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THE FOUR TRANSACTIONAL DISTANCES OF THE APOCALYPSE: A CRITICAL REALIST CASE STUDY OF HIGHER EDUCATION DURING COVID-19

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BY

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ABSTRACT

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The purpose of this comparative, longitudinal case study was to explore the distance operations system implemented in U.S. colleges and universities during the COVID-19 pandemic. Embedded in a larger two-year study of distance education in the U.S. before and after the health crisis, this study combined a grounded theory methodology with a critical realist approach to identify the components of the distance operations system and illuminate the generative mechanisms that promote or inhibit effective distance education. Primary data for this study consisted of interviews of faculty, staff, and administration of four higher education institutions at two collection points: first during the spring and summer academic terms of 2020; and second, during or immediately after the fall 2020 academic term. Secondary data included participant-provided and public-facing documents, communications, and artifacts related to the transition to and continuity of distance operations. This study refines the construct of transactional distance (Moore, 1993) and offers a typology of distance in two domains: the physical domain, which includes temporal and transportational distance; and the psychological domain, which includes socio-personal and cognitive distance. This research has the potential to both disturb and inform higher education thought and action regarding the ways distance and distance education have been discussed, researched, and practiced. This study reveals that participants variously acted or reacted to, altered or shaped, and measured or adjudged the effects of distance. Thus, this dissertation argues that *distance* is a construct that higher education can and should distinguish, control, and wield for its purposes. Findings contribute to what is known about distance education at the macro level of theory and systems (Zawacki-Richter, 2009) and

point to a need to evaluate the different types of distance and further explore how and under what circumstances distance may be most effective for any institutional activities.

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CHAPTER ONE: INTRODUCTION

In December 2019, a novel coronavirus was identified in Wuhan, China. The following month, on January 20, 2020, the United States saw its first confirmed case in the state of Washington (Holshue et al., 2020), just ten days before the World Health Organization (WHO) (2020a) announced that the virus had become a Public Health Emergency of International Concern, and a mere 18 days before Arizona State University reported the first case on a U.S. college campus (Fischer, 2020). By the time the WHO (2020b) declared COVID-19 a world pandemic on March 11, the University of Washington had already become the first higher education institution in the U.S. to close facilities and move major operations online, an action originally anticipated to end March 20 (M. Baker et al., 2020). Instead, as economies were halted and social systems upended around the world in the wake of the viral spread, more U.S. colleges and universities followed closure suit, turning an increasing number of higher education personnel and students away to work and learn from a distance.

Almost overnight, faculty, staff, students, and administrators found themselves "in the (forced) shift to remote learning" (Lederman, 2020a), and U.S. higher education institutions, on average, converted over 500 courses to online delivery (Legon et al., 2020). Where online technologies had been previously and vigorously debated as disruptor or contributor to disruption in higher education teaching and learning (see, for example, Mazoué, 2012; Ross & Morrison, 2012; Shrock, 2012), they suddenly became panacea to the disruption of traditional, in-person academic and business operations in the wake of the health pandemic. As a result, many U.S. higher education institutions scrambled to adjust to a new reality in the spring of 2020 with a practice neither fully understood nor fully embraced.

This dissertation is the result of a comparative longitudinal study to explore the case of the distance operations system in U.S. colleges and universities during the COVID-19 pandemic. The sudden deployment of distance operations at unprecedented scale was a natural experiment that provided a unique opportunity for exploratory inquiry. Through a systems-thinking lens, this study first explores what constitutes the distance operations system and how its components functioned from March 2020 to December 2020. Combining a grounded theory methodology with a critical realist approach and building in part on Transactional Distance Theory (Moore, 1972, 1973, 1993, 2019b), this study refines the construct of transactional distance and enables the development of a typology of transactional distance in two domains: the physical domain, which includes temporal and transportational distance; and the psychological domain, which includes socio-personal and cognitive distance. This dissertation argues that distances are real entities that explain why the distance operations system functioned as it did during the period of study. The findings of this study have implications for the future of higher education beyond the emergency moment thrust upon it. Namely, *distance* is something higher education can and should distinguish, control, and wield for its purposes.

This chapter introduces the study by providing an overview and statement of the problem before identifying the research questions and the significance of findings. Following, this chapter introduces the research sites for the study, and I discuss my positionality. Finally, this chapter situates the study within its theoretical framework and defines terms vital to understanding the complexity of the situation in which higher education found itself beginning in March 2020. However, because terms describing alternatives to traditional, in-person education not only abound but also are an oft-noted source of controversy and confusion in the literature, a brief clarification of primary terms is an essential propaedeutic to the foregoing chapter proceedings.

Contextual Clarification

While perhaps unexpected of any normative dissertation at this point in the first chapter, the necessary undertaking of this section is, at the outset, to intentionally circumvent otherwise impending ambiguity by immediately clarifying terms used most often throughout this work. This section is thus not a detour but, rather, a point of order. A formal list of definitions may be found later in this chapter, but readers acquainted with the plethora of vocabulary concerning education methods that incorporate technologies (and especially those readers cognizant of vocabulary tensions during COVID-19) will recognize the urgency for lucidity that this section obliges at the outset to assuage.

Popular terms such as *remote* or *online* are problematic adjectives for capturing the full extent of the phenomenon of closed college and university campuses during the pandemic—for several reasons. First, in both the research corpora and in popular usage, the two terms are variably defined, left undefined, used interchangeably, or applied inconsistently. Next, in recent decades, the higher education activities to which the terms *remote* and *online* were primarily applied were those within the boundary of a teaching and learning experience—an academic course or program. However, personnel across all institutional activities in higher education have for many years conducted activities or delivered information *online* (e.g., via email or institutional websites), and in the spring of 2020, teachers and learners were joined by administrators and staff in performing or orchestrating *remote* institutional activities (i.e., somewhere geographically other than a campus) that may or may not have included the use of Internet technologies. Thus, *online* is not necessarily *remote*, and *remote* is not necessarily *online*.

The terms *remote* and *online* as used to describe the response of U.S. higher education institutions to COVID-19 are often used interchangeably in general news reports (see, for example, Hubler, 2020; Quintana, 2020), in higher education news publications (see, for example, *Live Coronavirus Updates*, 2020; Whitford, 2020), and in research on higher education (Legon et al., 2020). The words *remote* and *online* were used in higher education prior to the pandemic, but in different contexts and with meanings that have since evolved.[1] In 2020, both terms surged in usage[2]—and fomented controversy. Regarding educational delivery during the initial pandemic response in March, some people advocated the use of *remote* over that of *online*. In April of 2020, for example, Lederman (2020b) assumed that remote instruction would be delivered online, but he distinguished *online education* from the emergency shift to online technologies during the pandemic, designating the latter a "remote version" (para 2) of online education. Viewed in this way, *remote* describes only those teaching and learning activities expediently and exigently removed from an in-person classroom during the pandemic. However—and further complicating the issue—*online* harnesses the Internet to supplement in-person instruction as well as to deliver a whole course (Harisim, 2017). Thus, *online* is not necessarily *remote*.

Neither is *remote* necessarily *online.* Internet access in U.S. households is widespread but not universal, and unequally distributed access has implications for a dependence on online technologies in order to shift from what has been called traditional, in-person instructional

[1] The term *online* appears in 1973 in a textbook for information science, at a time when higher education was experimenting with linked computers and the word itself was both hyphenated (i.e., on-line) and newly emerging (Tenopir, 2008). The term *remote* appears in the education literature as early as 1973 in the title only of a brief discussion of the use of television in teaching and learning (Stone, 1973).

[2] For example, a search for the phrases *remote learning* or *remote instruction* in the holdings of Concordia University, St. Paul and partner libraries for all resource types published prior to 2020 garnered 3,017 results; a similar search for the phrases in works to date at the time of this writing aggregated 47,572 results, a testament to the newfound popularity of the term *remote*.

delivery. In 2016, 89% of total U.S. households had at least one computing device, and 81% had a broadband access subscription; yet, the number and types of devices and access vary widely by race, age, and income (Ryan, 2018), leading many scholars to assert the existence of a "digital divide" (Hoffman et al., 2001; Hohlfeld et al., 2017; Ragnedda & Muschert, 2013; Soomro et al., 2020; M. Zhang et al., 2015). Moreover, the data obtained for this study contain evidence that at least one student may have completed the spring 2020 term via U.S. postal service. For these and other reasons that shall become even more clear in Chapter Four and Chapter Five, this dissertation rejects *remote* and *online* as descriptors for institutional operations during COVID-19 and instead grounds terminology in the established field of distance education while offering two new terms that encapsulate the important concepts examined herein.

Moore and Kearsley (2012) defined distance education comprehensively: "Teaching and planned learning in which teaching normally occurs in a different place from learning, requiring communication through technologies as well as special institutional organization" (p. 2). This definition makes *distance education* an appropriate label for such actions of teacher and learner during the "new normal" of the COVID-19 pandemic. During this same time, however, higher education conducted not only teaching and learning but also many services and internal business in an environment marked by geographical separation of not only students but also faculty, staff, and administration from both each other and from a physical campus. Therefore, I adopt the term *distance operations,* to represent all institutional activities characterized by the differences of place between actors and the physical campus. Finally, a contrasting term is needed to differentiate between distance operations and those activities that traditionally occur in classrooms and offices on a physical campus. The findings of this study reveal that phrases such as *in person* or *face-to-face* are insufficient for this task. Thus, viewing a physical campus as a

sort of "home base" of operations, I adopt the term *residential operations* to describe institutional activities occurring at the site of institutional mailing address.

Background

With the primary requisite terms now in hand, this section describes the background of the phenomenon under study. Just a few years prior to the changes wrought by COVID-19, the literature increasingly reflected a growing conviction that online distance education (i.e., distance education delivered through online technologies) had become a mainstream activity (Allen & Seaman, 2016; Kentnor, 2015), with prima facie persuasive reason. Postsecondary distance education enrollments in the United States have continued to rise even as overall enrollments have declined (Allen & Seaman, 2016, 2017; Kelderman, 2019; Seaman et al., 2018). Defining an online course as a course in which 80 percent or more of instruction is delivered via the Internet, Allen and Seaman (2003) extrapolated survey data to estimate that online course enrollments were approximately 1.6 million in the fall of 2002. By the fall of 2016, nearly 71% of higher education institutions enrolled students in distance education courses (Seaman et al., 2018). According to the U.S. Department of Education (DOE), of the nearly 20 million U.S. total postsecondary students in the fall of 2018, nearly 7 million were enrolled in one or more distance education courses (not including correspondence courses), with approximately half of those enrolled exclusively in the same (U.S. Department of Education, 2020b). In a survey of 1,500 students either enrolled in, previously enrolled in, or planning to enroll in online distance education, Magda and Aslanian (2018) found that over half selected the modality over in-person options. Distance education has indeed become widespread, but its persistent challenges, unique peculiarities, and recurring difficulties arguably prevent it from being called mainstream.

Persistent Challenges

One persistent challenge for distance education is what to call it (Diehl, 2019), and that is one reason major terminology was addressed so early in this chapter. Distinctions—and in some cases disarray—in the literature concerning distance education terms and definitions are not insignificant. McKee (2010) succinctly summed the situation: "The field appears to have a constant identity crisis" (p. 100). According to the U.S. Department of Education (DoE) (2020a), distance education is defined as education delivered by Internet, broadcasting, audioconferencing, or video means "to students who are separated from the instructor…to support regular and substantive interaction between the student and the instructor, either synchronously or asynchronously" (sec. 602.3). While the DoE definition has served a useful practical purpose for U.S. distance education knowledge since the department began gathering and reporting data on distance enrollments in 2012, and while that definition perhaps best captures the growth that has arguably single-handedly been driven by the Internet, it must be noted that the DoE further specifies that "correspondence education," which was the early name of and is an important historical root of distance education, "is *not* distance education" (2020a, sec. 602.3, emphasis added). During the COVID-19 pandemic, there was no guarantee that online technologies were available to all higher education students, and so excluding the technology of postal mail delivery is problematic for the current purpose of definition. By contrast, the field of distance education takes a broader stance that includes the postal service as a technology (Anderson & Dron, 2011; Wedemeyer, 1981).

Rather than advance the field of distance education, the proliferation of terms in recent years seems to have merely scattered it. Multiple terms and definitions mean that connecting threads in the literature—or even finding employment in the field—demands a creative and

comprehensive use of keywords. The many names of distance education practice reflect this lack of consensus and include, not exhaustively, *e-learning*, *virtual learning*, *distributed learning*, *online learning*, *open learning*, *independent learning*, *flexible learning*, *hybrid learning*, and *blended learning*. Distance education has been defined or classified by its technologies (Dron, 2014), its activities (Keegan, 1996), its geography (Holmberg, 1986), its purposes (Rose, 1991), and its pedagogies (Anderson & Dron, 2011). The terms and classifications varyingly emphasize tools, times, places, or techniques and suggest that the key to compelling naming conventions remains elusive.

Compounding the vocabulary difficulty is a second persistent challenge: distance education as both a practice and a field of study attracts new entrants in various roles faster than the production rate of quality research to guide it. Early scholarly endeavors tended to operate with comparative focus on the equivalency of the online modality with its traditional classroom-based teaching and learning counterpart, reflecting a distance education struggle for legitimacy. The well-known and comprehensive meta-analysis of online distance education by the DoE in 2009 that might have satisfactorily resolved questions of parity failed to do so. Two years afterward, Simonson, Schlosser, and Orellana (2011) asserted that distance education research had "matured" and "improved," yet "widely criticized comparison studies continue to be popular" (pp. 124, 139).

Additionally, just as education research in general has endured criticisms of its rigor, validity, methodology, and effectiveness (Boote & Beile, 2005; Irion, 1929; McWilliam & Lee, 2006; D. W. Miller, 1999), research of distance education in general and online distance education in particular have faced and continue to face calls for scholarly improvement (Anderson & Zawacki-Richter, 2014; Bernard et al., 2009; Guri-Rosenblit, 2014; Moore, 2019a;

Saba, 2003). Guri-Rosenblit (2014) levels the following incriminating critique of the relevant literature:

> There are currently thousands of scattered studies at the micro-level that present contradictory results, suffer from various biases and methodological errors, and mostly do not yield robust conclusions that enable policy makers and practitioners at the institutional and systems level to use them in an intelligible way. (p. 123)

While the research corpus contains much sound work rising above such criticism, many gaps are currently filled with an abundance of "how-to" guides and "best practices" (Garrison, 2017; Saba, 2003), despite the fact that there is a difference between such advice and research-based evidence (Mohr & Shelton, 2017). Reports from commercial enterprises, private foundations, and politically motivated institutes continue to provide ample and easily accessible gray literature that seeks to inform, persuade, and guide outside of peer review or other scholarly conventions. But as serious as allegations of poor investigative rigor may be, perhaps most concerning is a pervasive lack of theoretical basis in much distance education literature (Moore, 2019a; Saba, 2003; Simonson et al., 2011). Without theory, events, their components, and their contingencies are examined without a bigger picture of how they might fit with other events, components, and contingencies, threatening a discontinuity of knowledge. Research without theory proceeds at great risk of missing implications and connections that can contribute to comprehensive understanding of how and why phenomena manifest or operate the way they do.

Peculiar Realities

One peculiar reality for distance education is that U.S. versions largely differ from those of other countries which employ what Moore called a "systems approach to teaching." (EDEN Secretariat, 2016). At the University of Wisconsin in the 1960s, Charles Wedemeyer developed a systems approach for distance education that did not gain widespread acceptance in the United States but instead became a model for, first, the British Open University in 1969 and,

subsequently, other open university systems across the globe (Moore, 2015). While other countries embraced processes of specialization and division of labor in distance education, U.S. colleges and universities not only were averse to the structural changes necessary to implement systems approaches (Keegan, 1996), but also were turning increased attention to humanistic approaches to teaching and learning that, for Wedemeyer (1981), fundamentally diverged from European usage of the term *distance education*. One result of these conceptual differences was that distance education flourished outside of the United States with notable decline in U.S. international and professional participation (Feasley, 1991). Moore (1992) noted promising signs of U.S. leadership resurgence only when the advance of teleconferencing technologies brought a type of immediacy to teaching and learning that less interactive (i.e., one-way) forms of distance education had previously lacked. In other words, U.S. interest in distance education increased when it became possible to teach, in the words of Keegan (1996), "face to face at a distance" (p. 8).

Today, despite the growing number of instructional designers and multimedia specialists across U.S. postsecondary campuses and of online program management companies that adopt systems procedures and processes, the primary distance education approach in the U.S. remains a craft model in the hands of a single faculty member (Beaudoin, 2018; EDEN Secretariat, 2016). As a result, the majority of conversion of traditional, in-person courses to the online modality during the spring of 2020 was accomplished by individual teaching faculty (Legon et al., 2020).

Recurring Difficulties

One recurring difficulty for distance education in the U.S. prior to COVID-19 has been the resistance of faculty who, because of their independence and self-governance structures, remain the primary influences of distance education adoption and success. In 2018, higher

education faculty in the United States numbered slightly more than 1.5 million (U.S. Department of Education, National Center for Education Statistics, 2019a). These faculty are subject-matter experts, responsible for teaching nearly 20 million enrolled postsecondary students. A difference exists, however, between being a scholar and a teacher (Smutz, as cited in G. Miller et al., 2014), and the explosion of online technologies in the past three decades necessitates that faculty employ tools and teaching methods substantially different from any teacher-centered or traditional approaches on which they may have previously relied (Baran et al., 2011; Lowenthal et al., 2012). Such adaptation moves many long-time faculty from zones of comfort. In 2003, full-time faculty spent approximately 58% of their time teaching (U.S. Department of Education, National Center for Education Statistics, 2019b); often, the teaching behaviors of these professionals are influenced by the way they themselves were taught (Baran et al., 2011; Oleson & Hora, 2014). Not much may have changed since Baran (2011) pointed out that few faculty had been taught via online technologies. According to a series of polls conducted by Gallup for *Inside Higher Ed*, 30% of faculty in 2013 had taught a distance education course using online technologies; by the fall of 2019—mere months before distance education became the solution to stopping the spread of COVID-19—the number had grown to 46%, though 41% of those had been doing so for less than five years (Jaschik & Lederman, 2019). While acceptance of distance education had been growing before the pandemic, large numbers of faculty encountered it in the spring of 2020 for the first time.

Faculty resistance to distance education is not new and has persisted through time and technological progression. Pittman (1991) noted faculty resistance of correspondence study in the late nineteenth and early twentieth centuries, and as the technologies of distance education evolved over time, resistance did not abate but merely re-directed (Wedemeyer, 1981). When

Bruce Chaloux noted a "growing acceptance, somewhat grudgingly, by traditional faculty who are slowly but surely embracing online learning" (G. Miller et al., 2014, p. 212), he may have based his statement on a slight increase of faculty acceptance rates from Fall 2009 to Fall 2011 that was reported by researchers Elaine Seaman and Jeff Allen (2011).

The annual work of Seaman and Allen from 2003 to 2016 with first The Sloan Consortium and then the Babson Survey Research Group and its various sponsors and partners over those years is widely considered a staple of knowledge regarding U.S. distance education delivered via online technologies. Of their findings, viewed in aggregate over their years of work, chief academic officers' views of faculty acceptance rates have fluctuated little. Ranging from 27.6% in 2002 and 2005 to a peak of 33.5% in 2007 and reported as 29.1% in 2015 (Allen & Seaman, 2017), little-moving faculty acceptance rates could problematically conflict with institutional visions and actions. However, Allen and Seaman (2016) elsewhere reported that while over three-quarters of higher education institutions who offered distance education identified it as a critical component of long-term institutional planning, fewer than half of those institutions said that online distance education was a part of their strategic plan. Yet when higher education institutions began shuttering their campuses in response to the public health crisis, distance education took center stage.

Some scholars have suggested that many faculty specifically eschew either the new pedagogical methods required in a distance teaching environment (Bousbahi & Alrazgan, 2015; King, 2015; McKee, 2010) or any team approach to creating a distance education course (Beaudoin, 2018). Proposed reasons for faculty resistance are multiple and include perceived threats to traditional academic values (Jaffee, 1998; Wedemeyer, 1981), educational quality (Bunk et al., 2015; McVey, 2019), workload (Bolliger & Wasilik, 2009), and student course

evaluations (Fogarty et al., 2013). Among other factors influencing faculty attitudes are low levels of institutional support and the lack of rewards or incentives that make distance teaching less beneficial to an academic career than alternative activities (Ruth, 2018). Mitchell, Parlamis, and Claiborne (2015) reported that faculty discontent regarding online distance education stems from misunderstandings and fears, including a perceived fear of changed relationships and interactions with students. Resistance has manifested in orchestrated faculty protests in recent years at San Jose State University, Rutgers University New Brunswick, North Park University, and the University of Virginia (as noted in Ruth, 2018).

Perspectives on the sources of—and thus, the proposed solutions for—faculty resistance have been vast and varied. Wedemeyer (1981) observed systemic roots of resistance: "Alone of almost all the areas of human endeavor, education has been singularly reluctant to keep pace with the development of technology, and singularly resistant to the radical notion that conventional educational means are insufficient" (p. 97). Harasim (2017) suggested that a focus on resistance to technology is misguided and a larger issue is the lack of information about how or why to change. Scholars have offered multiple recommendations for increasing faculty acceptance of online distance education (see Mitchell et al., 2015; Murphy & Rodríguez-Manzanares, 2012; Ruth, 2018). Unsurprisingly, none of those suggestions have included the kind of blanket implementation that took place in the spring of 2020.

A second recurring difficulty for distance education is the stark contrast in perceptions of the quality of distance education between faculty and higher education administrators. More faculty fear distance education than are excited by it; the opposite holds true for administrators (Allen et al., 2012). In late 2019, just months before higher education institutions moved instruction to distance methods because of the COVID-19 pandemic, only 38% of faculty agreed

that distance education courses using online technologies could result in learning outcomes equivalent to those of courses delivered via face-to-face instruction at their institutions while 89% of administrators agreed or strongly agreed with the same premise (Jaschik & Lederman, 2019). It is thus not difficult to imagine that administrator attitudes may have been a factor in decisions to transition to distance education in the spring of 2020.

Statement of the Problem

Nearly four decades after Charles Wedemeyer (1981) memorably observed that nontraditional learners entered traditional colleges and universities by primarily the "back door" of distance education, the COVID-19 pandemic that spread across the United States transformed distance methods and strategies into, to extend the metaphor, the *only* door by which not only learners but also faculty, staff, and administrators could enter. Approximately one quarter of graduate students, one half of undergraduate students, and one half of faculty had no previous experience with online distance education courses (Legon et al., 2020). Immediately, both the old and enduring questions of distance education concern and the new questions presented by its online modality became the preeminent occupations of higher education institutions, accrediting and governing bodies, and the public.

Few researchers could or likely would have proposed experimentally swapping one major mechanism of a vast social system for an alternate apparatus persistently dogged by research confusion, largely composed of individually crafted ingredients, and widely unaccepted by those who would primarily operate it. Yet this heretofore unimaginable and unprecedented displacement of traditional, in-person education with distance education is precisely what occurred. This situation provided a unique research opportunity to gain insight into distance

operations and discover implications for distance education after COVID-19. It also provided me a unique window into distance education operations and informed a personal perspective that can make me a better distance education leader in the future.

Study Purpose, Research Questions, and Rationale

The purpose of this comparative, longitudinal case study was to explore the United States higher education system during COVID-19 for insight into distance education theory and practice. Understanding the system components was the first goal. Because critical realists are concerned with "explaining why what happens actually does happen" (Danermark et al., 2019, p. 44), looking below the surface toward understanding the unseen generative mechanisms that could causally explain the observed phenomena was the second goal. The critical realist view of causality, in contrast to a positivist understanding, is further expounded in the later discussion of the theoretical framework in this chapter and fully explored in Chapter Three. The following research questions thus guided this exploration:

1. What are the elements of the U.S. higher education system during the COVID-19 response in 2020, how do they interconnect with each other, and for what purposes?
2. What underlying generative mechanisms must exist in order for the system to behave as it does?

