about and having tough conversations of whether the Center would have to close. As a result, without funding, leadership has little choice over whether the Center can continue to exist.

Participant Selection

To obtain adequate and rich data, a strategy for determining the site and participants to be included must be identified (Creswell & Poth, 2018). Purposeful sampling is the best strategy for

case studies. According to literature, purposeful sampling is not probability sampling but instead an intentional sample of a "group of people that can best inform the researcher about the research problem under examination" (Creswell & Poth, 2018, p. 148). More specifically, criterion sampling, a type of purposeful sampling, which "seeks cases that meet some criterion; useful for quality assurance" is used in this study (Creswell & Poth, 2018, p. 159). Although not the most common sampling type for case studies (Creswell & Poth, 2018), this allowed for the selection of participants based on the criteria of participants having served as a leader or board member during the first 20 years of the research center.

Participants were leaders or board members for Center A. More specifically, leaders were part of the formalized leadership team for Center A. All leaders recruited for the study held titles of executive director, director, or associate director. Leaders in these positions are aware of and contribute to the management of Center finances. Leaders are directly responsible for the outcome of the Center and, therefore, are an appropriate population for which to provide an explanation of leadership during funding uncertainty. Participants were either current or previous leaders. Those who were current leaders have worked at Center A for an extended period and held a director position during the first 20 years of Center A. Selection of board members was aided by Center A's gatekeeper and based upon board member investment and interest in Center A's mission and programs. The majority of these board members have served on the board since the creation of the board. As a result, members of the board's executive committee were recruited to participate. Additionally, several board members who have witnessed Center A's development and growth were recruited. Though this is not the maximum number of board members that could be interviewed, it was close to the maximum number of members who actively served on the board during the first 20 years. Table 1 shows participant demographics,

including background, role, and number of years connected to the Center.

Table 1
Participant Demographics

Participant	Background	Role	Number of Years Connected to Center
A	Industry	Board Member	5 Years
B	Professional	Leader	14 Years
C	Professional	Leader	18 Years
D	Professional	Leader	7 Years
E	Industry	Board Member	13 Years
F	Professional	Leader	12 Years
G	Professional	Leader	17 Years
H	Academic	Leader	14 Years
I	Industry	Board Member	7 Years
J	Professional	Leader	15 Years

Note. Industry background denotes that board members possess a work background complementary to Center A work. Professional background denotes that leaders arrived at the Center from an educational background outside of higher education. Academic background denotes the leader arrived at the Center from a higher education background.

Data Collection

Merriam (2007) explains data collection in the following way, "a recursive, interactive process in which engaging in one strategy incorporates or may lead to subsequent sources of data" (p. 134). Considered a "hallmark" of case studies, the usage of a variety of types of data produces not only an in-depth understanding of the case and issues at hand but also data credibility (Baxter & Jack, 2008; Creswell & Poth, 2018). Merriam (2007) suggests the main sources of data are interviews, documents, and observations; however, other sources include archival records, physical artifacts, and audiovisual material (Baxter & Jack, 2008; Creswell, & Poth, 2018). Multiple data sources are needed to establish breadth and depth (Merriam, 2007). This study utilized documents, field notes, observations, and in-depth interviews.

Observations

Observations can be a valuable source of data. Merriam (2007) suggests several reasons for their value. Observations provide "a firsthand encounter with the phenomenon of interest," further one's understanding of the context, and are a means of triangulation for the findings

(Merriam, 2007, p. 96). An observation protocol was developed and approved by the Institutional Review Board (IRB) prior to conducting observations. I observed one board meeting and two staff meetings to better understand the context and culture of Center A. During meeting observations, field notes were taken in accordance with the observation protocol. At the conclusion of the observations, any additional notes were written to capture overall thoughts and analysis of the observations.

The observations, along with field notes, provided additional information about the culture and context of Center A, which was corroborated through documents and participant interviews. However, as additional data was collected, documents and interviews proved to be primary data over observations. Because observation findings were consistent with findings from documents and interviews, no additional meetings were observed. Furthermore, only two board meetings were scheduled during this study. One of those meetings was held at Center A's annual conference, which was not reflective of the structure of the board's regular meetings. Observations were not conducted during the time period in which this study was focused on. Nevertheless, many of the participants had worked together since the study time period, specifically the leadership team, and thus the work environment may be relatively similar to the time period under study. The observation protocol is shown in Appendix C.

Documents

Collected documents included: email communication, flyers and brochures, news articles, center and board mission statements, board bylaws, board meeting agendas, board meeting minutes, and organizational charts. These were collected with the approval of leadership and with the assistance of the Center's gatekeeper. Center A's gatekeeper assisted with the recruitment of participants, located relevant data, and approved of data for inclusion in the study.

Additionally, the gatekeeper helped further my understanding of the Center and its context.

Documents were collected throughout the span of the data collection process. Initial documents were collected before the first interview; however, the majority of documents were gathered in-between interviews and following the completion of interviews. Nearly all of the document data were collected with the aid of Center A's gatekeeper. However, one of the participants offered to provide her personal collection of Center A documents. These documents were collected throughout her association with the Center. Not all of the participant's documents were included for analysis. Only documents that were relevant to the case of Center A's funding were analyzed. However, the other documents provided substantially to the rich, descriptive context of Center A.

Ten unique emails were provided for inclusion in the study. These emails illustrated communication patterns and style between leaders and the board/board members. Additionally, four other emails were collected, showing the leader and board's communication with external stakeholders about Center A's programs and the potential creation of new projects. A ten-page brochure and a two-page sub-flyer provided descriptions of Center A's programs and history of funding. Four news articles illustrated the dissemination of information about Center A to the public. Furthermore, one research article was collected, which offered a furthered understanding of the creation, context, and work of Center A. Center A's mission and purpose statements were collected, as well as the board's revised bylaws. Twelve board meeting agendas, across a six-year period, were collected for the study. This six-year period covered the last six years of the study time frame. Meeting agendas, from the beginning of the board, were not located and thus not included in the data. Additionally, four other documents, which announced new board members or provided an updated funding breakdown, were attached to a few of the meeting agendas. One board meeting PowerPoint was provided, which allowed for an understanding of a

board meeting. Twelve board meeting minutes, spanning the same time frame as that of the meeting agendas were provided for the data collection. Finally, four other documents with Center A's funding status or board contribution cards were included in the study. All documents were organized by document type prior to document analysis.

Interviews

Interviews were the main source of data collection for this research. An interview protocol with 24 questions for leaders and 17 questions for board members was created. The protocol was submitted to and approved by the Institutional Review Board prior to interviews. Additionally, a leader from Center A, who did not meet the criteria to participate in the study, was identified and asked to participate in a pilot study to ensure the trustworthiness of the interview protocol. Based on the interview and analysis, the wording of a few questions changed to better capture the intent of the study. Following the pilot study, participants were recruited to participate in the study. The Center A gatekeeper assisted in recruiting participants for the study.

A total of 14 potential participants were identified by the gatekeeper and contacted about the research study. This included eight leaders and six board members. One additional leader was not invited to participate because of his/her short tenure at the Center and lack of involvement with Center finances, as stated by Center A's gatekeeper. A recruitment email was sent out twice to all potential participants. Four of the individuals were contacted in-person. Following the second recruitment email, a total of 10 individuals contacted me about participating in the study. Provided further information, one participant declined based on previously scheduled commitments, and another declined because she did not think she would be able to contribute to the study. The four other potential participants did not contact me about participating in the study. Thus, eight participants were interviewed for this study, including six leaders and two

board members. These participants included individuals who no longer work for and/or are no longer affiliated with the Center.

Each participant was asked to participate in two in-person interviews lasting roughly an hour to and hour and a half each time at a location agreed upon by both the researcher and the participant. Four of the participants requested to do the whole interview in one sitting, while four of the participants did two interviews. All of the participants did an in-person interview except for one who participated in a phone interview due to geographical distance. Roughly eight and a half hours of interviews were conducted. The first interview covered background information and his or her role as a leader or board member. The second interview covered the participant's role in the financial standing of the Center as well as the relationship between leaders and board members. These were semi-structured interviews in which the approved interview protocol was used; however, there was room for flexibility with the questions to allow for follow-up questions in order to gain a better understanding of Center A and its leadership, board, and funding (Hancock & Algozzine, 2006). All participants agreed to an additional interview or phone conversation to clarify any lingering questions. Two participants were contacted with follow-up questions to which he/she answered promptly. Each interview was audio-recorded, with the consent of the participant, to ensure accurate transcription and data analysis. Interview transcriptions were sent to participants for review, approval, or clarification, if needed, before data analysis. Only two participants returned their transcripts with minor changes. Field notes were taken during all interviews and observations and were used in the data analysis stage.

Data Analysis

Data analysis is making sense of the data, which requires "consolidating, reducing, and interpreting…" (Merriam, 2007, p. 178). In the case of studies, it allows researchers to analyze

data while still in the process of data collection (Hancock & Algozzine, 2006; Merriam, 2007), as well as analyzing data sources jointly versus in segregation (Baxter & Jack, 2008). Merriam (2007) writes, "analysis begins with the first interview, the first observation, the first document read" (p. 151). Baxter and Jack (2008) describe it as a braiding together of data "to promote a greater understanding of the case" (p. 554). This braiding is important within a case study because it provides cohesiveness instead of handling and reporting each data source differently (Baxter & Jack, 2008).

For case study research, there is not a designated way to analyze data, but instead, Merriam (2007) offers an assortment of strategies to use. The current study used the constant comparative method of data analysis, which is strongly linked to the grounded theory approach (Corbin & Strauss, 2015; Merriam, 2007). Thus, Corbin and Strauss's data analysis techniques were incorporated as well. This method is used to produce theories. However, due to its compatibility, it has also been widely applied to studies that do not produce a theory (Merriam, 2007).

According to the constant comparative method, once data is collected, it is analyzed and compared against existing data (Merriam, 2007). Open coding is the first step of the analysis. According to Strauss and Corbin (1990) it involves separating data into categories of information (as cited by Creswell & Poth, 2018, p. 317). Each piece of data is read, and instances are compared to other instances from that same interview or other interviews (Merriam, 2007). Based on this analysis, categories are created, which are then consolidated, when needed. Once the data has been fully and satisfactorily analyzed, the categories will be combined into themes or overarching themes (Creswell & Poth, 2018). Theme development can occur during the early stages of data analysis; however, themes should not be finalized until data is fully analyzed

(Merriam, 2007).

The next level of analysis, axial coding, is concerned with analyzing and establishing a relationship between the categories and themes (Creswell & Poth, 2018). In order to establish a relationship, the data will be examined while asking questions about the context and conditions, the cause and resulting actions, and the consequences (Corbin & Strauss, 1990). In this study, data analysis began after the first interview was conducted and continued through the collection period as well as after the last piece of data had been collected. To better understand the data analysis process for the study, the following sections provide a description of data analysis by type of data.

Interview Analysis

As interviews were the primary source of data for this study, they were also the most substantial contributor to answering the research questions of the study. To provide the best analysis, recorded interviews were transcribed verbatim. Following initial transcription, the interviews were listened to a second time to ensure accurate transcription and familiarity with interview data. Once interview transcriptions were sent to interviewees and returned, the third reading of the interview transcription was done. Any field notes or observations that would inform the analysis were added to the transcription to provide further meaning and context. Transcriptions were then coded and themed using open coding processes (Creswell & Poth, 2018). Each interview question was initially coded by interview question responses as whole paragraphs. Following that, a closer, line-by-line coding was done, and emerging codes were listed in margins for comparison during each interview analysis.

As interviews were coded through the open coding process, each participant response was compared with other previously coded participant responses to compare findings and

emerging codes. Since multiple interview questions contributed to answering each research question, participant responses were compared with other participant responses on the same question as well as participant responses on similarly related questions (i.e., leadership and funding questions or board and funding questions). Some codes were words participants stated in his or her interview, while others were descriptive words or phrases that illustrated the participant's meaning. Grouped according to the research question, codes were then organized into a table, which aided in the formation of sub-themes and themes. This organization allowed for an easier process toward answering the study's research questions. Some codes were found to not be consistent across interview data and thus were not further developed into sub-themes and categories. While still important to the understanding of the study, those codes were not robust enough for inclusion in the final themes.

Additionally, axial coding analysis (Creswell & Poth, 2018) occurred as sub-themes and categories developed. That level of analysis focused on understanding the connection and relationship among sub-themes as well as between sub-themes and categories for each research question (Creswell & Poth, 2018). An example of the coding process from initial codes to final themes is provided in Table 1. Codes and themes are separated in the table by the research question. Categories and themes are discussed in more detail in the Chapter five. An analysis of these findings is provided in Chapter six. Interviews were the primary source of data for this study and, thus, the primary source of data analysis. However, documents and observations were analyzed as a means of triangulation of the findings.

Table 2
Example of Data Analysis

RQ 2: How do leaders transform their research center through organizational performance?		
Final Theme	**Sub-Theme**	**Initial Codes**
Meeting Structures Foster Open Communication	Weekly leadership meeting structures All staff meeting structures Grant writing structures	Structures Weekly meetings All staff meetings Communication - about program/center updates Open communication Open communication Conversations Conversations - at the leadership level Grant committee Breakdown of committee work Work as a group Employees participate in grant writing Employees helping Employee expertise Employee ideas Employee ideas Work as a group Collaborative meeting Collaborative Collaborative Collaborative Research *Context of these codes revealed these were occurring at different structural levels and thus are grouped according to those structural levels.
Anticipating the need for new funding	Looking, looking, looking for funding Multiplying and diversifying funding sources Using current successes to secure new funding	Constantly looking for grants Looking, looking, looking Looking for other funds (grants) Looking for other funds (grants) Looking for funds/more grants -continually Looking for other funds (grants) - intentional Looking for other funds (grants) – proactive Looking for other funds (grants) Looking for other funds (grants) – always Looking for other funds (grants) – always Looking for funds/more grants -continually Writing grants Writing grants - always Writing grants - constantly Constant worry about funding Diversify - portfolio Diversify funding Diversify funding Diversify funding Diversify funding

		Diversify funding
		Diversify funding – funding source
		Diversify funding – funding source
		Diversify funding – funding source
		Diversify funding – funding source
		Diversify funding – funding source
		Diversify funding – funding source/multiple
		Diversify funding – change focus
		Diversify funding – change focus
		Open-minded
		Open-minded – did whatever
		Open-minded – did things never done before
		Open-minded – changed thinking
		Using the results of previous work
		Using the results of previous work
		Using the results of previous work
		Chasing dollars
		Chasing dollars
		Money-saving measures
		Money-saving measures – cut
		Money-saving measures -cut/consolidate
		Money-saving measures – budgeting
		Different actions
		Bold decisions
		Forward-thinking
		Forward-thinking
		Forward-thinking
Consulting and Collaborating with Experts and Outside Stakeholders		Partners/partnerships
		Relationships
		Networks
		Connections
		Outreach
		Political connections
		Board of advocates

RQ 3: How does the board reduce leaderships' dependence on resources for research center survival?		
Final Theme	**Sub-Theme**	**Initial Codes**
Board Membership Impacts Board Effectiveness	Members Should be a Right Fit for the Center	Who is on board
		Who is on board – diversity
		Who is on board - diversity
	Cohesiveness of Board is Influenced by Board Membership	Who is on board – connections
		Who is on board – connections
		Who is on board – connections
		Who is on board – connections
		Who is on board – connections
		Who is on board – strong people
		Who is on board – wide outreach
		Who is on board – different voices
		Who is on board – personal relationships

		Who is on board – personal relationships
		Who is on board – personal relationships
		Who is on board – personal relationships
		Who is on board – center representative
		Who is on board – center representative
		Who is on board – interest in work
		Who is on board – interest in work
		Who is on board – interest in work
		Who is on board – belief in work
		Who is on board – expertise
		Who is on board – same goals
		Who is on board – fit the center need
		Who is on board – the success of the board
		Who is on board – the director decided
		Cohesiveness – fluctuating
		Cohesiveness – continuity important
Board Members Provide Important External Perspectives of Work	Giving Good and Critical Feedback Checks and balances through support and accountability Board apathy, the struggle against disinterest	Input – insight Input – ideas Input – ideas Input – ideas Input – ideas Input – opinions Input – expertise Feedback Feedback Feedback Feedback – ask questions Feedback – good/bad/critical Checks and balances Checks and balances Checks and balances – validate Checks and balances – voices of support Critical friends Partnerships Advice Advice – board thoughts Board apathy External perspectives
Board Members Advocate Within Connections	Influence within the university Influence outside the university Complexity of work threatens board members' understanding Board-director relationship impacts board roles	Influence with university Influence with university - space Influence with university – leadership Influence with university – leadership Influence with university Influence with university – leadership Advocacy Advocacy Advocacy Advocacy Advocacy Advocacy - publicity

		Advocacy – interest in work
		Advocacy – connection to stakeholders/funders
		Advocacy – spheres of influence
		Advocacy – within university
		Advocacy – within university
		Advocacy – outside university
		Advocacy – finding funding sources
		Advocacy – need to know center updates
		Complexity of center work – board understanding
		Complexity of center work – board understanding
		Complexity of center work – elevator speeches
		Relationship with director – personal
		Relationship with director – personal
		Relationship with director – personal
		Relationship with director – work
		Relationship with director – long history
		Relationship with director – dependent on what leader makes it
		Time constraint – board
		Time constraint - board
		Time constraints - leaders

RQ 4: How does the board assist in securing new funding for center survival?		
Final Theme	**Sub-Theme**	**Initial Codes**
Board Members are Think Tanks, Providing Advice and Ideas	Members locate funding opportunities Members advise about funding opportunities	Looking for funding Looking for funding Looking for funding – fundraising Looking for funding - fundraising Identified funding opportunities Identified funding opportunities Point measure for applying for grants Advice – funding and direction Advice Advice - supportive
Board Members Utilize Their Connections for New Funding	Member influence over connections Members broker partnerships for the center Members advocate for center work and interests Time constraint, navigating board member schedules	Influence within university – space allocation Influence within university – recognized organization Influence within university Influence outside university Partnerships Partnerships – connecting with funding source Partnerships – connecting with the funding source Partnerships – connecting with the

		funding source
	The complexity of center work	Partnerships – connecting with the funding source
		Partnerships – connecting with the funding source
		Partnerships – connecting with the funding source
		Advocate
		Advocate
		Advocate – informed
		Advocate – well-informed
		Advocate – out-of-state
		Time conflict
		Complexity of work – understanding
Board Members' Personal Financial Contributions		Personal contribution
		Personal contribution
		Personal contribution
		Personal contribution
		Seed money

Document Analysis

Data from documents provided an additional level of support for the case. Documents were a secondary source in relation to interviews; however, they offered more evidence of Center A's context and a means of triangulation of data (Creswell & Poth, 2018). Documents were gathered throughout the data collection process, and a few documents, such as brochures and flyers detailing Center A's program and funding history, were reviewed and analyzed before some of the interviews were conducted. Funding flyers and program brochures added to my understanding of Center A and gave a furthered level of knowledge that was useful as participants detailed specific time periods in the history of the Center. Because these documents were not received at the very beginning of the collection of data, several participant interviews were conducted without this added level of knowledge. Analysis of the remaining documents did not occur until after the interview transcript analysis.

