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University Research Program Budget Leaders' Responses to the COVID-19 Pandemic

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This is to certify that the doctoral dissertation by

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Abstract

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MA, University of Southern California, 2011

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Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

Research program budget leaders have the responsibility to manage their university's sponsored program budgets effectively each fiscal year; however, research programs face continual challenges to maintaining financial stability as operation costs increase and external funding declines. This challenge may have become more difficult during the COVID-19 pandemic. The purpose of this basic qualitative study was to examine strategies research program budget leaders at research intensive universities have used to navigate financial instability in response to the pandemic. The organizational development framework of Senge and Kezar as well as Bui and Baruch and Senge's systems theory guided this study. The research question explored strategies research program budget leaders developed to address fiscal stability for their departments in response to COVID-19. Eight research program budget leaders were purposefully recruited from private and public research-intensive universities to participate in this study. Semistructured interviews were analyzed with open-ended coding from which three themes emerged: budget strategies to address fiscal stability, technological strategies to develop communication, and organizational strategies to build mutual collaboration. These results can be beneficial for university budget leaders improving financial strategies. Contributions to positive social change may result from university leaders' consideration of the budgetary, technological, and organizational collaboration strategies they can utilize to address fiscal stability during a crisis or unforeseen change, such as the COVID pandemic.

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Chapter 1: Introduction to the Study

U.S. universities struggle with decreasing government funding each year (Deering & Sa, 2014) and rising costs, which may have negative implications for their sponsored programs budgets and leave research program budget leaders in universities' central business offices to adapt to smaller budgets each fiscal year. Budget management strategies are utilized to help organizations like universities balance budgets each fiscal year. These strategies help research program budget leaders review the financial well-being of their university's sponsored program budget and guide their decisions at the department level to help them acclimate to sudden or unplanned changes such as during the COVID-19 pandemic. Organizational development strategies are also significant tools for planning to provide research program budget leaders with information to assist them in reaching fiscal goals (Deering & Sa, 2014) and finding other strategies that involve in technological approaches (Urbano & Guerrero, 2013). Research program budget leaders are thus faced with making critical decisions, sometimes in collaboration with other stakeholders, that impact several areas of university research operations, ultimately impacting the effectiveness of organizational change (Kezar, 2005; Senge, 2005). Consequently, analyzing the strategic decisions research program budget leaders make may provide a basis for developing financially sustainable strategies focusing on collaborative approaches that help provide a positive response during times of a pandemic.

Background of the Study

Researchers have examined several dimensions of organizational change that come to light as universities struggle with fiscal challenges. Such organizational changes include development of effective leadership strategies that can create more effective collaborative cultures (Bui & Baruch, 2010; Nelles & Vorley, 2011; Philpott et al., 2011; Stensaker, 2013; Yue et al., 2019), established trust and transparent work cultures (Eesley et al., 2016; Howells et al., 2014), and created entrepreneurial cultures that promote more opportunities to increase revenues for universities (Middlehurst, 2013; Urbano & Guerrero, 2013). But as external pressures and expectations grow for increased funding in research program, learning how to work collaboratively to maximize existing sources may become essential to respond to sudden change (Lepori et al., 2013), such as in a pandemic. Universities become fiscally responsible by managing changes to flow of tuition dollars, research grants and scholarships, federal aid, and endowment sponsorships (Bhayani, 2015).

Budget shortfalls have had negative financial impacts in providing research program services that support students, faculty, and staff (Alstete, 2014). Salaries and research facility maintenance costs increase each year as tuition revenues decrease, and universities spend more than $700 million in operational costs (King & Sen, 2013). But as universities have continued to experience budget shortfalls, this created financial instability ultimately leading university leaders to make difficult decisions, including staff lay-offs or furloughs, decreased in faculty, and closures of research programs

(Alstete, 2014). University leaders may need to continue to learn to strategize further on how to help with budgetary shortfalls during times of change.

Universities have institutional boundaries, such as disciplinary societies and communities, that influence changes within their university's culture (Kezar, 2005). However, fiscal accountability and standards have been main initiatives these past few decades that have increased focus on university leadership, diversity, research outcome assessments, and other attributes that universities feel are necessary to acclimate to sudden change (Kezar, 2005). Though internal university stakeholders are interdependent, striving to work collaboratively together to operate, universities are also dependent on outside stakeholders such as government funding to help students gain access to college education and fund research programs, which are relatively independent of their environment. This type of interdependent and multisystem level structure most likely results in universities receiving multiple and mixed messages in relation to change, especially in areas where several forces overlap (Kezar, 2005).

Problem Statement

Research program budget leaders have sought ways to maximize budgets in collaboration with university stakeholders to manage research funds for their organization in a market where funding resources are increasingly scarce (Deering & Sa, 2014). But decreased government funding is a contributing factor and a challenge that research program budget leaders have struggled to address. Research program budget leaders may make decisions that cater to the pressure of faculty teaching and research commitments, which may lead to rebalancing teaching and research activities to cover faculty salaries or

unexpected research costs (see Altbach et al., 2010). In addition, there are expectations to provide high quality education and increase sponsored programs, specifically research, due to the resulting social change that aligns with the missions of universities that prioritize research. Therefore, research program budget leaders may pursue alternative financial resources, such as increased student health fees and other student services or seek to reduce costs by eliminating essential programs and terminating staff in order to meet budgetary limits (Blankenberger & Williams, 2020). These challenges are exacerbated by financial instability due to sudden change, such as a pandemic, leaving these leaders to deal with sponsored programs funding shortages that may be overshadowed by the financial instability of the university as a whole.

Purpose of the Study

The purpose of this basic qualitative study was to explore the strategies research program budget leaders in research intensive universities used to navigate financial instability in response to the COVID-19 pandemic. Examining the strategies research program budget leaders implemented at the department level (outside of the central business office) may provide university leadership with a better understanding of the challenges research program budget leaders in a decentralized or centralized sponsored programs administration navigated to sustain fiscal stability during sudden change.

Research Question

The central research question was "What strategies have research program budget leaders developed to address fiscal stability for their departments in response to COVID-19?"

Conceptual Framework

The conceptual framework for this study was drawn from organizational development theories that include a focus on university leaders leading change (Bui & Baruch, 2010; Kezar, 2005) and how leaders use strategies to help with sudden change (Senge, 2005). Bui and Baruch's (2010) and Kezar's (2005) work guided the design of this study about how university research program budget leaders manage sudden change. Senge's (2005) mental models' theory provided a framework for examining collaborative strategies that build trust among stakeholders and build communication and collaborative learning strategies that may be conducive for organizational change. Ax and Greve's (2017) systems theory provided another framework for this study to understand how groups work together toward goals or a mission.

Nature of the Study

In this basic qualitative study (Merriam & Tisdell, 2016), I interviewed research program budget leaders to explore the strategies they developed to address concerns about fiscal stability in response to sudden change, such as COVID-19. I recruited eight research program budget leaders to participate in the study who were working at research intensive universities (defined by The Carnegie Classification of Institutions of Higher Education) in the United States that have a decentralized or centralized sponsored programs administration. Prospective participants were recruited through email outreach and social media platforms such as LinkedIn and sponsored programs professional associations, such as the National Council of University Research Administrators. I analyzed the interview data using open ended coding to find emergent themes.

Definition of Terms

Business administration: Business administration is the process of organizing an organization's business personnel and resources to meet business goals and objectives (Market Business News, 2021).

Centralized organization: The decision-making powers are retained at the top level of the administrative systems and all other offices receive commands from the main office (Marume & Jubenkanda, 2016).

Decentralized organization: The decision-making powers are dispersed among the lower levels of the administration system (Marume & Jubenkanda, 2016).

Research intensive university: Higher education institution with research mandates within and across diverse disciplines for faculty and undergraduate and graduate students (Mukerji & Tripathi, 2016).

Research leadership: Research leadership is defined as the influence of one or more people on the research-related behavior, attitudes, or intellectual capacity of others (Hansson & Mønsted, 2008).

Sponsored program: Any externally funded research or other scholarly activity that has a defined scope of work or set of objectives which provides a basis for sponsor expectations (University of Michigan, Research, 2021).

University culture: Characterized by academic outlooks, spirit, ethics, and its academic and campus environment (Shen & Tian, 2012,).

University stakeholders: Stakeholders are defined are groups who believe that they have an interest in organization's activities (Mainardes et al., 2010) for a university

those groups can be comprised of board of directors, executive leaders, faculty, and staff who can affect or is affected by the achievement of the university's objectives. In addition, stakeholders can also be defined as university administrators, researchers, and technology transfer offices that support research entrepreneurship support services (Clauss et al., 2018).

Assumptions

Assumptions in this study included that research program budget leaders would be transparent in their responses to the interview questions and that their responses would represent actual strategies utilized by their respective universities. This was based on the inclusion criteria of those who had experienced budget challenges as a result of the negative impact the COVID-19 pandemic had on university expenses and income.

Scope and Delimitations

The scope of this study focused on research program budget leaders from universities across the United States, in particular, individuals from both R1 and R2 institutions, as demarcated by the Carnegie classification system (The Carnegie Classification of Institutions of Higher Education, 2021). The population of the study was delimited to research program budget leaders who work at research intensive universities, have decentralized fiscal management responsibilities and oversight of funded research programs, were experienced leaders during the COVID-19 pandemic, and worked in partnership with a central business office. Research intensive universities have complex budgeting practices and have different sources of revenue from tuition to government federal funding.

Limitations

The self-selected nature of participants may have influenced the results. The results of the study are more generalizable to other R1 and R2 research institutions and limited in applicability to community colleges, institutions of higher education that are primarily teaching oriented (not research intensive), or colleges outside of the United States. Additionally, some participants may have known me from my position as a research program budget leader at a research intensive university, which may have influenced participant responses.

Significance of the Study

Universities in the United States have struggled during the COVID-19 pandemic with reduced financial resources and unexpected costs, making it difficult for research program budget leaders to maintain fiscal stability in response to this sudden change. The results of this study may fill gaps by elucidating strategies developed by research program budget leaders to address fiscal stability during a pandemic. The results of this study may help university research program budget leaders develop strategies to build trust among stakeholders, develop stronger communication and collaborative learning work environments, and develop stronger university structures and business systems that help with fiscal management during a sudden change like a pandemic.

The findings of this study can recommend strategies that university leaders at research intensive universities are using, or plan to use, to overcome unexpected costs from COVID-19. For example, delays in research operations and weakened communication among university stakeholders due to changes in work-climate culture

may impact fiscal revenues that universities receive since researcher salaries must still be paid from grant funds even if the research was put on hold because of COVID-19 social distancing restrictions. Examining strategies research program budget leaders use to address challenges such as these may provide opportunities for leaders to develop alternative approaches to fiscal management, flexible approaches to continue research operations and build stronger communication among stakeholders during times of uncertainty (Kauffmann & Carmi, 2019). In addition, opportunities to implement collaborative strategies may help universities acclimate to future sudden changes, helping university operations to be more flexible. For example, university research programs may benefit from sustainable fiscal strategies that make use of existing laboratories and research to combat COVID-19 by forming task force committees to coordinate and continue research operations that acclimate to changes in existing work-environments and build possible new collaborations between researchers to help maintain existing research operations (King & Sen, 2013). Consequently, leaders who develop strategies to work collaboratively may build communication and provide innovative research outcomes that help universities sustain fiscal stability in times of uncertainty.

The outcomes of this study could also illuminate strategies for reallocating fiscal resources to develop cost effective ways to maximize research budgets and identify alternative funding resources to help mitigate unexpected costs during sudden changes, such as a COVID-19. Examining the development of new strategies used by research program budget leaders in times of uncertainty could lead to a better understanding of

how trust is fostered, and how communication and collaboration is developed among organizational stakeholders to sustain fiscal stability during an organizational change.

Summary

As universities find ways to maximize budgets to effectively manage funded research programs for their organization (Deering & Sa, 2014), strategies for developing ways of sustaining fiscal stability for universities in times of sudden change becomes important to understand. When university financial instability happens, leaders implement strategies to help overcome budgetary difficulties and funded research programs are often at risk of being reduced. This study explored the strategies research program budget leaders use when making budget decisions to address fiscal instability in response to the COVID-19 pandemic. The following literature review in Chapter 2 is an overview of current research and a framework for this study.