Crises can be catalysts for new perspectives, and the sweeping pandemic that upended the higher educational norm posed a singular opportunity to revisit previous assumptions, refine operational constructs, identify critical elements, and characterize interactions and purposes of distance education in ways that were previously obscured. It was—and continues to be, as the pandemic is, as of this writing, not yet over—an experiment with findings waiting to be discovered. This study was, in some ways, a return to the elementary considerations of the field through wide-angle lenses of unprecedented scale and necessity; it was, in other ways, an all-hands-on-deck road-test of what previous distance education research has suggested, illuminated,

and endorsed. In short, this study seized the opportunity for learning from an historic and consequential moment to both understand the event and to inform future distance education policy and practice.

Study Impetus

I bring a number of unique experiences and interests to the proposed study. I entered my doctoral program knowing that distance education would be my focus because it has also been the focus of my adult career. My experience with distance education began in 2010 when I enrolled in an online master's program, not without my own trepidation about the experience, the quality, and the credibility of an online degree. To this day, I have never set foot on the main campus of that university, but that academic journey remains among my most gratifying life experiences. Later as community college faculty, I won a 2014 Blackboard Exemplary Course Award for my online English 101 course and a 2016 Online Learning Consortium Effective Practice Award for a project in my hybrid technical writing course. These awards are evidence that I strove to provide students a superior distance education experience in the online environment. I did so because I believe in the possibility and potential of the modality to foster meaningful, lasting, useful, enlightening, and fulfilling learning. In my subsequent position as senior instructional designer with an online program management company, I supported faculty and administrators in creating, sustaining, and growing robust online learning programs and courses that they provide to their students. In my current work, I lead and equip higher education colleagues and students in identifying, adopting, and using the technologies that can help make online distance education an engaging, satisfying, and accessible experience. With this study, my research agenda is clear: to explore the advantages and disadvantages of distance using the transactional distance typology I propose in this dissertation.

When college and university campuses began to close in the spring of 2020 in response to the pandemic, the opportunity for meaningful inquiry was apparent. However, my coursework was not quite finished, and I bemoaned that I would miss the moment to explore and contribute to the field and to practice as higher education navigated the extraordinary time of COVID-19. I contacted a professor in my program at Concordia St. Paul to discuss how I might craft a meaningful research project around this unprecedented opportunity for study in what, I thought, would be retrospect after the pandemic faded, life returned to normal, my coursework was complete, and the opportunity thus passed. As a result of that conversation, I became co-investigator in a new study of higher education during and after COVID-19 on a research team with three of my professors in my program.[3] I did not then know that the U.S. would still be grappling with COVID-19 one year later, but moving and shaking the ground floor of the two-year longitudinal case study has been invaluable in helping me to frame this study, which both drew from and significantly diverged from the larger study, while affording multiple points for triangulation with experienced researchers.

Overview of Research Sites and Participants

This section previews the research design, including information about sites and participants more fully explained in Chapter Three and Chapter Four. This study employs an embedded case study design with multiple units of analysis (Yin, 2018). The primary unit of analysis, the case, is the distance operations system; embedded units of analysis are the institutions and participant roles within them. To answer the research questions regarding adaptation to and functioning of distance education as a response to the pandemic, I examined four U.S. higher education institutions, identified in this study as Alpha, Bravo, Yankee, and

[3] Study title: Higher Education During and After the COVID-19 Pandemic. Dr. Anna Farrell, principal investigator; Dr. Acacia Nikoi and Dr. Stephen O'Connor, co-principal investigators, Lee Ann Dickerson, co-investigator.

Zulu, the first and last two codes of the International Civil Aviation Organization (ICAO) alphabet.[4] Three of the research sites are four-year institutions while one is a two-year college. Two of the sites are private institutions, and two are public; two are rural, and two are urban; two offer graduate programs, and two do not. Two are located in the Appalachian region of the country where, as previously noted, Internet access is challenging. One of the institutions has no prior experience with distance education. These research sites were purposively selected based on my connections in U.S. higher education and the need to select a variety of sites to provide as balanced and as broad a view as possible. While I did not physically visit the institutions at any point during the study, in part due to lockdowns and travel restrictions, I have previously been on campuses of all four for various reasons.

Study participants served in a variety of roles at each institution, including executive administration, academic leadership, faculty in various disciplines, and staff that provide student-facing and non-student-facing services and support. Interview data for this study was collected via semi-structured virtual meetings at two data collection points: first, during the spring and summer academic terms of 2020, and second, during or immediately after the fall 2020 academic term. Data collection began in March and concluded in December. I knew some of the participants before the research study began; most I met for the first time through this study. But whether participants were new friends or old, we now share multiple commonalities, identities, and experiences in distance operations as a result of COVID-19. By seeking the vantage points of varied institutional roles, this study sought a more expansive view of the distance operations system than could have been obtained by interviewing faculty alone. Additionally, this case

[4] Also known as the NATO alphabet.

study examined documents and communications related to the transition and continuation of distance operations.

Theoretical Framework

Any theoretical framework implicates the formulation of research questions, the investigative approach, and, ultimately, what meaning will be given to the data that emerges (Collins & Stockton, 2018; Merriam & Tisdell, 2015; D. Scott, 2010); and research in the distance education field is receptive to multiple philosophies and methods (Moore & Diehl, 2019; Zawacki-Richter & Anderson, 2014a). The theoretical framework for this study is first rooted in a critical realist worldview, a philosophical stance that integrates ontological realism and epistemological relativism (Bhaskar, 1978/2008). The critical realist holds that truth is independent of human existence and access to truth knowledge is imperfectly and relatively situated. In this framework, causal claims are more than logically possible and permissible; indeed, they are theoretically generalizable and constitute the very requirement and goal of science itself (Archer et al., 2016; Bhaskar, 1978/2008; Danermark et al., 2019; Sayer, 2000). Whereas positivism generalizes as "empirical extrapolation" (Danermark et al., 2019, p. 96), critical realism makes theoretical generalizations about the existence and nature of a phenomenon. Further, whereas positivism justifies statements of causality with a preponderance of empirical evidence obtained from an artificially closed system, the critical realist finds causality in open social systems within a deeper, unseen stratum of reality that can be rationally justified. The positivist claims, "If empirical *x*, then empirical *y*." The critical realist claims, "Because inferred *x* exists, empirical *y* is possible." Consequently, in this study I applied abductive reasoning and retrodiction to draw conclusions from the data and forward theoretically

generalizable causal claims to explain why the distance education system functioned in the way that it did during the period of study.

Systems thinking further advances the theoretical framework that undergirds this study. Indeed, the fact that distance education is a system is one of the underlying assumptions of distance education (Keegan, 1996; Saba, 2016). General systems theory was developed in the mid-twentieth century by biologist Ludwig von Bertalanffy (1950, 1972) as a paradigmatic and philosophical revival of Aristotelian thinking and an alternative to the scientific reductionism that Bertalanffy saw as preventing inquiry into intricate phenomena. Not a theory per se, general systems theory is instead a set of principles that aid making sense of the actions and interrelated parts of the world. Its applications have led to a systems science across multiple disciplines. Distance education is a subsystem of the higher education system such that systemic processes in the latter will serve to hinder or promote the former (Wedemeyer, 1981), and systems thinking is useful for identifying elements, relationships, and purposes (Meadows, 2008). Viewing distance education through a systems thinking lens has been recommended (Nathan & Sawyer, 2014; Saba, 2003) but less often used. In this study, I drew on systems theory to identify system components, discern relationships among those components, understand potential ramifications, and identify areas for improvement.

Theory in the field of distance education is related to practice (Simonson et al., 2011), and Transactional Distance Theory is the third major ingredient in the theoretical framework that informs this study. Inherent in any distance education discussion is a concept of what constitutes "distance." While the term *distance* is often used merely to discuss the geographical separation of participants in a distance learning event, Moore recognized that distance is more than physical and applied the progressivist John Dewey's concept of educational experience as a transaction

(Moore & Kearsley, 2012). *Transactional distance* signifies a traversable space between teacher and learner that is both a geographical and a "pedagogical concept" that creates "a psychological and communications space to be crossed, a space of potential misunderstanding between the inputs of instructor and those of the learner" (Moore, 1993, p. 20). This dissertation builds on Moore's development of Transactional Distance Theory to present a typology of transactional distance.

Significance

This dissertation provides a critical realist view of the distance operations system that was implemented for educational and service delivery by colleges and universities in the U.S. during the COVID-19 pandemic. The findings of this study expand our understanding of distance processes within a systems thinking framework, support the definition of transactional distance, and refine the formula of Transactional Distance Theory (Moore, 1973, 1993, 2019b) in a way that explains conflicting research results in the extant literature. This dissertation presents an emergent typology of transactional distance that contributes to understanding higher education practice in general and distance education practice, specifically, arguing that *distance* is a sociological phenomenon that distance education may both influence and employ.

Administrators can apply the findings of this study to inform decisions regarding distance education resources, effects, opportunities, and threats. Faculty, faculty developers, and distance education leaders can apply findings to inform determinations of the critical components necessary to implement distance education successfully. Researchers can use the distance education typology as a framework for further study, new trajectories that can contribute to the research agenda of the distance education field going forward.

Definitions

The following terms and definitions are employed in this dissertation.

Distance education: This term is used as defined by Moore and Kearsley (2012): "Distance education is teaching and planned learning in which teaching normally occurs in a different place from learning, requiring communication through technologies as well as special institutional organizations" (p. 2).

Online distance education: This term describes a type of distance education in which online technologies are the primary educational delivery system (Guri-Rosenblit, 2014).

Distance operations: This term describes institutional activities in which actors normally perform or fulfill their duties in locations other than a physical campus and for which communication technologies must be used.

Residential operations: This term describes institutional activities that normally occur at the institutional mailing address in classrooms, offices, and other spaces on a physical campus.

Summary and Preview

This study explored the system of U.S. higher education during the large-scale adoption of distance operations in order to sustain academic and business continuity. This chapter introduced and established the need for this study within a theoretical framework that provided a comprehensive view of the phenomenon. Chapter Two traces the history of distance education and provides a detailed explanation of systems thinking along with concepts of distance, including psychological distance and, finally, Transactional Distance Theory. Chapter Three further details the methodology and research design while explaining how the theoretical framework guided data collection and analysis. Chapter Four presents the findings of this study.

Chapter Five discusses the findings and their implications, making recommendations for practice and further study.

CHAPTER TWO: REVIEW OF THE LITERATURE

In *Learning at the Back Door: Reflections on Non-Traditional Learning in the Lifespan,* Charles Wedemeyer (1981) identified distance education as a "back door" opportunity to learn, providing access to higher education for thousands of learners for whom traditional routes posed barriers. Shaped by evolving learning theories and technologies, distance education is a practice, a field of inquiry, and a system that has adapted to social and political conditions throughout its history. Before the closure of campuses across the United States in an effort to reduce the spread of COVID-19, online forms of distance education had been vigorously debated as disruptor (or contributor to disruption) across higher education (see, for example, Mazoué, 2012; Ross & Morrison, 2012; Shrock, 2012). In the fall of 2018 in the U.S., 6.9 million of the total 19.6 million postsecondary students were enrolled in one or more distance education courses, and over 3.2 million of those students were enrolled exclusively in distance education courses (U.S. Department of Education, 2020b). Almost overnight, enrollments more than doubled as distance education became the proffered solution to maintaining academic operations as college and university campuses shuttered across the nation. Indeed, as COVID-19 disrupted social and economic activities domestically and around the globe during the spring of 2020, distance education was no longer a "back door"; rather, it became higher education's only door and starkly illuminated the ongoing need for sound historical, theoretical, and practical knowledge, processes, and equipment. The unprecedented adoption of distance education in the wake of COVID-19 afforded a unique opportunity for research that analyzed the causal mechanisms that promote or inhibit effective distance education.

This chapter first offers context for understanding distance education before reviewing its history and assessing the current state of research in the field. Following this discussion is an

examination of systems thinking, which informs a holistic view of the boundaries and relationships of the elements, interactions, and purposes of distance education. Next, a discussion of the meanings of *distance* in general leads to Transactional Distance Theory in particular, illuminating an understanding of this central construct. Finally, the conclusion weaves concepts of this literature review in statement of the need for this study.

History of Distance Education

Distance education has a long and rich history that braids—and sometimes Gordian knots—themes of educational access, technological advances, and pedagogical theories. Some scholars date distance education's earliest form, correspondence education, to as early as 1728 when Caleb Phillips advertised by-mail shorthand lessons in *The Boston Gazette* (Beaudoin, 2018; Kentnor, 2015). Without evidence that Phillips responded to students' work in any way, however, other scholars credit Europe as the true beginning of what they term correspondence instruction, either in the 1840s with Isaac Pitman's correspondence shorthand lessons in England (A. Baker, 1919; Kentnor, 2015), or in the 1850s at the German correspondence school founded by Charles Toussaint and Gustav Langenscheidt for language instruction (Moore, 1991a; Watkins, 1991). These examples of correspondence instruction were early attempts to assuage a public hunger to learn by nontraditional methods. Until mail delivery in the United States was established first in cities and then in rural areas in the late nineteenth century, two other nontraditional education methods—first lyceums and then Chautauquas—became popular. These activities laid a foundation for established U.S. colleges and universities to venture into realms of correspondence education.

Educational Access

Traditional higher educational institutions in the late eighteenth and early nineteenth centuries were primarily reserved for sons of the leisure and powerful classes (Kett, 1994), but the American lyceum movement of the early 1800s gave the general populace access to nontraditional learning. Itinerant lecturers traveled to speak in live educational events hosted in tent and building venues across the country, and lyceum attendees gathered in their communities to hear such speakers as Ralph Waldo Emerson, Daniel Webster, and a pre-presidential Abraham Lincoln. The lyceum movement declined after the Civil War (Watkins, 1991), shifting toward entertainment purposes. Though the Morrill Land-Grant Act of 1862 was a notable first national step toward making practical and professional higher education more widely available in the United States, formal higher education remained primarily for only men with both means and opportunity.

Ideas about making education more widely available to the masses persisted in other forms. In the place of lyceums rose the Chautauqua, originally a summer Sunday-school-teacher-training program founded by Lewis Miller and Methodist pastor John H. Vincent in the early 1870s in New York (Kentnor, 2015; J. C. Scott, 1999; Watkins, 1991). After sitting U.S. president Ulysses S. Grant spoke at the New York Chautauqua Assembly in 1875, Chautauquas quickly grew into a national movement that soon included correspondence study via local "circles" in 1878 (Wedemeyer & Childs, 1961), the Chautauqua University for correspondence education in 1883 (Kentnor, 2015), and the travelling circuit at the turn of the twentieth century that once again took educational programming across the country. Scott (1999) asserted that the goal of the Chautauqua movement was to make education possible for adults "regardless of social class, age, or gender" (p. 391), explaining:

> Chautauqua, in those simpler times, acted as an autonomous, private, nonprofit institution to democratize higher learning—with virtually no governmental control or involvement—yet still within the Jeffersonian spirit of expanding higher education, as with state universities and land-grant colleges during the nineteenth century. (p. 391).

Lyceums and Chautauquas have perhaps modern-day parallels: if YouTube could be conceived as the modern lyceum, TED Talks (though founded approximately two decades prior to YouTube) are modern Chautauquas. Both YouTube and TED Talks have been used in modern higher education courses to supplement learning, in part by bringing "guest speakers" into the learning environment.

The popularity of nontraditional education for the masses in the forms of lyceums and Chautauquas thus suggested that U. S. peoples of all ages and characteristics wanted to learn, and more formal opportunities arose during the late nineteenth century to meet this demand. Anna Ticknor, daughter of Harvard professor George Ticknor, founded the Society to Encourage Studies at Home in 1873, a correspondence program for women that included courses in language, history, and science and taught by volunteer female instructors (Larreamendy-Joerns & Leinhardt, 2006). In 1877, Illinois Wesleyan University became the first institution to offer a correspondence education program (Kentnor, 2015; Pittman, 1991). While Watkins (1991) notes that Ticknor's Society led to the development of the "short-lived Correspondence University" at Cornell University, she dates Illinois Wesleyan University's more comprehensive plan to offer courses "*in absentia*" as the start of U.S. correspondence study (p. 4). Yet Ticknor's contribution to distance education remains substantial. Beaudoin (2018) identifies Ticknor as the "'mother' of American correspondence education" (p. 103), and Brennan (2016) hailed the Society as the "Victorian MOOC," or massive open online course.

The 1890s dawned with the second Morrill Act furthering the democratization of higher education by widening access to colleges and universities for African Americans. At the same

time, other correspondence education ventures simultaneously continued to rise. In 1891, Thomas J. Foster founded in Pennsylvania what would become the International Correspondence School originally for miners to develop their professional skills (Larreamendy-Joerns & Leinhardt, 2006), enrolling over 2 million students thirty years later (as cited in Rose, 1991). Correspondence education also gained purchase in the 1890s at The Pennsylvania State University and the universities of Chicago and Wisconsin (Chaloux & Miller, 2014), followed by colleges and universities in places such as Oregon, Kansas, Texas, Nebraska, and Minnesota after the turn of the twentieth century (Watkins, 1991). A leader in the advancement of correspondence education, first president of the University of Chicago William Rainey Harper believed in an impending time in which "the work done by correspondence will be greater in amount than that done in the classrooms of our academies and colleges; when the students who shall recite by correspondence will far outnumber those who make oral recitations" (Harper, mid-1890s, as cited in Wedemeyer & Childs, 1961, p. 74). Though Harper's prediction did not materialize in his lifetime, correspondence study continued to grow in the United States through the 20th century under many names, including *home study* and *independent study*, until the term *distance education* emerged in the 1970s to replace earlier nomenclature.

Technological Advancement

Mail delivery was only the first of many technological advances to enable distance education. Nineteenth-century inventions such as the telegraph and the telephone initially did little for learning at a distance, but radio signals and moving pictures were embraced with some excitement. In 1913, Thomas Edison went so far as to predict the demise of textbooks as instruction "through the eye" via moving pictures revolutionized learning (Smith, 1913, as cited in Kentnor, 2015). By the 1920s and 1930s, educators were widely harnessing film and radio for

distance education (Cuban, 1986; Kentnor, 2015), and colleges and universities established radio stations and "school of the air" programs that combined radio broadcasts with what by that time could be called traditional correspondence study (Kentnor, 2015; Wedemeyer & Childs, 1961). Many U.S. higher education institutions established extension departments or offices to coordinate and deliver such correspondence courses and programs. When commercial television debuted in 1927, then Secretary of Commerce Herbert Hoover proclaimed "Today, we have, in a sense, the transmission of sight for the first time in the world's history. Human genius has now destroyed the impediment of distance in a new respect, and in a manner hitherto unknown" (Cleveland Plain Dealer, 1927, as cited in Kentnor, 2015). In just a few years as the Great Depression set in, correspondence instruction "seemed to stagnate" (Moore & Shin, 2000); Watkins (1991) notes that "extension activities were curtailed" in the 1930s because of funding decreases.

A resurgence in U.S. distance education began during World War II with the establishment of the Army Institute. Founded in March of 1942, the Institute was a correspondence study program headquartered at the University of Wisconsin-Madison. Originally for U.S. Army soldiers, the new Institute was expanded only weeks later to all military branches and re-named the United States Armed Forces Institute (USAFI), subsequently becoming "the largest adult education program in the world during the 1950s" (Watkins, 1991, p. 30). By the end of that decade, U.S. correspondence course enrollments had risen to nearly 97,000 in 45 public colleges and universities, about 850,000 in private institutions, and approximately 240,000 in USAFI (Wedemeyer & Childs, 1961). The U.S. was recognized as a global leader in distance education (S. J. Wright, 1991), but this leadership role was about to change.

In 1961, Charles Wedemeyer received funding from the Carnegie Corporation for the Articulated Instructional Media Project (AIM), a distance education experiment that would combine multimedia types within a single program and divide the labor according to specializations such as designers, technology specialists, and teachers (Moore & Kearsley, 2012). "This was the first test of the idea," Moore and Kearsley (2012) wrote, "of distance education as a *total system*" (p. 32, emphasis original). But the Articulated Instructional Media Project (AIM) was a domestic failure, and Wedemeyer identified three reasons for its demise: "it had no control over its faculty, and hence its curriculum; it lacked control over its funds; and it had no control over academic rewards (credits, degrees) for its students" (Wedemeyer, 1982, as cited in Moore & Kearsley, 2012, p. 32). The project was cancelled, and Wedemeyer took his ideas and experience to Europe, where the world's first national distance university was established in Britain in 1969 based on Wedemeyer's model. AIM thus heralded a U.S. departure from the distance education methods and approaches of other countries. As institutions similar to the British Open University were successfully sown around the world, the U.S. rejected both nationalized universities of distance education and a team approach, preferring localized control and a craft method of course development. Moore (1991a), student of Wedemeyer in the 1970s, noted that the United States began to lose its international leadership position in distance education as a result.

Yet in a divergent path of distance education history, the technological "human genius" that Hoover proclaimed in 1927 regarding television continued its forward march during and after World War II with the development of computers such as the Electronic Numerical Integrator and Computer (ENIAC), which was developed for the U.S. Army in 1943 ("ENIAC," 2015; Grier, 2013). Advancing computer technologies paved the eventual way for the networked

computers of ARPANET at the U.S. Department of Defense in 1969 (Harisim, 2017), the first email in 1972, and ethernet technology in 1973 (Leiner et al., 1997). These developments made possible the "first totally online courses" that appeared in the early 1980s (Harisim, 2017, p. 29) on the early version of the modern Internet. When ARPANET transitioned from Network Control Programs to TCP/IP protocols in 1983 (Leiner et al., 1997), the infrastructure was in place for Tim Berners-Lee to invent the World Wide Web in 1989 (Berners-Lee, 2020) and for the first online website in 1991 (Harisim, 2017). When the World Wide Web was released to the public in 1993 "to enhance interdisciplinary, international and inter-institutional discourse," (Harisim, 2017), the current possibilities of Internet technologies for delivering education via distance began their ascent.

Interested in the possibilities of computers in teaching and learning, higher education began increasingly but cautiously offering distance courses and programs online. Early scholarly inquiry into distance education's digital frontier focused largely on learning efficacy and student performance in digital environments compared with traditional face-to-face environments as scholars debated the viability of the online medium for effective teaching and learning. Proprietary institutions of higher education leaped first at scale into the opportunities afforded by online distance education, and the University of Phoenix led the way by offering its first online distance education programs in 1989 (Hanford, 2019; Kentnor, 2015). By the late 1990s, the University of Phoenix enrolled over 100,000 students in its online education programs (Hanford, 2019); by 2015, enrollment was 162,003, making it the top provider of online distance education in the United States over second-place Liberty University, a private institution with 72,510 enrollments (Lederman, 2019). But the work of non-profit colleges and universities continued steadily, such that University of Illinois Associate Vice Chancellor for Online Learning Ray

Schroeder hailed online distance learning as the "virtual third Morrill Act" (G. Miller et al., 2014, p. 213). By the fall of 2002, about 1.6 million United States postsecondary students were enrolled in at least one online distance course (Allen & Seaman, 2003). By the fall of 2018, the number was nearly 7 million (U.S. Department of Education, 2020b), and the top institutions for online distance enrollment were nonprofits Western Governors University at 121,437 and Southern New Hampshire University at 104,068; the University of Phoenix slipped to third with 95,777 enrollments (Lederman, 2019). It may be safe to conclude that in sum across its history, distance education has widened access to higher learning for millions of U.S. citizens—and it continues to do so.