Documents were first organized according to the document type. For example, all

meeting agendas were combined as well as all meeting minutes. Then, open coding processes

were used to code and themes documents (Creswell & Poth, 2018). Each document was briefly

reviewed to gain a better image of the breadth of the data and information. Preliminary codes or

notes that emerged during this initial review were written in document margins to reference later.

Following this, each document was analyzed line-by-line within its document type grouping.

Again, codes were listed on relevant data that helped answer the study's research questions.

Notes were added to the data that did not answer the research questions but did offer center

context. Constant comparison (Creswell & Poth, 2018) occurred during document analysis, as

documents were compared across document types. For example, board meeting agendas were

compared with board meeting minutes to determine if the emerging codes were supported.

Documents were also compared with interview transcriptions. Comparing these two data sets

provided an additional level of understanding. Participants, in interviews, described an event or

action that took place, and documents, such as board meeting minutes, gave a storied account of

how those events occurred, as well as similar events. Codes that aided in answering the research

questions were added to the table and included in the theme generation and relationship building

between and among codes and themes (Creswell & Poth, 2018).

Observations

Finally, observations, while not useful in generating codes, contributed to the

triangulation of the data and the confirming of codes and center context. Observations were not

coded using the open coding processes. However, they were compared with interview

transcriptions and documents to confirm codes and findings and provide additional context for

those codes. For example, board meeting observations and field notes proved to be significant

data in the comparison of board meeting agendas and minutes, as well as participant responses

regarding the board. Thus, observations did contribute to the axial coding process of relationship and connection building (Creswell & Poth, 2018).

Trustworthiness

According to Guba (1981), trustworthiness involves the following four criteria: credibility, transferability, dependability, and confirmability. Credibility is about the consistency of the findings with reality, which can be confirmed using strategies such as triangulation, member checking, and a familiarity with the culture of the organization (Guba, 1981). Although it is not the purpose of qualitative research to generalize findings, providing a detailed contextual understanding helps with the transferability of the data (Guba, 1981). Dependability speaks to the study being replicated with the same findings. Finally, confirmability is about ensuring the findings are based on the participants' experiences, not the researchers. Confirmability can be addressed through researcher positionality and triangulation, among others (Guba, 1981).

I employed several strategies to ensure the trustworthiness of the study. First, the triangulation of data was used to confirm findings (Merriam, 2007). While triangulation can produce contradictions in data, it allows for a more "holistic understanding" of the data (Merriam, 2007, p. 204). This study used interviews, documents, and observations to produce themes and categories for the findings. The use of multiple sources of data, such as interviews, observations, and documents, allowed for triangulation to confirm findings (Merriam, 2007).

Member checking was used to ensure the accuracy of interviews before analysis (Merriam, 2007). Merriam (2007) describes this strategy as "taking data and tentative interpretations back to the people from whom they were derived and asking them if the results are plausible" (p. 204). Member checking allows participants to be involved, adding their input, in the study at different stages of the research. Scholars recommend utilizing this strategy to

increase the study's trustworthiness (Merriam, 2007). Before beginning participant interviews, a non-participant leader was approached and asked to participate in the analysis of the interview protocol by answering interview questions. While not as robust as a regular pilot study, this allowed for a level of member checking before the first interview. The non-participant leader's answers were reviewed and analyzed to determine the accuracy of questions, and appropriate changes were made. This pilot interview was not included in the official analysis for codes and themes. Additionally, all interview transcriptions were sent to participants for review and approval. Only two participants returned the interview transcription with minor changes, and the changes were accounted for before interview analysis.

Additionally, a detailed, thick description of Center A's context is provided in this chapter to provide the reader with a furthered understanding of the case and support the findings of the study. Merriam (2007) shares that this level of description allows for readers to "determine how closely their situations match the research situation, and hence, whether findings can be transferred" (p. 211). The rich description of Center A is based on interviews, documents, and observations produced during the data collection phase.

Finally, I provide an explanation of my position as a researcher for further the transparency of the study. Because researchers bring their own views and beliefs into their research (Creswell & Poth, 2018), it is necessary to provide readers with a statement of experiences and beliefs that could impact the study and findings. My researcher positionality is detailed in the next section.

Researcher Positionality

According to Creswell and Poth (2018), researchers cannot be separated from their qualitative writing and, therefore, put forward "interpretations based on the cultural, social,

gender, class, and personal politics" (p. 228). Thus, it is crucial that researchers provide their positionality and reflexivity, as the researcher determines what is included in the study. Reflexivity describes the researcher's attempt to engage in "self-understanding about the biases, values, and experiences that he or she brings to a qualitative research study" (Creswell & Poth, 2018, p. 229). My position within a research center and my interest in the topic are relevant to the current study. Therefore, I provide my positionality and reflexivity for readers to have a better understanding of my views and relation to the study.

For nearly four and a half years, I have worked at a research center. Over the course of that time, I have served in a variety of different roles, both as a graduate research assistant (GRA) and also a full-time employee. During the course of the current study, I transitioned from a GRA position to that of a full-time employee. Both as a GRA and as a full-time employee, I was tasked with a variety of responsibilities such as scholarship coordinator, board liaison, assistant to a director, budget specialist, budget coordinator, and student experiences coordinator.

When I started at the research center up until the beginning of my third year, the center was stable in its funding. The center had experienced several years of financial stability prior to my arrival at the center and that continued during my first years of employment. The center had multiple grants and had diversified its funding sources. However, the center's largest grant and funder of employees ended in my third year of employment. Because this was temporary funding, center leaders were aware of the ending of the grant during my second year of employment and had already begun implementing strategies for center success and sustainability. While my salary was not completely funded by the grant, the ending of the grant, as well as leader decisions, impacted me as an employee of the center.

In my roles as a budget specialist and eventually, budget coordinator, I saw firsthand the

operations of a research center and how crucial funding is for the survival of a center. As my center was soft-funded, relying on local and federal grants, I am aware of the cyclical nature of this type of funding. Because my experience as a budget coordinator came when the center's largest grant was ending, I was further able to see the stress and concern of leaders in their decision-making. This was also enhanced by my simultaneous work as an assistant to one of the directors. On the other hand, as an employee of the center and fellow colleague, I experienced the fear of loss of employment and engaged in many conversations with colleagues, revealing their similar feelings. From the employee perspective, I was able to see the impact of leader decisions on employees. This dual perspective shaped and furthered my understanding of research centers and provided a basis for the development of my beliefs on how research centers should operate and be governed.

In addition to my financial role, I have worked closely with my research center's board as a board liaison. In that role, I communicated regularly with board members, prepared for board meetings, and attended board meetings. As a result, I am familiar with board structures and workings. However, this understanding impacts my beliefs on the characteristics of an effective board.

While this knowledge can be helpful in my understanding of Center A's context, board, and provides a basis of understanding for participant interviews, I must make a conscious effort to minimize my biases and beliefs throughout the study. To do so, certain processes were followed to ensure the trustworthiness of the findings. First, I acquired approval through the appropriate chain of command. Additionally, I followed data collection policies, such as time and access to specific documents, approved by the leadership of the Center. Additionally, strategies such as member checking and triangulation were used to ensure that all participants'

voices were correctly represented.

Conclusion of Chapter

This chapter describes the methodology and method utilized in the current study. This study utilizes a single case study to examine leaders and boards of Center A and their efforts to guide the Center through periods of financial uncertainty. A description of Center A context was provided, as well as an explanation of participant selection. In order to better understand the case in this study, data collection and analysis are explained in detail. The following chapter provides the findings of data collection and analysis.

CHAPTER V: FINDINGS

Chapter five provides the findings generated during the analysis of the data collected. The context for Center A, including the leadership and board of the Center, has been described in chapter four in connection with case selection. This chapter presents the findings indicating themes and categories identified by the data analysis according to each research question.

Leadership Style of Leaders at Center A

Mayo, Meindl, & Pastor (2003) suggest that transactional and transformational leadership can be tied to shared leadership when viewing it from a network perspective. Shared transformational leadership involves a leader's or an employee's "personal identification" with shared goals. When leaders and employees identify with shared goals, they experience an increased willingness to provide their "effort and commitment" to these shared goals. It is through the transformational leadership four I's that individuals are motivated to increase their "effort and commitment" (Mayo et al., 2003). Mayo et al. (2003) argue that the "highest level of shared leadership" occurs when all leaders equally possess leader behaviors such that all members show signs of transformational leadership.

Shared transformational leadership involves a less centralized structure where more than one or two leaders have leadership behaviors (Mayo et al., 2003), which is also referred to as density. Thus, the leadership team as a whole exhibits transformational attributes, and it is through this and the shared leadership conditions of shared purpose, social support, and voice that the leadership team transforms Center A. Although Center A has one director at a time, decisions are not made solely by the director. Instead, the executive director, director, and associate directors lead and operate using a shared leadership style. When asked to describe their leadership style, all six of the leaders described their style by either stating "shared leadership" or

using key phrases associated with shared leadership such as "collaborative," work "beside them," or "having discussions."

Below are examples of a leader's transformational Four I attributes based on each leader's description and examples of their leadership when asked about leadership styles and work at Center A. The transformational leadership Four I's include idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration (Northouse, 2013). Within the factor of idealized influence, leaders are portrayed as charismatic leaders, and as a result of their actions, employees seek to imitate leaders. Inspirational motivation involves leaders motivating employees to achieve shared goals and raised expectations. Intellectual stimulation is the prompting of employees to creatively and innovatively engage in their work while sharing ideas and solutions. Finally, individualized consideration represents the leader's efforts to treat each employee differently based on employee needs to ensure the employee is supported in his or her work (Northouse, 2013).

Not every leader exhibited every Four I attribute, and many leaders were higher in one attribute than another. While this study is concerned with the leadership of Center A and the interaction among the leaders, there were a few examples that helped provide a better, yet not complete, understanding of the leaders' relationships with employees. In addition to describing their leadership, some leaders also spoke about the founding director, executive director, and current director, which provides an important piece of consideration when determining which attributes are most necessary for top leaders. Furthermore, there were also examples of leaders' use of transformational leadership attributes with the board. Within each section of the Four I's of transformational leadership are examples of shared leadership. Thus, in addition to demonstrating leaders' Four I attributes, the examples that also relate to a shared purpose, social

support, and voice are highlighted.

Idealized Influence

Leaders' self-reported characteristics. All the participants except one provided examples that supported the transformational attribute of idealized influence. Each of them referenced anywhere from one to five examples that corresponded with this attribute. In addition to their self-reported examples, a few of the participants gave examples of the founding director and current director displaying these attributes. As a result, those two directors showed the highest level of idealized influence. Examples of idealized influence primarily focused on the leader's high standards, clear mission and vision, skills, and a follower's admiration for or desire to emulate the leader. Below are examples of these exhibited by individual leaders.

Participant G referenced her high standard for Center A's financial status, stating, "I don't want to be in this situation again like I was last October when I was looking at how many months I could pay salary until I knew the next funding source." In addition to high standards for Center A and the work done, some remarked on the clear mission and vision of Center A. For example, Participant J stated that she is a "collaborative leader. I have a vision…" There was also a clear vision for the board of advocates. Participant J recounted that during the creation of the board, the founding director brought a model for what the board should look like.

The largest portion of idealized influence examples was that of admirable or desirable skills that the leaders possessed. These examples were primarily about the founding director and painted an image of a charismatic leader. Participant F shared that the founding director was "good at outreach." Participant G also marveled at the founding director's abilities, "she was masterful at political connections." Furthermore, Participant B remarked that the founding director and current director were "very effective" at using "current resources to position

yourself for the future." In an example of making difficult decisions in the midst of financial challenges within the university, the current director was said to have "gumption...to support that (decision)."

Some of these skills led participants to begin to emulate the founding director. For example, Participant J discusses her growth in grant writing because "she (founding director) was the ultimate grant writer." In another example, Participant J clearly expressed she followed the founding director's lead with meeting individually with board members, "That's just something I felt like I needed to do from watching (founding director)..." However, perhaps one of the greatest signs of commitment to a leader is one's willingness to follow the leader. Participant B shared about the leadership meetings that when the founding director "left (left organization) other people left." This statement denotes the level of commitment other leaders and followers had for the founding director.

Leadership team's self-reported characteristics. Participants gave the fewest instances of idealized influence from the leadership team perspective than any of the Four I's of transformational leadership. Examples of idealized influence largely concentrated around Center A's clear mission and the leadership team's recognition and support of that mission. For instance, Participants C, F, and J all discussed the mission of working with schools, researching, and improving education. To that end, all shared decisions are made to do the right thing to accomplish this mission. Participant B shared that the leadership team chooses the "best path that we (leadership team) feel." Similarly, participant C voiced, "we (Center) have a mission, and we (leadership team) look for programs or ways to accomplish that mission." These examples illustrate how a shared purpose can help focus a team with a common mission.

While the leadership team works at upholding the mission of the Center and securing

programs to do so, leadership also made an effort to do what is right when the Center was struggling financially. For example, Participant F recounted an example of financial instability at the Center, which led to the leaders discussing the possibility of them cutting their own hours to help with employees. "I think several of us, that were able to financially, talked about if we needed to we could work part-time to keep some people" (Participant F). Participant J also discussed that the leadership team had to make "some bold decisions" when making an important decision that would create a significant change at the Center.

Inspirational Motivation

Leaders' self-reported characteristics. For all of the leaders, except one, inspirational motivation was their highest self-reported transformational behavior. The inspirational motivation was primarily described as a commitment to Center A's vision and team spirit. Several participants expressed their own personal commitment to the mission and vision of Center A. For example, Participant J shared, "I work closely with (founding director) to try to implement her vision," which emphasized a shared purpose set forth by the founding director. Participant G felt especially committed to fulfilling her piece of accomplishing the mission, given her role at Center A. With fulfilling the mission, there can sometimes be high expectations. Participant B expressed his high expectations of the research piece of Center A's mission, stating, "I think getting in that pipeline where an expectation is that we're going to produce those articles."

Additionally, there were a few instances of team spirit to accomplish the work. While these instances are similar to those described under intellectual stimulation and the encouraging of employees to think on their own, these statements illustrate the leader's effort to produce a team environment before challenging followers to be creative and innovative. Leaders provided

that social support that allowed for followers to feel comfortable to share their voice. Participant C expressed, "My style is to really work beside them (followers)...to represent and support and be right there with anybody I'm working with because I think we're all after the same thing and that's the way I think we work best." Similarly, Participant F indicated, "I was collaborating with those people (followers). I did their job with them. It was very collaborative, which it was a team." Participant J explained her process of accomplishing a vision, "I like to talk to people around me both above, beside, and below me…" She continued sharing, generally, "I like to empower folks to make their own decisions that fit their project within a given framework." This sense of empowerment can be connected to shared leadership's social support, which is an emphasis on encouraging others that their input is valued. Within that team spirit, Participant B described the effort of trying to make sure the team progresses in its grant writing process. He "encourage(s) and communicate(s) regularly to make sure that we're in line to meet those deliverables," an effort he believes has been appreciated by the leadership team. This effort helps keep the group on task to accomplish their shared purpose. As perhaps a result of leader efforts, several followers were described as being committed to the Center's mission. Participant F described them, "these people were people that were not just looking for a job. These were people I think that bought into the mission and vision of the Center."