Chapter 2: Literature Review

Decreased government funding and increasing research operational costs present challenges for universities seeking to balance budgets each year, and with sudden change, such as during COVID-19, research operations become difficult to manage. The purpose of this study was to explore leadership strategies of research budget program leaders at universities who are dealing with fiscal challenges during COVID-19. Research has presented several strategies to adapt to fiscal constraints due to increasing costs of university research programs (Shah, 2013; Yue et al., 2019). However, literature has varied on budget management. Deering and Sa (2014) suggested that budget strategies utilized by central business officers may play a key role in strategic and operational planning within universities and that the effectiveness of fiscal management can be increased by strategic budget decisions to control spending boundaries. Similarly, Clower's (1967) and Kornai's (1986) studies suggested that university leaders may consider financial obligations and limit expenses to fit to the available budget and by understanding the current fiscal constraints, leaders may have a clearer view of the future of their institution, which may help adapt to unplanned change during a crisis.

Deering and Sa's (2014) and Lepori et al.'s (2013) studies also suggested university business leaders have borrowed management practices, like responsible center budgeting, from the corporations in order to adapt to resource constraints increasing the likelihood to provide more accountability and efficiency. Other strategies, such as executive and performance-based budgeting, may be more centralized and seek to utilize metrics and cost accounting to attribute costs and outcomes to various areas of a

university such as programming and budget systems (Deering & Sa, 2014). When dollars are linked to objectives and budget planning, this may help university business leaders determine metrics on how financially stable and unstable universities are doing. An incentive-based budget system, which combines performance-based and strategic budget planning, may also increase the likelihood of effective fiscal management (Deering & Sa, 2014).

I discovered several gaps in the literature regarding strategies of organizational development utilized by university business leaders, such as research program budget leaders, to explore budget strategies during a crisis or a sudden change. This chapter includes a review of the strategies used to search empirical literature and a presentation of the conceptual framework relating to Kezar's (2005) study of organizational development, Senge's (2005) mental models theory, Bui and Baruch's (2010) work on learning organizations, and works on systems theory (Ax & Greve, 2017; Frølich et al., 2013). This discussion of the framework is followed by an in-depth empirical literature review. In the subsections of the literature review, I provide a review of research on leadership strategies implemented by university business leaders to manage unplanned changed during a crisis. My analysis of the literature will show strategies used by university leaders to acclimate to budgetary challenges caused by sudden or planned change.

Literature Search Strategy

The approach I used for synthesizing the literature was based on examining strategies that could be used for effective organizational change, focusing on effective

budget management to avert a budgetary crisis. The search terms I used to conduct the literature review included *organizational development*, *budget management*, *budget crisis*, *budget strategies*, *higher education*, *change processes*, *leadership*, *responsibility center budgeting*, *university management*, *budgeting, entrepreneurial culture*, and *innovation*. I conducted the search primarily within EBSCO, The Educational Resources Information Center (ERIC), ProQuest Central, Academic Search Complete, SAGE Journals, ELSEVIER, and Education Source. I used contemporary research to identify research on different leadership strategies for implementing effective management of university budgets.

Conceptual Framework

The conceptual framework for this study was drawn from theories of organizational development, including a focus on leaders leading change (Bui & Baruch, 2010; Kezar, 2005) and how university leaders use effective leadership strategies that include different models of decision-making to help with sudden or unplanned change, such as a crisis. Senge's (2005) mental models theory provides a framework for considering the collaborative strategies that business leaders draw upon to build trust among university stakeholders and building communication and collaborative strategies that are conducive for change. In addition, Ax and Greve's (2017) and Frølich et al.'s (2013) systems theory shed light on strategies used by leaders to help develop collaborative infrastructures within complex work environments when organizations are experiencing change.

Leaders Leading Change

Leading university change can be challenging, and finding a better understanding of the process from a leadership perspective may provide insight about how strategies are developed and implemented, which can help change more likely to be accepted, especially in areas where budgetary challenges may occur. Kezar (2005) and Senge (2005) used their organizational models to understand university leaders' perceptions of how leaders and university stakeholders work together in times of change or crisis. Their organizational models suggest that when leaders involve organizational stakeholders in the process of the change the change is more likely to be accepted. This research involved these models to explore the perception of university leaders on implementing or developing budgetary policies and practices during a crisis. Kezar's (2005) organizational change model provided a lens to understand how university leaders adapt to internal changes, focusing on creating collaborative work cultures conducive to these changes. Kezar's (2005) and Senge's (2005) models also shed light on how university leaders develop more active participation from stakeholders and foster collaboration. These strategies may be helpful to understand how university business leaders create and implement budget management strategies that foster collaboration with university stakeholders.

As university stakeholders work together to create these strategies, processes, and practices, this may develop university stakeholders to adapt to sudden change (Bui & Baruch, 2010; Kezar, 2005). Bui and Baruch's (2010) and Moll and Hoque's (2011) research support Kezar's (2005) focus on collaborative opportunities for university

leaders who work together with their stakeholders in initiatives of research programs. For example, collaborative opportunities to build and gather data sharing systems and processes and build teamwork cultures that facilitate improvement in areas of organizational commitment, transparency, and communication may be critical during times of a crisis (Bui & Baruch, 2010; Kezar, 2005; Moll & Hoque, 2011). The focus of understanding how university leaders use strategies that encourage more collaboration and build more transparency and communication may affect how universities adapt successfully to internal and external pressures (Bui & Baruch, 2010), improving ways to handle unforeseen change during a crisis.

University leaders may sometimes try to find a one-size-fits-all strategy to create collaborative opportunities. Various strategies to create flexibility, transparency, consistent communication, and more trusting work cultures among university stakeholders can help adapt and achieve successful organizational change (Philpott et al., 2011). Leaders may find it to be difficult to adopt changes if strategies planned or implemented focus on protecting leadership's welfare and not the welfare of their stakeholders, causing difficulties within organizational operations when rapid changes occur. But university leaders who work to maintain core values such as trust and integrity promote more trusting cultures where university stakeholders felt more openness and commitment to adapt to changes happening (Jameson, 2012). Therefore, strategies that focus on building trust and awareness of the development phases of change can have a positive impact on organizational change (Jameson, 2012). These types of strategies where university leaders build trust, confidence and create awareness of changing

development phases provides a recommendation on how to prepare universities for unplanned challenges (Jameson, 2012).

University budget leaders may also be prepared for unplanned challenges when leaders are informed in research operations and university's budget well-being and budget management. Institutional inconsistency occurs when leaders have insufficient knowledge to respond suitably to challenges, which institutionalizes beliefs and values that are irrelevant or harmful and have negative implications on university culture (Eesley et al., 2016). For example, university business leaders who implement new policies and procedures of research fund management need to understand the operations of managing research funds and how new policies and procedures will impact current research program operations. Therefore, it is important that leaders are informed in areas where decisions are being made, especially when it impacts certain aspects of the university's budget operations.

Further, strategies that focus on creating models of effective decision-making, collaborative infrastructures, and processes that adapt to new expectations are important in helping universities find new ways to maximize existing resources during a crisis (Stensaker, 2013). These types of strategies that set clear values and goals and resist negative influencing factors from external pressures help university business leaders build a more collaborative culture (Jameson, 2012). Therefore, understanding leaders' perceptions on decision-making that impact operations in areas that include university financial aspects, processes of operating and organization infrastructures, and results on institutional performance and contributions to economic and social initiatives (Howells et

al., 2014) can be useful in times of change or crisis. The leadership roles, relationships, and strategies utilized by university business leaders may help universities provide policy fiscal direction that can contribute to effective decision-making processes during times of unexpected costs and disruption of university operations. University leaders who create goals and missions with participation of university stakeholders plays a factor in how universities operate and the commitment of change from stakeholders (Nelles & Vorley, 2011). For example, the strategies developed where the outcomes could be closely linked to the effectiveness of a university's goals and missions (to the degree to which the other elements of the entrepreneurial culture are supportive of these priorities) may be crucial to university goals and missions influence and how university leaders make decisions about funding to develop these goals (Nelles & Vorley, 2011).

A bottom-down strategy, which allows members of organizations to develop and conduct research program activities under flexible learning spaces, helps remove existing barriers (Philpott et al., 2011). Strategies to sustain research program work cultures include building strong consistent communication among university stakeholders and creating shared systems (Johnson, 2020) and leadership-oriented strategies that mold the university culture towards sustainability. However, top-down leadership strategies that enable university stakeholders to influence leaders through feedback on challenges and improvements on infrastructures of processes and systems that impact university operations were more useful in times of sudden change (Nelles & Vorley, 2011). Therefore, understanding strategies that build strong consistent communication through stakeholder feedback and strong support systems that strive toward sustainable work-

cultures may provide insight to how university leaders are able to effectively manage budgets during a crisis (Bravo et al., 2018).

Strategic planning is critical to university leaders as they look toward the future of their university after a crisis. Shah's (2013) study suggested that university leaders who implement strategic planning to identify future goals focused on innovative opportunities help universities clarify future direction. The strategic planning involved, including creating more transparency, developing a basis for decision-making processes, and establishing priorities, can lead to the improvement of university performance. Strategic planning is also critical because these strategies are sometimes driven by changing federal government policies during a crisis, which impacts research program budget decisions and future investments leaders will make for their university (Alharthi et al., 2017; Panizzon et al., 2020). These challenges facing universities require leaders to clearly communicate the mission and strategic plans of their university more than ever during a crisis or sudden change. Therefore, organizational commitment from university stakeholders is important for leaders to understand how strategies can create effective shared vision and common goals that focus on building and sustaining collaborative partnerships with stakeholders (Alharthi et al., 2017).

Mental Models Theory

University culture that informs university design and strategic orientation by conforming to its university's mission, goals, and values of its university leaders is significant to understanding organizational change. Mental models theory as explored in Nelles and Vorley's study (2011) highlights how various university infrastructures with

different initiatives and goals created by university leaders aim to improve vast areas, shaping their university culture. For example, budget leaders who focus on stakeholders' commitment through transparency and consistent communication about new budget policies that impact fiscal operations during a crisis may encourage stakeholders to be more open to the change, which may help shape budget practices and allow more flexible working spaces. Therefore, university leaders who utilize strategies that focus on building organizational commitment among their stakeholders may have a stronger chance of building a positive impact on shaping practices, policies, and infrastructures molding its university culture to help overcome times of crisis (Nelles & Vorley, 2011).

Several studies have suggested that an approach of shared mental models, derived from the mental model theory, should be considered in how operation performance may be improved through shared understanding of knowledge and focuses to work together (Fransen et al., 2011; Van den Bossche et al., 2011). Fransen et al. (2011) and Kauffmann and Carmi (2019) both addressed the importance of mutual understanding and constructing behaviors of collaborative work cultures such as building trust and communication through transparency and shared learning teams to help university budget leaders develop and implement strategies conducive to budget changes among their stakeholders. Bravo et al.'s (2018) study showed that leaders who implement strategies that encourage behaviors of networking, trust, and knowledge sharing build teamwork cultures which may overcome some of the disruptions in university operations due to a crisis.

Fransen et al. (2011) and Van den Bossche et al. (2011) also suggested that leaders who promoted strategies that focused on collaborative opportunities during critical stages of organizational development helped solidify commitment and sustained collaborative relationships which in turn helped universities adapt to change. Official documents such as strategic plans, accreditation reports, and broad correspondence that communicate strategic objectives can provide strategies of how university leaders want to shape their work culture (Kezar, 2005). As university leaders talk about their strategies by describing documents and strategic plans utilized, it could provide further insight into how leaders can help manage their budgets during a crisis.

Research program budget leaders may develop and work in cross-functional teams with other university members reviewing strategies during times of sudden change to resolve ways to overcome challenges within research programs. Collaborative strategies that focus on sharing knowledge and learning within shared mental model tasks could be critical since it may build trust, communication and clearer understanding of expectations and goals among teams especially in times of uncertainty (Fransen et al., 2011; Kauffmann & Carmi, 2019; Van den Bossche et al., 2011). However, if leaders and their teams do not have mutual trust or understanding of organizational commitments, goals, expectations, working together under difficult challenges or crisis may be hard to overcome (Fransen et al., 2011). Therefore, designing a study that may help increase understanding of how leaders utilize strategies that develop and reinforce shared mental models during implementation of policies and practices through interactions with

stakeholders may in turn help build trusting and committed university work cultures that may adapt to change more successfully.