Pedagogical Change

As technologies advanced, so did human thinking about learning. Harasim (2017) and Anderson and Dron (2011) noted the mutual influence of technology and learning theories across the 20th century as the media of various technologies prompted questions about the messages, or underlying philosophies and practices, of learning—and vice versa. The predominant learning theories in the first half of the 20th century are collectively known as behaviorism. Behaviorism has its origin in the classical conditioning of Ivan Pavlov, whose studies of canine digestion led him to observations of stimulus and behavioral response. John B. Watson (1913) gave behaviorism its name, and in 1926, Sidney Pressey filed for a patent of a "Machine for Intelligence Tests" that recorded student answers to presented questions and provided behavioral rewards through an attached candy dispenser (Benjamin, 1988). B. F. Skinner famously proposed operant conditioning, situating rewards and punishments as causes in the positivist search for effects, and created his own version of Pressey's mechanical "teaching machine" for reinforcing desired learning behaviors (Harisim, 2017; Sawyer, 2014). Behaviorist ideas both formed a

foundation for and continue to thrive in the fields of computer-assisted instruction (Anderson & Dron, 2011; Harisim, 2017) and instructional design (Anderson & Dron, 2011), where practices further advanced with the appearance of the next major learning theory in the 1950s: cognitivism.

Heralded as a reaction to (Harisim, 2017) or viewed as an alternative to (Abramson, 2013) behaviorism, cognitivism also investigates the causes and effects of learning, focusing interest more intently on the processes of the brain. While Abramson (2013) asserted that the work of behaviorists and neobehaviorists have been ignored or subjected to unjust criticisms as later learning theories were privileged, it may be said that early behaviorism primarily studied acquired behaviors while cognitivism focused on processed behaviors. The idea of scaffolding learning emerged from the cognitive school (Wood et al., 1976) and still exists, along with behaviorist methods, in modern instructional design. Amid the growth of cognitivism, Pressey (1962, 1963) expressed concerns and doubts about the ability of his teaching machine invention to result in meaningful learning. For cognitivists, the mind was a machine in its own right—like a computer—and observable behaviors that were a means for accessing the hidden processes of the brain became enshrined in the well-known cognitive domain taxonomy that Benjamin Bloom (1956) originally compiled at a conference with his educational psychologist colleagues. By the 1970s, however, a third learning theory—constructivism—was gaining attention.

Constructivism represents an epistemological and practical paradigm shift from behaviorism and cognitivism. Whereas behaviorism and cognitivism are primarily positivistic approaches to accessing knowledge, viewing the learning event as individual and manifesting primarily in teacher-centered ways, constructivism is an interpretivist approach that views the learning event as social and stresses a learner-centered pedagogy (Anderson & Dron, 2011;

Cooper, 1993; Harisim, 2017). "[C]onstructivist theories," states Hrastinski (2009), "have moved away from objectivist knowledge transmission models toward active learner models" (p. 78). While the implication that behaviorism and cognitivism are passive may be argued, it may be equally said that active learning in online distance education courses is made more visible by the increased interaction afforded by Internet technologies. The rise of the Internet further enabled a new and related learning theory which sought to explain the role of networks in online distance education: collaborativism.

First known as online collaborative learning theory, collaborativism focuses on discourse and community in online environments (Harisim, 2017). Harasim (2017) distinguished between *online distance education,* which she identified as based in cognitive-behaviorist approaches, and *online learning*, which she asserted espoused a constructivist paradigm. Garrison (2017) combined collaborativism and constructivism into one phrase: *collaborative constructivist*. The Community of Inquiry (CoI) theory of online distance education proposed by Garrison, Anderson, and Archer (2000) and based in a collaborative constructivist paradigm posited that three ingredients are requisite for effective online learning—teaching presence, cognitive presence, and social presence. Garrison, Anderson, and Archer define social presence as "the ability of participants…to project their personal characteristics into the community, thereby presenting themselves to the other participants as 'real people'" (p. 89). For students, social presence was hindered by one-way distance education technologies such as radio or television. Indeed, the *community* construct of CoI necessitates an interactional social phenomenon that only the immediacy afforded by modern Internet technologies in online forms of distance education can provide.

The State of Distance Education Research

While technological advancements and learning theories pushed (and continue to push) the boundaries of distance education possibilities, demand rose (and continues to rise) from those excluded or precluded from traditional classroom education. Whereas early distance educators remained largely ancillary to the primary missions of U.S. colleges and universities, with operations often housed in extension offices or offices of adult studies, the widespread adoption of distance education in order to maintain institutional operations during the COVID-19 pandemic made the need for strong understanding of and insight into the distinctives of U.S. distance education suddenly more pressing than ever before. When the COVID-19 pandemic forced the closure of college campuses around the United States, many institutions turned to distance education without a full understanding of the history and theory of the practice. This lack of understanding may be related to how the field has struggled to convey itself in unified ways. Michael Grahame Moore is, among his other accomplishments, the founder of and editor for *The American Journal of Distance Education* with a resulting front-row seat to much research endeavor. In the preface to the fourth edition of the *Handbook of Distance Education,* Moore (2019a) reiterates a plea for quality research that builds on the history of and advances theory in the field:

> In writing this comment in 2018, I am repeating a view expressed in the last edition of this book, and yet it has to be repeated if only because *the situation has deteriorated compared to five or ten years past.* The very ubiquity of online teaching today has the unwelcome effect of more and more people teaching and researching the online teaching processes with little—it must be said in most cases NO—knowledge of the history, theory, and research about distance learning and teaching. The shallowness of so many literature reviews submitted for publication is quite depressing. Perhaps just as disheartening is the reality that there are now many online journals that provide an outlet to this research, with the effect of multiplying the extent of theory-less research and the effect of a downward spiral in the quality of what is researched and published. (p. xiv, emphasis and all-caps original)

In the published distance education literature until most recently, research energy was often spent comparing the outcomes of the forms and media of distance education to its face-to-face counterparts (Bernard et al., 2009). A U.S. Department of Education (2009/2010) meta-analysis of studies comparing learning in face-to-face classrooms with learning in fully online distance education courses found the achievements of online distance learners slightly better than those of learners in face-to-face conditions, claiming support of its literature review of predominantly "no significant difference" conclusions. Comparative studies continued, though not without criticism. Saba (2014) noted the inadequacy of the comparative methodology for distance education needs. Recently, the distance education corpus has begun to mature (Saba, 2014; Simonson et al., 2011), and the literature, particularly regarding online technologies, has focused on more nuanced questions of content, learner readiness or success, and instructor roles and perceptions (Kebritchi et al., 2017).

A Micro-Level View

The majority of recent distance education research has concentrated on teaching and learning, looking less often at topics of management and costs, organizational structure and change, or global topics and theories. Zawacki-Richter (2009) conducted a Delphi study that provided a useful categorization method for research concerns in distance education. The panel consisted of 25 English-speaking distance education experts of various roles from 11 different countries. Fifteen research areas were identified within three levels: a macro level encompassing systems and theories; a meso level including technology, organization, and management; and a micro level focused on topics of teaching and learning. Zawacki-Richter, Bäcker, and Vogt (2009) then applied the macro-meso-micro framework to a review of 695 articles from five distance education journals (including *The American Journal of Distance Education)* published

from 2000 to 2008. Their goal was to identify research areas, gaps, and changes over time in topics, methods, and authors. Canada presented the largest number of authors, nearly double the number of the second-ranking country, the United States. Findings did not indicate the lack of academic quality for which distance education had been previously criticized, likely because of the stature of the journals investigated. Trends toward increased researcher collaboration and a greater acceptance of qualitative research were identified. Most insightful, however, was the finding that the majority of research focused on micro level issues—the gaps were clear. The framework has been further applied to specific journals (Zawacki-Richter et al., 2017; Zawacki-Richter & Naidu, 2016), supporting the finding that the overwhelming majority of distance education research is concentrated in micro-level concerns of teaching and learning, leaving systems, theories, management, organization, and technology "dreadfully neglected" (Zawacki-Richter & Anderson, 2014b, p. 5).

While valuable, distance education research that focuses on the micro-level necessarily limits a broader view. Bozkurt et al. (2015) supported the conclusion that micro-level research dominates the field of distance education by adding social network analysis (SNA) to their content analysis approach for reviewing 861 articles in the distance education literature. A mathematical method of discerning relationships of points, or nodes, to each other in a network to uncover patterns, SNA revealed "education" and "learning" as the most prominent nodes. While an interesting finding, the use of social network analysis for literature review is perhaps most noteworthy because its application assumes comprehensive systems at work in distance education research and tacitly acknowledges that viewing distance education with systems thinking can be a viable portal for discovery. Indeed, viewing distance education as a system is one of the basic assumptions of the distance education field (Keegan, 1996).

Theorists have long tended to approach distance education holistically and dynamically; however, distance education research of recent decades largely acknowledges that distance education is a system but less often integrates or applies systems principles, in part because of the focus on micro-level topics. Regarding micro-level research, Guri-Rosenblit (2014) noted that methodological issues, biases, and contradictory conclusions prevent effective utilization of findings, but another reason may be complicating applicability. By definition, "micro" focuses on the small, and a narrow focus on distance education subsystems of teacher, learner, and technology is by nature a reductionist approach that ignores the influences of other system components and the environments in which they operate. The result is a limited view of distance education that neglects alternative influences that can profoundly alter conclusions. The next section explores how systems thinking provides a framework for comprehensively identifying complexities that may otherwise be hidden from view.

A Systems View

Higher education is widely acknowledged as a system (Bess et al., 2007; Bouchey, 2019; Gregory, 2008; Maloney & Kim, 2020), as is distance education (Moore, 1973; Moore & Kearsley, 2012; Saba, 2003). Systemic inquiry has been defined as "inquiry, research, or evaluation that is based on systems concepts or systems principles" (Given, 2008, p. 254). General systems theory was developed in the mid-twentieth century by biologist Ludwig von Bertalanffy (1950, 1972) as a paradigmatic and philosophical revival of Aristotelian thinking in physics and biology and an alternative to the scientific reductionism that von Bertalanffy saw as an obstacle to inquiry into intricate phenomena. "A system," clarified von Bertalanffy (1972), "may be defined as a set of elements standing in interrelation among themselves and with the environment" (p. 417). Concepts within and related to general systems theory multiplied

exponentially as the approach found footholds in other fields (Given, 2008), including social psychology (Katz & Kahn, 1966) and education (Banathy, 1991; Heinich, 1966). According to Bess and Dee (2007), general systems theory can be appropriately applied to higher educational institutions, providing a framework for evaluating the function, structure, and communication of the organization while recognizing that various pathways exist for achieving goals.

One factor contributing to the lack of systems research in distance education may be confusion in operational constructs within the systems literature itself. Systems researchers have developed a dizzying array of applications since von Bertalanffy ignited the late twentieth-century resurgence, including complex adaptive systems, activity systems, critical systems heuristics, viable systems modeling, soft systems, and system dynamics (Given, 2008). Originally proposed by MIT computer scientist Forrester (1961), system dynamics focuses on systems over time, employing mathematical models in order to predict system behavior, and Saba (2003, 2014) and Shaffer (2005) have called for the application of systems dynamics in distance education research.

At the 1994 International Systems Dynamics Conference, Forrester's student Barry Richmond (1994) expressed discomfort with what he saw as an overly complicated and elitist approach to the study of systems and advocated for *systems thinking*—as opposed to system dynamics—because he saw *systems thinking* as the distilled "essence" of system dynamics and thus most vital to the concept. When Richmond first coined the new term *systems thinking* in 1987 (Arnold & Wade, 2015), he unleashed the potential for systems thinking to gather the chicks of systemic research (including *system dynamics*) under a single wing, but not without backlash. Forrester (1994) criticized *systems thinking* as "superficial" (p. 251) and dangerous, a soft approach lacking the discipline of and at ontological odds with *system dynamics* because of

its impracticality and focus on constructs ungrounded in reality. However, as Cabrera (2006; 2008, 2015; 2019) framed it, *systems thinking* is not a methodology. Rather, it is simply a conceptual framework, a lens for examination, as friendly to a variety of methods and disciplines as the field of distance education itself. Cabrera, Colosi, and Lobdell (2008) differentiated *systems thinking* from *systems science* and defend systems thinking as a cognitive approach to conceptualizing an issue:

> To become a systems thinker, one need only to understand and apply these four conceptual patterns: draw distinctions between an identity and a non-identity; recognize the bi-directional properties (affect and effect) of relationships; organize parts and wholes into alternative nested systems; and take new perspectives by transforming one's point-and-view. (p. 307)

In this view, systems thinking is an intentional process and an emergent property of four existing and equally important patterns of thought (Cabrera, 2006; Cabrera et al., 2008) that has been applied to public health (Cabrera, 2006) and proposed for evaluation and program planning (Cabrera et al., 2008), behavioral sciences (Cabrera et al., 2015), and learning, design, and technology (Cabrera & Cabrera, 2019).

Using a different approach, Meadows (2008) also advocated systems thinking as a lens for viewing and thinking about the world in a novel way. A student of Forrester at MIT, Meadows identified three necessary components of a system: elements, interconnections, and purposes. In distance education, elements are the human, financial, physical, and intellectual resources of the system. These elements include, for example, students, professors, administrators, instructional designers, courses, technologies, and even abstract concepts such motivation and perception. Elements, Meadows asserted, are the most obvious components—and the most easily substituted or exchanged. Interconnections are the relationships that connect to and influence elements, causing them to renew or deplete over time. In distance education,

interconnections include actions such as enrolling, graduating, retiring, budgeting, designing, teaching, studying, evaluating, and communicating information.

Meadows (2008) identified the third component, purposes, as the most influential of the three components on the behavior of a system—and the most enigmatic. Meadows distinguished between functions and purposes in that a function is what a system is designed to do, but a purpose is what the system actually does. Thus, codified mission or vision statements may or may not reflect the system's purpose: "The best way to deduce the system's purpose is to watch for a while to see how the system behaves" (Meadows, 2008, p. 14). In other words, a system's behavior will belie its true purposes, which are also the most difficult to change. Elements and interconnections can be most easily substituted or replaced without severe disruption. For example, students graduate and faculty retire, new elements replete the old, and the system perseveres. Alterations in purposes, however, can cause instability that fundamentally alters the system. For example, an incoming university president brings a vision that changes the course of institutional history or a health pandemic suddenly necessitates distance education methods in lieu of face-to-face instruction, potentially shocking and shifting elements and transforming interactions.

Moore and Kearsley (2012) contend that thinking in systems, what they call "a systems view" (p. 9), is an aid to understanding distance education and a tool for its effective practice. Indeed, the open mind can leverage the conceptual apparatus of systems thinking to both interrogate and apply boundaries, relationships, contexts, components, and causes. However, while systems thinking usefully lends itself to analysis and administration of distance education, it is not itself a component of the system and remains merely an overlay. A thorough understanding of distance education must also unpack the descriptive adjective: *distance*.

The Many Meanings of Distance

Distance is not a simple concept. The word *distance* at once encapsulates the idea of traversable space between two locales. Distance is a scalar quantity in physics and "the quantified embodiment of the concept of near and far" (Sarkar, 2019) in geography. Beyond spatial use, however, other concepts of distance have fueled theoretical discussion and practical application in various fields of study. British aesthetician Bullough (1912) differentiated physical, spatial distance from "psychical distance," a variable and personal space between subjective and objective interpretation of art. In the field of sociology, Park and Burgess (1921/2009) brought the term "social distance" to the United States from Europe (Poole, 1927) to describe the interplay of engagement and withdrawal behaviors whereby individuals balance their need to maintain personal physical and psychical distances with the responsibilities and expectations of social life. Poole (1927) distinguished between the personal distances experienced by individuals and the social distances experienced by groups, further dividing each category into, first, subjective distances involving perception and, second, objective distances, which he identified as actual or real. In educational sociology, Bogardus (1930) noted social distances between teachers and students, teachers and parents, school and home, school and neighborhood, principal and teacher, rural and urban students and teachers, and schools and other schools. In psychology, Lewin (1939) conceived of the whole of individual experience as a "life-space" within which distances could be measured. In Field Theory, Lewin (1951) asserted that the totality of human behavior could be best grasped through an understanding of distances between people, places, objects, and times.

Lewin (1951) may have been among the first to use the phrase "psychological distance" to describe distances other than spatial, perhaps because he was a psychologist. Building on and

refining Lewin's work, Trope and Liberman (2010) identified psychological distance as "the perception of *when* an event occurs, *where* it occurs, to *whom* it occurs, and *whether* it occurs" (p. 442, emphasis original). They thus proposed distance in four dimensions: (a) a temporal distance of past versus present; (b) a spatial distance of near versus far; (c) a social distance of the self versus others, and (d) a hypothetical distance of actual versus imagined events (Trope & Liberman, 2003). The Construal Level Theory (Liberman & Trope, 1998; Trope & Liberman, 2003, 2010) that they proposed is based on their premise that individuals tend to conceive of that which is close in concrete terms, while that which is distant is typically conceived in the abstract. By including "perception" in their definition of psychological distance, Trope and Liberman viewed time and space in relativist rather than absolute terms. This conception aligns with findings of Uppal and Sandar (1998) that the perception of geographical distance rather than actual geographical distance presents a psychological barrier in distance education. In their experimental study of student perceptions of instructional content in a distance education course, Uppal and Sandar notified half of the sample that the content was prepared by a physically near institution while notifying the other half that the content was prepared by a physically far institution. Students who believed the instructional content was prepared relatively nearby found the content more appealing, appropriate, and clear. The work of these scholars suggests that actual distances may be much less important to an individual than the perception of them.

The field of psychology has continued to test Construal Level Theory and to propose other distances such as interpersonal distance between individuals and their significant others (Norman et al., 2016); informational distance regarding knowledge, experiential distance regarding sources of knowledge, affective distance regarding emotions, and perspective distance regarding mindset (Fiedler, 2007). By contrast, the field of distance education established itself

based on the idea of geographical distance, focusing on the separation of teachers and learners and the use of technologies to connect them. Introduced in the United States in the 1970s (Holmberg, 2005; Moore, 1991a; Sewart, 2014), the term *distance education* is a translation of the German *Fernstudium* (Moore & Kearsley, 2012). *Distance education* became the official term for the phenomenon of teaching and learning in different places when the International Council for Correspondence Education, founded in 1938, changed its name in 1982 to The International Council for Distance Education after over a decade of searching for a term that was more inclusive of advancing technologies (Beaudoin, 2018; Bunker, 2003; Moore, 1991b, 1991a; Sewart, 2014). As previously described in this chapter, distance education has its roots in the practice of correspondence education. However, the name change from correspondence to distance was indicative of more than a search for appropriate description; it also signaled a search for theory.

Transactional Distance Theory

In the early 1970s, Michael Grahame Moore (2019b) identified a need for a theory of distance education that not only differentiated between the types of educational transactions that occur in a face-to-face teaching and learning environment and the singular patterns of behavior that emerge when teacher and learner are separated in space and time but also countered lingering pedagogical focus on teaching behaviors to the neglect of student behaviors. Moore's formulations were later named Transactional Distance Theory (Moore, 1993; Moore & Kearsley, 2012). Though over the years a number of theories have addressed organizational structure, learning, and interactions in the context of distance education (Garrison, 2017; Keegan, 1996; Moore & Kearsley, 2012; Simonson et al., 2011), unique to transactional distance theory is the

attempt to directly address and operationalize the principal terminology of distance education: the distance.

Moore (1993) saw distance as a "pedagogical concept," explaining that "[w]ith separation [of teacher and learner] there is a psychological and communications space to be crossed, a space of potential misunderstanding between the inputs of instructor and those of the learner. It is this psychological and communications space that is the transactional distance" (p. 20). While Moore conceded that some transactional distance resides in any educational experience, as Rumble (1986/2019) explained, Moore maintained that the distinctives of distance education magnified the transactional distance and produced characteristic effects in such a way as to warrant theoretical explanation and empirical research. Moreover, the theory is grounded in the thinking of systems. Indeed, "System dynamics is the native language of the theory of transactional distance" (Saba, 2016). Transactional distance theory is thus a framework for examining specific course structural elements, course interactions, and learner autonomy in a systematic way (Moore, 2019b).

The constructs of transactional distance describe a distance education event. According to Moore (1993), transactional distance is a continuous variable, measurable across a range from less to more distant. The transactional distance varies for every learner; in other words, transactional distance is a feature of the individual encounter between teacher and learner rather than of the course as a whole, and technology is one factor that can mitigate (or escalate) that distance. Transactional distance is a function of two families of variables concerning teaching behaviors: *structure*, which includes course design elements such as learning materials and assignments, and *dialogue*, defined as a positive and communicatively productive interaction. A third and related family of variables concerns the behaviors of students: *learner autonomy*, which

addresses the ability of and expectations for students to control and direct the learning experience. Moore postulated that where there is less dialogue, there must be greater structure; where there is greater structure, there is greater transactional distance; where there is greater transactional distance, the greater the need for learner autonomy. Applying a system dynamics model to the constructs of transactional distance, Saba and Shearer (1994) found that dialogue and structure are inversely related, and dialogue is the key to reducing transactional distance.

Inherent in transactional distance theory is the idea of interactions between elements, as would be expected in a system. Moore (1989) identified and described three such interactions. *Learner-content* interactions represent the flows of information between the elements of learners and the subject matter; *learner-instructor* interactions denote the flows of information between teacher and learner elements; *learner-learner* interactions are the flows of information between and among learners, made increasingly possible by advanced communication technologies. Hillman, Willis, and Gunawardena (1994) added *learner-interface* interaction to address the exchange between learners and technology as an important consideration for instructional design.

Anderson and Garrison (1998) proposed a model of interactions in environments enabled by communications technology that aligned with Moore's original three and added three more: *teacher-teacher* interaction, which they identified as primarily professional development; *teacher-content* interaction, which reflect the use of technologies to create learning materials; and *content-content* interaction, which include "intelligent agents" (p. 109) such as computer programs or scripts that affect, modify, or alert other programs when activated (e.g. newsfeeds, text-matching software, or personalized learning features that "skip" content based on learner activity in a lesson). In a metanalysis of distance education interactions, Bernard et al. (2009) noted that these additional three interactions are rarely included in distance education research

that focuses on individual courses. To the systems thinker, the conceptual differences among identified interaction types evidence variations in the placement of system boundaries. A focus on learner-content, learner-instructor, and learner-learner interactions bound the system at an elemental level; including learner-interface interactions bounds the system at the course level; teacher-teacher, teacher-content, and content-content interactions bound the system at the level of departments, divisions, or institutions.

Insight into additional elements and interactions within distance education may be found in quantitative studies that have attempted to measure transactional distance. As Moore intended (2019b), transactional distance theory provided a theoretical basis for a growing body of empirical investigation. It did so primarily from a positivist paradigm, (Delgaty, 2018), and efforts to validate and refine the constructs of transactional distance theory in this way have produced mixed results (Giossos et al., 2016a; Gorsky & Caspi, 2005) while lack of consensus over operational definitions persists (Giossos et al., 2009; Huang et al., 2015; Wengrowicz & Offir, 2013). Gorsky and Caspi (2005) found value in the conceptual contribution of transactional distance theory but questioned its practicality based partly on their critique that instruments for measuring transactional distance were invalid and unreliable. Building on the doctoral work of Zhang (2003) to develop a valid and reliable instrument for comprehensively measuring student perceptions of transactional distance in web-based distance environments, Paul et al. (2015) offered a truncated scale to measure transactional distance but gave it a short shelf-life by asserting that future measurements will require revision as social and technological environmental factors evolve. Huang et al. (2015) presented a scale to measure student perception of constructs “more holistically” (p. 123) than previously proposed instruments, including closeness, shared learning, and perceived learning as subdimensions of transactional

distance, thus further contributing to consideration of previously unexplored elements and interactions at work in the system.