Leadership team's self-reported characteristics. Based on all the examples of the leadership team, inspirational motivation was described the most often. Team spirit can impact how successful grants are accomplished. Participant J expressed challenges she had with a grant and how the team helped produce success; "I had no idea what we were doing on that, but we figured it out. Lots of people helped me figure that out." This example suggests the inclusion of many voices helped produce this successful situation. When it comes to decisions about the

directions that could impact Center A, leadership values the voice of all, including staff

members. Participant C explained that leadership tries to "get the input from our employees or

participants, and then we make the decision based on all that input." Participant F reiterated the

collaborative nature of the leadership team in making decisions. However, she also emphasized

the social support of the leadership team in the recognition and appreciation for the different

strengths that come with each member of the team. She voiced

> One strength is I don't care to do it. It's not my thing. And what I care to do that
>
> person that's not their strength, and they don't want to do that. So, I value the fact
>
> that we are very complementary; I think of each other...

Participant G also expressed an appreciation for the different strengths within the leadership

team. She stated,

> With that group, the awesome thing is we've always had people with different
>
> viewpoints, different experiences. They bring different things to the table and so
>
> for us to collaboratively look at the pros and cons of any major decision. I feel
>
> really good about that group being established.

She continues, "I consider myself a very collaborative leader. I might have some hair-brained

idea that I bring to the associate director team, but it is still very shared." Participant B also

referenced the collaborativeness of the leadership team as well as the strength of differences. He

shared similar thoughts to the previous participants, "all those things that I don't care about that

other people care a lot about, and they can come in and contribute."

Several participants discussed the leadership team's shared purpose and commitment to

the mission of Center A. It ensured that regardless of the financial factor, Center A, as a whole,

would not pursue grants or programs that were contrary to that mission and their beliefs.

Participant G and B explained the leadership team's commitment through the team's work. They continued their active involvement with one of Center A's older grants that has helped bring a level of financial stability to the center for many years. While grants do end, the leadership team typically looks for "ways that we can continue to do that work even when the grant was over" (Participant G). This shared purpose is perhaps best explained by Participant G, "I think it will be really important to make sure that no matter how big we get that, we always stay true to the mission, vision, and how we can help make a difference in schools and communities."

Intellectual Stimulation

Leaders' self-reported characteristics. Each participant described himself or herself with examples that support intellectual stimulation, except for one participant. Many of the examples illustrate each leader's effort to include employee's voices in the challenging work of the Center. Leader's also voiced their support for employee creativity and innovation in the work. For example, Participant J described an instance of making decisions for a program at Center A. During the development of this program, the founding director asked participants and other followers, "what do you think?" By asking this question, employees were given the opportunity to think of solutions themselves. Of her leadership, Participant J shared that she promotes social support to staff members as she tries "to get others involved in helping move it (vision) forward and working out the details." During grant writing, Participant J challenged her followers to contribute their voices to the process, asking questions such as "what do you want to do?" Participant C also gave examples of asking for her follower's voices about potential decisions that would impact the Center. She would

> Collect information...on what they (followers) feel like is the best for their programs and
>
> then take that to the leadership group and share that. Sometimes people will have a

different viewpoint, and I go back to the group and say…let's think about it.

Participant F shared her willingness to try new approaches that followers bring forth; "I try to be open-minded...I'm always willing to try things." Participant B also expressed his desire to include follower voices, "I want shared leadership where they get a voice in it, but I do have a voice in it." Additionally, Participant G discussed the voices that followers outside of the leadership team bring intellectually to the process of acquiring new funding. Participant G voiced,

> They (followers) maybe had ideas and grant writing and things like that...We also use people's expertise and things here to help with that...we will have people that are members of our staff help us flush out ideas for grant applications, help us write different sections.

Participant G emphasized the notion that while she produces ideas for Center A, everyone within the leadership team, individually, is capable of contributing ideas as well. "Sometimes it is me bringing ideas, but sometimes it's other people from the team bringing ideas to really facilitate the process and for us to really think about…" (Participant G). Participant B explained that the founding director and current director socially supported his contributions and encouraged his voice in a manner that worked best for him. He voiced his appreciation for this, stating, "they see what skills I do have and my preferred working and then let it happen." Participant H also validated the importance of intellectual stimulation in Center A's work, suggesting that in her role as a leader, she needed to be innovative.

Leadership team's self-reported characteristics. While inspirational motivation was most often seen among the examples of the leadership team, intellectual stimulation received the second-highest number of examples. The leadership team, as a group, were challenged in

critically thinking about ideas but also encouraged followers to share their own voices, especially related to accomplishing the shared purpose. Participant C recounted an instance when a major funding source was ending, and funding for Center A was being stretched, forcing leadership to begin to think of other programs such as professional development workshops to help secure additional funding. She shared, "we (leadership team) brainstormed at our level what would be some topics...we ask people (followers) would they be willing to fully develop those and deliver those." Participant G also discussed the value that followers outside of the leadership team bring intellectually to the process of acquiring new funding, for which the leadership team provides an opportunity. Participant G voiced,

> They (followers) maybe had ideas and grant writing and things like that...We also use people's expertise and things here to help with that...we will have people that are members of our staff help us flush out ideas for grant applications, help us write different sections...

Participant B reiterated the inclusion of follower voices in matters related to Center A, no matter how small, suggesting leaders have discussions with their immediate followers. "This is what it is, go visit amongst your team and see how they feel or even let's do a survey and or a climate study" (participant B). He continued by sharing about the grant writing process, charging followers "if you have any specific ideas pitch them and develop them...if people had those thoughts and recommendations they would go develop that, bring that piece." The leadership team even extended intellectual stimulation to the board. Participant E described board meetings as an opportunity for leadership to ask for board member voices, including thoughts and perspectives. He shared, "the meeting...involves discussion of topics that the leadership wants to put before the board to see what their thoughts are and how the board views maybe ideas of

things."

Individual Consideration

        Leaders' self-reported characteristics. All of the participants described examples of how he or she exhibits individual consideration for followers. The majority of examples related to how leaders interacted with followers during periods of financial uncertainty and potential position eliminations. Leaders demonstrated that when that situation arises, it is important for them to think of each follower individually and help coach or advise them toward what would be best for the follower. Participant J expressed, "I did a lot of counseling with the people to look at what some of the alternatives might be for during that time." Participant F also shared that she serves in an advisory role for many of the followers at Center A for which she does not directly supervise. She gave an example of the social support she gave staff, "I did a lot of mentoring and bringing those people on board when they were first hired for the grant." Participant G also saw this as an aspect of her role at Center A. She voiced, "as we have grown, a huge part of my role, I think, is really to grow other leaders…"

        Leaders also gave individual consideration to board members. The founding director and current director, throughout the years of their leadership, have met on an individual basis with several of the board members. For example, Participant I recalled that the founding director "would meet individually with those board members from these different colleges as a one-on-one think tank with them." She also later shared, "you have to know their passion, their expertise, their connections, their willingness to make things happen."

        Leadership team's self-reported characteristics. Participants provided several instances of how the leadership team demonstrates individual consideration. Several leadership team examples were related to the periods of loss of funding and how that would impact each

follower individually. The leadership team tried to consider each follower by sharing updates about the funding situation as early as possible. Participant H listed this as one of the first actions for leadership during a period of loss of funding. Several other participants reiterated this idea. For example, "we kept telling people there's one more year of this grant...we started a year in advance...making them aware, giving them lots of notice, giving them good references if they got new jobs..." (Participant F). Sometimes these included helping followers decide what they wanted to do next. Leaders asked questions such as

> What do you want to do? Yeah, you want to stay here, but if we don't have funding, what do you want to do? Do you want to go back to the classroom? Are you looking for an administrative job? (Participant F).

Participant B voiced, "opening that communication with them so we can make sure that our professionals that are working at the Center are well taken care of. I think that's important for us as a Center." Participant G shared that based on follower responses, "we (leadership team) would use our connections and political (influence) to really help people as they were applying for positions when they were planning to leave."

The leadership team was also considerate of each individual in trying to transition them into new roles at Center A that would be a fit, when available. Participant F explains this, "we tried to transition those that were on the grant that was going to be ending...moving them over to another job." She later continued explaining the team tried "to supplement and keep those people employed with funding their salaries through a different source and not necessarily a different grant…" When grants ended and there was an opportunity for supplemental funding for an employee's salary, the leadership team would speak to each employee individually. As a result, Participant F shared, "they (followers) felt valued as a result of that, and this is where they

wanted to be working." A good estimate of how individuals were treated with individual consideration also explains how much they learned. Participant D expressed the growth that several teachers experienced who worked with programs at Center A. She voiced, "their (followers) growing was just by leaps and bounds."

The leadership team even showed individual consideration with board members. For example, the leadership team, along with the chair of the board, individually considered each of the prospective candidates for board membership. Participant E explained, "you need to get the mix properly organized, and so it means trying to find people that fit whatever we need at the time." This individual consideration, at times, could also be viewed as both a positive aspect for some board members and a negative aspect for other board members. For instance, Participant J shared, "Because we have so many different people on the board, you go to kind of their strengths."

Overall, many of the participants recorded several examples of each of the Four I transformational attributes. There were only a few leaders who did not describe an example of themselves and one of the transformational attributes. Similarly, leaders reported many examples of the leadership team exhibiting the Four I's. While there were fewer examples of the idealized influence of the leadership team, the other three attributes were shown frequently through examples. The findings suggest that the leadership team has a less centralized structure where leadership is shared among all the leaders. These findings are discussed in relation to the literature in chapter six.

Transforming the Research Center through Organizational Performance

Organizational performance within transformational leadership literature has been measured as the financial performance of the organization as well as the leader's vision and

focus on mission (White-Alsup, 2016). Participant B explains that the grant writing process can be challenging, "...there are so many little things that influence whether you get it (grant)." However, one of the collected documents, a brochure over funding history, suggests that Center A has been successful in its financial performance. Participant J spoke to this when she described the general outcome of grant writing, "We were lucky. We got several of them." Participant C also affirmed that sharing, "Actually, we have gotten most with the exception of the IES (Institute of Education Sciences)." She did, however, share that NSF (National Science Foundation) grants were other grants that had eluded them, instead stating that the Center's success differed by funders. Despite Center A's apparent financial success, there were periods of financial uncertainty, which all except one leader recounted. However, overall, Center A has been successful in securing funding.

Leaders transform the center through shared transformational leadership. As described previously, leaders individually and as a leadership team demonstrated the Four I's of transformational leadership. Many of these examples also supported the antecedents of shared leadership: a shared purpose, social support, and voice. With a focus on and attention to employees and their needs, leaders can motivate and mentally challenge them toward accomplishing the shared mission of Center A. Thus, shared transformational leadership is an aspect of how leadership transforms Center A for the better; however, other themes are utilized toward transformation. These include meeting structures, anticipating the need for new funding, and consulting and collaborating with experts and outside stakeholders, which are described further below.

Meeting Structures Foster Open Communication

Structures have been created at Center A to produce an environment that leads to the

Center's success. Leadership has made an attempt to ensure that these structures lead to furthering the Center. Not only do leadership have structures to organize and centralize leadership communication, but they also have structures for communication with staff and the grant writing process. These structures are described in more detail below.

Weekly leadership meeting structures. Leadership meets weekly to discuss current updates and areas of concern. Participant F described this structure, "we meet weekly, anywhere from two hours to how much time we need. We have a prepared agenda. Some of them are standing items, but then there's always something new. And I think we're collaborative in making decisions." She suggests that this structure is "kind of just the expectation." Participant G also shared that structures allow for a collaborative, shared decision-making process to occur, "we have structures in place where we meet once a week, every week." However, she also recognized that when Center A was quite a bit smaller, with fewer employees, there was less of a need for a formalized meeting. This need developed as Center A grew both with grants and employees. Formalized leadership meetings continued even when funding was uncertain. Specifically concerning financial uncertainty, Participant J shared, "leadership continued to meet, continued to look for as many alternatives as we possibly could." It is in these meetings that leadership can have conversations and brainstorm solutions for funding.

All staff meeting structures. Once a month, all employees at Center A gather for what is called an "all-staff meeting." Observation of this "all staff meeting" helped provide a deeper understanding of several Center aspects, including the size of Center A, the variety of programs, and regular communication between leadership and staff and between all staff members. While these monthly staff meetings have occurred for many years, the actual structure, length of the meeting, and time of the meeting have fluctuated over the years. Each month covers different

topics of interest for the staff; however, all the meetings include an opportunity for updates with each program or grant. In addition, leadership, when needed or appropriate, provides an update of administrative matters. It is during this time that leadership, in the past, has reminded the staff of grants that would be ending and the steps taken to ensure new funding. The staff members are typically offered a chance to ask questions. This structure provides a consistent, recurring opportunity for the staff's voices to be heard and new information to be shared across the whole Center. It encourages a shared understanding of Center-wide aspects that could directly impact staff.

Grant writing structures. When leadership identifies a worthy grant for which to apply, they have structures in place to help them through the process. Participant C explains some of these steps,

> When we see one that we think fits our mission, and then we pull together with a group that would be the most involved in carrying out or be interested in getting that project, and then we work on the proposal.

The first step in this process typically includes forming a grant-writing committee that will give their time and effort to write the grant. These committees always include leadership at the Center; however, the invitation is also extended to staff members. Participant G strongly voiced staff member's involvement in the grant writing process, sharing that leadership gives "people an opportunity to be involved in the grant writing if they wanted to...we also use people's expertise and things here to help with that." Participant B also explained the invitation to staff, "we attempt to engage people who want to be engaged…we asked if you're interested in and had the bandwidth to invest the time...but as long as they understand the parameters, anybody (who) was willing was invited to the table." He explained that it is important for interested staff members to

understand it is illegal for an individual who is fully funded by federal money to use their work time to write for additional federal grants. So, those who were involved in the process and whose salary was funded by Center A's current grant would have to fulfill their committee writing duties outside of their standard 40-hour workweek. While there were no active grant writing committees during this study, several participants helped describe the grant writing process.

Structures for the grant writing process typically involved the committee gathering for an initial discussion of direction and aspects of what would be included in the grant. Participant B shared that the committee would "...build the outline. I would go put the meat around what it...we would start with drafts and then add and tweak as we went." If the committee was writing a grant for a similar grant, they had previously received, the committee would use the previous grant as an example. Following the whole group, conceptual thinking about the direction of the grant application, Participant G described the next step as a "divide and conquer." Members of the committee would typically volunteer for sections of the overall grant, work on that piece, and bring it back to the committee. Then the committee would make changes to ensure a "common voice" throughout the grant. During this process, all committee members were invited to partake in sharing ideas and potential directions. Participant B emphasized this, "'if you have specific ideas, pitch them and develop them'...if people had those thoughts and recommendations they would go develop that, bring that piece." He gave an example of a staff member who worked on a previous committee and had an idea for another section of the grant and then developed it. That piece was fit into the grant. Staff members also came with their level of expertise that can be key to writing a grant. Participant G acknowledged that expertise, sharing that staff "help us flush out ideas for grant applications, help us write different sections because they are closest and best know and understand the work." As previously shared, the Center has been relatively successful

in being awarded grants for which they have applied.

Anticipating the Need for New Funding

Leaders must be forward-thinking for the sustainability of Center A. They must be anticipating as well as one step ahead of the inevitable end of a grant if they want to minimize periods of uncertainty. When asked about steps that would be taken pending a loss of funding, Participant C first mentioned, "we try to anticipate that...we knew that program wasn't being renewed." Participant G used the phrase "even when things are good" as a means of describing leadership's constant pursuit of funding. Participant B explained it as "it's not today's funding, which is important, but positioning ourselves for future funding. And so, every decision we make about the resources we have today need to also position us to access future resources."

Looking, looking, looking for funding. The leadership team continuously looked for grants that they could apply for in hopes of receiving just a little bit more funding to further their important work and sustain the Center. Participant C stated, "you begin to look for other grants to apply for." Participant F voiced,

We are constantly looking for more grants to pursue. I mean, that is the

sustainability of the Center is continually continuing to write and receive grants

because without that, we wouldn't be able to sustain. We would not be here.

Participant H described the continuous writing of grants as the financial model of the Center. Participant J shared, "You'd always be looking, looking, looking, looking all the time for other funds, and I can't tell you what all we did for those funds." While they were committed to finding grants that aligned with the Center mission and did not contradict their beliefs of that mission, sometimes leadership had to expand their current focus. Participant F recounted that in one specific example of funding loss, leadership broadened their focus to look for additional

funding. Participant J also shared, "You had to change your focus to fit whatever the grants were...That's always been kind of my mantra that we try to find something that will fit, and we got to go where the money is too." Participant C discussed being open to new funding but still focused on the mission. She stated, "...trying to be as open-minded as possible, but also not sign up for money if it doesn't fit what we think is right for us to be doing." Based on this, she shared a fictional example of a grant with characteristics that contradicted their beliefs about education, and so they would not apply for it. Participant G similarly voiced this,

> We do have to always write grants to continue to provide the services and the
>
> work that we want to do, but we won't chase just any dollar or any grant. It really
>
> has to align with the mission, the vision, and the original work from when
>
> (founding director) first established the Center.