Systems Theory

Systems theory may be useful to help understand how collective understanding and commitment in times of organizational change may be critical for universities overcome that change. One of the key points of systems theory is that parts of an organization are interconnected and interdependent, therefore if university leaders change main parts of the university infrastructure or its operations, such as implementing new business policies and procedures, then other parts in the connection are impacted as well (Siegel & Leih, 2018). Strategies that focus on building strong partnerships among stakeholders can provide a collective understanding of economic development for universities, especially in times of fiscal crisis (Ax & Greve, 2017; Siegel & Leih, 2018). Both private and public universities have multilateral relationships, some involving government and other external partners, that create different areas of collaboration practices and expectations. These practices and expectations may cause conflicts among the different collaborative groups, making it difficult to operate effectively, which was found in a study by Siegel and Leih (2018).

University business leaders who begin to understand how various parts of the university are critically connected and start to build an open system that interacts with the changing environment and is continually adapting and improving, have been found to more likely to overcome unplanned or planned change (Ax & Greve, 2017). Research by Holmberg and Hallonsten (2015) explored how leaders built a university culture that was

able to adapt to change to during a time of crisis. For example, as university leaders struggle with developing research programs, external partnerships, such as government agencies, may influence change within universities, leading universities to respond to the external pressures in an already complex culture (Holmberg & Hallonsten, 2015). Therefore, strategies that focus on creating infrastructure that can be flexible to changes happening constantly may help universities overcome change during a crisis.

Many challenges that universities are facing may be deeply influenced by decisions that leaders make at large within university infrastructures or operations from every level including administrative leaders, faculty, and staff (Ax & Greve, 2017). The university finance infrastructure and its operations can help provide a perspective on how university business leaders implement budget strategies that may impact stakeholders' commitment, development of trust and communication, and how these strategies impact university culture during certain changes, such as a crisis. For example, when leaders make decisions to change research program operations, leaders should understand the current infrastructure and its operations and then think of strategies that involve building commitment and communication, which may increase trust among stakeholders that are impacted by the change. University leaders may also provide a comprehensive framework for budget leaders, such as providing documents of goals, management strategies, and keep stakeholders briefed on the current change to build a sustainable work culture during a crisis. Leaders who build strong networks of communication and coordination (Nelles & Vorley, 2011) through the creation of informal structures may

provide free-flowing processes that may lead to innovation and experimentation (Neary & Saunders, 2011), which may play an important role in overcoming fiscal challenges.

Understanding strategies that establish effective structures, processes and practices may be critical for university business leaders to understand in order to respond to internal and external pressures from change. Organizational infrastructures and boundaries may also change as university business leaders respond to pressures, such as reduction and disruption within research programs. Institutional inconsistency can happen in the internationalization process if infrastructures and practices emerge from the resolution of problems in specific circumstances; therefore, leaders may test strategies against real life situations to determine which ones work and can be beneficial (Urbano & Guerrero, 2013). How research program budget leaders build infrastructures may also play a critical role towards creating collaborative work culture. Collaborative work cultures where leaders encourage several initiatives to develop infrastructures to ease the process of knowledge sharing and increase the interactions among different teams or people may help university leaders implement strategies easier during times of a crisis (Urbano & Guerrero, 2013). These types of strategies have been found to encourage collaboration among scientific, technological, and economic development and provided better outcomes for several universities in the development of their research programs (Urbano & Guerrero, 2013). Leaders who supported and created more entrepreneurial cultures, research, and entrepreneurial tasks, also developed knowledge sharing and economic capital (Urbano & Guerrero, 2013). Not only does this bring in other resources of revenue during a crisis but it also develops research programs. University business

leaders who strive to understand how their university system or operations are interconnected may implement strategies that have a positive impact on university infrastructures, policies and practices and ultimately its university culture (Ax & Greve, 2017).

Literature Review Related to Key Factors

In this section, I review research on strategies of organizational development from recent studies involving leadership practices and processes leading to change in organizational structure and strategies that help facilitate budget management during a crisis. These strategies include building collaboration, building mutual trust and organizational commitment, effective communication, effective structures and building entrepreneurial and innovative university cultures that encourage efficiency, cost control, and revenue generation, aspects utilized in budget management. I synthesized the research on these strategies to better guide the design of this study.

Building Collaboration and Shared Mental Models

Collaborative environments may be difficult to manage, even in departments or schools within the same university, since some universities have decentralized structures and multiple levels of administrators and decision-making leaders that have their own goals and agendas. Collaborative environments are important because it develops stakeholder relationships, may increase higher administrative productivity and may ultimately increase research program opportunities (Philpott et al., 2011). Each department or school may have various processes, goals, and initiatives and work cultures that could make it difficult for units to work with one another, causing weaker

relationships between objectives and outcomes that may lead to uncertainties and unforeseen challenges (Bravo et al., 2018; Frølich et al., 2013) in an already uncertain time during a crisis. Philpott et al.'s (2011) study observed that such uncertainties and challenges create conflicting goals at several organizational levels, resulting in negative fiscal consequences. For example, budget leaders that implement new systems to help manage budgets may have unforeseen negative impacts on research programs since the new system may not align with the processes and practices of these types of programs. Consequently, this may negatively impact work culture, which may it difficult for university budget leaders to overcome change during a crisis.

Given that universities have complex infrastructures and multiple levels of leadership with different initiatives in mind, Yue et al. (2019) suggested that strategies that build trust among university members may establish successful leadership collaboration even when the outcomes of leadership decisions are negative. Many traditional universities still function in silos making it difficult for some leaders to collaborate and strive towards various initiatives. University leaders who understand strategies on how to work together, build trust among each other and implement effective social processes that may develop shared mental models in critical areas of management behaviors, knowledge sharing and organizational commitment.

The development of shared mental models may influence types of leadership strategies focused on building organizational commitment that may lead to improved university performance during times of a crisis. Shared mental model strategies has been utilized in studies conducted by Zambrano et al., (2019) and Van den Bossche et al.

(2011) to help describe and explain strategies conducive for collaborative work cultures, which enables university members to adapt to changes or to a crisis. For example, Garcia-Morales et al.'s (2012) study showed that leadership strategies that encouraged and supported collaborative efforts in shared mental models that facilitate learning and sustained collaborative and participatory leadership encouraged innovation and performance within organizations. Garcia-Morales et al.'s study also showed a positive correlation between transformational leadership and organization innovation and performance, where teams worked harder and easily together increasing the productivity.

Another study conducted by Evans et al. (2015) showed that shared mental models led to effective change within organizational leaders' mindset, values, and goals targeted towards large-scale change which is especially important for universities where change or crisis is difficult to overcome where barriers exist. In particular, Evans et al. found that shared mental model strategies strengthened learning and understanding of the change or crisis.

Mutual Trust and Organizational Commitment

Strategies that focus on the process of leadership collaboration have often been found to involve building and maintaining a shared understanding of common initiatives that may also build mutual trust and organizational commitment (Yue et al., 2019). Senge's (2005) mental models theory refers to collective leadership strategies that create and promote collaborative cultures to facilitate different areas of organizational commitment. Networking among university stakeholders has been found to encourage building commitment, providing an avenue to communicate values, ideas, strategies and

learning from other people within the university culture, which may shift the way a university operates (Kezar, 2005). Kezar's (2005) findings support the idea that goals and initiatives for collaboration and leadership are critical and reported that an obligation or a commitment among stakeholders within the university emerged as university leaders promoted these types of strategies. For example, as organizational commitment needs to be improved, leaders must aim to unite the hearts and minds of all parties involved in the change for change to be successful. Alharthi et al.'s study (2017) provided examples such as developing stakeholder commitment and strategic planning through retrieving feedback from stakeholders themselves on the change happening and developing transparent policies and communication channels to ensure stakeholders what is happening during the change and the transition of new policies being implemented. By doing this, stakeholders are more likely to be open to the change since their feedback and voices are being heard.

Zambrano et al.'s (2019) study showed that the concept of mutual trust was a shared perception of organizational stakeholders' and the policies and practices to which they chose to commit. Kezar (2005) found that mutual trust created a safe culture for university stakeholders to share information freely which is important in building shared mental models; without it, leaders may spend too much effort on oversight instead on building and improving collaborative strategies. Prelipcean and Bejinaru's (2016) study supports Kezar's (2005) conclusion as they demonstrated that leaders who facilitated cooperation from university stakeholders, at all levels, without imposing their own

intentions, increased the organizational commitment from stakeholders for the change or crisis happening.

When leaders promote strategies that build and sustain mutual trust may also lead to mutual understanding or agreement, facilitating helpful resolutions to a crisis. Van den Bossche et al. (2011) study illustrates that it is not only a matter of understanding each other's perception but also accepting each other's ideas and ways of doing things. When leaders confront a problem or challenge, the mutual understanding of all parties involved must happen in order to arrive at a resolution. Critical strategies that focus on compromise and collaborative learning where members have opportunities to learn from each other are instrumental since these opportunities create new meaning or ideas and perceptions that did not exist before (Van den Bossche et al., 2011). Van den Bossche et al. found that when new ideas or perceptions are created, stakeholders must accept them before they form the basis for action or implementation; therefore, co-construction of understanding is required.

Data collected from Jameson's (2012) study focused on trust-building behaviors and value-based leadership that could help universities shape their work culture to cope with rapid changes and uncertainties. For example, universities that experience numerous scandals in the media may lose trust among their stakeholders and stakeholders may question leadership decisions. During this type of uncertainty, it may be helpful for university leaders to develop strategies that build trust and value-based leadership to rebuild trust among stakeholders. Therefore, to help a university build trust, Jameson's (2012) case study suggested that leaders can likely gain trust within their institutions if

they improved their ability to focus, listen, act with discretion and skillfully contain negative emotions rather than implementing solutions right away, which may not necessarily have been thought through. Rapid changes may create negative emotions and responses from university stakeholders, therefore, building trust and decreasing negative capability may help ease stakeholder uncertainties.

Structures Implemented by Leadership to Support Finance Structures

Several other important factors of managing collaboration within leadership infrastructures involve forming specific goals, strong foundations of partnerships and building relationships among leaders. Smith et al.'s study (2014) showed that specific goals and expectations provided structure and direction that improved performance and that time also played a factor to assist with helping leaders to build trust. Kezar's (2005) study also suggested that laying a strong foundation to build commitment among different stakeholders within their university culture can lead to a higher probability of sustaining stronger leadership structures and organizational commitment when experiencing change or a crisis. Leadership structures that focus on developing strong partnerships among stakeholders and their leaders may help develop strategies that can support finance structures when they are going through budget changes within a crisis.

University leaders that utilize strategies that strive towards continuous collaborative learning and effective knowledge sharing systems are facets leaders can directly tackle to encourage stakeholder engagement (Yue et al., 2019). Collaborative learning approaches involve groups of people working together to complete a task or resolve a problem. Sometimes these approaches can have features that can develop ways

for sharing knowledge through technological systems. For example, universities that implement new financial systems that help manage financial data may provide opportunities for collaborative learning and knowledge sharing among university financial administrators, that may ultimately increase financial activity outputs.

Suh and Park's (2014) study found that the development of innovative opportunities and decision-making structures, such as shared leadership model, are facilitators in managing collaborative teams. Shared leadership models have features that give authority to multiple leaders that take on initiatives important to their organizations. For example, universities that create a task force of members from different units, or form committees to work on a collaborative project aligned with meeting university initiatives. This type of leadership focuses on developing collaborative teams, which may help leaders work together to solve complex problems. Similarly, Garcia-Morales et al.'s (2012) study showed university leaders who provided knowledge sharing resources and tools to increase communication and networking opportunities further developed shared leadership models conducive to change.

Key concepts in changing and adjusting systems and interactivities within universities are openness and homeostasis. Kezar's study (2005) suggested that changing one part of the system or structure that is interrelated or interdependent had implications for other parts within that system or structure. Therefore, openness between the environment and change or crisis, can lead to characterized change which is dependent on the external environment. Homeostasis, which Kezar (2005) referred to as self-regulation and the ability to maintain a steady state of change through finding equilibrium between

the system and the university culture, may also influence collaborative structures and systems. For example, university systems may change and implementation of this change may require stakeholder acceptance of new systems, which may require leaders to create training opportunities, retrieve stakeholder feedback on the systems, and constant communication of the transition of the new system and its impact to the university and its stakeholders. Middlehurst's (2013) study found that leaders who increased awareness of university interests and values during the change among stakeholders contributed to the sustainability of more effective change, which may lead to more stakeholder commitment to the change.