Distance education is a system that is at the same time nested within other systems, which can result in stunning and surprising complexities—making the potential for application of transactional distance theory much larger than the previous uses to which it has primarily been put. Gokool-Ramdoo (2008) argued that transactional distance theory may be utilized as a global theory, "useful along all the supply-chain of the distance education enterprise—not simply teaching and learning" (p. 15), including matters such as quality and the development of policy. Noting a gap in the literature, Wengrowicz and Offir (2013) developed a scale to measure teacher perception of transactional distance as a subjective experience that influences the distance education environment. Giossos, Koutsouba, and Mavroidis (2016a) developed an instrument for assessing student perception of learner-teacher transactional distance by redefining transactional distance as a co-understanding between teacher and learner, provoking critical letter-to-the-editor response from Saba (2016), who argued that measuring perception improperly distorts the meaning of transactional distance, aggregating such data violates the focus of the theory on the individual learner, and reductionism ignores the systematicity of distance education and the resulting myriad of components that may be involved. Such disagreements about the full nature and extent of elements and interactions in the complex system of distance education and the ongoing search for sound instrumentation highlight epistemological and ontological differences that pose conflicting views of transactional distance as real or constructed, predictable or unpredictable (Giossos et al., 2016b).

Despite—or perhaps because of—its challenges and its evolution, transactional distance theory makes a valuable theoretical contribution to the study of distance education in that it is

suggestive of—and open to—a number of elements and interactions for any type of inquiry at any level of the system. A shortcoming of the theory, however, is that it does not consider the impact of negative communications on transactional distance, an aspect wherein investigations of *perceptions* of distance might help if the field can overcome its epistemological divide. Nor do the definitions and constructs of transactional distance theory identify the system purposes. The goal in a distance education environment, according to Moore (1993), is to reduce the transactional distance; the "aims" of distance teaching behaviors include organizing materials, evaluating student progress, and motivating and engaging students in the learning experience (Moore, 1989). The terms p*urposes*, *aims*, and *goals* are often used interchangeably, but they are not the same. However, Meadows (2008) notes that *purposes* are the result of the action of the system and may or may not be intentional. They also may or may not result in unintended behaviors. Meadows (2008) explains:

> If a frog turns right and catches a fly, and then turns left and catches a fly, and then turns around backward and catches a fly, the purpose of the frog has nothing to do with turning left or right or backward but with catching flies. If a government proclaims its interest in protecting the environment but allocates little money or effort toward that goal, environmental protection is not, in fact the government's purpose. Purposes are deduced from behavior, not from rhetoric or stated goals. (p. 14)

Therefore, systems thinking recognizes that the purposes of a system may be starkly different from the aims or goals of mission statements, planning committee reports, learning objectives, or New Year's resolutions. For this reason, the broad lens of a systems view can further thinking about and applications of transactional distance theory in expansive tandem. In a system, purposes are stated or unstated, human or non-human, intentional or unintentional, collective or individual; they are also nested and multiple, and "[t]he best way to deduce the system's purpose is to watch for a while to see how the system behaves" (Meadows, 2008, pp. 14–15). Examining

the behavior of the distance operations system during COVID-19 is what this study is designed to do, and Chapter Three will discuss the methodology applied to achieve this stated purpose.

Conclusion

This literature review has offered a survey of the distance education landscape into which higher education was thrust in the spring of 2020. A staunch supporter of the power and possibilities of distance education, Moore (as cited in Erickson, 2020) called the unprecedented transitional moment "bittersweet" as exposure was suddenly and dramatically increased while its quality was threatened by an influx of participants who may not have fully understood it. The success (or the lack thereof) of the shift from face-to-face instruction to distance education delivery during the COVID-19 pandemic will likely continue to be assessed for some time to come, but because distance education is a complex interplay of multiple elements, interactions, and purposes, micro-level studies that contribute to much of what is known about the practice limit our ability to capture the whole of systemic issues and concerns.

Exploratory case study research into distance education, using a critical realist grounded theory approach (see Bunt, 2018; Hoddy, 2019; Oliver, 2012), may extend current distance education theory, explore relationships and discover system purposes perhaps heretofore unseen, and potentially contribute to a deeper understanding of systemic influences on distance education practice that can usefully inform improvement. Systems thinking (Meadows, 2008) provides a unifying cognitive framework for analyzing the systems acknowledged yet not fully explored in distance education research, removing the veil from the abstruse and providing a tool for identifying areas for potential improvement. Transactional Distance Theory (Moore, 1973, 1993), a tested framework for inquiry into the distance teaching and learning environment, identifies elements and interactions of distance education, but research results have been mixed,

and transactional distance theory does not elaborate on the concepts outside of the relationship between teacher and learner. As the field has matured, distance education research has developed an expanded view of the learning experience by considering elements and interactions that do not directly involve the learner yet must co-exist for learning to be possible. Potential exists for global application of transactional distance theory (Gokool-Ramdoo, 2008) in qualitative exploration (Edirisingha, 2019). Purposes, the third critical component of a system, are evidenced by system behavior (Meadows, 2008), and the behaviors of faculty, administrators, and staff regarding distance education provide deep insight into the purposes maintained by this key element and the resulting alignment—or misalignment—with the purposes of the system. Therefore, this study fills a gap in the literature by contributing to the literature at the macro level.

The imposition of distance on all aspects of university operations during the COVID-19 public health crisis created an opportunity for systematic inquiry that not only explored the constructs of distance and transactional distance theory but also further probed teaching behaviors in hierarchical contexts within the system. Wedemeyer (1981) may have unwittingly yet presciently observed the affordances of the pandemic occasion:

> If a local, state, or national system of education is truly a system, when any part of that system is altered, the change produces consequences in other parts of the system, and in the system as a whole. Institutions choosing to offer non-traditional programs, and learners choosing to enroll in them or to follow entirely self-directed learning, introduce alterations in the expected operations of the traditional system. Comparisons are made, advantages and disadvantages are discussed. An option or alternative never before considered becomes viable. Non-traditional learning becomes part of the reality of education for others. Some of the effects of any introduced change can be anticipated (indeed, that's the reason for introducing change), but only an extended period of use or operation of a social system will yield specific information on the actual effects of change. (p. 74)

Distance education is a nested subsystem of the higher education system; therefore, systemic processes in the latter will serve to hinder or promote the former. By examining the actions of individuals, systems thinking can detect patterns that divulge the influence, behavior, and purposes of the system. By exploring the experiences of U.S. faculty and administrators during the COVID-19 emergency, this study exposed implications for the field of distance education that can inform institutional decisions going forward. Having established the need for this study, Chapter Three next articulates the critical realist theoretical paradigm and the methodology that undergirded and propelled this study.

CHAPTER THREE: METHODOLOGY

As a nontraditional education delivery subsystem of higher education, distance education—its elements, interactions, and purposes—have provided and continue to provide access to knowledge outside of traditional routes of time- and place-bound instruction for many learners. U.S. colleges and universities have been increasingly utilizing distance education as online technologies have proliferated. In the previous chapter, I discussed the history of distance education in terms of access, technology, and pedagogy, and I established the need for and purpose of this study. I then surveyed the literature of systems thinking, of the meanings of distance, and of transactional distance theory to explain the teacher-learner relationship in distance environments. These bodies of literature aided in illuminating the study context that began in the spring of 2020, when the COVID-19 pandemic brought distance education to postsecondary institutions at a scale previously unimagined despite persistent, substantial resistance and limited understanding of how a distance education system might be best implemented. Indeed, distance education has never been attempted at the scale suddenly thrust upon it in 2020, and higher education professionals found themselves in the midst of what Rittel and Webber (1973) identified in issues of public policy as a "wicked problem": how to solve issues of implementation and operation when the field of potential solutions is vast and contradictory and the consequences of decisions are immediate and pressing. Wholesale replacement of traditional face-to-face educational delivery approaches with those of distance education was not a simple task. The research challenge was to leverage the singular opportunity presented by the pandemic moment to explore and gain insights into the distance education system, thereby adding to the body of distance education literature at the macro-level of systems and theories.

The purpose of this qualitative, comparative, longitudinal case study was to explore the distance education system. Leavy (2017) noted that exploratory research is ideal for both filling knowledge gaps and for applying new lenses "to generate new and emerging insights" (p. 5). To these ends, this study proposed the following research questions for exploration:

1. What are the elements of the U.S. higher education system during the COVID-19 response in 2020, how do they interconnect with each other, and for what purposes?
2. What underlying generative mechanisms must exist in order for the system to behave as it does?

Multiple ideas inhere in each of the research questions, and it was anticipated that a systems thinking perspective applied in conjunction with sound research design could, while incapable of entirely taming the problem, at least make it less wicked. A grounded theory methodology combined with a critical realist approach provided a holistic understanding of distance education as it is nested within higher education, further making "less wicked" possible. A critical realist himself, Maxwell (2013) stated that theory is more than a framework; it is "a *story* about what you think is happening and why" (p. 49, emphasis original). This study was designed to tell that story.

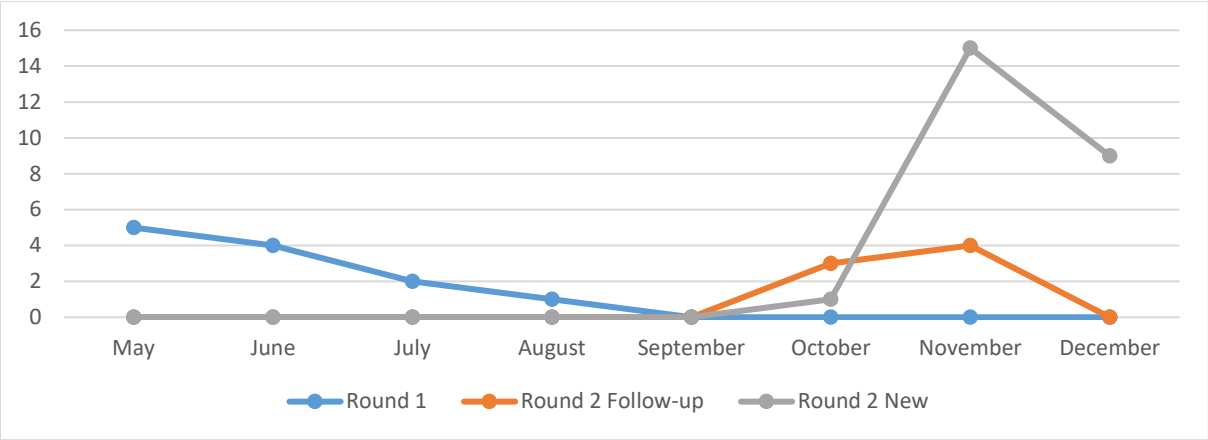
The sections of this chapter first limn the research design, including the critical realist philosophy that justifies it, followed by a discussion of research sites and participants along with rationale for their selection. Subsequent sections address the researcher role in this study and the ethical issues relevant to conducting this research. Next, the procedures and protocols are addressed before the data analysis processes are described. This chapter ends with a discussion of the assumptions, limitations, and delimitations of this research to assist the reader's judgment of the applicability and worth of study findings. The chapter concludes with a transition to study findings in Chapter Four.

Research Design

This study was a qualitative, comparative, longitudinal case study, grounded in critical realism and layering its approach over a grounded theory methodology to explore distance education during the disruption of the COVID-19 health pandemic. Specifically, the study is nested in a larger, two-year study (April 2020-April 2022) examining higher education before and after the health crisis and conducted at four sites: two colleges and two universities in the United States. This study drew on data I collected as part of the parent study, including 44 transcribed interviews (536 pages, or 284,853 words) conducted in two different rounds, twelve participant-provided documents and communications (105 pages, or 37,285 words), and multiple public-facing information and artifacts (155 pages, or 59,252 words). Interviews with participants were semi-structured, conducted at two points during the shift to distance education precipitated by campus closures and limited re-openings to slow the spread of the disease. The first round of interviews took place during the spring and summer terms of 2020; the second round of interviews occurred during or immediately after the fall term of the 2020-2021 academic year and included follow-up interviews of first-round participants as well as initial interviews with new participants (see Figure 1). Participant-provided data included documents and communications including emails, syllabi, and institutional policies. Public-facing artifacts included information from the U.S. Department of Education Integrated Postsecondary Education Data System (IPEDS) and information from the websites of each research site, including COVID-19 data, announcements and institutional policies, and state health and public policy decisions as communicated.

Figure 1

Interview Timeline



Theory in Research Design

Atheoretical research is an oxymoron (Guba & Lincoln, 1994); all research has a theory, whether stated or implied. Ontology binds what questions can be asked; epistemology binds what answers can be found. A research design is a researcher's articulated process for accessing, understanding, and connecting with the world in a systematic way (Norman K. Denzin & Lincoln, 2018). Perhaps most importantly, the research design offers a logical justification for doing so. Further, methods are not selected in isolation; rather, they emerge as applicable from deeply held beliefs, from worldviews that are primary ways of seeing the world. Data and analysis are based on these points of reference, which also drive the formulation of research questions, the selection of phenomena for study, the mode(s) of investigation, and the meaning given to the data (Merriam & Tisdell, 2015). As theory drives the nature of a research study, it similarly informs evaluations of the worth of a study by the community to whom the researcher presents. Therefore, it behooves the researcher to state her theoretical paradigm so that the

research can be evaluated as closely as possible on its own terms. The following subsections make explicit the framework that undergirds this study.

Critical Realism

The theoretical paradigm that undergirds this study is critical realism, a philosophical package for social scientific inquiry that incorporates the fundamental concepts of a realist ontology with aspects of an interpretivist epistemology in a philosophy to explain what constitutes knowledge and how humans can access and understand it. Critical realism was proposed in the 1970s by Roy Bhaskar (1978/2008) in response to what he noted as a prevailing "epistemic fallacy" (p. 16) that conflated ontology with epistemology. Bhaskar drew on Immanuel Kant, David Hume, and other influential philosophers to defend a difference between what is knowable and how it is known, to point out the limits of existing scientific paradigms, and to offer a new philosophy for the study of complex social systems. Critical realism asserts that knowable objects exist outside of the individual mind, outside of layers of objective or subjective experience but knowable through human perception and informed reasoning (Hoddy, 2019; Sayer, 2000). In other words, the critical realist holds that there is more to what we can know and how we can know it than, literally, meets the eye. Major distinctions between the drivers of a purely positivist epistemology, a purely interpretivist epistemology, and the tenets of critical realism are key to understanding the findings of this dissertation. This section first contrasts positivism with critical realism and offers an example of critical realism in action before contrasting interpretivism with critical realism and identifying the main goals of the latter as a whole and in this study.

As described in Chapter One, the idea of causality in critical realism differs from a positivist understanding of the same. Positivism deduces causality from observations of

empirical events. Positivist experiments based on the conventional scientific method manipulate variables in a closed (or as closed as possible) system in order to isolate, discover, and understand relationships among those observed variables. Within the positivist paradigm, such experiments can and do offer evidence that *y* happens because *x*, that is, *x* causes *y*, and valid and reliable results from an appropriate sample are acceptably generalizable to a population. By contrast, critical realism argues that causal claims are not dependent on frequency, regularity, or even observability because empirical events represent only one level of reality.

The notion of a stratified reality is one of the fundamental ontological assertions of critical realism. For the critical realist, reality exists in three domains or layers: the *empirical* domain describes the level of experiences; the *actual* domain encompasses the level of events that may or may not be experienced; and the *real* domain is a deep, invisible level comprised of structures and their causal mechanisms (Bhaskar, 1978/2008; Elger, 2010; Oliver, 2012). Indeed, causal mechanisms are a *feature* of a social structure existing in the real domain, and extant causal laws operate through these generative mechanisms (which is what makes them generatively causal). When activated, generative mechanisms influence events in the *actual* realm of reality, but they do not determine them. This latter point is important because it renders critical realism, unlike positivism, incapable of making predictions. Instead, generative mechanisms merely enable *possibilities* in the actual realm and create *potential* for individuals to experience at the empirical level of reality. If mechanisms are not activated, they are not actualized and thus their effects cannot be empirically observed—but that does not make them any less real. This distinction between levels of reality means that the *real*—and not the *empirical*—is where the critical realist finds cause. Illustrative examples of critical realism at

work are lacking in the literature; however, I developed and refined the following simple example that I offer now to the reader for whom critical realism may be new.

In critical realism, structures have mechanisms that trigger observable events that can be experienced. Consider that the human body is a structure. For the sake of illumination, ignore for the moment that the body can be observed, as in critical realism the level of structures is social and invisible. This analogy simply uses the readily understandable concept to make abstract concepts explicit. The body has, as a feature, a certain mechanism that regulates food intake. For the critical realist, both the body and its mechanism are real, independent entities, existing in the *real* domain. The regulatory food-intake mechanism remains inactive until triggered by a bodily need for food. Once triggered, *actual* hunger occurs, and the hungry person experiences this event in the *empirical* domain. Other outcomes in the *actual* domain become possible: the person may make a sandwich, drink a glass of water and go for a walk, or order pizza. Depending on the context (what ingredients are in the pantry, whether or not the person is dieting, or how much lunch money is available), the person may make choices that result in one or more events that may then be experienced by one or more individuals. Whichever decision the hungry person makes, however, the critical realist finds cause not in the context of ingredients, intent, or budget (which the positivist may identify as potential independent variables) but in the food regulation mechanism of the bodily structure, which both exist in the *real* domain.

The above illustrative example of the hungry person began with the structure and generative mechanisms, but in practice, the critical realist researcher of social science would not begin inquiry in the real domain because its structures and mechanisms are unseen and perhaps previously undetected. Instead, the critical realist begins inquiry in the realm of the empirical. Consequently, the critical realist must employ a special set of conceptual tools to cross the

stratified reality and uncover causality in its deepest level. The deductive approach of positivism for this task will simply not do. Further complicating analysis, social systems are open systems with the potential for countless variables, and human agency can confound any linear causal claims of positivist inquiry. Interpretivism offers a preliminary solution to these dilemmas. Interpretivism elevates the role of subjective experience in determining how humans can know. Accordingly, interpretivists seek to inductively discover and understand influences in highly contextualized and subjective environments (Merriam, 1998). Yet because of its equal reliance on the empirical, neither will a purely interpretivist approach suffice for crossing the stratified-reality divide and accessing the real domain of critical realism. Further, pure interpretivist approaches are subject to criticisms of bias and carry limited ability to make generalized causal claims. Therefore, critical realism adopts an interpretivist approach that goes beyond induction and relies on the subjective knowledge, abductive reasoning (Clark, 2008; Hoddy, 2019), and retrodictive thought process (Bhaskar, 1978/2008) of the researcher to enter the real domain and make objective, arguable, theoretically generalizable claims.

For the critical realist, the empirical realm is merely the access route to the causal mechanisms of the real (Archer et al., 2016; Collier, 1994; Oliver, 2012; Swann & Pratt, 2000), and abductive reasoning leads a researcher from empirical observations to responsive actions that "tackle the deeper roots of needs and false beliefs" (Oliver, 2012, p. 376). Though the process is "messy and ambiguous" (Sayer, 2000, p. 5), it is anticipated by the critical realist, even welcomed, and is one reason that critical realism is an appropriate paradigm for either quantitative or qualitative exploration of complex systems (Clark, 2008; Sayer, 2000) and for theory generation (Clark, 2008; Elger, 2010). The critical realist researcher understands and accepts that she brings her own fallibility to the research and equally recognizes that open

systems are flexible and dynamic, and intentional and intelligent logic are required. With acknowledgment of these terms of use, the critical realist researcher has at her disposal an appropriate impetus and engine for deeply exploring distance education in its systemic and stratified realities, beginning with the empirical realm of the data.

It is the dual purpose of critical realism in social research to reason through the real and root causes or underlying structural mechanisms that explain actual events (Bhaskar, 2016; Clark, 2008; Sayer, 2000) and to apply that understanding to the real world in purposeful ways (Clark, 2008). Bhaskar explained:

> The aim of science is the production of the knowledge of the mechanisms of the production of phenomena in nature that combine to generate the actual flux of phenomena of the world. These statements that describe their operations, which may be termed "laws," are not statements about experiences (empirical statements, properly so called) or statements about events. Rather, they are statements about the way things act in the world (that is, about the forms of activity of the things of the world) and would act in a world without men, where there would be no experiences and few, if any, constant conjunctions of events. (Bhaskar, 1978/2008 p. 17)

Distance education is a complex system that is best understood by its generative mechanisms that, together with human agency, account for the many variations and fluctuations in the realm of the actual, where mechanisms operate to produce events. Access to this knowledge, however, is through the empirical realm where those who have real experiences are limited by language to their imperfect interpretation and communication (Corson, 1991). In other words, for the critical realist, knowledge is real, but knowledge *of* the real is constructed and science itself is a construction (Corson, 1991; Rutzou, 2016). The critical realist framework of this study opened up the possibility for identifying causal mechanisms and enabled exploration into questions of why the distance education system worked as it did because it extends what can be known beyond the limitations of simple sensory perception, of deductive and inductive reasoning. Critical realism allowed questions beyond those that can be answered only empirically.

Case Study

As critical realism seeks explanation and impact, so, too, does qualitative inquiry in general (Norman K. Denzin & Lincoln, 2018; Merriam, 1998; Preissle, 2008; Ragin, 2014). No single qualitative approach exists, and none are off-the-shelf applications (Simon, 2014). However, a qualitative approach is recommended when "a complex, detailed understanding of the issue is needed" (Creswell & Poth, 2018, p. 46). Both critical realism and qualitative research value a naturalistic setting. Both share these values with the case study method, which offers multiple additional features appropriate for studying the distance education system. Case study is a flexible approach (Collins & Stockton, 2018), accommodative of realist or relativist epistemologies and single or multiple cases (Yin, 2018) and open to systems thinking (Schwandt & Gates, 2018). "By concentrating on a single phenomenon or entity (the case)," explains Merriam (1998, p. 29), "the researcher aims to uncover the interaction of significant factors characteristic of the phenomenon." Further, case studies seek answers to "how" and "why" questions (Bartlett & Vavrus, 2016) through a variety of methods (Elger, 2010). Case study focuses on process (Blatter, 2008; Merriam, 1998), relishes in complexity (Merriam, 1998), and is open to various sources of data (Bartlett & Vavrus, 2016). Case studies can also be longitudinal (Merriam, 1998; Yin, 2018). Yin (2018) asserts that "case studies are preferred…when the desire is to study some contemporary event or set of events" (p. 12).

Collectively, the aforementioned characteristics warrant the use of case study for exploring distance education during the COVID-19 pandemic, but perhaps the greatest strengths of case study for answering the research questions of the proposed study and aligning with a critical realist paradigm are the capacities of case study to develop theory (Schwandt & Gates, 2018), to illuminate the generative mechanisms that causally explain behavior (Elger, 2010), and

to allow for analysis at both the case level and at embedded units of analysis (Yin, 2018). This study explored the single case of distance education during and after COVID-19. Yin (2018) states that a single-case study is appropriate when "the researcher has access to a situation previously inaccessible to empirical study" (p. 50), and the scale of distance education implementation during the COVID-19 health pandemic presents such a "revelatory" (p. 53) opportunity. However, the case features embedded units of analysis at the level of the research sites and of the roles of participants within those sites. A single-case design with embedded subunits aids the researcher in keeping the study focused (Yin, 2018). The units of observation include the elements (including faculty, staff, and administrators), interactions (public and participant-provided communications and policy directives), and purposes (generative mechanisms and human agency) that are stated or unstated and revealed themselves in data collection and analysis. The comprehensive nature of case study decreased the likelihood that some explanation or some evidence is ignored or missed and increased the potential for developing theory to inform practice.

A case study is in some ways similar to a literature review, only the review is of the case—a living literature to be scoped and explored for scholarly analysis and interpretation. As a literature review may focus on a theme or an expanse of time, so may a case study. A literature review also makes comparisons, and a comparative case study method requires the same. Comparative case studies explore "two or more instances of a specific phenomena" (Campbell, 2010, p. 175) with the aims of interpretation and explanation (Campbell, 2010; Ragin, 2014). While most comparative work explores similarities and differences between multiple cases, a single case study can provide unique, within-case points for comparison. A single case can be used to compare two points in time (Campbell, 2010), to compare the researcher-as-instrument to

the data (Corbin & Strauss, 2008), and, for the critical realist, to compare effects of a causal mechanism and compare at each level of reality (Steinmetz, 2004). Indeed, it is through comparisons that "statements about empirical regularities" can be made (Ragin, 2014). This study compared the embedded units of analysis to each other over time, compared observations and analysis with the researcher's knowledge and experience, and compared the case to the state of distance education prior to COVID-19 as this history was outlined in the literature review in Chapter Two.