Participant B also spoke about looking for grants by stating that one of the things leadership needs to do is to "keep an eye out around what type of programs aligned with your current research…do everything you can to get out and find traditional, non-traditional sources of funding." While leaders are continually looking for additional funding to supplement or replace current temporary funding, they are also looking to diversify their funding sources.

Multiplying and diversifying funding sources. It is always a good idea for centers to have a diversified funding portfolio. The diverse approaches help with periods of financial uncertainty when the majority of the Center, including its personnel, is not solely funded by one large grant that will end in several years. Participant C described her work with science, technology, engineering and mathematics (STEM) related grants, sharing that those can be for short periods, such as one to five years. Because of this, she expends a lot of energy and effort to make sure she has "many, many different sources" of funding. She mentioned about seven

different funding sources, which each has a "...different focus, a different audience…"

Participant F also recalled leadership's active efforts to diversify, "we were really trying to

diversify what we did…" Participant G believed that the diversity of funding sources has been

important for the Center. She stated,

> I think the funding sources that we've had at the Center, in addition to that very
>
> small 1% to 3% piece that comes from the university, comes from all different
>
> funding sources. I think that's been what has served us well as a Center is that
>
> we've had a very diversified portfolio.

Participant H similarly emphasized that multiple sources are the key to the sustainability

of the Center.

Using current successes to secure new funding. It was important that the funding that

was received produce good, noteworthy results. The results of what is done with grant funding

can be an aide in receiving additional funding, furthering the Center's mission, and building a

good reputation among funding agencies. Participant B explained the importance of this stating,

> I think that one of the big things about writing grants is your ability to show that
>
> broader impact and how you disseminate the stuff. So, our numbers are so
>
> massive that I think that another element of the future grant writing is we can
>
> report that 'Hey, that million dollars you gave us, we're impacting a million
>
> students.'

Participant D shared an example of how a successful grant product led to additional

funding for the Center. She reported, "It was a three-year grant, and we did spend the first couple

of years designing it as a statewide committee, and we were successful. We got another three

years." Participant G also discussed how the results of one grant could be useful for the next

grant. She communicated,

> The more that we do the work and have good results and do research and figure
>
> out connections, then often times even if the grant ends there's something from
>
> that that might be a piece of the next grant or the next funder to continue the work
>
> or things like that. (Participant G)

Consulting and Collaborating with Experts and Outside Stakeholders

Leadership consulted with outside stakeholders who could contribute to the grant writing process. For example, Participant J shared, "We had people from different departments who worked on a lot of those grants, and we did try to bring in people from other departments. We'd work with them to do that." While this does sometimes depend upon the area or topic of the grant, leadership made an effort to identify some stakeholders who can contribute. Participant C recounted, "We've had actually many of the STEM grants that we're involved in several of them involved certainly other scientists or engineers from the university, and then some of those will involve industry people." Building these types of partnerships with individuals across the university campus has also proved beneficial for Center A. Participant F provides an example of this, recalling that scientists at the university would write grants that included contracted work with the Center. This interdisciplinary collaboration provided an additional source of funding for the Center. Participant G confirmed this, stating, "We've always partnered a lot with folks across the university. Scientists, meteorologists, different people that have areas of expertise here at (university), but then also other universities and other businesses and establishing."

Leadership used several strategies to transform the Center. Certainly, their use of shared transformational leadership attributes had a role in transforming the Center; however, they also use meeting structures, anticipate the need for future funding, and consult and collaborate with

experts and outside stakeholders. A combination of all of these aspects positively impacts the Center and helps with sustainability.

The Role of the Board in Reducing Leaderships' Dependence on Resources

There are many similarities between nonprofits and research centers. Participants in the study used the term "nonprofit" in a few instances to provide context but also illustrate differences. While nonprofits are dependent upon resources for their survival, boards can act as a catalyst toward the reduction of dependence on those resources. Even though research centers operate in much the same way, their dependence on resources can be different from nonprofits. Based on data collection, including interviews, it is evident that two of the largest sources of resource dependency for a research center are funding and the university. Dependence on either one of these can never fully be eliminated. The board's involvement with and impact on funding is discussed further in the next section. The following section focuses more on the Center's dependence on the university.

The university is another resource of which Center A is dependent. To fully understand this dynamic, it is important to understand a research-intensive university setting, its expectations and services, and what it is to operate within that system. Research-intensive universities have high expectations for research productivity and external funding, including what types of external funding research centers receive. Because of this, universities often have an office of research, which assists with grant-related work. All external funding grants flow through this office, so the university is aware of and provides assistance with all grants received. When research centers secure some grants, such as federal grants, the grant money is distributed to the university first and then the Center next. Being housed within the university, and ultimately the research office, provided a layer of both benefits and added stress. Affiliation with the university

means Center A employees are university employees, and employees have access to all the benefits of regular employees such as the human resource office and health benefits. The research office also provides Center A administration with access to experts who are familiar with grant policies. The combination of the university and research office means other resources such as adequate physical space to house Center A and its work.

However, these structures also come with additional stress. For example, Participant H described the transition of Center A into a recognized university-wide center, which meant coming under the research office's umbrella. She expressed the newfound stress over expectations and securing funding brought on by the office and its vice president. Other participants also referenced research office expectations over the kinds of grants for which the Center would apply. While there are stresses, the level of support and resources, such as physical space, that the university and research office provide are key to the ultimate operation of Center A. Without such help it would be even more difficult for leadership to lead Center A effectively. Therefore, for the board to act as a catalyst to eliminate Center A's dependence on such a resource would be very unlikely and most likely unadvised; however, the board can be key in the Center's navigation of this resource dependency. The board does so through its board membership, external perspective, and advocacy among their connections. These themes are described in more detail below.

Board Membership Impacts Board Effectiveness

Board membership was an important key in the effectiveness of the board. The individual achievement or expertise level of each member determines the whole board's level of influence and connections. Ultimately decided by Center A leadership and the executive board committee, a wide variety of board members can be an important aspect of the overall board. Participant E

shared, "Having a board that has expertise in broader areas is really important...over time we've

added people that have had other areas of expertise in government relations, expertise in

university relations, expertise in technology, and...just global thinkers." He continued by stating,

"one of the things that I see is probably the most effective thing for a board for a research center

is to have expertise not just in the research center's focus." The expertise of board members can

be helpful, but so can their connections. Participant F explained the thought process behind

recruitment, "What are their connections out in their community? Is there a match with the

connections they have that would allow them to be an advocate for the Center...So it's wide-

reaching." Participant G similarly agreed and added that some of those connections were with

important related organizations or associations.

> Board members had connections with organizations or businesses that fit for the
>
> work. So, those were a lot of the key folks. We've had lots of choosing leaders in
>
> some of those very important organizations. We've always had someone on the
>
> board that definitely had that direct connection where they were a piece of that.

Geographical representation was also important. Sub-committees on the board were tasked with

"making sure that we have graphic representation...we have folks from different areas" across the

state. (Participant G)

However, it can sometimes be hard to truly achieve a board that meets everything for

which leadership or the executive board committee is looking. For example, Participant I

expressed, "we brought on people for various reasons and building a diverse board was

paramount," but "our board still was never as diverse as it should be ethnically, never has been."

Members should be the right fit for the center. Even with these challenges, leadership

sought individuals not only from different backgrounds but also those whom they felt would be

the right fit. Participant E expressed this importance, "you need to get the mix properly organized, and so it means trying to find people that fit whatever we need at the time." Participant G also discussed the fit of a board member,

> I think just any time that there's that natural fit with the type of work that another organization or business...when we see that direct connection to have some representation on the board from that group or organization or specific role really has helped facilitate having all of those voices heard kind of in that collaborative stakeholder involvement.

Interest and belief in the Center's work were also discussed in relation to the board members fit with the board. Participant E described how a board member's belief in the work encourages them to be active in their membership,

> The people that are on the board are committed to doing what they can to help because they really believe in what the Center's doing and it's making a difference...you've got all high-powered, highly energetic people on a board like this if you've got the board that you need.

This interest in the work is an aspect that leadership looks for in potential board members (Participant H). Another Participant, I, shared that this was true of the original board members, suggesting they "bought into it [Center mission] hook line and sinker." However, even with recruiting board members with wide-reaching connections and those that are the right fit for the Center, there can still be challenges with the cohesiveness of the board.

The cohesiveness of the board is influenced by board membership. Several participants discussed the changes in board membership since the beginning of the board. For example, Participant I affirmed that several of the original members have since left the board,

"You don't have the big players there anymore." While participants still felt the board was effective and useful in the success of the Center, the cohesiveness of the board can present a potential challenge to that effectiveness. Fortunately, consistency in the executive board committee helped offset this potential challenge. Participant J shared, "The continuity the board I think is also extremely important. The cohesiveness of the board maybe kind of ebbed and flowed a little bit during that time, but we were really lucky...to maintain some consistency in the board leadership." While the cohesiveness of the board can present a challenge for leadership, the board still provides benefits-to Center A.

Board Members Provide Important External Perspectives of Work

Because most board members are outside of Center A and are employed by a wide range of organizations, members' perspectives add value as an external perspective. Participant F shared, "they bring those perspectives, those different perspectives." Participant H also iterated that the board member's external perspectives were important, and the lack of these perspectives threatened Center A's forward progress and relevance within their field of work. Part of those external perspectives was illustrated by their ability to be a critical friend while also bringing an aspect of checks and balances to Center A leadership. However, leadership and the executive board committee can also be challenged by board apathy.

Giving good and critical feedback. Center A's leadership asked board members for ideas, input, suggestions, and feedback. All participants referenced this as the role of the board. Participant G articulated, "they're supportive, and we share, and we ask for input or feedback or connections." Participant F also acknowledged this, "they bring ideas sometimes...they're very open to giving suggestions for things that may be something we've already talked about, but they're very open and willing to give ideas." Still, another Participant, J, expressed, "I see them

as giving input and ideas. Also, giving us feedback, good, bad, critical. I see them being critical

friends." Part of the usefulness and effectiveness of this feedback could be due to board

members, not being part of the board, being free of any of the stresses that leadership feels. For

example, Participant E explained,

> If you get the right people, you get the interested leadership, and you get the range
>
> of expertise. It's all free expertise...having a sort of a group that doesn't have any
>
> of those stresses can sometimes provide ideas and thoughts and expertise that's
>
> not available otherwise.

> Being critical friends can be an important task for the board; however, participants shared

that sometimes the avenue to provide such support has been limited. Participant A discussed the

contrast between leadership and board member perspective on the opportunities for the board to

be critical friends. She voiced,

> It's interesting. I don't see the invitation for critical feedback as much from this side. Even
>
> though you think you're asking for it, I don't see that opportunity as much. I see them just
>
> kind of telling us what they're doing. (Participant A)

Participant I strongly conveyed the importance of such a role and how the absence could be

troubling for the board. She expressed,

> I think the board members come because they have a lot to offer... if they're not
>
> asked their opinions that's not a good thing. I think board members need to have
>
> an opportunity to mix things up a little bit because, you know, any organization
>
> can go askew...can go awry. Board members are there to ask questions.

While this has sometimes been limited, participants did share that when their ideas were

shared, they were heard and valued. When asked whether his ideas were used, Participant

E explained,

> Most of the time. Not always, but most of the time. You can't expect to have
>
> everything be adopted...generally over the entire time leadership has been
>
> responsive to, and I think genuinely has been interested in what the thoughts
>
> were.

The board's ideas and critical feedback can be important for leadership when making

decisions.

Checks and balances through support and accountability. The role of board members

and their external perspectives has also been described as a system of checks and balances. They

provide both that support and that accountability piece. As for the supportive aspect, Participant

E communicated that

> The board probably has had a supportive role. I think given leadership some 'hey
>
> you're doing good. Keep it up.' I think that sometimes people in university
>
> settings need that. They don't get the 'rah, rah' support that they sometimes need.

This support was also expressed as validation of the work being done or leadership's direction.

Participant F shared, "I think they validate things we're doing." She also continued by discussing

that the board provides a measure of accountability for the work being done and the decisions

being made. She stated,

> I think it's nice to have some checks and balances there because I think they
>
> somewhat hold us accountable for 'well, what are you doing?' 'What are you
>
> planning to do?' So, I think that the board has some accountability... I think the
>
> fact that we have a board meeting next month...and they're going to ask this of
>
> me...I think there's some accountability. (Participant F)

Two participants referenced this sense of accountability, sharing that the director needed to be able to accurately present the latest Center update with the board or executive committee. Participant I also shared similar sentiments about the board's ability to serve as a measure of checks and balances. She voiced,

> I have always felt that an outside group, a group that can give support and can ask questions, is important for everybody. I just think it provides, again, checks and balances, opportunity to rethink and think over and articulate and maybe think, you know, 'I haven't articulated this to these outsiders and they're like other outsiders, and that's really a good experience for me'...You need checks and balances. You need additional voices. You need voices of support. You need voices that connect you to another support, can take you in a direction you never dreamed you could go. I think a board can be extremely powerful and is very needed, really.

Through their checks and balances approach, the board can be both supportive and reaffirming of the work while also holding leadership accountable.

Board apathy, the struggle against disinterest. The board's role of critical friends and checks and balances is mostly fulfilled during a board meeting or executive board meeting. Therefore, it is important to note that while board members provide their external perspectives in these manners, there is also a challenge of board apathy. Such a term relates to the potential for board members to become disinterested in the information or work being provided at the meetings. Participant E shared his thoughts about meetings,

> One of the things that happens on these kinds of organizations is you can get board apathy pretty easy. Because if they [board] don't feel like they're there for a

reason, each meeting they're just coming to a meeting where it's reported what's happened and they go home. They get pretty bored with that.

According to the board bylaws and interviews, the Center director, associate directors, and executive board committee are tasked with planning the agenda for the board meeting. Based on collected meeting agendas, minutes, and observations, meetings within the past several years have primarily consisted of an update on the status of Center A work, work in sub-committees or an activity, and opportunities for board members to ask questions. Some participants did reference the changes that have taken place in board meetings since the beginning of the board. For example, Participant I mentioned the shift from "think tank" sessions to more informational sessions. Participant E chronicled these changes suggesting that board meetings started with a "work focus" then went to a "report" and finally is now at a "report and work," which he believes is the best format. Participant E did emphasize the importance of the Center update portion of the meeting because it allows board members to have a clearer understanding of the work, successes, and areas of need. However, he shared that he does not want it to be that "all we [board] do is come listen to the reports." Those kinds of meetings hinder the board's ability to effectively share their external perspectives as well as creates board apathy, a feeling of "why did I come [to the meeting]." Thus, in order to avoid board apathy, board members must receive the latest information about Center A but also be challenged and have an opportunity to share their voices.

Board Members Advocate Within Connections

Board members, with their many connections, are advocates for the Center. With advocacy written into the board bylaws, this is one of the few specifically defined roles of the board. Advocacy can be a key aspect of lessening the Center's dependence on resources.

Participant G affirmed this, "just that the importance of the advocacy and the connections and the communication is why they're so important." She continued by sharing an answer to a question she is often asked by board members, "'Tell us what it is you need from us.' Well, that advocacy is key." Advocating, in part, involved "getting the word out about (center)." (Participant C) Board members through their wide-reaching connections often have influence within the university and outside of the university.

Influence within the university. As successful professionals within their field of work, board members often served on other boards within the university system. Because of that, members have connections and influence over higher-level administrators within the university. Additionally, the Center's board has always had members who are administrators and faculty members from the university. These individuals also had contact with higher-level administrators at the university. Participants J confirms this, "They [board] had a great deal of influence with university leadership."

Within the university, participants shared various ways the board's influence made a difference. For example, Participant E stressed the importance of "raising the visibility within the university" during the beginning of the Center. He continued by expressing, "The Center became...designated organizations and gets some special focus and maybe even funding, and...that really made a difference and the board probably...played a big role in that." He also shared that "positive communication" with university leadership over time has "made a difference." Participant E felt that the board was important during changes in university leadership because some of the board members had relationships with the different university presidents over the years.

However, two of the most common examples of the board's influence within the

university was that of making sure Center A was established as a separate office and securing a physical space for the Center to be housed. Several participants referenced this as an illustration of the board's role and a way of utilizing it. Participant J shared,

> There was a movement to undo the Center and move it into the college of education. Basically, our board members made sure that didn't happen. They went to university leadership, and we started having meetings, meeting with the dean of the graduate school and other partner researchers to discuss the future of (Center)...without them, I don't think the Center would still be here.

Participant E also shared about the board's work in helping acquire a physical space for the Center. He voiced,

> One of the biggest functions I had was in helping get the new facility. Things were crammed in there [previous space], and it's not a really...flagship place to work...that was one of the things that I spent quite a bit of time advocating within the university to get us some location and some funding that cover for that, and it worked. Over a period of time, it paid off.

The participant mentioned that this was one of the times when he felt most successful.