Organizational infrastructures also determine tasks, relationships, paths, and practices of team members through formalization and complexity, where an organization's structure can be comprised of teams, and within those teams are sets of tasks, rules, and procedures that are created by leaders (Mehrabi et al., 2013). The study by Mehrabi et al. (2013) found that task awareness increased effectiveness of task completion where team members have the autonomy and flexibility to collaboratively work together as long as team members understood their role and how to complete the task. Van den Bossche et al.'s (2011) study suggested that task division across the teams was determined based on skills and experiences of team members, therefore it is recommended that leaders are aware of their employee's specialized skills, experiences and continue to encourage their staff to develop their professional horizons to keep them motivated and engaged not just within their team but within their organization.

Modes of Communication

As leaders promote more effective collaborative cultures, change or crisis may become more complex bringing challenges in communication. Therefore, consistent communication tools for leaders are important to keep stakeholders aware of changes within the change process. The technological advances of email and other computer mediated communication have made it easier to communicate with one another but face to face communication is still essential for organizational members in the process of organizational development. Zambrano et al.'s (2019) study suggested that there is no specific mode of communication that can influence collaboration effectiveness but by providing the relevant information, supporting initiatives and focusing on the quality of communication distributed; further development of mutual understanding, trust and organizational commitment among stakeholders may lead to an increase on consistency of communication.

Leadership strategies that employ frequent communication of high expectations, may promote more leadership intelligence, knowledge, and learning, which may ultimately lead to innovative approaches to problem solving and resolutions that arise from organizational change. Garcia-Morales et al.'s (2012) and Yue et al.'s (2019) studies suggested this type of transformational leadership style has shown positive relationships between organizational learning and innovation, shaping university cultures. For example, leaders that inspire motivation, intellectual stimulation and show consideration and concern for their stakeholders are more likely to have opportunities to gain stakeholder commitment for change being implemented. Therefore, this leadership

strategy analyzes, adjusts, and drives systems, designing a framework to share and transfer knowledge through the process of organizational learning that may be beneficial for universities (Asif, 2018).

Watkins and Dirani's (2013) study showed that leaders who sought continuous learning created structures and promoted practices that supported positive organizational change. Similarly, Deering and Sa's (2014) and Schnaubert and Bodemer's (2019) studies revealed that resources such as databases, desktop learning applications or systems and any technological resources supported budget management creating continuous learning and promoted positive practices, which may help during times of crisis or sudden changes. In addition to utilizing technology to manage university budgets, leaders may need to focus on improving systems that have interdependent and interrelated structures that may be critical for developing collaborative leadership cultures.

As new financial systems continue to develop, facilitating budget management may become easier within university financial structures. Smith et al.'s (2014) and Schnaubert and Bodemer's (2019) studies revealed that encouraging the use of other technological resources helped budget leaders manage fiscal responsibilities effectively to communicate fiscal information like policies and processes through different modes, thereby building more transparency and consistent communication. This strategy may also improve leadership dialogue and inquiry to overcome unexpected barriers that happen from change (Holyoke et al., 2012). Although there are some challenges with technological communication, some researchers still think face to face meetings are a

more effective way to communicate and manage organizational change (Zambrano et al., 2019). Bravo et al.'s (2018) study supports this finding as they found that face to face interaction fostered a sense of participation awareness and transparency among organizational members that may have contributed to the development of effective communication practices in collaborative university cultures.

Building Innovative Work Culture

A university's learning capability of communication and knowledge sharing may drive its innovation and work culture. Suh and Park's (2014) study found that leaders who promoted strategies that led to motivation and enthusiasm, influenced other university stakeholders to accept new and improved processes, thereby increasing its university's performance. When shared mental models determine attitudes and roles of leaders this enables leaders to implement new and innovative strategies that strive to problem-solve collaboratively with different perspectives from team members (Abbaszadeh et al., 2012; Suh & Park, 2014) may help overcome challenges during times of a crisis. As leaders focus on creating structures and promoting practices that focus on team learning through collaborative strategies, these may support more positive organizational change where stakeholders have more positive responses such as acceptance of change.

Universities that want to develop a strong culture of innovation may consider putting efforts to create and sustain a workplace culture that encourages knowledge sharing, strategic leadership and employee work engagement by focusing on both individual and organizational level support (Suh & Park, 2014), which may facilitate

opportunities to develop or maximize revenue resources for universities. Suh and Park's (2014) study revealed that social interaction mechanisms that provided opportunities for knowledge sharing strategies can be utilized to find new fiscal resources. For example, university task force committees focused on fiscal management maybe helpful for financially knowledgeable leaders to get together and share strategies that have helped them manage finances for their own department or unit. Since knowledge is important to the innovation process, it may lead to the ability to value, create, and utilize new knowledge, ultimately leading to financial growth for universities.

University cultures that strive towards more entrepreneurial approaches may have a positive and profitable effect on the mechanisms of knowledge, such as financial data, a university commodity, that enables universities to financially develop (Abbaszadeh et al., 2012). If that knowledge is not acquired, applied and managed, then a growing fiscal gap continues to exist, which hinders organizational development, raising fiscal challenges for universities. Ponnuswamy and Manohar's (2016) study examined the dimensions of organizational learning within higher education institutions (HEIs) and their impact of learning organizational culture on the performance of Indian universities. The study determined that leaders who encouraged knowledge sharing and learning new innovative skills, created opportunities for encouraging learning and communication inspiring collaboration cultures and team learning; empowering stakeholders towards a shared vision; connecting the organization to its environment; establishing systems to capture and share learning; and providing strategic leadership for learning. University leaders who promote strategies that strive to build more collaborative and entrepreneurial culture

may improve educational and research performance, helping their universities develop fiscal resources.

Summary and Conclusion

Organizational development that builds effective collaborative efforts through leadership strategies such as organizational commitment, mutual trust, and effective communication, contribute to the development of innovative and entrepreneurial university cultures that play a role in university development of revenue resources. As the literature shows, effective leadership strategies also play a critical role in how university structures are created and sustained (Ax & Greve, 2017) to support such organizational development. Consequently, university leaders that facilitate a learning organization model improve the capabilities of collaboration within complex and changing environments (Senge, 2005).

Senge (2005) suggested critical elements within organizations that facilitate collaborative cultures that can be successful for change. These elements include effective communication (Senge, 2005; Van den Bossche et al., 2011; Zambrano et al., 2019), mutual trust among stakeholders (Bravo et al., 2018; Fransen et al., 2011), and developing collaboration among stakeholders to help cope with sudden change (Senge, 2005). University leaders that think deeply about complex problems, strive for innovative strategies, and successfully coordinate plans to actions may help their university with overcoming the difficulties of change.

Existing research suggests that collaborative work culture and university infrastructures are not in and of themselves enough to instigate innovative organizational

development needed to respond to fiscal challenges during a crisis. Rather, active involvement, by building mutual trust and commitment with university stakeholders, is necessary to create and sustain organizational change to respond to crises. In addition, leadership strategies are instrumental in order for universities to achieve a competitive advantage in the complex environment of higher education in the which the rising cost of research programs is a challenge and its development of fiscal growth. Consequently, the importance of exploring the quality of shared mental models within leadership strategies provides insight into understanding how university leaders address fiscal crises by learning how to effectively work together with its stakeholders.

Chapter 3: Research Method

The purpose of this basic qualitative study was to explore the strategies research program budget leaders in research intensive universities developed to sustain fiscal stability in response to the COVID-19 pandemic. In Chapter 3, I discuss the research design and rationale followed by my role as the researcher. Next, I describe the methodology including identification of the population, criteria for selection, and procedures for how participants were identified, contacted, and recruited. I also describe data collection and instrumentation and the data analysis plan. In conclusion, I explain how issues of trustworthiness and ethical procedures were handled throughout the research process.

Research Design and Rationale

A basic qualitative research methodology emphasizes an interpretive analysis of social interactions and establishes a measure of diversity within a group (Merriam & Tisdell, 2016). The methodology for this study involved open-ended questions in semistructured interviews to delve deeper into strategies that were utilized by university research program budget leaders (Merriam & Tisdell, 2016). The choice of a basic qualitative design was consistent with my research goal to explore the strategies of research program budget leaders in universities in response to the COVID-19 pandemic. Further, a basic qualitative research design is often used in education when researchers seek a deeper understanding of effective processes such as strategies and operative leadership and practices, as it helps to understand individuals' experiences and meaning from those experiences (Merriam & Tisdell, 2016).

Other qualitative designs were not appropriate for this study. A phenomenological design focuses on the lived experiences of the participants; however, the nature of this study was to understand strategies rather than a deep understanding of human experience (Grossoehme, 2014). The narrative design uses a storytelling framework to provide an understanding of a specific situation and is not applicable to this study (Merriam & Tisdell, 2016) since the main focus of the study is to identify business strategies that university research program budget leaders have utilized to avert a budget crisis. A case study might have been a useful design in understanding how budget leaders handle budget crises on one or two campuses that had a unique approach but was not an appropriate methodology for this research as the intent was to examine a variety of strategies used by research program budget leaders at a number of research intensive universities. Additionally, budgetary information is often proprietary, and it might have been difficult to arrange in a case study in a bounded setting during the time of a crisis. Rather than describing a case at a point in time, which might require more work with documents, this study required exploring participants' reflections on their strategies. Consequently, I decided on interviewing research program budget directors from several universities about their perceptions of their past experiences, using the basic qualitative approach.

Role of the Researcher

My role as the researcher in this study was to collect data through video interviews. I spent 7 years in higher education in a leadership role at a research-intensive university helping lead an academic and research department within a decentralized

sponsored programs administration while managing federal grant funding research. In the previous 9 years I implemented other budget directors' policies and was asked to collaborate in designing budgets. My experience in higher education provided a lens to use in listening about departmental problems associated with sustaining financial stability with faculty and other stakeholders. However, my association with a university and my participation in regional university and college finance forums might have introduced potential bias into my interactions with the study participants. I consciously monitored my interactions with the participants during the data collection process to maintain objectivity and prevent data manipulation and bias by keeping a researcher's journal to facilitate this reflective process. This self-monitoring and reflection are critical to maintaining objectivity and mitigate bias (Merriam & Tisdell, 2016).

Methodology

Participant Selection Logic

The focus of this basic qualitative study was on strategies that research program budget leaders employ to sustain financial stability during times of uncertainty. Participants for this study included research program budget directors who work in decentralized or centralized sponsored programs administrations or are connected to a central business office at universities and are responsible for their respective business strategies implemented to influence financial stability for grant funding. The participants included both mid-level and senior research program budget leaders at research intensive universities who implement strategy regarding grant funding, and not those who work at

small, primarily teaching-focused institutions and for-profit universities. I did not seek to interview central business officers who did not have research grant funding.

I recruited participants from research intensive universities as a way to ensure participants are research budget leaders who are involved in developing and implementing budget strategies of research grant funding, which is the main the focus of the study. Based on the Carnegie classifications, research intensive universities that report at least $5 million in total research expenditures are assigned to two categories of research activities and are ranked by R1: universities with very high research activity and R2: universities with high research activity (The Carnegie Classification of Institutions of Higher Education, 2021). I recruited individuals from both R1 and R2 institutions.

The sampling approach used selection criteria or characteristics to reach out to the appropriate population segment (Grossoehme, 2014). I interviewed eight participants until what I heard from participants was consistent across interviews and data saturation was reached. Selection criteria included:

- At least a year in the role that included experienced sudden change such as unexpected costs due to sudden budgetary changes.

- Worked for a research intensive university as a budget officer and managed research funding.

- Research program budget leader who plans and implements strategies, including collaborative work.

Instrumentation

I prepared open-ended interview questions and probes, based on the research question and guided by the conceptual framework and empirical literature review. (See Appendix for the interview protocol.) A researcher selecting a qualitative approach becomes the data collection instrument and is able to gain data from participant views (Yilmaz, 2013). A researcher can gain personal perceptions and a deep meaning of a situation by conducting interviews (Merriam & Tisdell, 2016). When I conducted the interviews to explore budgetary process and strategies, I became the primary data collection instrument. A semistructured interview is a useful tool when interviewing multiple participants. The interviews took 45-60 minutes to complete.