The Case Boundary

Many scholars assert that a case should be *bounded*, that is, its scope fully conceptualized and described (McMillan & Schumacher, 2010; Merriam, 1998). However, Yin (2018) suggests that a case study is an appropriate choice of method "especially when the boundaries between phenomenon and context may not be clearly evident" (p. 15), which suggests that boundaries may not be fully known at the beginning of a study. The case of this study, distance education during COVID-19, presents multiple complexities which make the elucidation of boundaries a challenge: distance education is both a practice in and a subsystem of higher education that, because of the pandemic, has become the primary mode of delivery in the suprasystem of higher education. This actuality, along with the fact that many faculty, staff, and administrators operate in both systems simultaneously, makes the boundary of the case in this study a challenge that needs to be addressed.

Indeed, the first step of systems thinking is to define the boundary of the system (Cabrera et al., 2008). However, critical realism is not only comfortable with the constant flux of social change (Archer et al., 2016), which necessarily means fluctuating boundaries, but also deliberate about the need to question, conceptualize, and re-conceptualize boundaries—or think outside of

them (Hoddy, 2019)—in order to increase understanding of a phenomenon to locate its causal structures. Bartlett and Vavrus (2016) asserted that "bounding" a case limits the power of a case study and the ability of a researcher to fully explore the case and thereby make useful generalizations. They recommended an iterative approach that balances the power of defining boundaries between the researcher and the participants who interpret those boundaries in their lives. Schwandt and Gates (2018) claimed that "cases are both simultaneously found and made" (p. 619); Bartlett and Vavrus (2016) contended that "boundaries are not found; they are made" (p. 34) by both researcher and participant. These seemingly contradictory assertions are both true for the critical realist working in different strata of reality. The making of boundaries in the empirical domain is consistent with the critical realist view that science itself is a construct, a real tool for discovering real actions and structures, and thus a system will have boundaries within boundaries as elements and interactions take place at empirical and actual levels. Therefore, this study began with a loosely defined boundary of distance education in the United States during COVID-19 and reserved the possibility of refining that boundary during data collection and analysis as necessary.

Grounded Theory

Finally, this study combined a grounded theory methodology with a critical realist approach to analyze the data. As with critical realism, qualitative inquiry, and case study, grounded theory is a flexible approach (Jackson & Mazzei, 2018; Walsh et al., 2015). Since it was proposed in 1967, grounded theory has matured in positivist and constructivist ways that satisfy the critical realist paradigm and its goals (Hoddy, 2019; Oliver, 2012). Still other advantages of grounded theory also align its methodology with the purposes of this proposed study. First, the methodology can be used to develop theory to inform practice (Bunt, 2018;

Oliver, 2012). Second, comparisons are embedded in the coding phases of grounded theory (Corbin & Strauss, 2008; Walsh et al., 2015), phases that mirror the stratified realities asserted by critical realism (Hoddy, 2019). Third, grounded theory has moved toward abductive reasoning in generating theoretical models of causation (Collins & Stockton, 2018; Hoddy, 2019; Oliver, 2012). Oliver (2012) observes that "grounded theory now typically accommodates researchers' pre-existing theoretical knowledge, hunches, and hypotheses as necessary" (p. 380), thus solidifying the necessity of the researcher as a well-tempered knower.

Summary of Research Design

Taken together, the strengths of each descriptor—qualitative, comparative, longitudinal, and case study—are raised to an emergent research design to achieve the answers sought by the research questions of this study. It is a complex research design appropriate for a complex moment, "since in education we operate in perhaps the most 'open systems' areas of all the social sciences" (Corson, 1991, p. 236). This research design is both a holistic and an embedded-unit inquiry with a process orientation open to systems thinking. It delves deeply into a single and unprecedented phenomenon. It respects multiple data units and answers the call for generalizable theoretical constructs in a causal model that can usefully inform practice. The ontology, epistemology, method, and methodology selected for this study enabled an understanding of distance education as it is nested within higher education. The complex elements, interactions, and purposes were thus laid bare for the abductive work of theory generation.

Participants

Because this study examined the distance education system as a single case, combining data from all participants in analysis, it was deemed important to purposefully recruit participants

from a variety of institutions, following the advice of Merriam (1998): “Purposeful sampling is based on the assumption that the investigator wants to discover, understand, and gain insight and therefore must select a sample from which the most can be learned” (p. 61). Consequently, four higher education institutions accredited by two different regional accrediting bodies in the United States were selected. These institutions were given the pseudonyms Alpha, Bravo, Yankee, and Zulu. In discussing distance education organizations, Moore and Kearsley (2012) distinguished between single-mode institutions, in which all education is delivered via distance, and dual-mode institutions, which deliver instruction in both distance and traditional face-to-face formats. An institution that offers no distance education options can also be considered a single-mode institution—face-to-face instruction only. The following sums the context of each research site for this study:

- *Alpha*: A southern, dual-mode, public 2-year institution
- *Bravo*: A southern, single-mode (offering face-to-face instruction only) private, 4-year institution, undergraduate only
- *Yankee*: A midwestern, dual-mode, private, 4-year institution offering both graduate and undergraduate study
- *Zulu*: A southern, dual-mode, public, 4-year institution offering both graduate and undergraduate study

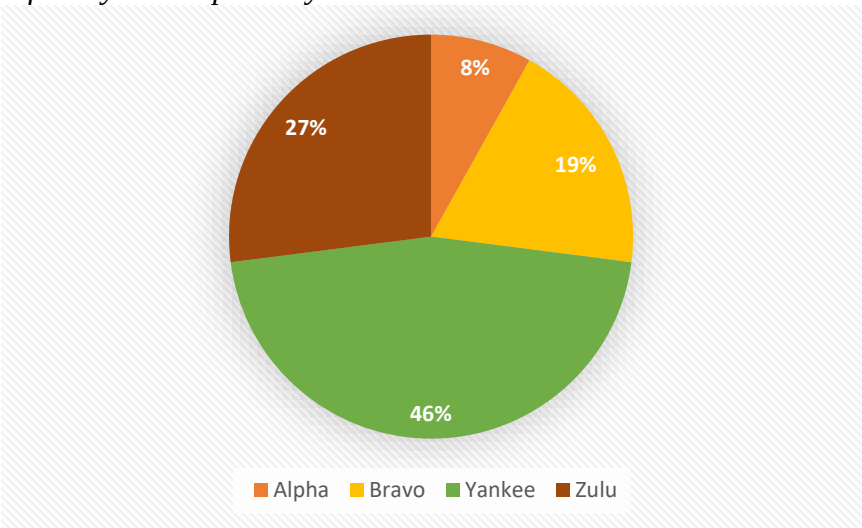
The four higher education institutions in this study are located in three different states in the United States. Alpha and Bravo are located in the Appalachian region of the country, where the percentage of households with broadband Internet access from 2013-2017 was 72.3%, nearly six percentage points below the national average of 78.1% (Pollard & Jacobsen, 2019). In describing case selection for a multi-case colonization study grounded in critical realism,

Steinmetz (2004) notes purposeful selection based on the expectation that evidence of causal generative mechanisms would be found, thus facilitating the formulation of theory. The same conclusion would logically follow in the selection of research sites in a single-case study. Further, Clark (2008) recommends that with critical realism, selecting "similar individuals with different outcomes can provide case-based comparisons that can illuminate factors in the real domain of prime importance" (p. 169). Because the primary mode of educational delivery for U.S. higher education institutions during COVID-19 included online technologies, it was anticipated that institutions in regions with lower broadband Internet access would experience different challenges from those with greater broadband Internet access, thereby increasing the potential for findings that reflect distance education operations using a variety of technologies.

Potential participants—institutional faculty, staff, and administrators—were identified from the online, publicly available faculty and staff directories on the websites of each institution. Participants were recruited by mass e-mail invitation sent to the researcher and blind-copied to potential participants to protect anonymity. All volunteers were interviewed, and the research sites were variously represented as follows: Alpha, 8% of total study participants; Bravo, 19%; Yankee, 46%, Zulu 27% (see Figure 2). Thirty-seven total study participants reflected a variety of roles, including administrators, staff, and faculty in multiple disciplines. Individuals in these roles represent elements of the distance education system, and they provided valuable perspectives to the interactions that took place within it. The only demographic information obtained from participants was their role in the institution. Though I did not collect other demographic information about participants, I noted that volunteers appeared to reflect a wide range of ethnicities, ages, and tenures.

Figure 2

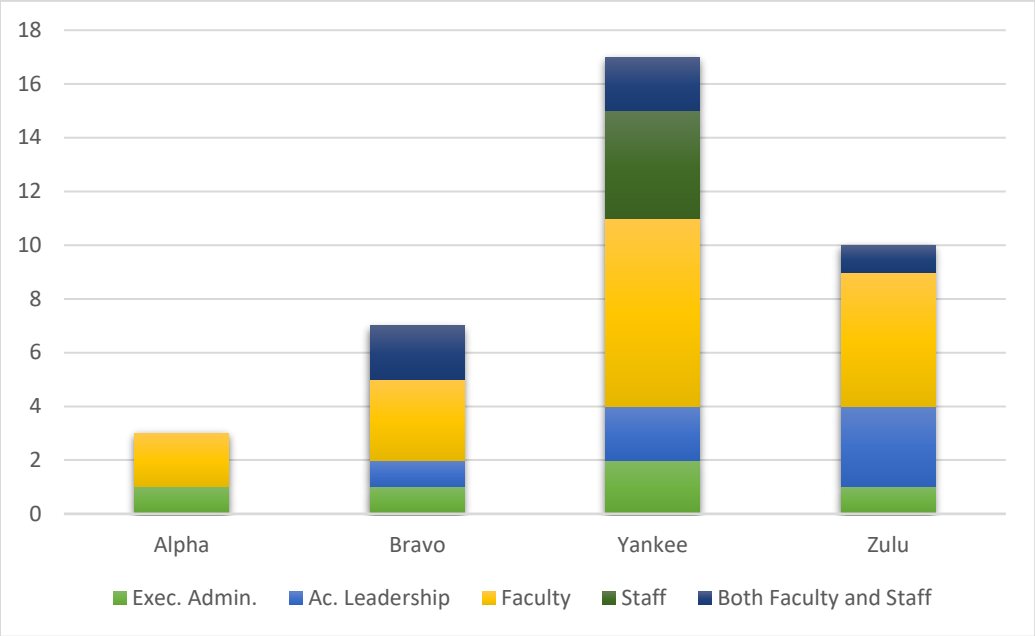
Percent of Study Participants by Institution



Information about participant roles was used to classify respondents by the types of responsibilities for comparison at the level of embedded units of analysis. With this data, the 37 participants were grouped into one of five categories. The *executive administration* group (5 participants) included presidents and administrative leaders who would typically serve on the president's cabinet or similar principal leadership team. The *academic leadership* group (5 participants) included individuals whose role is reflected in titles such as dean, chair, or head and whose responsibilities included both teaching and leadership of faculty departments, divisions, or schools. The largest category, *faculty* (19 participants), included full- and part-time faculty from a variety of disciplines including mathematics, natural sciences, arts and humanities, education, healthcare fields, and social sciences. The *staff* category (4 participants) represented the library, career services, instructional technology, and international student services. Finally, because sometimes individuals serve in dual capacities, a fifth category, *both faculty and staff* (4 participants) included participants from offices of teaching and learning, theater production, and

Figure 3

Study Participants by Role and Institution



study abroad opportunities, enabling comparison of any nuanced views from their perspectives in fulfilling the responsibilities of both of these role types. The volunteer participants, thus categorized, reflected a mix across the research sites (see Figure 3).

Appropriate research protocols were carefully followed. IRB approval was sought and received from the sponsoring institution for which this dissertation is written, which satisfied IRB requirements at two of the research sites. Separate IRB forms for the remaining two selected sites were submitted as requested and subsequently approved. Before the interview, participants received by email a digital copy of the Informed Consent form created for this study (see Appendix A). Interview sessions opened with a brief review of the Informed Consent form, and verbal consent was requested before recording commenced. The Informed Consent overview was conducted pursuant to Protection of Human Subjects, 45 C.F.R. § 46 (2018):

1. The purpose of the research is explained;
2. Participants are advised of potential risks;
3. Participants are advised that the only benefit is this researcher's undying gratitude;
4. Confidentiality procedures are described;
5. Contact information is reiterated in the event participants have questions;
6. Participation is noted as voluntary, and participants are notified they may withdraw without penalty or ill will at any time before coding has begun with de-identified data; and
7. Participants are advised that data will not be used for future studies without their explicit consent.

Preissle (2008) noted, "Unlike most survey and experimental researchers, qualitative scholars learn what they seek to know by developing relationships with their participants" (p. 277). To facilitate openness, the researcher additionally advised participants that four institutions were involved in the study. To facilitate goodwill, the researcher offered participants in early interviews the opportunity to choose their own pseudonym; however, only one participant elected to do so, and the suggestion from that participant to craft pseudonyms from 1980s song titles was determined by the researcher to be such an ingenious idea that the offer to choose a pseudonym was subsequently withdrawn from researcher-participant interactions so that pseudonyms might unilaterally pursue this engaging and worthwhile theme.[5] While interesting, investigating the reasons that most names in the titles of popular songs are female is beyond the scope of this study.

Role of the Researcher

As distance education is a system, so is research itself a system of elements, interactions, and purposes. While the primary purpose of this study was to explore the system of distance education during the COVID-19 pandemic, a corollary purpose has been to present that research

[5] Participant readers who may recognize their words in Chapter Four of this study may wonder at the song title of their pseudonym. Therefore, a complete list of participant pseudonyms and the related song title, artist, and year is provided (see Appendix B). The assignment of pseudonyms was random except for the one participant who suggested the idea and selected her own. Any similarity of song names or characters to actual participants is purely coincidental.

as worthy of trust. A traditional route to research credibility is the idea of a well-tempered researcher as a noninfluential and separate entity from the phenomenon, the site, the participants, and the ideas that are embedded in and that will emerge from research activity. Yet, objective inquiry in the messy world of open systems of human behavior is problematic. Pure objectivity in social science research in general and in this study in particular is a naïve standard because as a student of the social world, I am myself a part of it. When Denzin and Lincoln (2018) described the process of qualitative research, they positioned the researcher as the first of five stages, in acknowledgment of this "socially situated" (p. 53) presence. Qualitative researchers and critical realists hold that "[a]ll research is interpretive" through philosophy, emotion (Denzin & Lincoln, 2018, p. 56), and the language through which research is presented (Sayer, 2000). Leckie (2008) noted that in complex situations, objectivity can interfere with the collection and interpretation of data, and the subjectivity of the researcher is required for understanding. Therefore, the role of the researcher in relation to the elements, interactions, and purposes of this proposed study is of crucial consideration.

The methodological literature presents the researcher in a variety of roles, each requiring judgmental rationality, creativity, and sensitivity on the part of the researcher. Leckie (2008) asserts that the roles of researchers are both tacit (concerning the *what* and *how* of the research project) and interactionist (concerning the *who* and *when*). For data collection and analysis functions, Merriam (1998) identified the researcher as an instrument. In an alternative conceptualization, Denzin and Lincoln (2018) viewed the researcher as a performer, "acting in the world so as to make it visible for social transformations" (p. 44). In any part the researcher plays, the role creates a distinct point of view (Collins & Stockton, 2018) that must be addressed. "Judgmental rationality" is a Bhaskarian term that for critical realists represents "the ability to

evaluate different positions as being better or worse" (Rutzou, 2016, para. 1). Because critical realism holds a realist ontology with elements of an interpretivist epistemology, the critical realist must make value judgments to arrive at an appropriate explanatory model. Rutzou (2016) noted that the criteria for such evaluations are scant, pointing to the concept of "practical adequacy" (Sayer, 2000) to accomplish this goal. To achieve practical adequacy, any model arising from critical realist inquiry must plausibly explain the actual world. Dealing with this challenge requires creativity (Rutzou, 2016) for which qualitative methods are particularly suited (Norman K. Denzin & Lincoln, 2018). Finally, Corbin and Strauss (2008) suggested that "sensitivity" rather than objectivity is the true goal: balancing participant points of view with the demands of the researcher role.

In this critical realist study that sought an explanatory model for the causal mechanisms of distance education system operation, sensitivity is an advantage over objectivity. My sensitivity to my positioned point of view enhanced my ability to make connections between concepts (Corbin & Strauss, 2008) and enabled me to apply first-hand knowledge to my creativity. This view of the researcher role situates the researcher as *necessary* instrument and *necessary* performer in data collection and analysis, a requisite position for a critical realist stance. The scholarly community could exclaim "My! What big sensitivity you have!" and the critical realist researcher would respond by aligning the paradigmatic stars, "All the better to discern the best version of our understanding of reality, my dear." Shoolman (2017) asserted:

> If science is indeed a human and therefore a social and "communal" practice, then any understanding of the phenomena must include both the knower and the way that knower comes to his or her understanding, seen as part of a viable and rationally coherent explanatory naturalism. (p. 3)

Both participants and researcher operate in the role of knower, and the alignment of the researcher role to the theoretical paradigm is clear. Because the researcher is instrument,

performer, and indeed *knower*, I must disclose the biases, experiences, and assumptions that I bring to the study, including my worldview and my history and personal connection to the topic, the research sites, and participants. I must describe myself.

To this instrument-descriptive end, I begin with my worldview. I believe a difference exists between knowing and being, and the appeal of critical realism to me is in this core belief. We simultaneously know and are, yet knowing transcends who we are. We *are* in a confined, limited state though we know in limitless variety. It is as if the body is a conductor of knowledge, as gold conducts electricity, and this arrangement explains the mind-body problem of dualist philosophy. Knowledge is "out there," itself a growing and breathing entity, and we join that state of knowledge while we *are*, conductors of knowledge, both influencing and being influenced by knowledge energy channeled through our physical existence. What is known and what is to be known are outside of us. Knowledge itself is a spectrum, like nine yardsticks stretched end to end, imperfectly described and accessed with tools of ontological, epistemological, and methodological frameworks. Our fallible selves see not the whole measure but only increments of inches or feet. At the same time, we are a part of the measure—part of what is and what can be only imperfectly known. Neither is positivism satisfactorily reductionist nor interpretivism sufficiently emergent to encompass all the nuances available along the full expanse of knowledge. Therefore, to view the world as ontologically divided may be to deny knowledge its full breadth, and to choose an epistemology is to choose which inches to see. For knowledge, I believe, is "the whole nine yards."

For this study, my worldview, my history, and my higher education colleagues are elements of my research system. These system components provided advantages to conducting this study. My experience provided me an understanding of what I could expect to find (Hoddy,

2019) and enhanced my sensitivity to the topic, the sites, the participants, and the data analysis and interpretation (Corbin & Strauss, 2008). These advantages helped me identify both practical and theoretical implications and contributed to stronger argument. However, care was still taken. Charmaz (2006) cautioned, "What the researcher brings to the analysis in terms of qualifications, experience, perspective, as well as underlying philosophical orientation will make a major difference in the quality of the findings" (p. 303). I have been forthright about my beliefs and values, but I also employ several additional strategies for additionally building credibility for this study. First, I engaged in reflexivity through memos as an opportunity to evaluate my feelings and responses to the research and adjust where needed to stay focused on the empirical data when I needed to do so (Corbin & Strauss, 2008) and to "guard against first impressions" (Durkheim & Lukes, 2014, p. 62). Second, I exercised caution in the language I used to code and analyze data and present conclusions, as language is merely a mediator of ideas and precision is paramount. Third, I thoughtfully considered rival explanations, and systems thinking aided me in this process to adopt new vantage points of knowledge. The goal in this research thus was not pure objectivity; rather, the goal has been a respectful appreciation for and sensitivity to the subjectivity I naturally brought to bear as a well-tempered critical realist, qualitative researcher.

Research Ethics

Simon (2014) contended that research itself can and should employ a systemic approach in a way that embeds ethics throughout a research project. More than an IRB form, ethics to Simon lives in our transparency with ourselves and others, our honest recognition of relationship dynamics and expectations, and our recognition and continual re-questioning of our biases. Identifying my researcher role was a first step. Remaining conscious of that role and how and why it influenced the research was the next. Because I brought my values and beliefs into the

research moment, ethics are of vital consideration and requisite to preserving the integrity of this study (Leckie, 2008). In this way, reflexivity was my duty.

Cohen and Crabtree (2006) define reflexivity as "an attitude of attending systematically to the context of knowledge construction, especially to the effect of the researcher, at every step of the research process" (para. 1). In alignment with my theoretical paradigm, my goal was not to separate myself from research, however, but to fully and intentionally use myself as a trustworthy instrument in that research. Reflexivity helped me focus on and make sense of the data, and my experience and knowledge helped me identify both practical and theoretical implications that contributed to the conclusions of this dissertation. Most important, reflexivity helped me generate questions of the data, theoretically sample in second-round interviews and coding procedures, and reflect on my interactions with data and participants for theoretical sampling throughout the study.

Leckie (2008) discusses power in the researcher-participant relationship where the researcher is a perceived authority. Such power dynamics have little import in this study where I presented myself as doctoral candidate to higher education professionals, most of whom have terminal degrees in their fields and are authorities in their knowledge domains. Of greater concern than power in this study was the potential for conflict of interest because of my connections and relationships in higher education. Conflicts of interest can affect any stage of a research project and have the power to compromise a study. Reflexive journaling and memoing can help to identify any such conflicts, but the practice neither resolves nor fully explains them to a reader. I did indeed interview some individuals with whom I have had a previous professional relationship; however, the professional relationships were coordinated by others, and no personal financial gain on the part of researcher or participant was realized as a direct

result of the specific working relationship. From our vantage points, we simply worked as colleagues in mutual service of teaching and learning, and sometimes with natural and expected professional disagreement. As evidence that study participation was voluntary and not coerced, I submit that not all of those individuals I know at each research site responded to a request to participate. In fact, several ignored my contact. Further, the majority of those to whom I reached out are individuals with whom I have not had any previous contact. These constituted the bulk of participants.

Including known participants in the study is a practical matter that was firmly guided by integrity. I understand that credibility is at stake and the bar is high, as it should be in the pursuit of knowledge, however imperfect. Beyond any participant relationships, the most pressing ethical matter included my expectations of the research project: I believe in the power and potential of distance education for meaningful learning; I wanted to discover through this study what makes it work and how it works best; I understood at the outset that I might not arrive at a plausible, convincing theory. Though the last thought was discomfiting, at best, I humbly recognized and accepted this possibility as an honest and potential result for the sake of science. Knowledge, I believe, is higher than I.

Instrumentation and Protocols

The data necessary to illuminate the research questions and thus progress to theory generation was contained in transcripts of interviews of participants, in participant-provided documents or communications, and in public information and artifacts obtained from IPEDS and the websites of each institution. For qualitative researchers, data comes from a variety of sources (Creswell & Poth, 2018; Norman K. Denzin & Lincoln, 2018; McGinn, 2010) and a variety of methods (Norman K. Denzin & Lincoln, 2018; McMillan & Schumacher, 2010; Merriam, 1998).

Koro-Ljungberg, MacLure, and Ulmer (2018) raised concerns that "data are not innocent" (p. 807) nor objective; however, the critical realist takes a practical approach (Haigh et al., 2019) and utilizes an array of data types for research purposes (Clark, 2008). Interviews are a common method for generating data in qualitative research (Brinkmann, 2018) and in case studies (Yin, 2018), and the interview transcripts were a primary data source for this study.