Influence outside the university. Board members also had a lot of connections and influence outside of the university. Participant J shared, "individuals on the board...met with people of influence both within and outside the university to advocate for [Center]." Advocacy outside the university can be key in the Center's growth and visibility within their field and state. Participant C explains this,

> The Center's board really serves the function of advocating, sharing the word about the center...it's amazing, you can get in areas or in groups that have never

heard of the Center. And so, we try to have representatives from all walks of life

all of our stakeholders so that we have a wide outreach.

She continued by stating, "They want to help us have an impact in the state." Participant I had a little different perspective of the actual visibility of Center A but still acknowledged the board's role in that. She stated,

We were advocates for the Center, and at that time, the Center wasn't known all

over the state as it is now I mean, it's taken a lot of years even though they've

worked in a lot of schools. It's still taking a lot of years to have a statewide

reputation.

It requires lots of "community activity" to help raise the visibility of the Center (Participant E). The board's advocacy within the community is important for Center visibility and board member's influence outside the university. According to Participant F, board members should "advocate within their communities and spheres of influences to promote the mission of the Center." Participant G shared her take on the board's advocacy,

I think it's [board] crucial for the research center as a whole because...having that

advocacy group that is the key stakeholder groups for our state or if we're

thinking about in the future potentially expanding outside of the state. I think

that's crucial. And I think all of those types of connections and for advocacy...it's

the communication of all being on the same page and being able to support each

other's work as a result of that has come lots of other partnerships within those

groups and outside of the board. So, I think it's a very important thing to have just

for any of those connections. Definitely to help improve the advocacy.

Other means of advocating and influencing the community outside of the university included

activities such as putting articles in the newspaper.

Complexity of work threatens board members' understanding. In order for board members to be effective advocates, they must have a clear understanding of the work as well as a strong belief in the work. For example, Participant I emphasized that her strong belief in the work allowed her to "be a strong advocate." On the other hand, Participant G shared the challenge of finding a balance so board members can be effective. She voiced, "it's just kind of finding that perfect balance of how they can advocate, how they can understand the work, how we can make the connections, how we can partner." While understanding the Center's work is important, the work is often complex and challenging to understand. Participant J voiced, "then a weakness of our board is that our Center is so complex that it's really hard to give them what they need to help explain it to other people. I don't know how to do it." Participant C also shared, "We're continually trying to share what we do. I think they all are very interested in providing that contact for the Center with stakeholders and possible schools and funders. I think the weakness is they, for the most part, they don't really understand what we do."

While it is challenging to understand Center A's work, several participants mentioned different means of helping board members better understand. For example, the exercise of developing "elevator speeches" could help them accurately explain Center A in a short conversation. Participant E emphasized the significance of accurately representing the Center, suggesting, "It's pretty easy to have everybody have a different idea of what the Center does." He believed "elevator speeches" was an effective way of making sure all board members were on the "same page." Participant E also shared an example of board members being actively engaged in the work and seeing the work firsthand. He suggested this provided board members with real,

valuable stories that could be shared with their contacts. While understanding the Center's work can be challenging, it is key in the board's ability to advocate and make a positive influence outside of the university on behalf of the Center.

Board-director relationship impacts board roles. The director's relationship with board members, more specifically the board president and executive committee, is an important piece in the board's relationship to Center A and all of its roles. All directors have worked with the board not only through board meetings but also in one-on-one meetings. Moreover, all participants shared that the relationship between the director and the board has always been great. Participant E shared about the board, "We've been lucky and had leaders who do and are interested [in the board] ...It's always been good." However, through the interviews, it was apparent that there were differences in the relationships with each director. For example, the founding director has been described as a master "networker," who established the board and decided the original board members. She worked closely with each of those members to the point that she developed a personal friendship with them. For example, Participant J shared, "You would notice when they [board members] were with her [director] that they felt comfortable...she would see them socially." A social friendship is something Participant E believed to be important for board members. He stated, "I think it's kind of important actually to have a working, friendly relationship. Not just an 'I go sit there and then I'll take off.'"

However, the issue is when there is a transition in directors. How does one establish that strong connection between the director and board members? Participant J referenced this transition, "That's what happens in a transition. You have some people you bring in, and they're partly for a certain personality. And then the personality changes, and how do you keep them connected?" A few of the participants discussed this transition and the effort of the most recent

director to add board members with whom she had a close and personal relationship. Participant F felt this change resulted in more engaged board members. She shared,

> The ones that she's [director] put on the last couple of years have definitely...had some kind of connection with her, and so it appears to be much more. They're much more engaged, I think...I think the fact that they have a personal connection with her it appears to me that they're more willing to give up their time…'know the organization and I'm willing to do what I can because of my personal relationship with this person.'

Based on interviews, the associate directors have been less involved with the board, specifically during the beginning years of the board. They became more involved with the board in more recent years, as that was a change of expectations that came with the most recent Center director.

The board can play an important part in mediating the Center's dependence on the university as a resource. While the Center will never become completely independent of the university, the board provides aspects that can help strengthen and grow the Center towards a lessened dependence. Specifically, it is through board membership, external perspectives, and advocacy among connections that boards help leaders navigate the Center's dependence on the university.

The Assistance of the Board for the Center's Survival by Securing Funding

Due to the established roles and responsibilities, the board had limited involvement and influence in the daily operations and funding of the center. The board had no authority over which grants were applied for or leadership expenditures. Participant I shared, "I don't know about the finances. I never got into that." While board members may not have been involved with finances in a hands-on way, they were kept informed of the financial state of the Center.

Participant H shared that board members were "well informed" of financial status through discussions at meetings. In fact, of the 12 board meeting minutes collected for data analysis, only one meeting did not show Center A's finances were discussed. Furthermore, two sub-committee meeting minutes were collected for analysis, and both of those meetings covered an aspect of the finances. Another participant stated, "They are not involved in like our general budgets for grants. They know that we're a soft-funded organization…" (Participant G). Participant I provided a better understanding of how the board members were kept "informed" about finances.

> We never got into much of the finances as a board here at all that I'm aware
> of...except to just be informed when grants were being written, when grants were
> approved, or just to be informed that we were so tight that we might have to lose
> employees. A grant may be ending soon, and employees will be leaving, but not
> numbers per se like some other boards. There are boards of advocates, and then
> there are other boards who have a fiduciary responsibility, and we never had that
> responsibility. (Participant I)

While funding was not within the responsibilities of the board, participants shared different beliefs about whether the Center would have secured funding without the help of the board. For example, Participant I strongly stated, "I think the board was integral in making that happen...Every step of the way. I know (employee/board member) came to the rescue many times and other board members...it was a team effort to grow." Participant E had similar beliefs about board involvement but was not convinced funding was largely due to the board,

> Yes, it (Center) would be alive and probably have these grants today, be going
> full blast. But there were a couple of times when it was, you know, things were
> pretty tight because the grants ran out and there wasn't anything big in the

pipeline. Or at least there were some things that were in the pipeline, but they

hadn't come through. And there were times when I think that the board played a

role in that.

A few participants expressed hesitation in making a definitive statement, "It's hard to say if you

didn't mention that if we'd have been funded or not. My guess is yes" (Participant C). Participant

H also voiced, "I don't know for sure, but we were able to secure a lot of the funding initially."

Others strongly believed that funding did not depend on the board, "They would have secured

funding without them...The board was not the make or break of us receiving any of the funding."

(Participant F) Another stated,

I think this Center has a lot of structure set up where securing other funding that has not

been a direct role or responsibility for the board. So, I do think that probably a result of

new grants and things like that is not directly tied to the board. (Participant G)

Those who were involved with the Center during its creation and early years were quicker to

recognize that the board was critical to funding, played a role in securing funding, or were

influential in some aspect of securing funding.

Despite the various beliefs on how critical the board's role was in securing funding,

almost all of the participants shared that the board could play an important role for the Center,

specifically with funding. Some expressed the board's strong role stating,

I think that it is extremely important. I don't think we would have survived the low

funding cycle and loss of our founder without our board and without the strong people

that are on there. Working with them and bringing them along was very important.

(Participant J)

Though the board may not have had authority over the fiduciary aspects of the Center,

they provided important elements that ultimately support Center A in its pursuit of funding. For example,

> It (board) has in the past (been) involved helping with trying to get grants, finding funding and seed money to start special projects, and then in communication with the funders within the university about them, our perceived importance of the Center. (Participant E)

The rest of this chapter presents the themes relevant to the board's contribution to leadership as they seek funding for Center A. Data revealed the following themes: think tank, utilizing connections, and members' personal financial contributions.

Board Members are Think Tanks, Providing Advice and Ideas

The board has been characterized as a think tank of sorts. Because of their wide-reaching connections and their external perspectives, the board members could have a role in the finances of the Center. When the board operates in a think tank capacity, they do so by identifying funding opportunities and advising. These categories are described in further detail below.

Members locate funding opportunities. During board meetings, members have helped leadership identify potential funding opportunities. Several of the participants voiced this in their interview. For example, Participant C shared, "They've (board members) certainly reached out. I think they've looked for grant opportunities for us." Similarly, Participant I expressed, "people who could give you insights into the possibilities where money could support and where vision could come together." Seeking the board's knowledge of additional funding sources was also shown in board meeting minutes. Minutes from a sub-committee meeting showed one of the focuses of the meeting was to "Identify major funding sources to expand funding" for a specific program at the Center. The meeting minutes continued stating, "Investigate major companies,

organizations, foundations, and any other possible funding sources." In some cases, the effort toward additional funding sources was in direct relation with the second category of advice. The Center director, as shown in a meeting minute, "encouraged the board of advocates to share insight, advice, and feedback. He stressed that the role of the board was to share what they saw as opportunities or challenges."

Members advise about funding opportunities. Not only did Center A's board look for and advise about potential funding sources, but the board also had advice on challenging situations or other funding strategies. During board meetings, leadership was interested in the board's voice about the finances. Participant F shared, "We definitely were in communication with them about, you know, we're losing this funding, but we're writing these grants, and of course, they had their advice to diversify." In challenging financial situations, leadership also asked for suggestions or input, "if we were worried about this part of the funding for this particular area, we would ask the board for suggestions...if there was a financial issue that would be when it was brought up." (Participant H) The board's ability to give advice and input also has the potential to make an impact on how funding agencies view the Center. Participant C expressed this,

> It's helpful in those applications that we have the board. It shows that we're seeking stakeholder input. That we have an advisory committee structure. That we're not just forging ahead on our own and not seeking input...listening to input. So, I think the funding agencies look at that.

Documents and interviews showed that the board could ultimately assist leadership in financial situations by serving in the role of a think tank. There were a few instances in the data that suggest this active role could be somewhat dependent upon the overall financial status of the

Center. One participant, who had been involved with the board from the very beginning, recalled the strong use of the board early on but voiced the change in that role in later years.

> We had a role, and we were at the table trying to figure out where are some
>
> projects that we might write a grant for when we were so desperate. Now, I guess
>
> if we were desperate again, they might ask us again...The board has stopped
>
> creating when the (grant) money started coming in because the (grant) money was
>
> all. It just took over...the focus [of the Center] changed, and so the focus with the
>
> board changed because the board didn't have as much of a kind of an opportunity
>
> to be a think tank as it had been before. (Participant I)

Board Members Utilize Their Connections for New Funding

Data collected revealed that a key aspect of the board's impact on the Center, from a financial standpoint, is board members' connections. This finding proved important because the members' connections were far and wide-reaching, which ultimately allowed them to navigate political environments within the state as well as within different organizational structures. Voicing the importance of connections, Participant G states, "the connections with key people I think has definitely been something that over the years continues to really help grow in the work that we do at [center]." Due to their connections, the board can make a positive impact on the financial status of the Center through their influence, partnership formation, and advocacy, while also having a challenge of time constraint and complexity of Center work.

Member influence over connections. The board's influence within their own spheres of connections was an important piece in Center A's financial status as the Center continued to expand and grow since the beginning. Participant J shared that the board helps "As we're [Center] seeking financial support so that kind of moral and influence support that they can

give." The board's connections were specifically important within the structure of the university since many of the board members had direct contact with higher-level administration and influential individuals connected to the university. Participant J stated, "They [board] had a great deal of influence with university leadership." One example of the impact this could have on Center A is illustrated by Participant E sharing about the transition to a recognized university center, "The Center became one of the...designated organizations and got some special focus and maybe even funding...I think that really made a difference, and the board probably...played a big role in that." Participant J also shared that the board tried "to endow a few things through their influence and endow through the leadership of the university." The board member's influence in these situations would not have been possible without their connections.

Members broker partnerships for the center. Participants identified several examples of when board members were able to connect leadership with individuals and organizations in hopes that a partnership would be formed. Participant C voiced, "I think they all are very interested in providing that contact for the Center with stakeholders and possible schools and funders." Several examples were given to illustrate each board member's ability and effort to form partnerships with the Center and its leadership and funding organizations. For example, one board member helped connect leadership with a health foundation. Another was a connection for a partnership with the state department of education. More specifically, one of the frequently described examples was the establishment of an award that Center A would give at their annual conference. Board members worked hard to locate and secure a partnership that could financially support the award for the foreseeable future. Participant J shared, "it was a board member who got (company) to endow that [award]." Participant G reiterated this stating,

It [award] was really a vision of some members of the board to have that and to

have the monetary award...there was a great connection made to a potential

funder, and that is a great example because it's kind of this full circle of a funder

was made where endowment was established...that would not have happened

without a specific board member making a connection to another organization

that was a business that made a contribution to set up that endowment.

Sometimes this partnership was encouraged because a board member's organizations or

agencies had their own grants. Participant C captured this by sharing

many of the original board members were from funding agencies, different types of

agencies...There have been other board members that had foundations that had grants that

we have. They (board members) let us know that those were possibilities to apply for.

Participant C continued stating, "the major grants we've had outside of some smaller ones the

board kind of connected with the funding agency." In at least one case a connection led to a

partnership not for a new program or service but for an organization to be a partner in funding an

existing program at the Center. Participant H recalled an example of an on-going, key program at

the Center that was financially supported with the help of a board member who made a

connection for state funding. As explained, recurring state funding would have been a difficult

feat without the board member's help. This specific example provides a great means through

which to understand the board's ability to help form partnerships through advocacy on behalf of

the Center.

Members advocate for center work and interests. Due to Center A's status and

structure, leadership is often limited in their legal ability to advocate. As such, members have

taken this on as one of their roles while serving on the board. In the example that Participant H

shared about securing funding for the existing program, she voiced leadership's limitation with

lobbying. However, she recognized that the board, as external individuals, could fill such a role. Participant H observed the many trips in which board members were involved, along with their intent to help expand funding opportunities. Participant E shared an example of a similar but different time of advocacy. "I went to Washington (D.C.)...maybe twice...to lobby our representatives to talk about the [Center] mission" to seek "support for grants that...had been requested or applied for." Other advocacy cases included no travel, just making phone calls. Participant G shared, "we have asked board members to help advocate by making calls to representatives like on the (grant) funding and things like that just to, you know, kind of that call for advocacy."

Time constraint, navigating board member schedules. The board members' busy work schedules and other obligations could potentially present a challenge in their ability to effectively and efficiently serve as a think tank and make connections for the Center. Throughout the years of the board, the majority of the board members were full-time employees within their organization and often held positions of leadership. As such, their time to devote to Center A was limited. While board members did not identify this as a challenge, leadership saw it as a barrier and something to be cautious of since membership on the board is voluntary. Participant C shared, "They're [board members] busy people for the most part, and they want to be involved...they want to help us have an impact in the state, but...this is a board they're serving on. It's extra. It's hard to make that time." Participants did describe that board members were eager and willing to engage and participate during the board meetings; however, there were typically only two meetings a year. The limited meetings each year means that board members are advocating and securing partnerships on their own time. Depending on how busy the board member is, this could be an issue.

The complexity of center work. Another challenge for board members in their advocacy and positive influence on partners in regard to the Center is the complexity of the Center's work. Because the Center is involved in several different projects with different focuses, it is difficult to understand the exact work that the Center does. Participant C described it, stating, "I think the weakness is they [board members], for the most part, don't really understand what we do." A lack of board member understanding could be an issue when it comes to their effectiveness in truly advocating for the Center.

Board Members' Personal Financial Contributions

The last means by which the board has an impact on the Center's financial status is through the personal financial contributions of board members. While this did play a role in sustaining some of the programs or awards at the Center, board contributions were never enough to sustain the whole Center and its personnel. Board members were generous to donate to sponsor a Center award, which they ultimately helped get funded through their connections and partnerships. They also financially supported a scholarship program at the Center. Participant G shares,

> We have had board members contribute kind of that annual giving to help support
>
> our [program] to help support [award] in the days before we have the endowment
>
> and things like that...We don't have a requirement at all, but several board
>
> members over the years have been very generous in providing financial support to
>
> different programs or projects.

Miscellaneous documents found in a sample board member binder showed that contribution cards were given to board members to denote how much they would contribute to the scholarship program.

While some participants stated that financial contributions were not a requirement, one board member shared that "We've always been asked to make a contribution." (Participant I) However, this contradiction could be in part due to a relationship between the stages of growth of the Center and how much funding the Center had at that point in time. Participant A illustrated this when she stated,

> I think it's partly where we are. In the beginning, we were asking for financial support from the board all the time. And in more recent years we have not been asking for any money from the board. I've not been asked for any money since I've been on this side of the board.