Researchers using open-ended questions in semistructured interviews enable the participants to provide an explanation in their own words of the occurrence (Yilmaz, 2013). A researcher using this approach has the freedom to modify questions or ask follow-up questions based on participant responses (Koskei & Simiyu, 2015). I had the ability to ask probing questions if a response needed further meaning than what the participant originally provided to create a deeper meaning of the interview.

Participant Recruitment

Once I received approval from Walden University's IRB office (Approval # 0910200497626), I sent an email invitation to potential participants who would then self-identify as having experience working in a central business office that were responsible for developing strategies during the COVID-19 pandemic. I searched for possible participants' contact information from LinkedIn, a social media resource, and connected

with professional associations, such as the National Council of University Research Administrators, to recruit participants who meet the selection criteria. I contacted the research program budget leaders via LinkedIn messenger or found their university email through their university website, if available, to contact and explain the intent of the study, solicit participation, and build rapport with potential participants. I included a Letter of Consent and urged them to return it with an email indicating "I consent". I also encouraged participants to inform others of the study using my professional networks.

Data Collection

I used a convenience sample, interviewing the first participants who expressed interest and meet my criteria. My initial emails did not recruit enough participants for me to reach saturation, so I sent a reminder email two more times, and encouraged participants to send my invitation email to others who met the criteria who they may know professionally.

Once they responded to my initial invitation, I scheduled the 45-60-minute interview at a time that is convenient for them. I gave them my phone and emailed and told them they can write, call, or text my email or phone number or write me through LinkedIn for inquiries about the study. LinkedIn's policy for contacting people for research purposes is that people's information on their profile is public. If their LinkedIn profile does not have their contact information, I went on the internet and to their university directory online and located their email and contact information.

I offered three formats for the interviews, asking participants which they were most comfortable with: video interviews on Zoom software, FaceTime on iPhone, or an

audio phone call. I used a standard process with each participant to gain insight from their own experience using a consistent opening dialogue to introduce the study (Merriam & Tisdell, 2016). The interview questions explored leadership strategies of research budget program leaders at universities focused on several types of collaboration such as teamwork, communication, and infrastructure. Participants received a $20 Amazon gift card to thank them for their participation. Data collected was confidential.

I recorded the interviews on two devices such as on the Zoom software or Microsoft Teams or on my phone and I transcribed the interviews into a Word document. Within one week, I sent the transcript to each participant, and asked for any comments regarding inaccuracies in the transcript or misunderstandings on my part. I kept field notes throughout the interviewing process to keep track of emerging understanding and potential themes.

I focused and kept each participant on topic when responding to the interview questions. If the need arises to ask additional questions for further insight into a specific topic, I tried to avoid personal bias of the subject and stayed focused on the perspective of the participant. I kept a reflective journal to reflect upon my experiences and note my bias and responses to keep me aware of them.

Once a participant has agreed to be interviewed, I used their university's website to gather information about the institution's priorities, grants, budget office structure, and other relevant information that is publicly available. This helped facilitate the interview and helped me ask relevant probing questions. I sought to gain the same kind of information from each university, but this information only supports my understanding of

the interview material and was not coded as data. I used this information in writing up the results to effectively convey the perspectives of participants.

Data Analysis Plan

I created an Excel file for coding the transcribed interviews. I tracked changes to code and later I used the "find" search feature in Word to look for codes and begin using inductive coding. I started to identify codes by singling out works and phrases. I then grouped codes into small number of categories and determined if some codes could be clustered into few themes that represent my findings. I took notes, wrote summaries of observations, created concept maps, and worked on identifying emerging themes through the data collection process. I saved electronic documents in a password-protected file and kept hard copies in a locked box. I ensured that all data is secured per the Walden University data collection requirements.

Issues of Trustworthiness

Credibility

To increase credibility, I utilized data triangulation by interviewing research program budget leaders from several different research-intensive universities, which allowed me to compare different strategies reported by participants. I also used transcript validation, in which the transcripts of completed interviews shared with participants to provide further clarification on their intentions, correct errors, and provided additional information if necessary. In order to ensure data saturation, I interviewed what was planned as a minimum of eight participants, which is when I reached saturation, contributing to the credibility of the study (Koskei & Simiyu, 2015).

Transferability and Dependability

To ensure dependability, I was thorough in the analysis of the data of interview responses among the participants. I was transparent in describing my research steps from the start of my study and when I report my findings. To achieve this, I created an audit trail of my data collection activities and kept records of my research plan through the study. The transferability of the study's findings relied on the thick description of the participants, in the interview process, asking open ended questions and probing to hear what else participants might want to add. I discussed possible challenges and limitations of strategies in interpreting the findings that increased potential transferability of the results.

Ethical Procedures

I followed ethical procedures and follow guidelines of the Institutional Review Board (IRB).

- Retrieved IRB approvals that were needed for the proposal and included IRB approval numbers.

- A recruitment email was sent to potential participants.

- I addressed ethical concerns related to recruitment materials in the consent forms for participants, which described how participants would be treated.

I also ensured that all data collected would only be accessed by myself and addressed issues including:

- Data confidentiality and letting participants know in the consent forms that interviews would remain confidential.

- Protection for confidential data with storage in a password protected file and

   only I had access to the data. The data will be destroyed after 7 years.

Summary

Chapter 3 regarded the research methodology and included an overview of the

study research design, target population, data collection instrument, coding and data

analysis, and how I informed participants through consent and confidentiality of the

study.

Chapter 4: Results

The purpose of this basic qualitative study was to explore the strategies research program budget leaders in research intensive universities used to navigate financial instability in response to the COVID-19 pandemic. The research question that guided the study was "What strategies have research program budget leaders developed to address fiscal stability for their departments in response to COVID-19?" The sources of data for this chapter were interviews with eight participants who are directors of sponsored programs research. In this chapter, I present the analysis of interviews with university research program budget leaders.

Setting

For this study participants were recruited from universities that fell under the high research activity classification suggested by The Carnegie Classification of Institutions of Higher Education. The framework of Carnegie classification has been widely used in the study of higher education both as a way to represent and control for institutional differences and also in the design of research studies to ensure adequate representation of sampled institutions, students, or faculty (The Carnegie Classification of Institution of Higher Education, 2021). The recruited sample consisted of eight participants from eight different campuses that met the Carnegie classification. The interviews were conducted on Zoom because the design of the study and the selection criteria for participants implied a national sample, and the pandemic did not allow face-to-face interviewing. The participants chose the time and setting for the interview. For the most part, interviews were conducted during business working hours.

All the universities in the study were 4-year doctoral universities, which is defined by the Carnegie classification as institutions awarded at least 20 research/scholarship doctoral degrees during the update year and as well as institutions with below 20 research/scholarship doctoral degrees that awarded at least 30 professional practice doctoral degrees in at least 2 program cycles (The Carnegie Classification of Institutions of Higher Education, 2021). Five out of the eight universities were public institutions while the other three were private non-profit institutions. The two research categories under Carnegie classifications that participant universities were classified are the following:

- R1: Doctoral universities—Very high research activity
- R2: Doctoral universities—High research activity.

Demographics

The participants recruited for the study all served in the role of director during the COVID-19 pandemic and had a minimum of at least 2 years' experience in research administration, with a range of 2 years to 10 years. Two of the eight participants were male and the rest female. All participants were recruited via LinkedIn.

Five of the eight universities were classified under R1 very high research activity, and the other three universities were classified under R2, which is classified as high research activity. Table 1 provides a summary of key attributes useful in understanding the makeup of the sponsored programs of administrators who participated in the study, while maintaining confidentiality. Of particular interest is that all the participants worked in university systems that had million-dollar research budgets for FY20 and institutional

research revenue that was a sizable percent of their overall institutional budgets. (see

Table 1).

Table 1

Key Attributes of Participants' Institutions

Carnegie classification type	Type of university	Total size of institution (faculty & staff)	Grant revenue $ FY 20	Institution research revenue %	Institution total budget $ for FY 19/20
R1 Universities (very high research activity)	Majority public universities	About 26,000 – about 48,000	$120 to $700 million	10%-34%	$120 million to $5.0 billion
R2 Universities (high research activity)	Mainly private universities	About 790 – about 6,200	$80 – $300 million	13%-40%	$200 million to $5.0 billion

All the universities where participants worked were 4-year universities and were

either classified as private non-profit or public universities. The majority of R1 classified

universities had a centralized pre- and post-award management structure. In fiscal year

2020 these universities had grant revenue dollars between $120–$700 million and were

the majority public type universities.

Universities classified under the R2 classification were mainly universities that

were established between 1830–1920 and had a total size of faculty and staff of 700–

6,500 personnel. In contrast to the R1 institutions, the majority of R2 classified

universities had a de-centralized pre- and post-award management structure. These

universities for fiscal year 2020 had grant revenue dollars between $80–$300 million and were majority non-profit private type universities.

In addition, to further understand the participants' levels of autonomy and authority with regard to decision-making, I gathered background information about their positions. One participant, who was an administrative director, was responsible for directing and overseeing various administrative functions that track and ensures compliance with operating budgets, including sponsored research funding as well as unrestricted funding for a university or school. The other seven participants with a title of sponsored programs director and who had oversight of externally funded programs for a university/college described their roles as budget leaders who managed their department budgets and also ensured research funding compliance. Participants in their position are generally responsible for managing the administrative activities of a program including identifying funding sources, acquiring funding, setting program policies and objectives, sponsored office department budget management, and allocating resources. Table 2 describes the role and title of participants, using their pseudonyms, in relation to centralization or decentralization of management structure.

Table 2

Participants' Position Titles

Sponsored programs position type	Centralized pre and post award management structure in R1 universities	Decentralized pre and post award management structure in R2 universities
Director of sponsored programs/admin. Director	John, Jane, Kelly, Laura, Amy	Joe, Anna, Shannon

Data Collection

Emails were posted on the National Council of University Research Administration listserv and LinkedIn to recruit participants for this study. No responses were received from the listserv, and nine were received from LinkedIn members who met the qualification parameters of my study. Data collection began at the end of September 2020 and was completed 6 weeks later. The interview duration was about 45–60 minutes per interview. The target of recruitment for the study was eight to nine participants. Saturation began to be observed around the sixth interview, as participants were reporting similar strategies to address fiscal instability within their universities. To ensure data saturation was achieved, two more participants were recruited and interviewed (Patton, 2015). During the data collection process, a recording of one interview was not completed due to internet disconnection. However, data saturation was met with the remaining eight interviews.

After the interviews were recorded, the audio files were uploaded into a transcription online system called Rev.com and then I downloaded a Word document after the transcription was completed by the software system. Transcriptions were checked for accuracy and then sent to the participants for checking, where they were given the opportunity to edits or clarifications. Participants were given 2 days to respond, and after 2 days if the participant did not respond it was assumed there were no issues. After the interviews were completed, I sent each participant a $20 electronic gift card as a thank you for their time, as indicated in the consent form they signed prior to participation.

Data Analysis

As I reviewed each transcript, I began the process of systematically coding excerpts and categorizing the codes to find themes and patterns (Locke et al., 2020). As a first step, I used an inductive coding technique in which I read through all the transcripts and looked for common strategies that participants had utilized as strategies to help address fiscal stability during the COVID-19 pandemic. I coded the strategies and placed them into a table classifying them into categories. After I categorized the strategies, I identified themes from the categories and then some of those categories became subthemes. At the end of the analysis three themes emerged.

After creating a table of four overarching themes representing what participants utilized to address fiscal stability during the COVID-19 pandemic during the first round, I then started a second round of open coding, again using an inductive coding approach. I coded excerpts from the transcripts and categorized them into themes, reviewing the codes or commonly spoken words to determine if more themes could be identified or if themes need to be narrowed. This approach allowed the narrative to emerge from the coded excerpts, in comparison to my first round of coding where I looked specifically for strategies to help address fiscal stability during the COVID-19 pandemic. After conducting this analysis, I realized that one of the strategies that emerged from the first round of coding did not have enough codes that were in alignment; therefore, the fourth theme was eliminated.

In a third round of coding, I used a deductive coding approach. I took the codes that were identified in the second round of coding and used them to search for word

frequency in the transcripts. The frequency of words used indicated that the three themes were important to the participants' understanding of the research question.