Interviews may be classified as unstructured, structured, or semi-structured (Brinkmann, 2018), which reflect the level of guidance that the researcher provides during the interview in the form of questioning. Firmin (2008) asserted that semi-structured interviews tend to be a mix of the former two classifications. Semi-structured interviews were most appropriate for this study because they allowed for free exploration of themes while maintaining a focus on the topic (Corbin & Strauss, 2008). Interviews took place in two different rounds, and seven participants were interviewed in both rounds. The first round of interviews followed a protocol of questions that were loosely adapted depending on the primary role of the participant as either faculty, staff, or administrator. Questions were designed to elicit participant response regarding the experience of transitioning to distance education, strategies implemented, support received and given, challenges and opportunities, suggestions for others, and experiences compared to expectations. Sub-questions provide guidance to the researcher for probing if conversation stalled, if related avenues promised fruit, or if further clarification or information was needed. A second protocol evolved for the second interviews based on what Corbin and Strauss (2008) identify as theoretical sampling, "data collection based on concepts that appear to be relevant to the evolving story line" (p. 195). In this way, question topics across both interviews "are based on the research question and the tentative conceptual model of the phenomenon that underlies the

research" (Ayres, 2008, p. 810). See Appendix C for the protocol for the first interview round and Appendix D for the second-round interview protocol.

Secondary data in this study, or data that the researcher did not originally collect (McGinn, 2008), came from the documents, communications, and artifacts that were also examined. These included syllabi, copies of informational emails, COVID-19 committee proceedings, and institutional policies. Though created for different purposes, all may be classed as documents for purposes of analysis, and grounded theory coding is an appropriate methodology for such data (Prior, 2008). However, McGinn (2010) states that "[i]t is not always possible to predict in advance what data resources will be the most useful or informative for a case" (p. 274). Therefore, the study also drew on another secondary data source as the study progressed, i.e., IPEDS.

Procedures and Analysis

As important as data instrumentation are the collection procedures, analysis techniques, and triangulation considerations embedded in a research design. Denzin and Lincoln (2018) recognize these research acts as transformative: "They turn the world into a series of representations" for processing and evaluation, and "each practice makes the world visible in a different way" (p. 43). A clear explanation of these concerns for the proposed study, therefore, is necessary to illuminate perspective and further establish a basis for trustworthy results worth of consideration.

Prior to beginning this study, I completed online training for social and behavioral research through the Collaborative Institutional Training Initiative (CITI). Interviews were conducted with licensed virtual meeting software that gave participants the choice of logging in with optional camera capabilities or calling in using a provided phone number and conference

identification number. Recordings in which participants chose video interaction with the researcher were immediately converted to audio only and the original video was deleted. Thus, facial expressions or gestures were not included in data analysis. Audio was initially transcribed via artificial intelligence through a licensed online transcription service and subsequently reviewed and edited for accuracy and to remove identifying information. Privacy policies for the online transcription service were reviewed and discussed with professors before proceeding in this manner. A single Excel spreadsheet coordinated identifying information with unique identifiers of participants. All data was saved in password-protected format on a personal USB drive. Because this study was simultaneously conducted with a research team of professors at Concordia University – St. Paul, data was also shared with principal and co-investigators via the university's provided, secure document drive.

Data analysis for this study was conducted separately from the parent study of which it is a part and was processed using NVivo, a powerful software product for qualitative analysis selected for its ability to facilitate analysis of complex and copious data. One constructivist grounded theory methodology identifies three progressive coding systems (Corbin & Strauss, 2008): *open*, *axial*, and *theoretical integration*, formerly known as "selective coding" (Strauss & Corbin, 1998). In open coding, data are dismantled into concepts. In axial coding, these concepts are reconstructed by comparing and relating concepts to each other. Corbin and Strauss (2008) explained that "open and axial coding go hand in hand" (p. 198) and may not necessarily occur as distinct processes. Theoretical integration, however, is a sort of meta-coding process as "a story emerges" (Strauss & Corbin, 1998, p. 148) from the data. Corbin and Strauss (2008) presented theoretical integration as an optional step for those who are constructing theory, a final

step that includes searching and filling logical gaps and examining "validating the scheme" through confirmation or searching for negative, contradictory cases.

By contrast, Charmaz (2006) described two phases of coding in grounded theory methodology. The first stage, initial coding, is a focused analysis that may be word-by-word, line-by-line, or incident-by-incident. I began coding in a slow, line-by-line analysis as I listened for what the data was telling me. During this process, I kept in mind the advice of Charmaz (2006) that coding means that "you act upon your data rather than passively read them" (p. 59). I discovered the fluid nature of coding at different levels as I applied the technique suggested by Bazeley and Jackson (2013) to first identify what is interesting (highlighting the segment), then ask myself why it is interesting (generating a descriptive code), and finally asking myself why I was interested in that (generating a memo or an interpretive code). The latter step is akin to what Charmaz (2006) identified as "focused coding." As I coded, I observed that codes could be sorted using systems language of input, throughput, and output. However, Charmaz (2006) warned that "relying on axial coding may limit what and how researchers learn about their studied worlds and, thus, restricts the codes they can construct" (p. 62). I did not want to impose a framework on the data and eventually came to recognize the system structure not as an imposition but, rather, as simple acknowledgment that distance education is indeed a system and the empirical evidence I had collected merely happened over time within that system.

In my view, the critical realist method of analysis begins similarly to grounded theory, and many useful grounded theory procedures may be applied to a critical realist approach (Danermark et al., 2019); however, grounded theory is restricted by its ontology against making the leap outside of the empirical, which the critical realist recognizes as merely one level of a stratified reality. The critical realist is ultimately interested in that which is unseen: the real

causal mechanisms that can generate events in the actual that may or may not be perceived in the realm of the empirical. To make this leap from empirical and actual to the real level of reality, the critical realist applies a series of analytical steps that Bhaskar (1978/2008) called "the four stages in the explanation of an open-systemic event" (p. 125). The first stage, *causal analysis*, identifies the components of the system. This study applied grounded theory phases of open coding (Corbin & Strauss, 2008) or initial coding (Charmaz, 2006) to gather the data in such a way as to provide a descriptive basis for analysis. In the second stage of critical realist analysis, *redescription*, possible causes are interrogated for their plausibility. The critical realist thus asks, "What are the system pieces?" and "Why do they behave this way?" This study applied axial coding (Corbin & Strauss, 2008) or focused coding (Charmaz, 2006) methods to thus achieve a theoretical redescription of the component causes "so that the generation of the event can be brought to bear on the event's explanation" (Bhaskar, 1978/2008 p. 125). At this point in analysis, grounded theory methods were left behind.

The final two stages of critical realist analysis move the researcher from the empirical into the potential for identifying what Bhaskar (1978/2008) identified as the ultimate goal of science: determining causality. Bhaskar termed the third stage of critical realist analysis *retrodiction*, a step that requires the researcher to move from *what* and *how* to *why*, theoretically ascribing causal explanation to the context in a manner that encompasses all system components. Patterns in the coded data and my own experienced subjectivity were windows into the possible causes of system behavior, and the re-imagining of boundaries helped make them clear. The overarching question at this stage of analysis concerned what has to exist in order for the actions, for which there is empirical evidence, to have been possible. There may have been many causes, and the critical realist seeks the one with the greatest explanatory power. Bhaskar's fourth stage

is the evaluation of alternative explanations in order to openly weigh all possibilities. This final step "will need to be supplemented by independent evidence for the antecendents until we have eliminated from the total set of possible causes all but one" (p. 125). In other words, the full judgmental rationality of the researcher is engaged and an argument is made.

The critical realist data analysis for this study required conscientious and intentional thinking, abductive reasoning, and self-evaluation, and memoing was a valuable means to track and record this thinking as it progressed and evolved. Corbin and Strauss (2008) identified procedures as merely tools, elevating the thought process above procedures: "Thinking is the engine that drives the process and brings the researcher into the analytic process" (p. 163). A systems thinking approach provided useful techniques, especially when thinking about rival explanations, because systems thinking includes adopting alternate perspectives in its arrangement and rearrangement of system components and identification of cause and effect relationships of those components (Cabrera, 2006; Cabrera et al., 2008). Where inductive reasoning has been a common approach in qualitative inquiry (Merriam, 1998), more recent calls for abductive reasoning in grounded theory both value inference and recognize the researcher as an important point of analysis and an avenue for discovery (Collins & Stockton, 2018; Hoddy, 2019). Responsibility comes with that implicit freedom. Memos to myself in a process of critical reflexivity (Guba & Lincoln, 2005) enabled greater control of my thinking and intentionality in its process.

Careful thinking, reasoning, and self-evaluation are internal processes that support the credibility of the study, but external supports of credibility are equally necessary. Denzin (1978) recommended *triangulation* for qualitative researchers as an answer to quantitative concerns of validity and reliability. Triangulation can help a researcher best understand a phenomenon

(Fusch et al., 2018; Rothbauer, 2008) and reduce biases that can interfere with results (Norman K. Denzin, 1978; Fusch et al., 2018; Rothbauer, 2008). Denzin (1978) identified four ways to triangulate research: *methodological*, which can occur between or within methods; *investigator*, which includes more than one researcher; *theory*, which includes the testing and trying of theoretical explanations; and *data*, which involves multiple configurations of participant and contextual elements within a study. A study that integrates all four methods of triangulation, called *multiple triangulation*, is "the most refined goal any investigation can achieve" (Norman K. Denzin, 1978, p. 304). In this study, I applied all four methods. Methodological triangulation was achieved within the case study method by collecting the observations of faculty, staff, and administrators, and by analyzing and exploring both participant-provided and publicly available information. Investigator triangulation was achieved by consulting with professors on the research team of the larger study as themes emerged, discussing significance and relying on their research expertise for any additional analytic viewpoints. Both systems theory and a Bhaskarian approach to analysis fostered an expansive look at alternative theories, achieving theory triangulation. Finally, data triangulation was achieved through interviews that took place in two distinct periods of time.

The procedures of data collection, processing, and analysis for this study thus took place within the well-developed methodology of grounded theory and the further possibilities afforded by a critical realist stance. Multiple triangulation methods supported the effort of this study to contribute in a worthy manner to the scholarly community and to knowledge.

Assumptions, Limitations, and Delimitations

Any study has weaknesses and potential limits that may be inside or outside of the researcher's control, and any researcher brings assumptions and biases into the research event.

The researcher bears the responsibility for criticisms that arise from any of these threats, and quality is a conscious endeavor (Corbin & Strauss, 2008). As Preissle (2008) observed, "Honesty, openness, and candid revelation of a study's strengths and limitations according to the commonly held standards of practice are typical indicators of the integrity of the scholarship" (p. 276). Therefore, I address the matter brought into the world by my qualitative work and distinguish between those limitations within my jurisdiction and without to enable the reader to determine if the strengths of the research design outweigh its limitations. I argue that they do.

Because research is a system, many researcher limitations and assumptions have been broached earlier in this chapter. First as research instrument, I am limited by my own humanity: "mistakes are made, opportunities are missed, personal biases interfere" (Merriam, 1998, p. 20), and, a clear bias is my belief that distance education is a viable method for effective teaching and learning. However, I have been convinced not only by my personal experience but also by corroboration in the literature (U.S. Department of Education, Office of Planning, Evaluation and Policy Development, 2009/2010). My theoretical paradigm requires me to avoid imposing preconceived subjective notions on the case (Clark, 2008), and I used reflexivity through memoing and multiple triangulation to help me to achieve various perspectives requisite for this study. Second, I am limited by language in what I think and express (Rutzou, 2016), and so I thoughtfully and carefully chose language to encapsulate ideas, triangulating with more experienced researchers to achieve clarity. Third, I am limited by what I exclude from the study (Sayer, 2000), and so I consciously examined and re-examined boundaries throughout the research. Triangulation with more experienced researchers was helpful here as well, as was my professional experience. Finally, as a critical realist, I have made an ontological assumption that observations, actions, and social facts are real and exist outside of the human mind; I equally

made an epistemological assumption that these realities may be only imperfectly known. Bhaskar's work contains a spiritual dimension (Hartwig, 2015; Menon, 2015) with which I agree and find similar elements in the writings of the apostle Paul:

> For we know in part, and we prophesy in part. But when that which is perfect is come, then that which is in part shall be done away. When I was a child, I spake as a child, I understood as a child, I thought as a child: but when I became a man, I put away childish things. For now we see through a glass, darkly; but then face to face: now I know in part; but then shall I know even as also I am known. (1 Corinthians 13:9-12, King James version).

For these assumptions and beliefs, I make no apology but can only assert, in alignment with critical realism, that my beliefs are both constructed and the result of real causal mechanisms for which there may exist better or worse explanations.

The research design itself has several limitations. First, this study makes holistic claims about distance education through its single-case method. Bartlett and Vavrus (2016) contend, "Holism makes analysis difficult and leads the researcher toward mere description" (p. 30), yet a holistic approach simultaneously provides the expansive view necessary for exploring the interactions and causal laws for a phenomenon (Elger, 2010). Because there is no precedent for distance education at the scale at which it has been implemented in the wake of COVID-19 and there is a need for understanding distance education at the macro-level of system operation, a case study was selected. However, I also employed embedded units of analysis which do not ignore but, rather, include the perspectives to be gained at other layers of the case (Yin, 2018). Second, the number of participants in this study—37—may be adjudged as few. However, this study accepts the argument of Steinmetz (2004) that concerns over a "small *n*" or a single case study are positivist values that do not follow logically from a critical realist perspective that holds that realities can be determined in unique events. Third, the abductive reasoning approach to analysis proposed for this study enables only the most likely explanation and makes no

assertion of rigid, unwaverable truth. Abductive reasoning is permitted by the theoretical paradigm that undergirds this study, a paradigm that does not come without criticism (Archer et al., 2016; Cruickshank, 2004). However, critical realism is comfortable with this imperfection and acknowledges that explanations of causality may change or even be misguided (Sayer, 2000). Change is an intrinsic property of open systems, and "knowledge is a social product" (Bhaskar, 1978/2008, p. 16).

This study comes with two final and important limitations that must be acknowledged. First, no students were interviewed. They are not completely silenced by this research design; however, student experiences are glimpsed only second-hand through the experiences of participants. Students are, by definition, a crucial element in the distance education system. The perspectives of students would have brought additional viewpoints to the data for analysis and should be considered before implementing any action based on the study findings. Second, COVID-19 was not the only source of disruption in 2020. Participants in the study mentioned concurrent social and political events that demanded additional time and attention and compounded their stress. These data were not the focus of the study and were not considered in analysis. However, the effect of heartbreaking events across the peopled landscape evidence the human system that encompasses all others and of which distance education is merely a tiny part. An important perspective, this truth is the ultimate lesson of human systems: we are people, together.

The results of this study may be judged on scientific rigor, and several frameworks for qualitative evaluation exist (Charmaz, 2006; Corbin & Strauss, 2008; Patton, 2008). Charmaz (2006) offered a comprehensive set of evaluation guidelines that included both qualities of the researcher—a sound and original thinker and writer—and pragmatic considerations of how well

others can understand, connect to, and apply the research. The latter set of contingencies are a practical goal of critical realism (Sayer, 2000) and were a goal of this study.

Conclusion

This study is a qualitative, comparative, longitudinal, embedded case study research design situated in critical realist thought and applying a grounded theory methodology with critical realist analysis in order to answer the research questions and generate theory to explain the causal mechanisms of the system of distance education. The genesis of this proposed study was the sudden shift in higher education to distance methods during the COVID-19 pandemic, which represented an unprecedented moment from which it was anticipated much could be learned. Though critical realism holds that knowledge of the real can be only imperfectly known, it also acknowledges that causal mechanisms can be explained and claims about reality can be made and justified. The proof, for the critical realist, is in the proverbial pudding. The sound and thoughtful research design and its related components as described in this chapter have resulted in theory that can contribute to what is known about distance education systems in the U.S. and usefully inform distance education practice in the future. The next chapter presents the study findings.

CHAPTER FOUR: FINDINGS

Open systems are messy, overlapping, complicated, hairy affairs. They are also fascinating. This chapter disentangles the data obtained according to the methods described in Chapter Three and presents findings to advance a set of overarching arguments. The analytical approach combined grounded theory techniques with a critical realist analysis of open systems to focus on the core tasks of the research questions: (1) uncovering the *what* of the components of the distance operations system put in place in response to COVID-19 and *how* they functioned; and (2) discovering the underlying generative mechanism or mechanisms that causally explain *why* the system behaved in the way that it did. The analysis enabled the identification of a typology of distance by exposing patterns across interrelated system components. The findings reveal that physical and psychological distances are generative structures in the real domain, real entities that explain the behavior of the distance operations system.

In this chapter, I first describe the system at both the embedded units of analysis and at the case level of analysis, including what decisions were made and what major considerations prompted those decisions, along with how participants characterized and felt about the circumstances, the decisions, and their effects. It is in this portraiture that the face-to-face versus distance education dichotomy begins to break down. After providing this descriptive account, I then continue to draw from the empirical data to identify elements, interconnections, and—initially—stated purposes. Because system purposes are best discerned by observing the behavior of the system (Meadows, 2008), I next identify the patterns of behavior that illuminate unstated purposes and compare those unstated purposes to the purposes articulated by participants and in available institutional matter. Finally, I explore emergent themes to develop a causal explanation for the behavior of the system and consider rival explanations that may also be exerting causal

influence. Where rival explanations may be simultaneously operating on system behavior, I demonstrate from the empirical evidence why they would be less influential than the primary explanation I provide.

System Context

The longitudinal nature of this study afforded the opportunity to view the evolution of the distance operations system that was executed across multiple academic terms. In the spring of 2020, higher education at each research site was characterized by physical separation of not only teaching and learning activities per the definition of distance education formulated by Moore and Kearsley (2012) but also by the physical separation of as many other institutional activities as possible as designated non-essential employees across organizational charts transitioned off campus to work remotely. Such transitions required adjustments in all areas of campus life and operations. Ambling over to offices of accessibility work, to a laboratory, or even to the cafeteria, for example, was no longer possible. As the end of spring academic terms gave way to summer, distance operations gradually returned on-site per strategically phased re-opening plans. By the fall of 2020, distance operations continued to be conducted in tandem with traditional face-to-face operations as people variously returned to campus situations prone to intermittent interruption by quarantining, isolating, or individual choosing.

In this section, I first examine key case-level similarities among participant institutions and identify differences among institutional systems at each research site, four embedded units of analysis. Next, at the case level, I discuss major interventions enacted to support distance transitions and show how the data complicate an understanding of distance. Finally, at both the case level and at the embedded units of analysis represented by role classifications, I discuss how

participants characterized and reacted to the events that initiated and sustained distance operations.

Institutional Systems

While the primary unit of analysis in this study is the overarching distance operations system as sampled through the four representative institutions under examination, the embedded units of analysis that are the institutions and role classifications are a context that usefully informs analytical decisions discussed later in this chapter. Each institution is a system unto itself, each a subsystem of the case of distance operations, with many similarities. Most broadly, institutions influenced shifts of time and place to achieve distance operations. The four institutions in this study observed a spring break in March 2020 and closed face-to-face operations in the same month. COVID-related activities continued into the summer, and by the start of the fall term, each institution implemented fully developed COVID-19 safety measures, including social distancing requirements, for all individuals returning to campus. In the following descriptions of the participant institutions, Carnegie size classifications and distance education enrollments were determined using data from the Integrated Postsecondary Education Data System (IPEDS) for the 2018-2019 academic year, the most recent information available.

Alpha

Alpha has historical roots in the early to mid-20th century, a period of national community college proliferation. Today, Alpha is a rural, medium[6] 2-year institution that delivers courses in both traditional and distance formats, with approximately half of the student population enrolled

[6] As noted in the previous paragraph, "medium" is the name of the Carnegie size and setting classification. That is why "medium-sized" is not used here in this sentence. For more information, refer to The Carnegie Classification of Institutions of Higher Education.

in one or more distance education courses. About one-half of instructional staff are full-time employees, and roughly one-quarter of those are tenured or on a tenure track.

During the spring 2020 term, Alpha originally announced a two-week remote period due to COVID-19. One week later, Alpha extended distance operations to the end of the spring academic term, and the president sent an encouraging email to students expressing pride, commitment, and a pledge of support. A brief video, posted on YouTube the same day as that email message was sent, featured an additional supportive message from the president. For courses requiring access to special equipment (e.g., medical, laboratory, or industrial materials and machines), faculty and students collaborated to drive decisions about how to complete spring schedules, which meant some courses were completed in the summer term and others in fall. In cases where the courses were pre-requisites, faculty temporarily suspended normal rules to allow concurrent enrollments with the next courses in sequence. The spring 2020 commencement ceremony was initially postponed but ultimately replaced by a virtual ceremony.

To prepare for fall 2020, Alpha devised multiple versions of a re-opening plan in an effort to prepare for a variety of contingencies. Eddie, an executive administrator at Alpha and a self-described optimist, pointed to a strategic decision in the summer to signify that the institution was focused on moving forward: to pivot from a focus on COVID-19 to "talking about we're here and we're open, which class do you want to take." Alpha did not make any adjustments to its fall academic calendar, and though individual disruptions continued in the fall, the semester concluded in-person according to the institution's COVID-19 plan.

Bravo

Of the four institutions in this study, Bravo is the oldest, having been established in the early 19th century. Bravo is a rural, small 4-year institution further classified as highly

residential, offering an undergraduate experience and no distance education courses. Ninety-five percent of Bravo instructional staff are full-time and almost 90% of those are either tenured or on tenure track.

Unlike Alpha, Bravo decided at the outset to transition to distance operations until the end of the spring 2020 term and then extended its spring break to allow time for adjustment. Travel is a particular concern for Bravo, as the institution not only has a significant percentage of students living on campus and serves a small population of international students but also offers popular study abroad and domestic study activities that were active until the time of campus closure in spring. Bravo cancelled its spring commencement and pledged a future celebration when conditions would allow. As of this writing, plans are in place and the 2020 commencement has not yet occurred.

In a significant shift never before attempted at the institution, Bravo altered its fall 2020 academic calendar to deliver courses in two compressed terms within the boundaries of the regular semester. The move was a preemptive effort viewed as a way to ease a future transition to distance education should circumstances require. Interview data support that this modification added varying levels of additional stress to faculty and to staff serving also in faculty roles.

Bravo regularly offers courses in an abbreviated term between fall and spring. For the 2020-2021 academic year, this term was originally scheduled to be in-person, but Bravo decided in December—mere weeks before term start—to transition this short term to distance education delivery as much as possible. The spring 2021 semester contained a shorter than normal spring break in an effort to discourage student travel and thus the spread of COVID-19.

Yankee

In terms of enrollment, Yankee is the most active in distance education of the four institutions in this study. Founded in the late 19th century, Yankee has notable experience with transformation and change, including adult education. Today, Yankee is an urban, medium 4-year institution offering graduate and undergraduate programs in both traditional and distance formats. Over one-half of undergraduate students are enrolled in one or more distance education courses, while over 90% of graduate students take one or more distance education courses. Approximately one-third of Yankee instructional staff are full-time, with nearly two-thirds of those being tenured or on tenure track.

While Yankee transitioned its traditional face-to-face courses to distance formats in the spring of 2020, the large proportion of distance education courses and programs—relative to other sites selected for this study—meant no course delivery disruption for a significant swath of the student population. However, the scope of COVID-related activities was comparable to the other institutions in this study as the campus closure affected departments and offices at all four sites in the same manner. Spring 2020 commencement was initially cancelled but later replaced by a virtual ceremony.

Before the spring 2020 term ended, Yankee announced plans to return its traditionally in-person courses to campus in the following fall term. Jacob, an executive administrator, explained that the goal was "to try to keep the semester as normal as possible." Like Alpha, Yankee made no adjustments to its fall academic calendar, an intentional decision to minimize disruption for distance education students. Planned in-person courses for fall at Yankee were completed without large-scale delivery method transition.

Zulu

Like Yankee, Zulu was founded in the late 19th century. Today, Zulu is an urban, medium 4-year institution offering graduate and undergraduate programs in both traditional and distance formats. Approximately one-third of undergraduate students are enrolled in one or more distance education courses. About one-half of instructional staff are full-time. Of those, three-quarters are tenured or on tenure track.