The board can provide direct financial support for the Center; however, their financial support is unlikely to be a sustainer for the Center or even directly impact the actual operating budget of the Center.

Conclusion of Chapter

Findings from data analysis suggest that leaders exhibit a shared transformational leadership style in their effort to lead Center A. While each leader demonstrates their original examples of the Four I's of idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration, the leadership team as a whole also showed aspects of these elements along with shared leadership attributes of shared purpose, social support, and voice. All of these are important in organizational performance and ultimately in the transformation of Center A. However, leaders also utilize meeting structures, anticipate the need for new funding, and consult and collaborate with experts to promote organizational performance for the transformation of Center A. This study also found that the board can play an important part in Center A's dependence on the resources of funding and the university; however, it cannot fully

eliminate the Center's dependence on either one of these resources. With Center A's relationship with the university, the board assists leadership through its board membership, external perspectives, and advocacy among connections. With funding, the board acts as a mediator by serving as a think tank, utilizing their connections, and giving personal financial contributions. These findings ultimately offer new insights into and considerations for center leadership and the value of a board for the research center.

CHAPTER VI: DISCUSSION, IMPLICATIONS, AND CONCLUSION

This chapter covers a review of the purpose of this study as well as research questions and methods, a discussion of study findings with relevant literature, limitations of the study, implications of the study, and concludes with recommendations for future research.

The purpose of this research study is to examine how leaders and board members at a research center guide and assist the center throughout periods of loss of funding. This study seeks to add to the limited literature (Hall, 2011), citing funding as a challenge for leadership but also critical for a center. The four research questions identified for this study were:

1. What leadership style does leaders of research centers exhibit?

2. How do leaders transform their research center through organizational performance?

3. How does the board reduce leaderships' dependence on resources for the center's survival?

4. How does the board assist in securing new funding for center survival?

To conduct this research study, a qualitative case study design, as described by Merriam (2007), was utilized. This study was approached from a single, historical, interpretive case study of one research center. Center A was chosen because of its ongoing success, adaptive center characteristics, strong leadership team, sources of revenue, and formalized board, as well as accessibility to the center. Collected data included in-depth interviews, observations, field notes, documents, and reports, with interviews being the main source of data. Collected documents and articles included email communication; flyers and brochures about the Center, programs, and funding; news articles; Center and board mission statements; board meeting agendas; board meeting minutes; board bylaws; and organizational charts. Data were analyzed according to the grounded theory process of open and axial coding; however, no theory was generated as a result

of this study. There were several key findings from this study, which are discussed along with relevant literature in the section below.

Discussion

In an attempt to provide an encompassing analysis of findings and relevant literature, the discussion is divided into sections based on key findings. As such, it is important to begin with a discussion of Center A's leadership, board, and funding context in comparison to existing literature. While these contextual findings were not part of the key findings that answered this study's research questions, they offer an important understanding of a research center today. In contrast, much of the existing literature is outdated. Following this, a discussion of shared transformational leadership, leadership and organizational performance, the board and resource dependency, and the board and center funding is covered.

Leader and Leadership Team Demographics and Actions

Leader professional background. One of the contextual findings of leaders within this study related to leaders' professional backgrounds before center work and connections with faculty member status. According to interviews, several directors held faculty member roles within a department. The founding director was the only leader who began working with Center A, when she created the Center, from a faculty member role. The other three directors first began at the Center from a position outside of higher education. However, these directors also held faculty member roles in conjunction with their leadership roles at Center A. The rest of the directors came to the Center from a non-faculty member professional background outside of the university. This finding affirms Bozeman and Boardman's (2003) research, which also found that directors were often faculty members or professionals. Findings from Bozeman and Boardman's (2003) study indicate that center leaders can possess a background from within or

outside of higher education; however, the ideal professional background outside of higher education would be from a related field in order for knowledge transfer. The current study, however, did not delve into whether transitioning to the Center from a faculty member background better served the leader because of existing institutional knowledge. It is also important to consider whether the focus area of centers, such as science centers or education centers, would impact or determine whether leaders came from backgrounds within the university or outside of the university.

Consistency of the leadership team and structure. Findings show that the leadership team at Center A has remained consistent over the years despite the fluctuation of funding. Despite some leaders leaving the Center voluntarily due to new positions or retirement, there remain several leaders who served in their role since the early years of the Center when the founding director was still director of the Center. A leader's longevity working at Center A can be important because these leaders have a clear understanding of and commitment to the original mission of the Center, ultimately impacting their decisions and vision for the Center. This finding is consistent with the literature (Ikenberry & Friedman, 1972), which shows that leadership teams at adaptive centers remain intact despite changes.

A change in leadership team focus and impact on staff. The leadership team's focus changed in order to apply for new funding that could prolong the Center's services. While leaders were clear that the mission of the Center did not change, they voiced their efforts for adaptability in order to diversify their funding. Additionally, each leader explained that although he or she did not want to let staff go, the outcome of a loss of funding is the loss of staff. All participants shared examples of their attempts, as well as the leadership team's attempts to help staff transition to other Center programs. However, findings indicate that an attempt to transition

staff from one grant to another is not always successful, which could result in staff needing to find work outside of the Center. Having to let staff members go was voiced as one of the most difficult aspects of Center work. These findings are consistent with the research center literature (Ikenberry & Friedman, 1972). According to Ikenberry and Friedman (1972), adaptive centers are often "redefining their goals" and "securing and releasing staff" because of the nature of temporary funding (p. 36). Furthermore, Hays (1991) also found that a transition of staff to new programs occurs at adaptive centers.

Board Characteristics and Roles

> **The board's characteristics and roles.** Study findings reveal that Center A's board is a board of advocacy and not a governing board. The board advocates for the Center within their spheres of influence, promoting the Center throughout each board member's day to day activities. This finding is consistent with similar literature (Baker et al., 2007; Coco & Kaupins, 2002; Dyer & Williams, 1991; Guan, 2003; Iecovich, 2004; Saidel, 1998). While not a governing board, Center A's board also showed characteristics similar to an advisory board (Dyer & Williams, 1991). Utilizing their external perspectives, the board advises leaders by offering critical feedback and serving as a check and balances system. Several participants expressed that seeking board member's advice brings an extra level of credibility to the Center, which funding agencies find favorable. Additionally, study findings also suggest that the board brings the Center visibility across the state. This finding is consistent with Saidel's (1998) report that advisory boards bring additional "visibility and credibility" to the organizations. In the past, board members have also been asked to fundraise for some of the Center's programs. While these roles were consistent with boards from the literature, Center A's board did not fulfill all of the responsibilities of typical nonprofit boards, higher education boards, or advisory boards. For

example, Center A's board differed from other boards in strategic planning, creating policy, conceptualizing the mission, alumni relations, curriculum issues, or evaluating programs (Baker et al., 2007; Coco & Kaupins, 2002; Dyer & Williams, 1991; Fogg & Schwartz, 1985; Guan, 2003; Iecovich, 2004; Lakey, 1995; Saidel, 1998).

Differences in board member perspectives on roles. Additionally, there is a difference between leader perspectives and board member perspectives concerning the extent of board responsibilities. Many of the participants agreed to the responsibilities identified above. However, some of the participants, particularly board members, were not supportive of the extent to which the board engaged in some of the responsibilities. The primary responsibility in question was that of being a think tank. In this role, board members brainstormed and were creative with Center programs and how to acquire new Center programs. For example, from the board member perspective, leaders, at times, did not seek board member voices or opinions. According to findings, the board was given a more hands-on, active involvement in the brainstorming and think tank process during the early years of the board; however, in more recent years, the creativity aspect has been limited. Similarly, Iecovich (2004) found that there were differing viewpoints on board responsibilities or the level of board involvement. Several studies have also suggested that extenuating factors can impact the roles and responsibilities of the board (Brown & Guo, 2010; Hendry & Kiel, 2004; Miller-Millesen, 2003), such as the life stage of the organization (Liu, 2010). Future consideration should be given to understanding the impact, if any, of a change of leadership or the expansion of the Center on the level of board involvement and creativity. Sections below discuss findings of how board members were used by leadership.

Critical Nature of Funding and Funding Types

Types of funding. Center A displayed characteristics consistent with that of a research center. More specifically, this study had key findings relevant to adaptive centers. The findings show that the main source of funding for Center A was temporary grant funding sources, consistent with the literature on adaptive centers (Hall, 2011). Findings also showed that Center A received funding from the university and Center created programs; however, none of these were enough to sustain the Center fully on their own. The Center received no endowment funding beyond foundation grants and board members' personal financial contributions. This study's findings also suggest that a research center can be established with any type of funding, as Center A was created with grant funding.

This study's findings both confirm and contradict the findings of Kumar (2017). Kumar's (2017) study found that a research center's primary sources of funding are universities, endowments, and self-funded projects. However, Kumar (2017) also found that research centers receive endowments and are traditionally created using this type of funding. In light of these contradictions, the importance of funding to sustain a center is perhaps more significant than the types of funding sources.

Critical nature of funding. Not surprisingly, funding was described as critical to the sustainability of Center A. Without continual funding, leaders would need to make difficult decisions, either reducing the size of the Center or potentially closing it. These decisions could be contingent on the size of the Center at the time of the loss of funding. Many of the examples in which leaders suggested a potential closing of the center were shared in relation to the earliest years of the Center when it was not recognized as a university-wide center. During those times, Center A could arguably have been categorized as a shadow center because of the limited

funding, the number of staff, and the Center's space allocation. Then, from that perspective, a loss of funding for a shadow center could mean the closing of a center. On the other hand, other participant examples described a reduction in the size of the Center, which was discussed in relation to the later years of the study's scope. In these examples, a loss of funding for an adaptive center would mean a smaller center, a transition back to a shadow center, or even the closure of the Center. These findings were consistent with the research literature. Literature shows that funding is important for research centers and adaptive centers, and a loss of financial support could mean the transition of an adaptive center back into a shadow center (Hall, 2011; Ikenberry & Friedman, 1972).

Leadership Exhibits Shared Transformational Leadership

The findings of this study suggest that leaders utilize shared transformational leadership in their leadership approaches within the research center. Through the use of shared transformational leadership, participants not only demonstrated signs of support and trust within their leadership team but also to other employees. Participants expressed their united support for the Center's mission and purpose. Leaders showed this level of support through their collaboration with each other and valuing each different perspective within the leadership team. While the leaders at Center A were each responsible for their projects or programs, they expressed a real sense of collaboration and interdependence in leading the Center as a whole. For example, although the director of the center, organizationally, is responsible for the decision-making of the center and the supervision of his or her leadership team and center, the director also enjoyed and encouraged the active participation of all center leaders when making decisions. Participants voiced that decisions were not made until the whole leadership team was in agreement, and all were ready to move forward. The leadership team was also collaborative in

making decisions during the grant writing process. Participants expressed their trust of each other and employees during the grant writing process when all were asked to provide their voice and input, and contributions were valued and included in the final product.

Relevant literature on leadership styles reported mixed findings in comparison to this study's finding of shared transformational leadership. The closest connection between this leadership theory and research centers comes from Davis et al. (2013), Gray (2008), and Mäkinen's (2018) studies on industry/university cooperative research centers and transdisciplinary science organizations. These studies incorporated the leader-member exchange theory (Davis et al., 2013), social-network analysis (Gary, 2008), and complexity leadership theory (Mäkinen, 2018), respectively. As these are different leadership theories than shared transformational leadership, these studies suggest the potential of different leadership styles existing within research centers.

However, portions of these theories, as described by the authors, contribute to similarities with shared transformational leadership. More specifically, Davis et al. (2013) state that individuals exhibit leader-member exchange in the in-group, showing support, trust, and mutual influence, of which trust is a key aspect in their study. While differences exist between the current study and that of Davis et al. (2013), it is of interest to note that the authors suggest future research to be conducted around transformational leadership or team leadership. Additionally, Gary's (2008) article reports the connection between social network analysis and transdisciplinary teams. When analyzing the relationships within a team, he concludes that larger projects require more leaders who build and participate in mutual respect, close coordination, and shared decision-making (Gary, 2008). In contrast, Mäkinen's (2018) study on complexity leadership in transdisciplinary science center revealed that the leaders showed a "weak

entanglement," which suggested a lack of interdependency among members. The author reported this as problematic due to there being no incentive to collaborate, which was not reflective of the leadership team from Center A.

In light of the existing literature, there is reason to believe that shared transformational leadership, while having only fully been researched in the current study, has the potential to serve as a means through which leadership at research centers is more fully analyzed and explained. Due to the lack of literature exploring the connection of leadership theory with research centers, further research should be conducted to confirm or contradict whether this leadership theory is relevant. However, in doing so, we should be conscious of considering how the characteristics of leaders, leadership teams, and center contexts impact the styles that are utilized by the leadership of the center.

Leadership's Impact on Organizational Performance

The second research question in this study sought to understand how leaders influence the organizational performance of the center. Literature (De Meuse et al., 2004) has utilized financial performance as a measure of organizational performance or the financial health of an organization. Thus, organizational performance in this study was more specifically defined as the financial status of the Center as it relates to the Center's success and sustainability. Participants reported that although Center A did not receive every grant for which they applied, they were awarded many grants over the years. A Center pamphlet chronologically explaining the funded programs over the lifetime of the Center also demonstrated evidence of successful grant writing. There is perhaps no truer evidence of the Center's financial performance than its continued existence over the last 25 years. Key findings suggest that leaders utilize shared transformational leadership, meeting structures, anticipate a need for new funding, and consult and collaborate

with experts and outside stakeholders as a means through which leaders brought about financial performance. Each of these is addressed below in relation to the relevant existing literature. Table 3 presents a comparison of findings on funding and leadership from key studies and findings from the current study.

Table 3

Comparison of Funding and Leadership Findings

Author(s)/year	Body of literature	Participants	Key findings	Current study findings
Bozeman and Boardman (2003) Ikenberry and Friedman (1972)	Research center literature Research center literature	Multiple research centers; analysis of over 100 interview results Descriptive profile of over 900 institutes and centers; interviews with administrators in 25 universities; surveys with 125 institute directors	• Directors are senior faculty members and have a high level of research productivity. • Adaptive centers have a strong leadership hierarchy. • These centers are continuously redefining their focus and releasing staff due to funding. • Directors used interdisciplinary collaboration for independent projects that were part of a larger design, integrated collaboration, or from a single discipline.	• Leaders were faculty members or leaders within the industry. • Leadership team remains intact despite center changes. • Staff leave center if no other program work at the center. • Leaders used interdisciplinary collaboration to increase research center performance and asked faculty members to provide expertise in grant writing and grant outcomes. Faculty members also wrote the Center into their own grants.
Hays (1991)	Research center literature	Critique of literature and framework	• Staff at adaptive centers transition to other center programs when funding ends. • Interdisciplinary collaboration occurs at research centers and helps with projects requiring expertise in different areas. However, centers do not fully utilize faculty members.	• Leaders help staff find work with other programs at the center when grants end. • Leaders use faculty members as external perspectives and utilize their expertise in projects.
Hall (2011)	Research center literature	Surveys with 176 centers; interviews with 12 center directors	• Adaptive centers are primarily funded by grant funding sources . • Loss of funding source could mean a transition from adaptive center to shadow center. • Building relations and writing grants are important for centers to be self-supported.	• The main source of center funding was grant funding. • Loss of funding could mean a decrease in the size of center. • Leaders must write grants to sustain the center.

			• Centers with diverse funding are better able to survive financial transitions. • The longevity of the center is related to its ability to adapt, but centers should remain true to the vision. • Centers need university support for mission, money, and space.	• Leaders use connections with board members and faculty to impact financial performance. • Multiplying and diversifying funding sources is important for center sustainability. • Leaders must be willing redefine focus and adapt to acquire multiple funding sources. • Leaders ensured that funding sources aligned with the mission of the center. • Centers are dependent upon universities primarily due to space, human resources, and support for grant writing.
Sá (2008)	Research center literature	Review of literature	• Most centers rely on external funding; however, some centers are supported partially or entirely by the university or department funding. • A diversified portfolio of financial sources provides stability. • Extensive negotiation is needed for resources like space.	• Centers, specifically adaptive centers, receive little university funding and must seek external funding for survival. • Multiplying and diversifying funding sources is important for center sustainability. • Leader and board member connections with the university helped with space allocation.
Glied, Bakken, Formicola, Gebbie, and Larson (2007)	Research center literature	Review of literature; forum with 59 attendees including center directors and university personnel	• Most centers began with a substantial research grant but usually obtained additional outside grants to grow the center. • A variety of funding sources is best for research centers.	• Center was established with grant funding and received additional grants to expand and sustain the center. • Multiplying and diversifying funding sources is important for center sustainability.
Kumar (2017)	Research center literature	Author's personal experience leading research centers	• Research centers' primary sources of funding are universities, endowments, and self-funded projects.	• Funding sources included: grants, university funding, program

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			• Centers are typically founded with endowment funds.	funding, board member financial contributions. • Center was founded with grant funding; centers can be established with any type of funding.
Koene, Vogelaar, and Soeters (2002)	Nonprofit literature	Surveys of 50 supermarket stores of a large supermarket chain in the Netherlands	• Structures have a weak impact on the financial performance of an organization.	• Leaders utilized structures to foster open communication and ensure success in the grant writing process.
Arik, Clark, and Raffo (2016)	Nonprofit literature	Surveys of 280 organizations from the Nashville metropolitan statistical area	• Large nonprofit organizations do not diversify funding sources but diversify within each type of funding source.	• Adaptive research centers have multiple and diverse funding sources. They have diverse funding within each type of funding.