After the third round of coding was completed, a fourth round of coding was conducted to focus on a structural coding approach (Williams & Moser, 2019). This approach was used to organize the code words and coded excerpts to the three themes. I identified during this round of coding that the second theme, which I had named "technological strategies to develop communication and transparency," did not have any codes that were in alignment with *transparency*; therefore, I eliminated the word "transparency" in the second theme's name and applied the coded data to a subtheme in relationship to Theme 1. After the fourth round of coding to discern strategies to help address fiscal stability during the COVID-19 pandemic, I identified three themes which were relevant to answer the research question. The three themes are budget strategies to address fiscal stability, technological strategies to develop communication, and organizational strategies to build mutual collaboration. The first and third themes have subthemes. The codes, themes, and subthemes are listed in Table 3.

Table 3

Themes, Subthemes, and Codes

Themes (strategies)	Subthemes (types of strategies)	Codes	Participant Responses
Theme 1: Budget strategies to address fiscal stability	(a) Utilizing diverse funding: university funds	Discretionary, unrestricted funding, indirect costs, carryforward gifts/development, fund reallocation	"…the department does have some *discretionary funding* they could use."
	(b) Utilizing diverse funding: non-university funds	Grant, research funding, government, sponsor funding	"…use of *grant funds* to pay research staff to keep workforce."
	(c) Reduction of expense categories other than workforce	Travel, professional development, cost sharing, overhead costs	"*Reduce travel* and go to virtual conferences instead."
	(d) Workforce management	Furloughs, pay cuts, hiring freeze, delay new hires, turnover	"…university implemented *hiring freeze.*"
	(e)Transparency of costs	Tracking, COVID expenses, CAREs Act.	"…*track COVID expenses* to receive supplemental funding from *CAREs act.*"
Theme 2: Technological strategies to develop communication		Software, zoom, internet, websites, shared data, systems, hotspots, email updates, COVID-19 updates/changes, technology changes, collaboration	"Use *zoom* for *virtual meetings.*"
Theme 3: Organizational strategies to build mutual collaboration	(a) Teamwork and virtual collaboration development	Zoom meetings, team building, mental health, staff resources, COVID relief	"Use of file *sharing system* for digital files."
	(b) Business continuity plans	Research operations continuing, plan, future challenges of COVID	"…develop *business continuity plan* in event of *office closures.*"

Evidence of Trustworthiness

Qualitative researchers can incorporate specific aspects of research into their qualitative studies to improve the trustworthiness of their findings (Kapoulas & Mitic, 2012), such as considering credibility, transferability, dependability, and objectivity (Montague, 2012). Credibility refers to the internal validity of the study, and transferability is related to the external validity of the findings (Polsa, 2013). Dependability refers to the reliability of the study, whereas conformability refers to the objectivity of the study findings (Montague, 2012; Polsa, 2013). To ensure that this study provided trustworthy findings, I followed these four criteria.

Credibility

The study was voluntary and gave respondents an opportunity to leave feedback to ensure creditability. I probed participants by referring to previously mentioned responses earlier in their interview, which also provided an opportunity for clarification on unclear parts of their reflections during the interviews. In addition, during several rounds of coding, and development of codes, themes, and subthemes helped examine the identified strategies that were relevant to the research question. I constantly read and reread the coded excerpts analyzed them and revisited the codes, themes, and subthemes.

Transferability

The research context and assumptions central to the research helps to establish the transferability of the results of the study to other contexts or settings. As described in the Carnegie classifications, I selected participants who had relevant research administration experience in a university setting during the COVID pandemic. The minimum number of

years that was an acceptable criterion was at least 2 or more years of grant administration management experience and the university they worked for were under an R1 or R2 Carnegie classification. The participants in this research study all met the minimum requirements. These attributes were drawn from various public university webpages and rounded to help disguise the actual institutions.

Dependability

To ensure dependability of my study, I outlined in Chapter 3 the planning process and explained how the study would be executed. I also outlined the operational details of data collection to explain the research processes undertaken. In addition, I kept a log of the participants' interview details that included scheduled time and date and length of interview, which ensured there was an audit trail, further creating transparency of the research process of the study. Nonhuman measures are used to provide objective findings (Alexander, 2014); however, research bias is inevitable because humans design the data collection (Baker, 2014). To mitigate research bias, I kept a reflective journal where I would write down my perceptions after each interview. In addition, I reviewed interview questions to ensure they were not ambiguous and to improve the reliability of the interview as a collection process. Participants were also provided a detailed process of the interview protocol to create participant awareness on the process before, during, and after the interviews.

Confirmability

It is important that the research findings provided by researchers are products of the participants' experiences, and ideas, as opposed to the views of the researcher.

Triangulation at this point is also critical to minimize the influence of researcher bias in the study (Alexander, 2014). The key criterion for maintaining confirmability was for researchers to openly declare biases that may emerge from their investigate practices, declaring any beliefs that may inform the research process. The participants' excerpts in my study emerged from what the participants understood in response to the interview questions. In addition, during the coding process by checking and rechecking the participant coded excerpts throughout the study and by keeping a reflective journal of my own personal feelings, biases, and insights immediately after the interviews helped establish confirmability.

Results

In this section, I describe the findings I obtained through the coding process. Questions asked in the interview protocol corresponded to the research question: what strategies have research program budget leaders developed to address fiscal stability for their departments in response to COVID-19? The three themes that emerged in response to the RQ were:

- Theme 1: Budget strategies to address fiscal stability
- Theme 2: Technological strategies to develop communication
- Theme 3: Organizational strategies to build collaboration.

Theme 1: Budget Strategies to Address Fiscal Stability

The most dominant emergent theme that addressed the RQ regarding strategies were budget strategies that research program leaders utilized to address fiscal stability. All of the participants I interviewed spoke of different budget strategies they utilized.

These budget strategies are broken into different sub-strategies, which include utilizing diverse university funding, reduction of fiscal year expenses, and workforce management strategies.

Utilizing Diverse Funding: University Funds

Participants highlighted university funding resources such as university reserves funding, discretionary funding, indirect cost funding, clinical revenue, or carryforward funds were utilized to cover increased expenses. Six out of the eight participants mentioned that as employees transitioned to remote work due to state mandated office closures, there were additional unexpected expenses that occurred to continue office operations. John and Jane, both working for R1 universities, spoke about their utilizing other revenues to cover additional costs due to the transition of research programs to the remote environment. John utilized clinical revenues and other university unrestricted funding to cover unexpected costs such as laptops and internet stipends for staff, which had to be purchased in order for staff to continue work remotely. Jane also mentioned a similar experience of utilizing clinical revenues to cover computer equipment expenses for staff since her staff did not have the proper equipment to work remotely. Joe, working for an R2 university talked about utilizing his current operational budget funds to purchase laptops and office supplies for his team so they could work remotely.

Another type of university funds utilized were unspent funds from the prior year, as Jane suggested: "the ability to carryforward the funds from the prior fiscal year were available to invest on professional development for her staff [this] year, which helped staff transition more effectively to remotely work from home". She mentioned that many

other departments decided to reduce professional development, however, for her staff this became an option because of the unused funds from last year that her executive leadership made available. Jane emphasized how "more than ever it's important for the staff to feel supported and to build an environment where they felt connected."

Indirect cost revenues received by the university was another type of funding resource utilized by Laura, the only participant who mentioned using indirect costs from research grants that were recovered and allocated back to schools within universities. Laura mentioned "indirect cost revenues received from research programs, were used to pay for costs such as laptops and PPE [personal protective equipment] for research staff to continue research operations as staff rotated work schedules to work in the labs or remotely at home. She also mentioned that as budget reduction discussions occurred with her supervisor, she felt that "any budget reductions to research operations support would negatively impact indirect costs funds, which would reduce this type of university revenue funding stream for future fiscal years." Laura also mentioned that "the federal indirect cost funds received by the sponsored research office helps assist to fund unexpected costs for research programs incurred during the COVID." She mentioned that instead of using university unrestricted or discretionary funds, the indirect cost revenue from research programs were able to pay for expenses that could not be expenses from grant funds.

Similarly, Joe shared that schools like his medical school "have access to funds to pay for expenses that cannot be expensed for grant program funds but were reallocated to cover costs for research programs through alternative funding such as discretionary

funds." Joe also mentioned that as costs increase for research program operations, federal indirect cost rates may be negotiated with the Department of Health Services in the future to keep up with rising costs. He mentioned that "research can become costly even if there was no COVID pandemic and rates are negotiated to keep up with the increasing cost of research programs."

Two of the participants mentioned plans to grow indirect costs in the future by increasing grant proposal submissions and focusing on research trends such as COVID research. Joe mentioned that "there was a spike in research funding due to COVID research and it might be something to explore to grow our research portfolio in the future." Jane mentioned that "plans to invest in research development may help increase indirect costs revenues that supports our research infrastructure." Both participants mentioned plans of research support sustainability as research costs increase each year.

Anna and Shannon, both from R2 universities, spoke of utilizing gift and development funds, another unrestricted fund resource, to pay for unexpected costs during COVID-19 pandemic. Anna and Shannon mentioned that their research program leaders collaborated with the gift office or their development office to find gift donors to assist with unforeseen COVID expenses. Shannon spoke of "COVID sponsorships were solicited to help pay for COVID expenses to support research programs." Anna mentioned that "several PIs [principal investigators] had gift funds and utilized these funds to purchase PPE and other costs for their research staff so they could continue to work in the labs." Both participants mentioned that the collaborative funding mechanisms

gave them the ability to utilize existing funds and planned to strategize to develop gift and development funding resources in the future.

As Anne and Shannon both from R2 universities, spoke of how they worked collaboratively to use a variety of university funds to cover unexpected costs during the COVID pandemic, six of the eight participants had similar related experiences about moving to a remote work environment. Six of the participants spoke of the expectations to continue research operations and the unexpected costs for their staff to work remotely. The use of different funds that were accessible to the participants gave them the flexibility to cover unexpected costs.

Utilizing Diverse Funding: Non-University Funds

Research funding is another funding type that all eight participants were able to utilize as unexpected expenses occurred. This type of funding are non-university funds that are awarded to research programs to perform research in different fields of study within the university. Research centers or programs established at the university can apply for the grant or funding was applied by faculty in various departments at the university. This funding is secured through a competitive peer-reviewed grant application process that is facilitated by the funding organization. These funds were then "awarded" to the university on behalf of the applicant PI (principal investigator) thus the university's sponsored programs office is responsible for the oversight and spend down of the grant funds.

All the participants mentioned that they received email updates and guidance from their grant sponsors on approvals to continue to pay research staff and faculty

efforts even though research programs stopped during the first few months of COVID. They all mentioned how helpful and fortunate it was that sponsors gave approval to utilize these resources. John, Joe, Anna, and Shannon mentioned that as grant sponsors approved and provided guidance on usage of grant funds, it provided more clarity on how they as leaders can plan and help continue research operations as unexpected costs occurred.

As unexpected costs occurred during COVID, six of the eight participants mentioned that U.S. government funding may be available in the near future to cover such costs and that they were instructed to track COVID expenses in the hopes that government supplemental funding would be available in the future. Shannon spoke of "tracking personal protective equipment [PPE] used by research staff, office supplies, and technology equipment that could be tied to COVID relief funding," which was an experience Anna also mentioned during her interview.

The Coronavirus Aid, Relief, and Economic Security Act, also known as the CARES Act, is a $2.2 trillion economic stimulus bill passed by Congress in response to the economic distress impacting the United States due to the COVID-19 pandemic. Joe and John spoke of tracking COVID expenses because the CAREs Act would possibly cover these costs. Amy spoke of tracking research payroll for those employees who currently were not working on National Science Foundation research programs due to lab closures but were still being paid on National Science Foundation grant funding. Kelly mentioned "tracking COVID related expenses such as supplies, technological expenses that could be possibly tied to COVID relief funding". Six of the participants mentioned

that COVID expenses were tracked if government supplemental funding such as through the CAREs act became available.

Reduction of Expenses Other Than Workforce

Another budget strategy utilized was the reduction of expenses to pay for unexpected expenses during COVID. All participants utilized this strategy but differed in which budget categories they reduced. Seven of the eight participants said they first identified their budget landscape to determine identify areas of reductions and then made decisions to reallocate budget funds towards unexpected costs or make reductions to supplement for unforeseen costs.