Like Bravo, Zulu extended its spring break in 2020 to allow increased time for adjustment from face-to-face course delivery to distance education formats. Like Alpha, Zulu first planned to resume in-person instruction before the spring 2020 term ended only to announce updated plans two weeks later to continue remotely until the end of the term. Spring commencement was cancelled, and plans were initially made to roll spring graduates into a combined ceremony with fall graduates later in the year. Ultimately, however, a virtual ceremony was held at the end of the spring 2020 term.

Zulu faculty were not required to use the institution's learning management system for course delivery in the spring, a decision that continued into the fall 2020 term. Zulu shifted its academic calendar for fall to begin classes earlier so that the semester end could end before holidays and students would not need to return to campus afterward, a move that caused complications in other areas. For example, K-12 schools in the area opened late in the fall, and the combined effect of both calendar shifts created a challenge for Zulu education students to complete required student teaching hours—exacerbating a problem already felt in the previous spring when schools closed. For the 2021 spring term, Zulu shortened the mid-term break in an effort to help reduce travel and thus the potential for contracting and spreading the coronavirus.

The Case Level System

The transition of the higher education system from its traditional residential operations to distance operations in March 2020 may be seen as a social experiment that tested the ability of the existing system to deliver not just teaching but as many student services and other internal and external functions as possible in a remote environment. Accomplishing the experiment necessitated a number of interventions—policies articulating what should be done, procedures delineating steps for doing, practices manifesting the ways of doing, and purchases signifying what should be used to do it. In addition to previously described adjustments to time and place, interventions included social distancing requirements, personnel and financial matters, training and technology, and adjustments to off-campus as well as on-campus teaching and learning. Interventions such as these were designed to achieve stated goals regarding student and employee safety while continuing to serve student educational needs with as little disruption as possible. Most broadly, system participants revealed shifts or gaps in interpretation-based and knowledge-informed belief and action. Policies, procedures, practices, and purchases were revisited and revised as needed when new information or feedback was received. Initial and subsequent interventions exist for the critical realist in the actual domain of reality. Participants introduced additional interventions to navigate what was for them the "new reality" or "new normal" of life during COVID-19.

Whereas the previous subsections examined each institution separately, the following subsections address the case level of analysis—the four research sites as a whole—in order to achieve the first step of case analysis in this chapter.

Policies, Procedures, Practices, Purchases

Task forces or other types of working groups at all four research sites created COVID-19 policies aligned with guidance and directives from health and government officials. These policies assigned responsibilities for actions such as sanitizing materials and spaces; instituted communication channels for reporting sickness or violations of COVID-19 safety-related directives; and regulated behaviors such as covering faces, washing hands, and gathering or congregating. Such work groups or their subgroups also made recommendations for the use and purchase of technologies and for employee training topics such as COVID-compliance and technology. Hardware and software recommendations implicated budget categories where there were already varying levels of strain.

While most hiring of new faculty or staff was cancelled or postponed, a glaring exception is the addition of staff to assist with the volume of technical support requests. Where personnel reductions were made, these primarily manifested in early retirements or buyout packages for full-time employees as institutions shifted budget priorities. Preventive cost-cutting measures, where they occurred, varied from reduced professional development budgets to salary freezes and administrative pay cuts. Yet at the same time, spending increased for purposes such as purchasing COVID-19 safety equipment and acquiring necessary technological capabilities. Tom, an executive administrator, noted that coronavirus-related facilities projects promised benefits beyond the pandemic in future seasons of common colds and influenza. Technology purchases have different implications. Many participants indicated that now that they have learned to use certain new technologies, they can envision continuing to use them in the future.

Licensed virtual meeting software is one example of a technology purchase that affected the system both internally and externally. Visitors, for example, found themselves unable to

come to campus in spring. By fall, most guest speakers visited via virtual meeting technology. Alexander is one faculty member who routinely invites guest speakers to in-person classes. During the fall 2020 term, Alexander connected guests to his classes virtually and expressed interest in continuing the method in the future. “It’s a big commitment for them to come all the way to us,” Alexander explained of guest speakers. He noted, “If we just routinely Zoomed in guests, and their time expenditure is only the limit of the conversation, that greatly expands the range of kinds of people that I could get.” These statements are just one example of several in which participants acknowledged advantages of distance methods for non-students without addressing that such methods might be advantageous for some students as well. By contrast, participants like Leila, also a faculty member, recognized advantages of a virtual class meeting for students for not only physical but also psychological reasons. “When [students] weren’t rushed to get to me in person,” Leila said of the fall 2020 term, “I could just feel it in them.” She continued, “They were much more relaxed and ready to go as opposed to rushed and hadn’t been able to close the previous door before walking through my door quite yet.” Leila wants to continue to hold some virtual class meetings on a regular cadence going forward in order to ease both travel-time and stress burdens for her students. These contrasted patterns reveal that technology can offer more than physical convenience to multiple users. It may also reduce opportunity gaps or remove emotional or psychological barriers to learning.

The data further reveal that some participants in faculty roles paid for virtual meeting tools, other software, and even some hardware (including computers) out-of-pocket—either by choice or because institutional funds were not available or delegated. System elements will be further discussed later in this chapter, but such technologies may at this point be easily identified as required elements of any distance operations. As an analytical tool, systems thinking offers

neither judgment nor recommendation regarding where ownership of system elements should lie, either within the system or without. However, the data contain examples of situations in which personal rather than institutional ownership led to unwanted variability in type and quality of result. Jessie, an academic leader, observed that faculty using their own software, including their own learning management systems, resulted in an increased technological learning curve for students that constituted a form of barrier to access. Variations in hardware compromised the ability to establish and maintain expectations of quality and performance. Laura, a staff member who responded to technical support tickets, shared that she would assist help seekers with their non-institutional hardware where she could, even though personally owned devices were not eligible for technical support by the institution. These examples point to information gaps or discrepancies between the directives of institutions and the personal preferences of employee users.

More complicated than visitors or employees and students either physically or virtually coming to campus in fall were issues with students *leaving* campus. Shandi, who directs study abroad programs, lamented the loss of such opportunities in 2020 as travel was halted. Shandi noted that while some students expressed a desire for a study abroad opportunity despite the pandemic, having students quarantined or isolated in a foreign country would defeat the goals of the program. Yet other off-campus learning for students in the form of practicums and internships continued, though these activities were a challenge to identify, complete, and assess. Students in programs such as education, social work, and healthcare needed to meet required placement hours in external environments that were also shifting—and over which institutions had very little control or influence. Amanda, an academic leader in one such field, stated that a few students who contracted COVID-19 may have been exposed at their field placement

locations. While some accrediting bodies did temporarily and slightly reduce placement hour expectations to provide flexibility for meeting requirements, Amanda searched for alternatives for students: "One of the things I did every week was [search the Internet] for free…trainings…to make sure they have some extra tools if they were having trouble getting hours in their field." Amanda found options to be limited and, like many of her colleagues in similar situations, she faced the related challenge of how to resolve semester incomplete grades as a result. Where online volunteer and internship opportunities were possible, they came with a caveat. Eileen, a staff member in a career guidance office, noted increased competition as a side effect of virtual internships. "All of a sudden," Eileen observed, "you're taking an internship that was traditionally competitive for a [local] student [and making it] competitive to anybody because they're virtual right now." Thus, anyone, anywhere with a computer and an internet connection may apply. These examples, coupled with similar others in the data, reveal two patterns. First, place-bound off-campus instructional events during COVID-19 were cancelled or modified in response to perceived risks to both health and learning. Second, information gaps exist in what is possible and how those possibilities may be created or found.

The nature of and opportunity for off-campus learning for employees shifted as well. Most professional associations and organizations with conferences scheduled in 2020 either cancelled or postponed one or more times before ultimately planning a virtual replacement. One participant reported having to decline a conference because of a conflict created by an institutionally shifted calendar; another participant withdrew a presentation because institutional funding was eliminated. However, many participants across role groups reported participating in more conferences than they would have normally attended as costs declined. Angelia, a faculty member who normally attends a single conference every two years, stated that she presented on

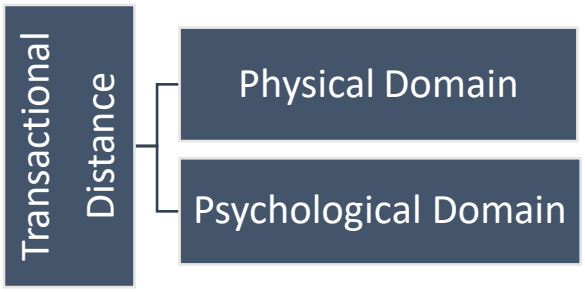
her work at five conferences during the fall of 2020 because they were virtual. Angelia summed a gratitude similarly expressed by others: “That’s been a real blessing for a faculty member to be able to network and participate in conferences that we normally couldn’t afford.” Conference presentations by participants included synchronous presentations in virtual conference rooms as well as virtual poster sessions with short, asynchronous video. These examples illustrate how technology bridged travel gaps between not only people but also information and ideas.

Perceptions of Transactional Distance

Interventions in the social experiment of higher education distance operations tell the story of a system seeking balance between convenience and preference, possibility and impossibility, as participants navigated a physically distant world. Analysis reveals spaces between actors and between ideas that align with Moore’s (1973, 1993) conception of transactional distance, and this study adopts the term *transactional distance* to encapsulate the emergent construct of distance in two domains: physical and psychological. In the physical domain, distance can be seen as a distance of physics, a space between here and there, between now and then. In the psychological domain, akin to what Moore identified as a pedagogical expanse, distance can also be seen as a psychological space, a gap between wanting and not wanting, between knowing and not knowing (see Figure 4). This section next examines another important arc to this story: how participants responded to and made sense of their distances.

Figure 4

Domains of Transactional Distance



The Physical Domain. The longitudinal research design itself inserted a type of physical distance into the data by separating data collection points into two rounds: spring/summer and fall. Among participants who joined both rounds, interviews conducted closest to spring characterized that term as "abrupt," "crazy," "pain and suffering," "just trying to survive," and even "unfair." Participants who were interviewed for the first time late in the first round described summer in terms such as "chaotic" or a time of "ideal focus," reflective of a difference in participant responsibilities from readying facilities to research and planning for the upcoming fall. Though there was still much to do in the fall, first-round participants who were interviewed a second time during or at the end of the fall term expressed a decreasing intensity, though by varying degrees. Rosanna, a staff member who participated in both interview rounds, said of fall, "[It has] really kind of gotten back to what I would consider normal." By contrast, participants who joined the study in the second round tended to reflect on spring 2020 in more subdued, less animated, and less emotional responses: "strange," "difficult," "challenging," "rough," and "not very fun." For these participants, summer was "busy" or "wasn't bad." Valerie, a faculty member who joined the study in the second round expressed a practical approach to fall: "We're educators, and this is our real life right now." While descriptions of fall were similar across all participants (in both interview rounds), the striking difference in descriptions of spring across

interview rounds points to a space between *now* and *then*, a *temporal* type of physical distance. Temporal distance is thus one type of physical distance in the emerging typology.

Changing circumstances from spring to fall terms unveiled a second type of physical distance. Prior to COVID-19, most staff and many faculty performed all or most of their functions residentially, on campus, regardless of the location of students. March shutdowns at each site meant that almost all participants (employees deemed essential and Nikita, a faculty member who needed the break from energetic children, excepted) were suddenly physically distant from campus. As a result, some participants were experiencing for the first time what a typical distance education student experiences in being physically apart from not only the professor and other students but also from the centralized base of other college and university functions. At once, it is typically a place in which home and school are, for practical purposes, synonymous. Jack, an administrative leader, acknowledged his stress while recognizing the synonymity: "I find a home office to be living at work versus working from home." Additionally, the physical campus is a place of laboratories and specialized equipment that the distance student may not typically own or have access to. Johnny, an academic leader, expressed frustration with digital laboratory activities: "You can't equilibrate the actual experience of handling the glassware in person versus pressing a button and moving a mouse." In other words, physical distance includes a geographical space between places and things as well as between people.

However, this idea of space between people, places, and things within the physical domain of distance is further complicated by the fall campus requirements of face masks and 6-foot geographical distances between people. Participants may have been restored to campus in the fall, but they still felt distant, suggesting that physical distance is about perception as much as

about actual geographical distance. Classes of students and one or more instructors who were all at least six feet apart were marked by less chatter and small talk. Masks muffled voices and covered smiles. Getting to know a new person meant studying eyes and hair. A few participants in faculty roles indicated that masks impaired the ability to recognize and respond to student confusion. Billie Jean, a faculty member, observed, "I do think the masks add just another layer of can't really read the body language or the nonverbals." Rosanna questioned the fall: "Is it even worth bothering being around people if you can't really be around people?" Carrie, a faculty member, solved the issue by delivering the class synchronously with videoconferencing technology. "It's kind of fun to meet online," Carrie explained, "because I can see their whole face." Carrie's action actually increased the geographical distance as no one then met in the central physical location of the classroom. At the same time, Carrie's substitution of delivery method—a virtual classroom—reduced the *perception* of physical distance by removing the mask barrier. These examples point to a space between *here* and *there*, a type of distance between people or places that can be crossed, for example, on foot or by vehicle. Yet it can also be crossed *perceptually* through synchronous or asynchronous communication technologies such that distance in feet or miles may be unchanged but the sensory input across those feet or miles is greatly transformed. I call this type of distance *transportational* because bodies can be physically transported and voices and faces can be technologically transported across a space of geographical distance from *here* to *there*. Transportational distance is thus the second type of physical distance in the emerging typology.

The Psychological Domain. The experience of participants both before and during the implementation of experimental interventions exposes a type of psychological distance evidenced by reflections on lessons learned. Some participants spoke of recognizing that, prior to

COVID-19, they had grown complacent in their responsibilities and that many actions prior to the shutdowns in March had grown habitual. Sheila, a faculty member, explained, "I've been teaching these classes for more than 30 years. So, you know, you sort of fall into a rut." Executive administration and academic leadership typically indicated that COVID-19 was a confirmation of the mission and values of the institution and, at the same time, a catalyst for change. The word "forced" appeared 18 times in nine interview transcripts as participants explained that the situation required new ways of doing. Jeannie, a faculty member, said, "I'm almost reinventing myself." Across all interviews, participants in faculty roles who indicated they had previous online teaching experience or were already teaching online in the spring before the switch to distance operations were more likely to characterize spring as positive. Those without such experience gained it in what Venus, a faculty member with both faculty and staff roles, called "baptism by fire." Many participants indicated plans to leverage those new skills and knowledge going forward. These examples point to a space between *knowing* and *not knowing*, a type of psychological distance that I call *cognitive*. Thus, cognitive distance is one type of psychological distance in the emerging typology.

Finally, participants expressed preferences that revealed a second type of psychological distance, a space between *wanting* and *not wanting*. When the shift to distance operations occurred in March, many faculty did not want to do it. However, outright refusal was not an option for those who wanted to continue working. Amanda would advise faculty who are new to online:

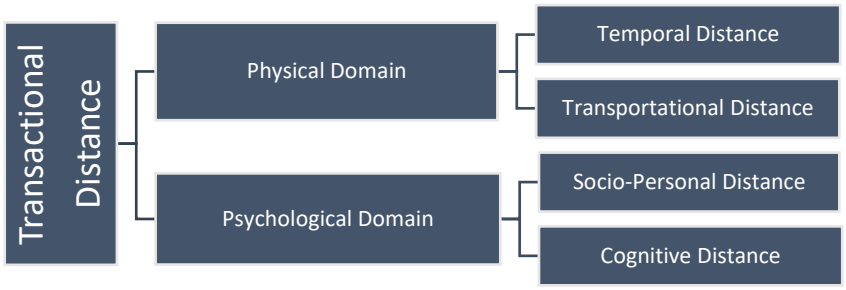
> Get over the fact that you don't want to do it, and do it. Because that's probably the thing that holds you back the most, right? Like, 'I don't want to teach online.' Well, that's okay. You know, I don't want to get a crown on my tooth, but that doesn't mean it doesn't have to happen."

Participants recognized, however, that distance operations were the only way to complete the spring 2020 semester. Jimmy Lee, an executive administrator, noted "We didn't have anybody that just had said, 'Well, I'm not doing it.' We didn't run into any of that kind of pushback." But recognition of the necessity did not necessarily lead to embracing the change. Subtle resistance manifested in actions such as using unauthorized technologies, venting to colleagues, ignoring their email requests, and more. Mickey, a faculty member also serving in a staff role, observed, "Little arguments break out whereas before they wouldn't have." These examples point to a *socio-personal* type of psychological distance, a space of subjectivity, emotion, and interpretation. Thus, socio-personal distance is the second type of psychological distance in the emerging typology.

The ways in which participants responded to and made sense of their actions, emotions, and circumstances implicate four types of distances—and continue the story of a system seeking to restore its balance in the midst of substantial disruption. Where this chapter previously identified two domains of transactional distance, this section offered evidence to support two types of distance in each domain. The physical domain contains *temporal* distance and *transportational* distance. The psychological domain contains *socio-personal* distance and *cognitive* distance (see Figure 5). Moore (1973, 1993) theorized that distance was measured on a continuum of more or less. In the next section, we explore components of the distance education system under study and the participant responses that both further explain and provide evidence of continuums of distance.

Figure 5

Typology of Transactional Distance



System Components

In the spring of 2020, higher education transformed from a system of residential operations to a distance operations system. By the fall, most college and university functions returned to campuses, but anticipated interruptions—and unanticipated effects—meant that the distance operations system would continue, albeit in modified form. The components of the distance operations system comprise the tools and resources needed to increase or decrease the distances identified in the previous section. In this section, I identify some of the major elements, interactions, and purposes of the system as described by participants. By doing so, I answer the first research question:

1. What are the elements of the U.S. higher education system during the COVID-19 response in 2020, how do they interconnect with each other, and for what purposes?

By also examining how participants responded to system components, I demonstrate that distances are measurable on a continuum and that barriers can block or constrain attempts to cross distances.

Elements

Elements are the people, places, things, ideas, and events that can be seen, felt, counted, or measured in a system (Meadows, 2008). As previously noted in this chapter, the most obvious elements of the distance operations system are the technologies that made a switch from

residential to distance delivery possible. For many participants, many technology elements were new. Participants identified videoconferencing technologies such as Zoom, Google Hangouts Meet, Microsoft Teams, Slack, Jabber, and Skype, tools never before used at the research sites to the degree that they were used beginning in March 2020. Synchronous meetings crossed a temporal space to bring participants into shared moments. Further, meetings through these technologies perceptually crossed the transportational distance that was not geographically possible to cross due to the response to COVID-19.

Privacy protections in the Family Educational Rights and Privacy Act (FERPA) were variously interpreted by the research sites, meaning that some synchronous class meetings, students were not required to turn on their web cameras, a new system element that some participants noted student reluctance or refusal to interact with. The matter greatly disturbed some study participants. Janie, a participant serving in both faculty and staff roles, expressed her frustration when she compared students who did appear on camera to those who did not:

> The students who are always sitting in front of the classroom and always getting their stuff on time and earlier, they're still great online. They're still showing up, their cameras are still on. They're still energetic and interested in trying to get as much as they possibly can out of class. But the students who are sitting in the back of class and coming in late and all of that, they're not turning on their camera, and are they there? Or are they just sleeping?

Johnny asked a similar question, but then he also answered it: "It's like Schroedinger's cat. We just don't know." These examples show that the use of video in synchronous meetings affected transportational distance. When video cameras were off—whether students were listening or not in the actual realm of reality—faculty were unable to span the gap of transportational space because, in the critical realist realm of the empirical, faculty perceived students to be not listening. For Billie Jean, the gap was alleviated slightly when non-camera using students used the chat feature of the virtual meeting software and she thus experienced evidence of student

engagement. Thus, the data evidence multiple potential quantitative values of transportational distance—not only in in-person classes, where students sit in front or back rows, but also in distance courses, where cameras may be on or off.

Another type of distance may be seen in the application of the main technology that many participants used: a learning management system (LMS). One participant noted using the official institutional LMS for delivering faculty training materials. For students, one faculty participant simply uploaded materials to Google Drive. Leah, another faculty member, had never taught online before the pandemic and was familiar with few technologies, but she finished the spring online and taught an online synchronous class again in the fall using Google Classroom, Zoom, a whiteboard, and a camera set up to capture the whiteboard as she worked example problems for students. She collected homework from students digitally, printed the materials, graded them, scanned the graded work, and emailed the scanned files to students. The process took time, and Leah confided, "I don't have the best printer." In the fall, Leah could not go to campus because she was at high risk for potentially contracting the coronavirus. When half of her fall students indicated they wanted to take an upcoming test in person, Leah arranged for a colleague to distribute the tests to students on campus, collect them, and return them to her for grading. Leah quarantined the returned tests for one week before handling them. She asked a different colleague to return the graded tests to students. "Two days later," Leah said of this colleague, "she was in quarantine." The tests had not yet been returned, and students wanted their graded work. Another faculty member inquired of Leah about the tests. Ultimately, Leah was reprimanded by the academic administration for not returning student work within a reasonable time frame. "I'm like," Leah recounted in exasperation, "how do I return these?" She devised a way to visit campus on the weekends to use the scanner at school to save some time. Leah's

story is one of cognitive distance, a gap between knowing and not knowing, between needing and having knowledge of the digital technologies that could be most useful to her and enough technological foundation to begin to use them effectively. As with transportational distance, cognitive distance can be seen as a quantity of more or less. Leah has learned much since the shift to online, but the instructional designer in me that listened as she recounted her story wanted to intervene with recommendations and insights into what is possible. While she has decreased cognitive distance compared to her knowledge prior to March 2020, Leah yet has many opportunities before her to continue her progress, and she is eager to do so.

Distance education requires technologies (Moore and Kearsley, 2012), but many other elements were at work in the larger distance operations system under study. The system also contained human elements: participants traveled transportational distances and relied on each other—across higher education—for information, training, or assistance to cross an ever-evolving space of cognitive distance amid rapid change. Organizations such as accrediting bodies, sister institutions, and the U.S. Department of Education were identified by some participants as variously helpful elements. One participant opined that campus centers for instruction "gained a lot of social capital," and the data are witness to frequent participant laud and esteem for such elements. Colleagues also assisted each other, and employees were resources unto themselves when they located the answers they needed. The flow of information among these and other elements was one-way and two-way, across a variety of channels. The data contain evidence of some participants following up with some resources for further information, thus further demonstrating that cognitive distance is a space of more or less information, of greater than or less information to satisfy the need or request.

In addition to the tangible system elements of technology and people are intangible elements such as intentions, philosophies, beliefs, and expectations. Some of these elements were new; others preceded the phenomenon of distance operations and were either reinforced or evolved over time. For example, two participants referred to the experience of distance operations as a confirmation of mission statements or cultural norms of their respective institutions. Expectations came in forms of directives from a supervisor or contractual obligations of employment; they also came from the self—whether they were deeply ingrained understandings of the responsibilities of their role or personal expectations regarding quality or commitment. Participants varyingly relied on intangible elements such as these to navigate a socio-personal distance between what they wanted or chose and what they rejected or ignored.

Interconnections

Interconnections in a system are about relationships: the flows of information and actions over time that alter the size, degree, appearance, power, or amount of an element in the system. The switch from residential to distance operations introduced not only new elements but also new relationships or dependencies between elements within the system. Such relationships and dependencies have the power to bolster or hinder optimal functioning of a system. At times, those interconnections were characterized by delays or even total blockages as was particularly observed regarding technological capabilities. For example, there is evidence in participant interviews that at least one student finished the spring 2020 term by U.S. postal service because she did not have a computer. Much more frequently, however, participants had the hardware they needed but identified Internet connections as a barrier or source of delay. Where participants spoke of Internet connection difficulties, the most severe were in the Appalachian region, as was anticipated. I experienced their difficulties first-hand as there were transmission glitches or

dropped connections in our interviews across Appalachian connections. Those participants told stories of students driving to campus, a local library, or a nearby McDonald's to access WiFi connections. One faculty participant described teaching a synchronous session on her phone when the Internet disconnected her from a live class; another faculty participant told of a colleague who routinely taught on her phone or on an iPad from various parking lots. Such challenges particularly rendered transportational and cognitive distances difficult, if not impossible, to navigate.