Shared transformational leadership. Findings demonstrate that leaders use the transformational Four I's of idealized influence, inspirational motivation, intellectual stimulation, and individual consideration in conjunction with aspects of shared leadership such as a shared purpose, social support, and voice to bring about organizational performance, specifically financial performance and sustainability. Examples from the data illustrated an overlap between these two theories in that the shared leadership aspects also corresponded with the Four I's.

Leadership specifically impacted organizational performance through a shared mission and purpose, collaboration, shared decision-making, personal interest in employees, and valuing of voices. For example, interviews suggested a shared mission and purpose for the Center, which related to the leadership team's display of idealized influence and could also be connected with the leadership team's inspirational motivation in their commitment to this shared mission. Several participants also recalled the charismatic characteristics of the directors of the Center, some of those being their ability to connect and collaborate with individuals who could ultimately impact the Center positively. Furthermore, social support and voice in this study were interconnected in that through inspirational motivation, the leadership team invited not only leaders but also employees to give input into grant writing and select decisions for the Center. Inviting employee input and voice can be effective only when leaders seek to create an inclusive environment where employees feel supported and welcomed in the work, which participants voiced was their intent.

Findings from the current study were consistent with relevant literature. Within organizational literature, transformational leadership (Aldrich, 2009; Bass, 1990; Bradshaw & Fredette, 2009; Collins & Porras, 1996; Goleman, 2000; Hendricks et al., 2008; Koene et al., 2002; Wells et al., 2009) and shared leadership (D'Innocenzo et al., 2016; Drescher et al., 2014)

have both been connected with the performance of an organization. As it pertains to this study, literature (Avolio et al., 1999; Bass, 1985; Damle, 2018; Green et al., 2001; Koene et al., 2002; Ocak & Ozturk, 2018) also shows the relationship of these leadership theories and financial performance. Ocak and Ozturk (2018), while studying for-profit firms, also found that it was the transformational behaviors of idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration that had a positive impact on the financial performance of the firm or its growth. Precisely, this impact was largely on the innovation that occurred within the firm and its connection with financial performance. Results suggest that increased innovation positively affect financial performance. Elements of innovation or creativity were also exhibited within the current study. Participants shared examples of seeking employee opinions and ideas. While this does not explicitly suggest innovation, it leaves room for the employee to bring ideas that may be outside of the box. An example of a staff member was shared in which he was innovative in his thinking and brought a new idea to the grant that was being written. Furthermore, Koene et al. (2002) found that charismatic and considerate leaders positively impacted a small store's financial performance in comparison to a larger store. The current study does not consider how the size of staff might impact the connection between charisma and consideration and Center A's performance. The findings of the current study contribute to Vessey et al.'s (2014) call for additional research based on their assumptions that transformational leadership has a strong impact on employee creativity, which ultimately impacts organizational performance.

Additionally, the literature suggests that shared purpose, social support, and voice has a positive effect on team performance, which could, in the end, have an impact on organizational and financial performance (Carson et al., 2007). However, Boies et al. (2010) propose that

shared transformational leadership may not always benefit teams. Despite that, they found that these leadership behaviors were positively related to trust and team potency. Although trust was not listed within the Four I's of idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration as a key characteristic of the participants, interviews suggest that trust could have played a factor within the leadership team. The idealized influence of the directors' shared mission and vision and the collaboration and shared decision-making would be difficult to support without some measure of shared trust within the leadership team.

Meeting structures foster open communication. Structures within Center A allowed for more effective communication with staff, collaboration of the leadership team, and established grant writing processes. These structures showed consideration for staff in that leadership was communicating information about the Center. The other two structures referenced in the current study both seem to impact the Center's ability to receive funds directly. More specifically, within leadership team meetings, leaders discussed new grant opportunities, among other things. Even more, without grant writing, the Center would have very limited funds. Structures allowed for a smoother, timely, and more organized writing process.

Structures, as a key factor in the financial performance of an organization, have not been frequently identified within the literature. The literature that does exist suggests that it has a weak impact on financial performance, but that consideration had a positive impact (Koene et al., 2002). More specifically, Koene et al. (2002) reported that leaders initiating structures within their stores saw little impact. This contradiction to the current study could be due to several differences between the studies.

Anticipating the need for new funding. The current study found that leaders affected

financial performance by forward-thinking in which they continuously looked for funding sources, diversified their funding sources, and consciously sought to produce good outcomes from their currently funded programs. This finding suggests that leaders of research centers must be both engaged in their current work while also focused on the future, specifically the financial future of the center. In some cases, this is completed by thinking about how to connect the current work to future work.

Current findings indicated that leaders must always be looking for funding sources, even when there is a sense of stability within the center due to multiyear grants. Participants reported their continued search for funding indicates a conscious, proactive effort in writing grants since that is Center A's main source of revenue. Securing additional funding from grants while the Center is still receiving funding from their existing grants is the best possible outcome for the Center. This situation, if achieved, can limit or eliminate the effects of a loss of funding due to an ending grant. Continuously looking for grants was one strategy leaders used to impact financial performance; however, leaders also sought to diversify their funding sources.

Center A had several different sources of funding, such as government grants, foundation grants, university funding, and self-generated funding, among others. However, Center A's primary sources of funding came from grants from the federal or state level government, as well as foundations. These types of grants accounted for a large portion of Center A's funding over the years. The Center also had diversification within those grant types. Funding diversification is important because it helps lessen the Center's dependence on any one source of funding, which is key during grant funding loss. Nevertheless, findings also showed that to diversify the funding sources of Center A, leadership must be able to adapt and fluctuate to accommodate a new focus and different goals for each new grant. Centers who are not able to provide that flexibility may

find it difficult to diversify funding sources. However, this study suggests that those that can do so are better positioned to create sustainability for their center.

Because literature (Hall, 2011) indicates the connection between adaptive centers and the need for leadership to write grants, findings from the current study are consistent with existing research center literature. Hall (2011) reported that securing grants is one strategy that could lead to a self-supportive center and can keep the center functioning during reduced funding. However, there were differences in the literature in regard to the type of funding. Crittenden's (2000) study found that governmental funding, while important, accounted for a lower percentage of the overall funding. The difference in findings between the current study and Crittenden's (200) could be due to differences between the operations of nonprofits and research centers.

However, findings on leadership's attempt to diversify their funding sources had mixed results with research center literature and some nonprofit organization literature. Studies on research centers (Glied et al., 2007; Hall, 2011; Sá, 2008) report that a variety of funding sources provides the best funding for a center and can help with transition periods. Similarly, Crittenden (2000) characterized funding diversification as a common occurrence in nonprofit organizations in order to reduce uncertainty and help grow programs and projects. Crittenden (2000) also stated the importance of a "willingness to proactively develop a diversified funding base" (p. 178), suggesting that flexibility is key to research centers. A center's adaptability is directly related to its flexibility (Hall, 2011). A furthered understanding of whether other research centers seek to diversify their funding sources is important to produce a more holistic perspective of research center funding.

However, other nonprofit literature reported contradicting findings. Arik et al. (2016) proposed that larger nonprofit organizations did not diversify funding sources but instead were

concerned with a few sources. Further nonprofit literature also reported this finding (Chikoto & Neely, 2014; Foster & Fine, 2007). Nonetheless, Arik et al. (2016) indicated that although their organizations did not diversify with funding sources, they reported a diversification within each type of funding source. For example, within government grants, they reported having different government funds.

Results of grants impact center funding. This study also had a surprising but logical finding that the results of Center A's grants, such as publications and impact on those served by funds, has the potential to either positively or negatively impact the Center's ability to secure new grants from that funding source or other sources. For example, one participant explained that one of the Center's previous funders expected publications following the end of the grant. The funder could perceive a lack of publications at the end of the grant as a lack of completion of grant expectations, and such a result could potentially impact the Center's chances of receiving a new grant from that funder. This finding suggests that leaders must also be actively engaged in their current grant to ensure the Center's work meets the goals listed in their grant proposal and that the grant results are disseminated. Thus, not only is funding important for sustainability purposes, but the work on each grant also plays a role in the future financial performance of the Center. In essence, this can be described by the numerous popular phrases about today's work impacting tomorrow. The finding of the impact of grant outcomes on future funding is lacking from current research center literature. However, there is an understanding within the research community that results of grants become publications.

External perspectives. Study findings show the connection between the Center and outside individuals, such as university faculty or stakeholders, who could contribute their expertise to not only the grant writing process but also to the work of the grant. Based on

findings, researchers from different departments across the university provide their expertise, that when applicable, allows the Center to demonstrate a level of knowledge required for the grant for which they are applying. This interdisciplinary collaboration can be helpful for centers as they are diversifying funding because it strengthens their opportunity of acquiring grants that are very different from their previous grants. This study suggests that when interdisciplinary collaboration occurs in the grant writing process and the work of the grant, researchers and experts can help disseminate grant results through publications, which in turn helps with producing good results that could be used in the pursuit of future funding.

Relevant literature indicates this interdisciplinary collaboration is a common trend among research centers (Aboelela et al., 2007; Boardman & Corley, 2008; Bozeman & Boardman, 2003; Geiger, 1990; Hays, 1991; Ikenberry & Friedman, 1972; Kumar, 2017; Mallon, 2006; Ponomariov & Boardman, 2010; Sabharwal & Hu, 2013; Stahler & Tash, 1994). This finding is consistent with the literature (Aboelela et al., 2007; Boardman & Corley, 2008; Hays, 1991; Kumar, 2017; Mallon, 2006; Stahler & Tash, 1994) that states that collaboration with researchers helps centers accomplish research projects requiring expertise in different areas. While the current study found positive findings related to that external perspective, some literature suggests that centers do not fully collaborate with faculty or use them to their fullest potential (Friedman & Friedman, 1984; Hay, 1991; Orlans, 1972). This finding is outside of the scope of the current study. However, current study findings lend toward and contribute to the need for further research to explore the extent to which researchers are utilized within center work. Table 4 presents a comparison of findings on the board from key studies and findings from the current study.

Table 4
Comparison of Board Findings

Author(s)/year	Body of literature	Participants	Key findings	Current study findings
Saidel (1998)	Nonprofit literature	Survey of 249 nonprofit organizations; interviews with 16 of those organizations	• Advisory boards bring visibility and credibility to organizations. • Boards consist of "non-organizational" members.	• Board of center brings visibility to center and helps legitimize center. • Center's board consists of influential individuals from nonprofit organizations, profit organizations, the university, and former Center employees.
Iecovich (2004)	Nonprofit literature	Interviews with 256 individuals from 161 organizations	• Differing viewpoints on board responsibilities or board involvement	• Differences in board member and leader opinions on the extent of board responsibilities
Pfeffer (1987)	Nonprofit literature	A theoretical view of literature	• Leader's attempts at lessening resource dependency are not always successful.	• Center's board cannot eliminate the center's dependency on the university and finances for survival; however, the board can help navigate that dependency.
Andrés-Alonso, Azofra-Palenzuela, and Romero-Merino (2009)	Nonprofit literature	Review of literature	• Board composition impacts board effectiveness.	• Board membership is important in board effectiveness. Board members must be a right fit for the Center.
Miller-Millesen (2003)	Nonprofit literature	Review of literature to develop a theory-based model	• There is no set structure for board composition.. • Boards are made up of influential individuals who impact performance by their connections. • Boards help process and analyze information from an external environment. • Boards advocate in order to lessen resource dependency.	• Center's board consists of influential individuals from nonprofit organizations, profit organizations, university administrators, and former Center employees. • Center's board provides an external perspective to Center programs and work. • Board advocates through member connections on behalf of the Center.

Kilcrease (2011)	Nonprofit literature	Survey of 395 schools and 1,600 business faculty members	• Board members come from nonprofit and profit fields.	• Center's board consists of influential individuals from nonprofit organizations, profit organizations, the university, and former Center employees.
Brown and Guo (2010)	Nonprofit literature	Interviews with 121 community foundation executives	• Guidance is one of the nonprofit board responsibilities.	• Center's board provided advice and guidance.
Hillman, Withers, and Collins (2009)	Nonprofit literature	Review of literature	• Board members with many connections that relate to the work are beneficial to the organization.	• Center's board includes members from the industry who advocate through their connections .
Herman and Renz (2000)	Nonprofit literature	Interviews with 46 health and welfare organization CEOs	• Effective organizations have a common expectation of board members giving funds to the organization.	• Board members were not required to provide a personal contribution to the Center; however, many board members did so throughout the years.
Ikenberry and Friedman (1972)	Research center literature	Descriptive profile of over 900 institutes and centers; interviews with administrators in 25 universities; surveys with 125 institute directors	• Board members who are university administrators are useful in promoting the Center within the university. • Board members who are industry experts can reach industry affiliations for center visibility.	• Center's board consists of influential individuals from nonprofit organizations, profit organizations, university administrators, and former Center employees. • Board advocated for the Center within the university, which helped leaders navigate space allocation and visibility.
Hall (2011)	Research center literature	Surveys with 176 centers; interviews with 12 center directors	• Board members who have connections with funding agencies are important.	• Board members also served on boards of funding agencies and were helpful in connecting the Center with those funding opportunities.

The Role of the Board in Reducing Leaderships' Dependence on Resources

The findings of this study indicate that research center boards can have an impact on lessening the Center's dependency on resources. However, the study also suggests that boards cannot fully eliminate a research center's dependence on the university for resources and support or the dependence on funding sources. Because Center A is recognized as a university-wide center, the Center's external funding such as grants are awarded and processed through the university's official research office. In return, the university provides valuable benefits to the center, such as space, health benefits, and grant expertise. Of those sources of support, space allocation appears to be an important resource for the Center. The current study found that space allocation for the Center grew in quantity and quality as the Center expanded through external funding and reputation. Current findings revealed that Center A was originally housed in the director's office until additional funding allowed for a more formal office space. Following that, the Center was moved to a bigger location and then moved again to their current space, which includes large office space as well as two large workshop rooms and several medium-sized meeting rooms. Based on data from the current study, space allocation is one of the largest and most necessary resources that centers, specifically adaptive centers, need from their university. While the board cannot eliminate that need, it can serve as a mediator or negotiator through advocacy between center leadership and university administration.

These findings are consistent with the existing literature. Pfeffer (1987) stated that while leaders seek to lessen resource dependency, their attempts are not always successful, such that the board is not always successful in helping lessen the Center's dependence on the university for resources. Furthermore, Hall's (2011) study found that research centers allocate funding, from their funding revenues, to the university for support with facilities, administrative services,

and other indirect benefits. The university's research office is the hub through which all of this occurs. Additionally, Hall (2011) claimed that space allocation reveals the health of a research center, and thus, is an important resource for the center.

The impact of board membership. Board member composition proved to be one of the means through which the board can lessen the center's dependency on resources because of members' connections with influential stakeholders. Findings from this study show that board members work in a variety of fields, from nonprofit to profit and even within the university or Center. The board had members who were employees of or directly associated with Center A. The incorporation of these members on the board is appropriate because of their vast knowledge of the Center, their sphere of influence, and their understanding of the field. Additionally, participants explained that ideal board members would have a wide outreach and sphere of influence, which could further the advocacy of the Center. Participants described a strategic, concerted effort to find board members with expertise and passion that could benefit Center A through advocacy and moving the Center forward. In several interviews, this was explained as identifying potential board members who would be a good fit for the Center. Nonetheless, the current study found that the cohesiveness of the board, in that there has been turnover in board members, can present a challenge and potentially impact board effectiveness but could be mitigated by a consistent board executive committee.

The importance of board composition in board effectiveness has been recorded in nonprofit literature (Andrés-Alonso et al., 2009; Callen et al., 2003) even though there is no set structure for board composition (Cornforth, 2001; Miller-Millesen, 2003). Miller-Millesen (2003), studying boards and resource dependency, found that boards that are made up of influential individuals can enhance organizational performance and reduce uncertainty through,

in part, the connections the board members have. Andrus and Martin (2001) and Kilcrease (2011) also found that board members from higher education boards came from nonprofit and profit fields. However, Saidel (1998) reported that boards are made up of "non-organizational" members, which is contradictory to the current study's findings.

Board members provide external perspectives. Because board members come from a range of backgrounds, they serve as valuable external perspectives that can provide critical feedback and checks and balances to Center work. Findings suggest that the board can contribute useful ideas and give important feedback that could ultimately impact the Center's organizational performance. Ideas and feedback have the potential of lessening the Center's dependence on resources. However, findings also suggest that board members are not always asked to provide this type of input. A lack of board member input could be a result of leader approaches or a difference in the Center's stage of development, among others. Board members in the current study expressed a change in the level of input that was sought from the board. When discussing these changes further, it was revealed that there were several changes happening at the Center, including a change in directors and the expansion of the Center through additional grant funding. Future research could explore the frequency or depth with which the board is asked to provide ideas, feedback, and impacting factors. The current study found that one of the challenges of using the board as critical friends and checks and balances is that leadership must allow for that opportunity within board meetings. However, the lack of such an opportunity can lead to board apathy. Board apathy could be detrimental to each board member's engagement and, as a result, board effectiveness.