John spoke of first identifying the budget landscape by putting together "three different scenarios of budget reductions based on 5%, 10% and 15% decrease." By doing this exercise, he was able to see a realistic budget reduction that could be sustainable during the pandemic. He mentioned, "the reduction can be under the current operating budget dollars and after conducting the exercise it was determined that a 5% budget reduction would be feasible for the department." Joe spoke of a similar experience but more on conducting a task on identifying his department's strategic strengths and how to grow these strengths. He mentioned the development of growing the indirect costs revenues for his office by funding more support for research programs in the area of pre award management.

Kelly mentioned a freeze in spending on certain operational funding such as travel and that university budget leaders heavily controlled spending. She said, "administrators had to justify every single expense to determine if it was needed before a purchase was

made." Alternatively, Laura spoke of re-prioritizing funding resources to pay for unexpected costs from COVID. She mentioned that "the university did not provide supplemental funding [during this time] and we were asked to re-prioritize current initiatives to pay for COVID costs." Amy and Shannon also spoke similarly of their experience with reallocating funds to cover COVID costs. Shannon mentioned "to cover costs due to COVID we were asked to reallocate funds from travel since no travel was happening to cover COVID costs."

Travel reductions were mentioned by three of the eight participants. Joe spoke of "no budget reductions but the university did place a travel restriction for everyone due to the COVID shut down, which helped on cost savings under travel. For any travel already paid in advance, people were asked to go back to the travel companies to get refunds or credits on unused travel." Similarly, Jane spoke of budget travel reductions to "reduce the travel budget into half. Several cancelled travel costs were negotiated to get refunds." Anna also mentioned that "no travel was allowed due to the travel restrictions the university had implemented." All three participants mentioned that the reduction of travel made sense since their university had mandated travel restrictions.

Other areas of reduction were university internal funding programs and overhead costs. Two of the eight participants mentioned how university leaders stopped funding internal funding programs, such as cost sharing programs that supported research programs. Joe and Laura mentioned that as part of the budgetary cuts proposed by their university leaders, university funding for cost sharing for research programs was reduced or not given so that these funds were reallocated to cover COVID expenses for their

universities. In addition, both participants mentioned that with staff working remotely a reduction of overhead costs like office space was temporarily implemented, offering remote work options as a short-term option.

Workforce Management

Workforce management was a budget strategy four of the eight participants shared in their interviews. John mentioned "freeze on new hires, no annual salary increases and possibly plans for the university to stop retirement contributions next year." Jane mentioned that leaders might implement "a furlough program to reduce expenses as well as executive pay salary reductions" which was also mentioned by Laura as a similar workforce management strategy. Kelly spoke of "a hiring freeze and no pay raises". Laura also mentioned that a delay in hiring research personnel were impacted in the mandated hiring freeze by her university, which "stopped recruitment for several months." Three of the four participants who discussed workforce management mentioned how this became quite a challenge for their teams who saw a huge turnover during this time and were not able to replace positions due to the hiring freeze.

When asked what the causes of the turnover were, two of the participants mentioned that some team members were not used to working remotely and others were parents of children doing school remotely, making it hard to gain a work life balance at home. Kelly spoke of "difficulties as one of my staff members left because she couldn't handle working from home as she felt isolated and felt she didn't have the necessary resources to work effectively, so she decided to resign." John mentioned something similar with his experience of turnover. He spoke that once his staff left their position, he

could not recruit for that vacant position due to the hiring freeze implemented by the

university. Both participants mentioned that there was a great deal of approvals and

bureaucracy just to get the vacated positions approved and then recruited during COVID

pandemic since both their universities implemented a hiring freeze.

Theme 2: Strategies to Develop Communication

The second theme pertains to the strategies participants used to develop better

communication in light of the shift to remote work. Technology was central to this theme,

along with how these approaches helped with developing communication and trust

between staff and faculty during the COVID pandemic within remote work

environments. As several participants who were forced to work remotely, technological

approaches were reported to develop trust and commitment during these work

environment changes. For Jane, Anna, Kelly, and Shannon, developing communications

strategies was critical in ensuring their team members were able to work at home. All

four participants mentioned that the purchase of laptops, hotspots and software that

enabled data sharing was important for team members to continue to work remotely. All

four participants also mentioned that they wanted their teams to have the appropriate

equipment to work from home so that it would facilitate better cooperation from team

members.

Jane, Anna, Kelly, and Shannon spoke about how they wanted to sustain mutual

trust among their teams so that there was mutual understanding and develop collaboration

virtually. Anna mentioned that "it is not only a matter of understanding my team's

circumstances, especially with the things they are dealing from home but also accepting

of working differently which may mean being more flexible with work hours for my team members". Anna eluded that mutual understanding and setting realistic expectations can lead to more successful collaboration and compromise when challenges occur.

Several participants also mentioned that during the COVID pandemic many of their team members experienced increasing emotional distress and emotions which their team members attributed to the rapid changes in work environments. John, Kelly, and Shannon mentioned how mental health of their team members was one of their main foci, especially with moving to a remote work environment. They shared with staff "mental health services offered by the university for team members feeling anxiety or having a hard time adjusting to working remotely." As team leaders, John, Kelly, and Shannon also mentioned the importance of providing resources and tools for their team members to collaborate or work easily with their research stakeholders such as their assigned faculty, sponsors, or other university partners. Kelly spoke about helping their team members during COVID pandemic by "wanting to further build trust and organizational commitment among their team members through consistent virtual meet-ups to see how my staff was doing", looking to increase trust and collaboration during the remote work environments. John mentioned "having mental health resources available for staff during the time of transition to remote work" and Shannon spoke of more flex work options for "working at home moms, since their children were also taking classes virtually, so it was difficult for some of my staff to work at home while helping their children with remote learning".

During the COVID pandemic, many research budget leaders and their teams were forced to work remotely because many states were mandating closure of offices. Technological advances that bridge communication gaps such as emails, software and systems that enable people to collaborate in far away places became critical during the COVID pandemic. John, Anna, Kelly and Laura mentioned that when their research offices were forced to work remotely due to their state mandated quarantine, they made the decision to utilize the zoom software to have video call communications with their teams and other university stakeholders. Zoom calls became the normal communications during the quarantine period. John also mentioned that hotspots and internet connection stipends were given to faculty and staff temporarily to ensure his university employees were able to work at home.

Since people were working remotely, data sharing and cyber security became a challenge. Laura, Amy, and Shannon mentioned that their universities established a VPN where leaders, like themselves and their team members had to login in a secure system as they were accessing university files. University files could not be accessed or shared if they were not logged into their university VPN.

During the COVID pandemic, there were sudden changes constantly happening. Jane, Kelly, Anna, and Shannon mentioned that their university leaders created a COVID webpage as a communication resource where research updates and guidance communicated by research program sponsors were found. They found these websites helpful since it provided financial updates, status of return-to-work timelines and COVID protocols for research programs. They found that these types of websites provided

transparency about what was happening during the pandemic, especially during a time when operational protocols were constantly changing.

These participants mentioned how the technological advances such as Zoom and system sharing resources helped make collaboration easier. They also felt that most of their teams were able to do their jobs, pushing forward to continue operations during this difficult time. Laura and Shannon also mentioned that team building became one focus to develop for their teams since many of their team members felt isolated not being able to work in the office and mental health and work life balance became important to promote. They mentioned that promoting healthy practices of maintaining mental health and work life balance help their teams acclimate during a time when things are constantly changing and would helping them overcome some challenges at work and at home.

The feeling of connectiveness and encouraging collaboration was important to promote since Laura and Shannon mentioned that some of their team members were feeling isolated and uncertain. Laura and Shannon also mentioned that weekly meetings with their teams to provide weekly updates, resources available and opportunities to communicate about challenges virtually provided opportunities to encourage learning and collaboration virtually across different tasks involved in managing research programs. This empowered their teams and provided further transparency on what was happening and making their teams feel connected to other team members.

Theme 3: Organizational Strategies to Build Collaboration

Two organizational strategies to build collaboration to assist with remote work stability that were mentioned by participants were teamwork strategies and the creation of

business continuity plans. Several mentioned that developing teamwork strategies in remote work environments helped build collaboration during sudden changes like the COVID pandemic. Four of the eight participants spoke about their experience in promoting virtual collaborations among team members such as their research administrative teams and principal investigators or faculty researchers. Two of the eight participants mentioned collaborative establishment of continuity plans to ensure continued research operations.

Teamwork and Virtual Collaboration Development

John, Anna, Kelly, and Laura spoke of their experiences in developing a collaborative environment with their staff as they worked from home. John mentioned that it was "critically important to develop collaboration among research programs to continue research operations in the labs but also to help reduce some costs by utilizing existing resources." Anna and Kelly also mentioned that implementation of Zoom software to collaborate with their principal investigators, staff, and other university partnerships to communicate areas of operational research changes due to COVID pandemic helped provide some stability in how research programs could operate not just physically but also financially. Laura spoke of having "social meetings to build more community among my team members, which helped reduce the turnover already occurring."

Business Continuity Plans

A business continuity plan is important because it's a plan to implement in the event there is an office closure. Two of the participants mentioned how these plans were

helpful in identifying costs in their budget planning process. Two of the eight participants mentioned developing business continuity plans to ensure that in the event of office closures and staff needed to transition to remote work, there was a plan in place to continue research operations. John mentioned documenting actions steps for certain administrative and faculty leaders to execute the planned contingency in the event office and lab closures occurred and how expenses were identified and planned in the budget. John spoke of a "phone tree to communicate the changes to the appropriate team leaders and then the leaders communicate to their teams." The communication plan (even a simple phone tree) was identified by participants as a means of fostering collaboration by keeping lines of communication open between teams, maintaining the continuity of the business unit. Jane mentioned that "safety of the research staff and faculty were priority to ensure they knew when it was safe to come back to the labs." Jane spoke of developing a communication mechanism such as email distribution to ensure that appropriate research staff knew the protocols when coming to campus.

Jane, Kelly, Anna, and Shannon mentioned earlier that the creation of a COVID webpage became a resource for research updates and guidance communicated by research program sponsors. They found not only that it provided a good tool for communication but also gave the participants the ability to continue their research operations. The guidelines, financial updates, and COVID protocols helped create transparency but also help align their operational plans to unexpected changed due to COVID pandemic.

Summary

This chapter presented the three strategies that resulted from analysis of the interviews of eight participants and their perceptions of what they used to address the increasing costs of research operations during the COVID 19 pandemic. The three strategies that were found that address the RQ were budget strategies to address fiscal stability, technological strategies to develop communication, and organizational strategies to build collaboration during remote work environments. The next chapter will discuss the interpretation of my study's findings and recommendations for future research.

Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of this qualitative basic study was to explore strategies university research program budget leaders developed to address fiscal stability for their departments in response to COVID-19. Examining participant descriptions of the strategies they used to help stabilize the rising costs for research programs due to the COVID pandemic might be useful for research budget leaders and, more broadly, sponsored programs administrators as they consider ways to help continue research operations when dealing with unforeseen changes. The three themes were:

- Theme 1: Budget strategies to address fiscal stability

- Theme 2: Technological strategies to develop communication

- Theme 3: Organizational strategies to build collaboration.

The themes reflect the strategies that research budget leaders utilized and may suggest ways to develop areas of budget management funding of current and new funding resources, communication and collaborations among different teams, and partnerships utilizing different technological tools.

Interpretation of the Findings

In this section, I interpret the three themes that emerged from the data analysis, which confirmed research on organizational development strategies university research program budget leaders developed to address fiscal stability. The findings confirm that many budget leaders utilized the same strategies. The statements of the participants aligned with the strategies applied in the theories of organizational development by Kezar (2005), Senge's (2005) mental models theory, Bui and Baruch's theory of learning

organizations, and systems theory (Ax & Greve, 2017), which were the elements of my conceptual framework.

The most dominant strategies used by all eight participants were budget strategies to address fiscal stability. Ax and Greve (2017) and Blankenberger and Williams (2020) focused on strategies that developed strong partnerships among stakeholders to gain insight economic development within universities. Different budget strategies were utilized by research budget leaders to address fiscal stability during the COVID pandemic that include utilizing variety of university funding resources, reduction of fiscal year expenses, and workforce management strategies (Hoang et al., 2020). Participants who implemented budget strategies identified alternative funding approaches from two existing funding resources to pay for unexpected costs due to the COVID pandemic such as protective equipment, technology for remote work, and turnover: university funds and non-university funds such as grant funding. All participants mentioned that alternative funding resources helped maintain the finance structures during the fiscal challenges during the COVID pandemic. Participants were able to make decisions about which of the university's funding resources, such as funding reserves, discretionary funding, indirect cost funding, clinical revenue, or carryforward funds, they could utilize to pay for unforeseen costs. Organizational leaders targeted to large-scale change are more likely able to lead effective change, which is critical to overcome barriers, such as fiscal instability during a pandemic (Evans et al., 2015). The research budget leaders in this study were able to identify alternative approaches for the use of existing funding

resources and make global decisions for research programs under their oversight to address challenges to fiscal stability within a crisis.

The second theme that emerged was the decisions participants made with regard to technological strategies to develop communication as their employees and research personnel transitioned to remote work environments. As the COVID pandemic forced research offices and lab closures issued by state governments, research budget leaders were expected by their university leaders to strategize ways to continue research operations remotely. This change brought unexpected costs, which participants spoke of in Theme 1, as well as the challenge of communicating within their teams in remote work environments. Four of the eight participants spoke of the challenges within their own teams of administration and faculty communications since the transition to remote work. Participants used email, websites, shared filing systems, and Zoom video conference calls to keep their teams aware of changes during the COVID pandemic. Leaders who promote consistent communication tools are critical to ensure stakeholders are aware of changes (Fransen et al., 2011). In addition, the quality of communication can help build mutual trust, understanding, and commitment to the change happening (Fransen et al., 2011).

Other studies have shown similar results with tools to improve communication such as desktop learning applications and databases to to create continuous learning and promote positive work practices, which ultimately helps the organization's work culture during a crisis (Deering & Sa, 2014). The promotion of technological resources also helps budget leaders manage fiscal and operational responsibility effectively by communicating fiscal information changes in policies and processes through different

modes of communication (Holyoke et al., 2012; Smith et al., 2014). This strategy improved research budget leaders' dialogue during COVID in remote work environments. In addition, entrepreneurial approaches that include technological tools may have a positive and profitable effect on the mechanisms of knowledge, such as financial data, a university commodity, that may enable fiscal stability for universities during times of crisis (Johnson, 2020). However, if that knowledge is not acquired, applied, and managed, then a growing fiscal gap could continue to exist, destabilizing the finances for universities even further.

The third theme that emerged were organizational strategies that research budget leaders employed to build collaboration. Collaboration development was an important element during the COVID pandemic since many research budget leaders and their teams transitioned to remote work environments. Participants described having teamwork development activities to promote building trust, which mainly focused on employee work engagement. Leaders who promote collaboration can influence their stakeholders to accept changing work environments (Suh & Park, 2014). Communication plans were identified by participants as a means of fostering collaboration by keeping lines of communication open between teams to maintain the continuity of their business unit. Similarly, organization-wide communication strategies used by research budget leaders, such as webpages that posted research updates and guidance communicated by external research funding agencies, helped to build collaboration with stakeholders by providing information about resources and transparency when operational protocols were in flux as a result of the pandemic.

Limitations of the Study

Some participants knew me from my position as a research program budget leader at research-intensive university, which may have influenced participant responses. In addition, participants in this study were self-selected, and although this may be a limitation that is essential in the design of my basic qualitative research, it may have biased the results and limit generalizability of this study.

Recommendations

Based upon the findings from my study, I suggest future research to further understand if the strategies participants share in this study were sustainable one year after the COVID-19 pandemic. A second recommendation would be to interview budget leaders in teaching-oriented universities within the United States to identify strategies they utilized during the pandemic that helped provide fiscal stability to provide a comparison with the strategies presented in this study, which represented budget leaders at research intensive universities. A third recommendation would be to replicate this study among a group of international universities, which would provide an international perspective of strategies that were utilized to help university budget leaders to identify strategies to help with fiscal stability. In turn, this leads to a fourth recommendation, which calls for a comparative study of strategies for fiscal stability used by institutions of higher learning in the United States and internationally. The fifth, and final, recommendation is to reframe this study in terms of university executive budget leaders, examining the strategies implemented at the executive level to maintain fiscal stability in response to the COVID-19, and whether those strategies are still currently being utilized.

Implications

In this basic qualitative study, I explored strategies that research program budget leaders utilized to address fiscal instability during the COVID-19 pandemic. Even when university leaders are not experiencing a pandemic, they are subject to external pressures and expectations to increase their research program outcomes, identify additional funding sources, and learn how to maximize existing resources to respond to sudden change (Lepori et al., 2013). It is possible research program leaders at other universities might find similarities in the challenges and findings in this study.

I derived three implications from the findings that emerged from this research. The first is for budget leaders to understand their budgetary landscape and funding resources to determine how existing funding resources can be reallocated to cover unexpected costs during a fiscal crisis. Several of the participants identified their budgetary landscape to identify how to utilize existing funding resources to pay for unexpected costs due to COVID-19 pandemic. Eesley et al.'s (2016) study found that university business leaders who implemented new ways to utilize fund management need to understand the operations of managing funds and how they will impact current organizational operations. Therefore, business leaders that are informed in areas where fiscal decisions are being made can identify ways to utilize current existing funding resources like grant, gift, or operational budgets to offset unexpected costs, which can have an impact on budgetary operations.

Stensaker's (2013) study also suggested that leaders may have more effective decision-making strategies if their strategies are focused on maximizing existing

resources during a crisis. All of the participants in my study utilized alternative funding resources, such as either grant, gift, or operational budgets to cover unexpected and increasing costs as their employees transitioned to working remotely. They also described organizational development strategies that were transparent and had a goal to strive towards fiscal stability during the COVID pandemic. Jameson's (2012) study also found that strategies that provided clear values and goals helped leaders develop their decision-making strategies that may impact financial operations which in turn may have positive institutional performance and significant contributions to economic and social initiatives, which may be useful during times of change.

The second implication to consider is for leaders to identify their budgetary landscape, in order to determine where to make budgetary reductions. A majority of the participants in my study made budgetary reductions in travel since during the COVID pandemic, many people were quarantined, and many states were not allowing people to travel. Two participants, both in R1 universities, utilized strategies that focused on workforce management such as reducing salary and benefit expenses. For example, they were instructed by their university's leaders to mandate furloughs to reduce salary and benefit expenses. Both participants expressed the negative implications that resulted from furloughs, such as increased employee turnover, loss of income for their employees, and rebuilding their teams again may take more time. Philpott et al.'s (2011) study recommended strategies to sustain stronger work cultures during unexpected changes by having consistent communication among stakeholders, such as team members or employees and striving towards strong support systems to help their teams or employees

feel committed to the change. A stronger organizational commitment among administrative teams may also be critical since stakeholders may develop commitment to change through transparency and consistent communication about the decision's leaders make that may impact fiscal operations (Nelles & Vorley, 2011). As impacted stakeholders become more committed to the sudden change, this may bring a stronger chance of building a positive impact on shaping the practices and developing stronger infrastructures to overcome during times of a crisis (Bazargan et al., 2020).

A third implication is for leaders to implement strategic planning strategies that focus on communication and collaboration. All but one participant implemented strategies or had their university leadership implement strategies to develop more communication during the COVID pandemic as restrictions and protocols were changing constantly. When leaders have collaborative strategies that focus on knowledge sharing and learning, this may develop more communication, transparency, and a clearer understanding of expectations, goals among times of uncertainty (Fransen et al., 2011; Van den Bossche et al., 2011). The use of technological tools such as webpages to get real-time live updates quickly posted, internet, software systems such as Zoom, and VPNs helped develop collaborative work environments in remote places.

Van den Bossche et al.'s (2011) study also focused on strategies that promoted behaviors in networking, trust, and knowledge sharing to build teamwork cultures, which may help to overcome sudden changes and disruptions among different work environments during times of crisis. As leaders develop these attributes within their teams, these strategies may help solidify organizational commitment and promote more

collaborative relationships. Leaders that build strong partnerships with their teams may have a better chance of a collective understanding of the economic development for universities in times of a fiscal crisis (Ax & Greve, 2017; Bazargan et al., 2020). This maybe critical since many universities have multilateral relationships that involve multiple stakeholders and different expectations and practices.

Budget leaders who can build strong networks of communication and coordination through flexible, free-flowing processes that involve innovation and experimentation may overcome some of the challenges they face during times of crisis (Nelles & Vorley, 2011). Even in times of a crisis, institutional inconsistency may happen in infrastructures and practices, therefore leaders must test strategies to determine which strategies work and are beneficial during times of crisis (Urbano & Guerrero, 2013). Similarly, from Johnson's (2020) study, a critical element of building strong communication is collaboration among team members through technological resources such as Zoom virtual meetings, emails, and COVID-19 webpages for updates.

Conclusion

Budget, technological, and organizational collaboration strategies could be key factors in strategies to address fiscal stability during a crisis, such as the COVID pandemic. Research budget directors from R1 and R2 classified universities provided insight into strategies for research operations that affect their research programs in a positive manner. These strategies may provide insight about the ways in which research budget leaders addressed unexpected costs as a result of the pandemic, that include strategies about using technological approaches to develop communications in remote

work environments and organizational strategies to build collaboration during sudden changes to help navigate through budgetary reductions and increasing costs.

Research budget leaders make decisions affecting university research programs that cost millions of dollars with the goal of supporting research studies to help our society. Research programs carry many benefits, such as creating the foundation for major advances health and medicine, communications, food, economics, energy, and national security. In addition, research programs help educate students to be scientific leaders and innovators. Federal research agencies, such as the National Institutes of Health, the National Science Foundation, and the Agency for Healthcare Research and Quality, which are themselves funded by the federal budget, demonstrate the intersection between national investment in university research, innovation, and the US economy. Fluctuations in the economy impact how funding for programs and services are allocated in the federal budget, thus a constrained federal budget that reduces funding for basic research could create an innovation deficit. Consequently, it is important to develop the budget infrastructure to support investment in university research to maintain the scientific and technological leadership and the United States' economic competitiveness (Panizzon et al., 2020).

The results of this study might fill gaps in understanding the strategies research program budget leaders develop during times of crisis. The strategies discussed in this study provide insight into how university research programs implement new systems and processes in times of sudden changes to accommodate work in remote environments. In addition, the findings from this study provide insight into budgetary strategies to help

research programs work towards fiscal stability in light of unexpected and rising costs due to the COVID pandemic. Finally, this study provides insight into how leaders developed collaboration and communication strategies in response to constantly changing work environments. The findings from my study about the strategies research budget leaders developed to address fiscal stability during COVID-19 underpin the ongoing need for research into how university research and sponsored programs adapt to change during a crisis.

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Appendix: Interview Questions

The central research question was: **What strategies have research program budget**

leaders developed to address budget decisions in response to COVID-19?

"What can you tell me about the financial challenges you were facing and the financial resources you had to work with?"

1. What are the sources of revenue for your department?
   o Are these sources differ versus the university? If so, how?
   o Describe the financial stability of the department over the last 3 years?
   o Is this different from the financial stability of the university over the last 3 years? If so, why?
   o What financial indicators exist to measure the financial stability of the department?
   o Are these financial indicators also used to measure the financial stability for the university? If not the same, why not?

2. What are the key elements of the department that impact the work to/effort to balancing budgets?
3. What are some business practices that have influence or impact financial budgets?

4. What did you do to avert a budget crisis?
   o What are some alternative revenue resources you found most helpful in averting a budget crisis?
   o Have these involved entrepreneurial approaches? If so, what type of strategies are you developing or have implemented?
   o What are some other ways you have reduced costs for your department?

5. What strategies are you developing or have implemented that have enhanced collaborative participation from your stakeholders that had an impact on financial budget?
   o From your experience have these strategies had a negative or positive impact? (*Ask if strategies already been implemented)
   o When these strategies are implemented what do you think foresee will be a negative and positive impact? (*Ask if strategies have not been implemented but still being developed).
   o How has collaboration played a role developing these strategies?
   o As a leader do you think collaboration has played a critical role in helping strive towards balancing budgets? If so, why? If not, why not?

6. As a finance leader for your department, what has been the greatest challenges in leading a department with limited revenue resources?
    o What are some strategies you utilized (if any) to overcome these challenges?
    o If some or all of these challenges have not been overcome, why do you think the department can't overcome them?

7. What barriers exists to develop new strategies in response to changes in internal or external pressures impacting financial budgets?
8. What else can you add regarding strategies you have implemented to sustain financial stability or feedback you can offer that can help other leaders avert budget crisis?