This finding is similar to Brown and Guo's (2010) finding that stated guidance and expertise was one of the 13 roles nonprofit boards fulfill. Pfeffer and Salancik (1978) found that

boards give advice and guidance to reduce resource dependency. Furthermore, within research center literature, Hall (2011) found that research boards help evaluate project ideas. It is also consistent within nonprofit resource dependency literature (Miller-Millesen, 2003), which indicates that one of the board's four main roles in reducing dependency is processing and analyzing information from an external environment to help the organization remain competitive.

Board members advocate among their connections. Board member's advocacy within and outside of the university was one of the primary means through which the board worked to lessen Center A's dependency on resources. Advocacy, while directly tied to each board members' connections and circles of outreach, brings visibility to the Center and better space allocation, among others. Because Center A had several board members who were faculty or administrators from the university, they had strong advocates who could lend their voices in support of the Center when decisions were being made within the university. Additionally, a few of the board members who were non-university employees had strong connections with university administrators either through work or personal connections and association through other university boards. This advocacy within the university played a large role in the Center's space allocation. However, the complexity of the work being done at the Center presents a challenge to the board member's understanding of the work in order to advocate effectively.

Advocacy as a means of lessening resource dependency has been cited in the literature (Miller-Millesen, 2003). In regard to the impact of university administrators as board members, Ikenberry and Friedman (1972) found that this type of board member was useful in the promotion of the Center within the university. Additionally, nonprofit literature (Hillman et al., 2009; Peng, 2004) also reports that board members with many connections are beneficial for the organization, specifically when their connections relate to the organization's work. Furthermore,

in regard to center visibility, Ikenberry and Friedman (1972) discussed the need for industry expert board members who could reach industry affiliations. This type of advocacy has the potential to lead to new partnerships, bringing about new funding opportunities.

The impact of the board-director relationship on roles. The board-director relationship offers interesting findings to consider moving forward. This study's findings suggests that beyond a good working relationship with the center director and board members, especially the executive committee, a "working, friendly" relationship can help recruit board members and keep them engaged in the work. Findings also suggest that the transition of one director to another director can present challenges to board member engagement and connectedness, which the director and other leaders will have to address and solve in order to maintain or increase board effectiveness. Literature (Pearce & Rosener, 1985; Saidel, 1998) describes the board-director relationship in that the leader holds the responsibility for utilizing the board and the level to which the board impacts the organization.

The Role of the Board and New Funding

The current study found that the board did not play a hands-on role in the management of Center funds. Instead, the board was kept informed of the current financial standing of the Center, including grants applied for and the ending of grants. Because of mixed findings from each participant, it is hard to definitively say whether the Center's grants were a direct result of the board and its functions; however, a strong number of the participants indicated the board has the potential to positively impact funding. Several participants stated that while funding may not have been a direct result of the board, the Center would not be where it is today without the help of the board. As such, this study found that boards impact center funding and help secure new funding by serving as think tanks, utilizing connections, and contributing personal financial

contributions. In understanding the differences of participant opinions, it is important to consider the longevity of each leader's employment with the Center, when the leader began working at the Center, and the age of board when the leader began working at the Center. These factors could potentially explain why the participants viewed the board's role in the acquisition of Center grants differently.

Board members as think tanks. In order to secure new funding, the board is utilized as a think tank by identifying funding opportunities and giving advice. Leaders asked board members to share any grants of which they were aware. Some board members served on other boards, such as foundation boards, and those organizations had grants for which the Center was able to apply. Additionally, leaders sought board members' opinions on funding and advice when the Center experienced a loss of funding. Findings suggest that the extent to which the board is utilized in these ways could be dependent on the current financial standing of the Center, the period in the Center's history, or the director's approach with the board. More specifically, interviews suggest that the board was used more frequently when the Center was in its early stages and had limited funding versus the later years of the study timeline when the Center had multi-year grants.

Utilizing board member connections. Findings on the composition of the board indicate that it has a direct impact on the board's usefulness in aiding with new funding for the Center in that the connections board members have within their spheres of influence can generate new partnerships and new opportunities through board members' advocacy. Board members had a wide range of connections, including state political connections and other organization connections. Several board members also served on the board of different funding agencies. Evidence suggests that the board's connections and influence within these areas give way to

partnership opportunities with foundations and state governments that would provide further

funding for the Center. Additionally, findings indicate that board members are best situated,

where legal policies prohibit leadership, for lobbying for the expansion of funding.

While board members can establish these partnerships, they cannot always circumvent

the grant writing process for the Center to receive the funding. However, in some cases, board

members may be able to create a partnership in which an organization provides endowment

funding to the Center. Findings suggest that one of the biggest challenges in board members

fulfilling these roles is their time constraint. Because board members serve on a voluntary basis

and often in addition to their full-time work, a lack of time could present an issue.

Miller-Millesen (2003) suggested that it is through the board members' contacts, both

personal and professional, that they benefit the organization by accessing information and

reducing uncertainty. The research center literature (Hall, 2011; McCarthy et al., 2000) suggests

that building relationships with individuals who are connected with funding sources or agencies

is important. The research shows these relationships can help in making a research center self-

supported, particularly in times of decreased funding, and increase grant proposal success. Hall

(2011) states that institutional, local, and federal level relationships are the key to funding, which

supports other claims that center leaders should endeavor to impact national, state, and local

policies (Ikenberry & Friedman, 1972; McCarthy, Jones, & St. John, 2000). Additionally, Brown

and Guo's (2010) study on nonprofit boards found that one of the board members' roles was to

navigate relationships that could promote asset growth within the organization.

Board member's personal financial contributions. While board members were not

involved in the finances of the Center in a hands-on way, they do make their personal financial

contributions for the betterment of the Center. These contributions did not sustain the Center, but

they did help sustain some programs within the Center. Interestingly, findings do suggest that whether the board is asked to make a financial contribution could be dependent upon the current financial status of the Center. For example, when the Center had relatively stable, multi-year funding, board members were not asked to contribute. From nonprofit literature, Herman and Renz (2000) reported that the expectation that board members would give funds had been commonly found among effective organizations in comparison to less effective organizations. Future research on board members' financial contributions would help further our understanding of the boards impact on a center's funding.

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Implications of the Study

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This section presents the implications of the study. There are several implications for research, practice, and policy, which are based on the findings of the study.

Research

Shared transformational leadership has been studied within the literature in a variety of different ways, as was discussed in chapter three. The current study sought to examine this type of leadership style through the merging of shared leadership and transformational leadership and found examples to support this merging. This study's findings add to the existing literature on shared transformational leadership but also implies there is more that can still be done toward the understanding of this leadership style.

Very limited, if any, research exists on the leadership style that research center leaders utilize in their work. This gap in the literature has only been briefly examined with the findings of the current study. There is much that remains to be studied in regard to the leadership style of research center leaders, specifically examining the style of shared transformational leadership. In light of the findings of the current study, the leadership style of research center leaders could be

important in the success of the center and, therefore, should receive further attention within studies.

Practice

Leaders must understand the criticalness of funding for centers. Without that understanding, it would be very difficult to expand and sustain a center, and thus, the mission and purpose of the center would never be fully realized. Based on this study, leaders must take a proactive, forward-thinking approach to identify and apply for grants and other revenue sources. While further research should be conducted, current findings suggest that leaders should seek to diversify their funding both in sources (e.g., grants, university funding, endowments, self-generated, and so on) and within each revenue type. That will offer the center the strongest defense against the ending of a single funding source.

Leaders should also involve employees, university experts, and board members in the process of securing funding (i.e., identifying funding opportunities, grant writing, etc.). It is important for them to remember that these internal and external perspectives can provide support during this process as well as generate new ideas and solutions. However, to ensure these voices are heard and valued, leaders must establish an environment that welcomes and encourages other's voices.

Leaders intent on establishing a board for their research center should understand board structure and purpose. Boards can be most effective when board membership is strong. Leaders should make careful and strategic considerations about who is asked to serve as a board member. It is suggested that leaders identify key university administrators or faculty as well as influential industry stakeholders who have wide-reaching connections. Additionally, leaders should have a clear understanding of the purpose of the board. Boards can help with the growth and

sustainability of centers in a variety of ways, not just the financial aspect. It is unlikely that any financial contributions made by board members would sustain the center; however, board members can advise, form partnerships, and advocate to increase center organizational performance. Furthermore, they can serve as an important and sometimes necessary mitigator between the university and center leadership. Finally, leaders should be conscious that the director's approach with the board could have a significant impact on how and when the board is utilized, and ultimately, the board's effectiveness in furthering the center.

Policy

Board members are able to affect federal and state policy where leaders cannot. Due to legal restrictions related to grant funding, board members are sometimes the only representative that can advocate on behalf of the center. This has policy implications because board members who have influential connections are able to impact policy when they advocate. Therefore, board members should be aware of current center updates and programs so as to provide the most recent information when called upon to do so.

Universities, in their pursuit of research excellence, should recognize and value research centers and the benefits they provide. In doing so, universities should establish policies and guidelines that would foster and promote research centers in their growth and grant writing processes. While many universities may not have such policies, universities should seek examples from others who have established policies. More specifically, the university should consider policies carefully as they relate to the establishment, governance, operation, and discontinuation of research centers. A policy on boards should be considered when establishing governance and operation policies. Furthermore, when creating these policies, universities must consider the size and type of research center. Universities that have created research center

policies are better able to monitor and assist centers in their work, and centers are better positioned to receive benefits from the university.

Limitations of the Study

There are several limitations in the current study, despite the result of promising findings. A lack of an adequate number of board member participants causes difficulty in fully capturing that perspective and impacts the study's findings. Despite recruitment efforts, there were only three board members who participated in the study. Of the three board members, one was previously employed as a leader at the Center, so that participant primarily contributed to the study through the leadership perspective. Although board members shared some of the same perspectives as leaders, they also voiced different perspectives. Without more board members, it is hard to completely understand this difference in perspective or the degree to which it exists among centers.

Because this research study sought to understand the leadership style of research center leaders, the research method used in this study may not have provided the best analysis of the emerging leadership theory. Existing studies on shared transformational leadership have been done largely through the use of a validated survey instrument with both leader and employee responses. The current study did not use such a survey instrument or interview employees as it was outside of the scope of this study. However, including these aspects in the study could potentially produce different findings.

Finally, although the historical approach to studying Center A allowed for a better understanding of center beginnings, growth and development, and creation of the board, the 20-year limited case did not allow for analysis of the work completed. As such, the observations during data collection provided a visual and example of the communication that might typically

occur between leaders and board members or between leaders and staff; however, observations were utilized with the frame of mind that meetings change over time. To account for this, participants were asked whether the meetings were an accurate portrayal of previous meetings or if changes had occurred. Based on responses, the meetings were fairly consistent over the years, but ultimately, observations proved to be one of the least useful data collected during this study. Assumptions could be made as to the change in the impact the observations would have on the study if the study were not approached from a historical perspective.

Future Research

Although this study provided key findings from a qualitative methodology, a quantitative study focusing on leaders and shared transformational leadership should be done in the future. Literature suggests that shared transformational literature is largely measured through the use of surveys, which are often taken by both leaders and employees. The present study analyzed leaders as they self-reported or leader's descriptions of their counterparts and did not interview employees about leadership. Additionally, because no studies have focused on determining the leadership style of leaders of research centers, future similar studies could help confirm or contradict the present study findings. Such a study could use a quantitative approach to survey leaders as well as employees about the leadership at the center, utilizing a validated survey protocol referenced in shared transformational leadership literature.

While the current study sought to capture the board's perspective and did so to an extent, available literature continues to be lacking in this field. There is a need for other studies similar to this one with more participants or study's that expand on who is on the board, board roles, relationship with leaders, and the board's impact on funding. Such studies would contribute to that research field and help provide a more holistic view of whether or not boards are an

important component within research centers.

Future studies should also focus on the funding of research centers as the literature exploring that specific area is lacking. While existing literature has consistently found that funding is critical to research centers, further studies could be done to explore if there are other strategies employed by leaders to overcome funding uncertainty. Researchers might also focus on understanding what happens during those transition times when a center goes from a shadow center to an adaptive center, when it has to decrease in size back to a shadow center or when it has to close altogether. Future studies in these areas could help with the generalizability of the current study's findings.

Conclusion

As the literature suggests, it is beneficial for universities to have and to support research centers at their institution. Funding is a critical aspect of the survival and sustainability of research centers. However, funding is also one of the largest challenges for leaders of research centers. Without continual funding, it would be difficult for centers to fulfill their center's mission and purpose. Thus, this study sought to contribute to the limited research center literature by examining how leaders and boards guide their research center through funding uncertainty. The findings of this study contribute to the limited literature available on research centers. This study contributes key findings of leaders and boards; however, even with these findings, there are still gaps in the literature and new questions to be answered. Future studies can contribute toward a better understanding of research centers and funding, for they will always financially function within a recurring ebb and flow process.

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Appendix A

Research Recruitment Template

My name is Christiana Horn, and I am a doctoral candidate at the University of Oklahoma. I am researching leadership and boards of a research center during periods of financial uncertainty. If you were a leader or board member at the selected research center during the first 20 years of the center, you may be eligible to participate in the study. Participation would include: two research interviews lasting 45 minute to 1 hour and being observed during leadership, board, and/or staff meetings.

Please contact Christiana Horn at 405-325-3056 or cghorn@ou.edu for more information.

Thanks,
Christiana Horn

The University of Oklahoma is an equal opportunity institution.

Appendix B

Interview Protocol: Leaders

Background Information:
1. What is your current position at the center?
2. Do you currently work at the center?
3. How long have you/ did you work at the center?
4. What year did you start working at the center? What year did you leave the center?
5. Please explain your current/previous responsibilities at the center.
6. Do you/did you supervise any staff? If so, please elaborate.
7. How would you describe your role as a leader at the center?
8. Suppose there was an important decision to be made that would impact the center and its direction, could you tell me how leadership would make that decision?
   a. Could you explain your specific role within that process?

Financial Focus:
9. Please explain the importance of funding for your center.
10. Please tell me about how the center was funded during its first 10 years or the time you worked at the center.
11. Did the College of Education or any department at the University of Oklahoma provide financially to help start the center?
12. How did this type/these types of funding sources impact the sustainability of the research center?
13. If you were talking to someone who does not work at a center, how would you describe a loss of funding?
14. Imagine you as a leader had to deal with the loss of funding with no foreseeable source of revenue, what steps would you take?
    a. How would you approach your staff in this situation?
15. During your time working at this organization, did the center ever experience a loss of funding? If so, please explain.
    a. Overall, how did leadership handle this time period?
    b. How was this situation communicated to staff members?
        i. How did staff members respond?
    c. What steps were taken to secure new funding?
        i. Did staff members take part in accomplishing these steps? If so, how were the tasks delineated?
    d. Were industry stakeholders consulted during the process? If so, who and how?
    e. What was the outcome of the steps taken?

Board Focus:

16. If I were a potential new board member, how would you explain the center's board?
17. How and why were board members selected?
18. What do you view as the main board responsibilities or tasks?
19. How useful is the board to the success of the center? Please provide an example.
20. In what ways, if any, has the board been involved in the financial matters of the center?
21. How was the board utilized during the loss of funding/uncertainty of funding source?
22. What strengths/weaknesses do you think they provided during the process?
23. Do you think the center would have secured new funding without the help of the board?

    Please elaborate.
24. How important is a board for a research center?

Appendix C

Interview Protocol: Board Members

Background Information:
1. How long have you served on the board?
2. How did you become a member of the board?
3. What interested you about being a member?
4. If you were to think about what a board of advocates is, what would you say it was?
5. What do you view as the most important responsibilities or tasks of the board?
6. How useful is the board to the success of the center? Please provide an example.
7. What are the board's greatest strengths?
8. What are the major accomplishments of the board during the ten-year period?
9. Please provide an example of when you felt most successful as a board member/or least successful.

Leadership Focus:
10. If I were a new board member, how would you explain a typical board meeting?
11. Please describe the board's relationship with the director and/or leadership.
12. How does leadership communicate with the board? And how frequently?
13. Does leadership provide the board with enough resources for you to do your job?

Financial Focus:
14. In what ways, if any, has the board been involved in the financial matters of the center?
15. How do you view the board's role in securing funding for the center?
16. Do you think the center would have secured new funding without the help of the board? Please elaborate.
17. How important is a board for a research center?

Appendix D

Observation Protocol

Observations

Observations are fairly informal in nature for this study. I want to focus on different aspects of

leaders or board members, their interactions with each other and others, and communication.

Preliminary list of what to observe

     1) Physical presence and gestures of participants

     2) participants' dispositions

     3) relationships between leaders, board member, and others

     4) verbal communication

     5) formal learning and informal learning situations

     6) descriptions of the physical space