At other times, however, the new interconnections with technology boosted efficiency or opportunities for feedback. One academic leader participant noted that the simple replacement of physical signatures with digital signatures notably increased efficiency, which decreased temporal distance—and also the participant's frustration. One faculty participant who learned how to leverage the technology to automatically grade quizzes plans to give smaller quizzes more often in the future so that she can be better and more often informed regarding student understanding. She plans to increase the frequency of such quizzes to inform any teaching adjustments she may need to make to help students learn. Such benefits reduce cognitive distance.

Any new relationships may have unintended or unexpected consequences for elements. For example, the textbook supply was threatened as deliveries across the country slowed during COVID-19 to prioritize other shipments. On campuses, physical library materials were unavailable in the spring simply because no personnel were in the library. As previously noted, shifts in the academic calendar affected components such as the completion of student field placements and additional pressure on some faculty. Not all unintended or unexpected consequences were negative, however. A few participants expressed surprise that operations

went as well as they did, that working remotely is possible for many roles, that creativity flourished, or that student learning still occurred, despite the numerous challenges. As a result of the learning and adjustments necessary during the pandemic, one participant simply asserted, "[COVID-19] has made me a better teacher."

Purposes

Purposes are the final component of a system and include priorities as well as goals. Public information from all four of the research sites declared health and safety among the top institutional priorities. Other institutional goals evolved over time. In spring, the stated institutional or community goals included easing the transition for everyone affected and helping students finish the term. By fall, the goal was simply to move forward with confidence, a more general call to finish not just the term, but the degree for which students came. Participants expressed slightly different goals. For spring, the main goal was often encapsulated by the word "survive." By the fall, the goals polarized on opposite ends of a spectrum, and participants could be identified as one of two types: *necessary adapters,* those who viewed the transition to distance operations as a temporary solution that would eventually go away; and *practical adapters*, those who viewed the transition as potentially transformative with long-term implications.

Necessary adapters expressed a deeper recognition of and appreciation for the in-person activities and cultures that had been disrupted. These participants anticipate a "return to normal" with reinvigorated meaning and value. As one participant described, "Because of COVID-19, we were forced into a completely different model that we made something good of, but it's not the same, and we want the other." On the other hand, practical adapters often expressed general excitement over a new way forward as a result of the distance operations experience. Jacob related part of such a conversation with a colleague: "[He] just told me, we are not going back to

doing things the way we've always done them, some of these changes are here to stay. And that was really exciting to me." In a system, however, stated priorities or goals may or may not be the true purposes of the system. Therefore, it is necessary to discover the unstated purposes which are found in patterns of behavior. The data contain several such patterns regarding what was measured, what was addressed or ignored, what was accepted or rejected, and what was believed to be possible or impossible. These findings are clues to unstated system purposes.

First, participants often evaluated the success of themselves and of the institution. What could be measured or tracked and what was evaluated reveals what was considered most important to accomplish and is a window into purpose. Participants evaluated performance areas such as effort, communications, guidance, training, the effectiveness of planning, teaching, and learning. Donna, a faculty member, gave herself "six out of ten" on her fall teaching. Jimmy Lee gave the institution an A plus for effort, "but in terms of delivery…about a B plus." Regarding the spring, some participants measured success simply by whether or not they or their students were able to complete it. In the spring, Axel, an academic leader, had one student stop attending. The rest passed the course. "For last spring," Axel observed from the comfortable temporal distance of December, "I'll call that a successful course." Diane, a staff member, measured student engagement with the programming in her department. Gloria, a staff member also serving in a faculty role, measured retention. These examples demonstrate purposes that serve core internal functions and also align with stated aims to help students complete their courses in spring and continue toward their educational goals.

Second, participants noted a number of needs and concerns that needed to be prioritized. Which of these needs were addressed and which were postponed or ignored are another clue to unstated purposes. While public-facing materials from institutions asserted health as a top

priority, few participants expressed concern for their own. Many more were concerned about the health of others—physical, mental, and emotional. The data reveal that in the spring term, participants across all role groups sacrificed many of their own physical, mental, and emotional needs in order to attend to those of students, taking time away from themselves to devote to others. As pressures diminished in fall, Joanna, a faculty member, reflected that she probably did not need to be available to students in spring as much as she was. Joanna noted that if she teaches a distance course in the future, "I will set much better boundaries for myself and not feel like I need to work all day every day." These and other examples point to student-centered purposes, though in unsustainable ways.

Third, patterns in major decision points, where choices needed to be made, identify what the system accepted or rejected and are another important clue to unstated purposes. Decision points were most often revealed in matters of teaching, where group activities were sacrificed, and where participants also spoke often of due dates that fell to waysides. Two participants spoke of not being as strict on documentation style requirements. In spring, student course evaluations became optional at one site, were not counted in personnel decisions at another, and were not conducted at yet another. These actions minimized the opportunity for students to provide feedback and suggest that student opinion was less important than other matters in the spring. Such actions also conflict with previously identified student-centered purposes, though this finding may have more to do with a simple reluctance to be evaluated, particularly regarding something that was new for so many.

Finally, the analysis exposed an important pattern in participant beliefs that has implications for the limits or boundaries of the distance operations system—and what it may attempt to do and be able to do in the future. In this part of the analysis is the finding that

surprised me the most: “You can’t” became a code, and a substantial one. In my instructional design work, I have heard many opinions regarding what can and cannot be done or what is and what is not “lost” in an online distance course. Hearing it did not surprise me, but the number of files and references for the code did; “you can’t” appeared in some form one or more times in over half of the interviews for this study. As I first discovered this code, I recalled times when I would hear “you can’t do *x* online” or its variation, “you *just* can’t,” during an interview. A few of my flinches are memorialized in memos. As I conducted the analysis and saw the codes aggregated, I was saddened. To me, this code represents an attitude closed to experimentation and possibility. In the interest of science, I did not respond to the phrase during interviews. In the interest of knowledge, I included in my thank you notes for two participants offers to meet again to demonstrate a new technology that could meet their needs, and as I stopped the recording at the end of one interview, I prefaced a venture to be helpful with “You know I’m an instructional designer, right?” In the analysis phase, I began to think of “you can’t” as a subtle form of resistance, one that participants may or may not even be aware of. Now that analysis is complete, I think “you can’t” represents a cognitive distance between what is known and what is not known about technologies, techniques, and capabilities. Either way, it is a barrier that could result in a self-fulfilling prophecy. In relation to purposes, it may represent a reluctance to innovate and may signify a goal, a priority, a purpose to “do” higher education in what are considered traditional ways. Mickey, who served in both a faculty role and a staff role supporting faculty colleagues with the transition to online teaching, told a story that heartened me. One of his faculty colleagues initially argued that one of her courses could not be taught online, but by the end of the spring term she confessed to Mickey, “Maybe this isn’t impossible.”

Causal Explanation

Recognizing system components, how they connect with each other, and for what purposes they do so provides a deeper understanding of how the system works. In the previous section, I answered the first research question by demonstrating what the major elements, interconnections, and purposes of the distance operations system were and by showing how those components were used as tools to navigate different types of distances—communication spaces across physical domains of time and space and psychological domains of person and information. That groundwork *what* and *how* equips this analysis to answer the *why* of the second research question:

2. What underlying generative mechanisms must exist in order for the system to behave as it does?

I argue from a critical realist standpoint that the distances identified in this analysis are real entities, that they are generative mechanisms in the real domain that can and did cause the events in the actual domain of the distance operations system during the pandemic as evidenced by the empirical data collected for this case study.

On a basic level, the data reveal that the distance operations system behaved as a system would be expected to behave. The system sought self-preservation and homeostasis through interventions and behaviors which resulted in a variety of both anticipated and unanticipated consequences as elements, interconnections, and purposes expanded, appeared, disappeared, or evolved. The system exhibited capacity for resilience under stress, and second-round interview data revealed that actors had generally aggregated in one of two broad camps. Necessary adapters navigated the transactional distance of the change for the temporary moment; practical adapters navigated transactional distance for long-term movement.

On a deeper level, the data suggest the presence of transactional distance as a space of communications and understanding that actors must cross as they orient themselves to other elements of the system. However, where Moore (1993) postulated that distance is both physical and pedagogical, the findings in this study indicate that transactional distance can be further understood as comprising domains of physical and psychological distance, with two distinct types of distance in each domain (see Table 1).

Table 1

Typology of Transactional Distance

Domain	Type	Description
Physical	Temporal	Space between now and then
	Transportational	Space between here and there
Psychological	Socio-Personal	Space between wanting and not wanting
	Cognitive	Space between knowing and not knowing

In the physical domain, distances are *temporal* and *transportational*. Temporal distance established boundaries around available time, between *now* and *then*. These were boundaries among past, present, and future as, for example, the time between tasks, the time of class (synchronous or asynchronous), and the time to course completion was lengthened and shortened during distance operations for various reasons. Transportational distance established boundaries around place, between *here* and *there.* Further, the data indicate that transportational distance is not merely physical; it can also be perceptual. Participants did not need to be proximal in order to feel close, and in the fall when proximity required masks, participants felt closer in virtual meeting spaces when they were physically miles apart rather than feet apart as in the classroom. Temporal and transportational distances concern management, organization, and technology—

concerns that Zawacki-Richter and Anderson (Zawacki-Richter, 2009; Zawacki-Richter & Anderson, 2014b) classified as meso-level research issues for online distance education.

In the psychological domain, distances are *socio-personal* and *cognitive.* Socio-personal distance established boundaries of desire, between *wanting* and *not wanting*. These were boundaries of intention, feeling, motivation, attitude, and pre-conceived ideas. Necessary adapters, for example, chose not to cross the distance between wanting and not wanting online distance operations to continue in any significant way in the future. Practical adapters crossed that space. Cognitive distance established boundaries around concepts and experiences, between *knowing* and *not knowing.* Socio-personal and cognitive distances concern interactions, communications, and individual characteristics. Zawacki-Richter and Anderson (2009; 2014b) classified such issues in teaching and learning as micro-level issues for online distance education research, but the findings of this study suggest that psychological distances are of concern across the entire distance operation system.

For distances to be viewed as real generative structures, they need to be capable of causing an event in the actual stratum of reality. The data support that distances are indeed real generative structures, evidenced through not only initial interventions in the system of distance operations but also in the actions and reactions of participants after those interventions were put into place. Distances caused physical actions, reactions, and even reflections as participants experienced and made sense of events over time. Indeed, participants reacted to the influence of distances, manipulated their presence, and assessed their effects.

In the physical domain, temporal distance was intentionally manipulated by those who shifted academic calendars, adjusted rules concerning prerequisite courses, allowed incomplete grades, or chose synchronous or asynchronous delivery options for courses or institutional

events. Empirical evidence of a continuum of temporal distance included such events as spaced interview rounds, the compression of time to create two academic terms within one, and the decrease of administrative time through allowing digital signatures on important documents. Transportational distance was intentionally manipulated by those who eliminated group work in classrooms or planned and conducted virtual faculty meetings and institutional events. Empirical evidence of a continuum of transportational distance was found in events such as the counterintuitive perception of being closer in a virtual meeting than in-person wearing a mask or the perception of being closer when virtual meeting members had cameras on or used a chat feature.

In the psychological domain, socio-personal distance was influenced by the tone of conversations and collaboration, both positive and negative, as well as by shifting feelings, motivations, attitudes, and pre-conceived notions about what can and "can't" be accomplished. Empirical evidence of a continuum of socio-personal distance included events of conflict, of compromise, and of coping with tensions in the system. Cognitive distance was traversed by such strategies as employing multiple technologies and media and by utilizing available physical and human resources. Empirical evidence of a continuum of *cognitive* distance was found in events such as the expansion of new skills, the acquisition of knowledge, or the antipodal suppression of new skills and knowledge through limited opportunities for student feedback during spring 2020 or an undependable Internet connection during distance operations.

Throughout its history prior to the COVID-19 pandemic, the higher education system has typically distinguished between in-person, face-to-face students and distance students. The data suggest that in the current technology age, this distinction may no longer be valid. Distances—and inversely, closeness—were possible in all communications spaces in higher education

distance operations, whether people were geographically proximal or distant, and proximity does not alone close a distance gap. Thus, distances are real, generative structures that transcend a traditional dichotomy of in-person versus distance and expose distances as entities that exist in both course delivery formats. Further, transactional distance is more than the pedagogical construct identified by Moore (1993). The experiment of distance operations across higher education revealed that transactional distance is applicable not only to teachers and learners in what has been traditionally defined as a distance education environment but also across the distance operations system.

I argue that transactional distance in its domains and types is the underlying mechanism that caused the distance operations system to behave as it did for these participants during the period of study. While an argument may be made that technology may instead cause any transactional distance, evidence that participants can feel distant in face-to-face situations suggests that transactional distance precedes the technology and that the environment during COVID-19 merely magnified it. Further exploration of rival explanations should consider potential co-explanations for system behavior. First, power relations between administration and faculty/staff might partially explain why the system functioned the way that it did during the period under study. However, resistance to distance operations was negligible as all participants conceded the need given the circumstance. Further, administration deferred to faculty and staff regarding details of course and service delivery. Together, these circumstances indicate that power relations may have influenced the behavior of the distance operations systems less than the causal explanation I propose. Second, the data indicate a student-centered mentality might also partially explain system behavior, but also in the data is evidence that a student-centered mindset was not strong enough to overcome the “you can’t” boundaries expressed by necessary

adapters. A final co-explanation for system behavior may be the overarching societal charge to higher education to educate, even and especially in times of difficulty or challenge. However, as an analysis of the purpose of the distance operations system reveals, simple completion took precedence over—and at times sacrificed—learning.

Conclusion

This chapter presented the findings of this longitudinal case study of the higher education distance operations system from March to December of 2020 during the COVID-19 pandemic. I described the context of each of the four research sites and provided an account of interventions and adjustments put in place to achieve continued operations. I drew from the data to first identify the elements, interconnections, and purposes of the system and then to explain how they functioned together. Finally, I proposed a causal explanation for identified patterns of system behavior, thus answering both of the research questions of this study.

This chapter revealed a typology of transactional distance that situates four types of distance—*temporal*, *transportational*, *socio-personal*, and *cognitive*--within domains of physical and psychological distances. Further, I have argued herein that these distances are real, generative structures that triggered patterned behaviors in the distance operations system during the period of study. Rival explanations were examined and demonstrated to be either incapable of explanation or to be potential co-explanations with less explanatory power. The next and final chapter will discuss the implications of these findings, namely, that the generative mechanisms of distances are entities that we can distinguish, control, and wield for our purposes.

CHAPTER FIVE: DISCUSSION AND IMPLICATIONS

As of this writing, vaccine distribution for COVID-19 is young, and social distancing guidelines and government mandates regarding the pandemic remain in effect to varying degrees in most areas across the United States. Sustaining higher education operations throughout 2020 required unrelenting flexibility from the start. The responses of colleges and universities in the wake of previous natural disasters such as flood, hurricane, or fire offered some lessons of crisis communication and management (Field, 2020) but provided neither pattern nor blueprint for the sudden and prolonged disruption spurred by the COVID-19 pandemic. As the spring of 2020 progressed, much of higher education continued to remain unclear whether campuses would return to in-person life in the fall and higher education leaders were primarily concerned about summer and fall enrollments (Taylor et al., 2020). These concerns were outstripped in fall only by worries over the mental well-being of students, faculty, and staff (Turk et al., 2020). An end to the pandemic is currently unknown, but the effects on U.S. higher education promise to remain even afterward, with long-lasting consequence.

This comparative longitudinal case study explored the distance operations system implemented in U.S. higher education during 2020 under the conditions of the COVID-19 pandemic. The goal was twofold. First, this study sought an understanding of the components and behavior of the system, and one outcome is the contribution to what is known about higher distance education and the infrastructure that makes it possible. Second, this study sought insights into the implications for higher education distance operations moving forward. In the first chapter of this dissertation, I presented the background for this study, explaining how the exigency of the pandemic required a reliance on distance education methods that have long faced persistent challenges and posed significant difficulties for researchers and practitioners. The

switch to distance operations presented a natural experiment, the effects of which this study sought to explore. In the second chapter, I discussed the history of distance education and the state of distance education research. I also explained the systems thinking lens adopted by this study and examined ideas of distance in the extant literature. In the third chapter, I explained my methodological approach and demonstrated the alignment and fit of the research quest within a critical realist paradigm. Further, I declared my positionality and stated my ethical approach to preserve and promote the integrity of the study.

The fourth chapter of this dissertation presented the study findings. I examined the system context at both the case level and the embedded levels of analysis represented by participant roles and institutions. I answered the first research question by drawing on systems thinking to first identify the system components and then to explain their relationships to each other. Throughout this exploration, the emerging motif of distance became clear. To answer the second research question, I drew on Transactional Distance Theory (Moore, 1973, 1993) to provide causal explanation. I proposed that transactional distance exists in four different forms, or types, and I argued against rival explanations to contend that these distances are the underlying mechanisms that best explain system behavior. The findings of this study provide a typology of distance in two domains—the physical, which comprises temporal and transportational distance, and the psychological, which comprises socio-personal and cognitive distances. Using a critical realist lens, I identified the types of transactional distance as real entities that caused events in the distance operations system in colleges and universities during COVID-19 as evidenced by the empirical evidence. This study thus contributes theory at the macro-level of distance education research (Zawacki-Richter et al., 2009). In this chapter, I discuss how this study both disturbs and informs thought and action within higher education

regarding the ways distance and distance education have been discussed, researched, and practiced in the past and how they can be approached in the future.

The Unresolved Terminology Problem

While the research questions have been sufficiently answered by this study, this dissertation has further agitated the existing terminology debate surrounding descriptions of educational methods that are distinguished from traditional practice by their geography or their technologies. As Chapter Two of this dissertation elucidated, the values, purposes, and methods of distance education have been variously debated, maligned, or promoted during its history—a history that spans societal concerns about access, advancements in technology, and the evolution of pedagogical theories. That history has contributed to a proliferation of terms that plagues the field and continues to manifest in research difficulty. The technological capacities of the current age further confound terms, as both traditional and distance education may be delivered in variety, including synchronously or asynchronously, with or without online components. For this reason, terminology was addressed early, if not unorthodoxly, in the first chapter of this dissertation.

To recapitulate, Moore and Kearsley (2012) defined distance education as: "Teaching and planned learning in which teaching normally occurs in a different place from learning, requiring communication through technologies as well as special institutional organization" (p. 2). Indeed, Rumble (1986/2019) noted that "The separation in space and time of teaching and learning is a basic feature of distance education" (p. 11). Yet this study revealed that various distances are in effect not only in teaching and learning situations but also across the institution, and not only in an online course experiences but also in in-person modalities. This finding is in alignment with

the observation of Rumble (1986/2019) that transactional distance not only exists in but also can be greater in an in-person environment than in a distant one under certain circumstances.

The key word in the distance education definition promulgated by Moore and Kearsley and adopted by this study may be "normally." In accordance, this dissertation proposed *residential operations* to refer to institutional activities normally occurring on a campus and the term *distance operations* to discuss those which, under the exigency of the pandemic, were normally occurring in other places. However, even this distinction was problematized in the fall 2020 academic term as system actors found themselves alternating between distant and residential as the circumstance demanded. Any appearance of "normally" in such definitions to describe the fall of 2020 could easily have been replaced by "this week" or "today." Thus, "normally" can be seen as a word that implies system boundaries of an academic term or a scope or length of employment, and such boundaries were routinely crossed and re-crossed during the term. Further discussion appears to be warranted if the academic community is to agree on terminology. My desire is to meaningfully contribute to those necessary discussions.

Implications and Recommendations

While this study has not resolved the educational terminology debate (and was not intended to do so), it does answer the research questions and thus makes important contributions to both theory and practice. In this section, I observe the construct of *dialogue* in Transactional Distance Theory to be incomplete and so suggest a remedy. I also advise that our knowledge of distance can be used not only to reduce distance but also to increase it when warranted, and the typology of distance put forth in this dissertation can equip our search for the contingencies that may make distance more or less desirable. For the practitioner, I emphasize the potential for viewing distances as real entities that can be distinguished, controlled, and wielded for best

effects. Finally, I advocate a systems view that removes artificial boundaries of distance education and operations and barriers to innovation.

Contributions to Theory

This study has greatly benefitted from the work of previous scholars who have formulated and explored Transactional Distance Theory, and I contribute to that ongoing work in three important ways. First, this study builds on the definition of transactional distance by demonstrating a typology of distance in two domains. At the same time, this study reveals that the formula for determining transactional distance is incomplete. Moore (1993) stated that transactional distance in a distance teaching and learning environment is a function of structure and dialogue, and he defined dialogue as positive interactions between a teacher and a learner in a distance environment. Yet the analysis in this study shows that negative interactions can increase or decrease distance as powerfully as can positive interactions. Thus, the construct of *dialogue* must include both negative and positive interactions in order to most accurately adjudge the influence or effect of distance. This finding would explain the conflicting results of studies that employ various instruments to measure transactional distance. Therefore, I propose that the construct of *dialogue* be revisited to account for the influence of negative interactions.

Second, the literature investigating transactional distance reflects notable interest in reducing distance. That Transactional Distance Theory classifies teaching and learning experiences as more or less distant implies, if not explicitly states, that distance can be regulated. That insight can lead one to conclude that the goal of this knowledge must be to diminish if not eliminate such distance. Yet, distance may or may not be a barrier to a purpose, and it may or may or may not affect different actors in different ways. The findings of this study indicate that there are indeed times when an increased distance is preferential or beneficial for various

reasons. Therefore, I argue that the questions before the field are not those of simply reducing distance. Rather, the questions concern how to use distance in various combinations under various circumstances for various actors to foster and contribute most significantly to the desired purpose or outcome. Toward answering those questions of *how*, *when*, and *for whom*, this study further contributes to the knowledge of the field in a third way—by expounding on the types of distance. Using this typology, the dimensions of temporal, transportational, socio-personal, and cognitive distances may be further elaborated and explored, instruments revised, and new studies conducted. This is my future research agenda.

Contributions to Practice

Empirical evidence of temporal, transportational, socio-personal, and cognitive distances reveals that participants variously acted or reacted to, altered or shaped, and measured or adjudged distance effects. From a practical standpoint, three important points can thus be extrapolated. First, if we can react to our distances, then we may be able to preemptively discern them. Knowing what distances must be navigated in any situation can help us to do so consciously. Then, if we are aware of our distances, we may be able to control them. Controlling our distances means that we can exercise power over their effects. Finally, if we can exercise power over the potential effects of distance, then we are able to wield them for our purposes. Thus, I argue that distance can and should be distinguished, controlled, and wielded for best effect.

If the premise that we can distinguish, control, and wield our distances is true, then the implications for teaching and learning are profound. The data evidence that some of participants' work was variably more or less difficult to accomplish or more or less valued as distance was exacerbated during the pandemic. These situations suggest that the system components that aided

participants in performing their work under varying conditions during 2020 may also help students perform theirs in a residential or distant class environment. For example, some staff, faculty, and administrators bemoaned the loss of spontaneous in-person conversations, whether for personal or work reasons, and so they compensated with instant or text messaging systems that some found they enjoyed. Could the implementation of such systems in a distance environment be helpful to students? Could it be helpful to students who meet regularly in in-person classrooms and then study or complete homework at a distance? Some participants noted the gesture and benefit of supervisors or academic leaders and administrators checking in with them on a regular cadence, whether by e-mail or in scheduled one-on-one virtual meetings. Might such regular and personal check-ins be beneficial to distance education students? Might they facilitate more personal interactions with in-person students who must compete for an instructor's attention in a time-bound in-person classroom? Some participants noted greater efficiency for some tasks or greater periods of concentration as they worked uninterrupted in their home environments. Could there be in-class activities or events that we currently demand of our residential students that may be better supported if distanced from the pressures of time? Conversely, are there learning events or activities that we expect of distance students that could support better outcomes if we met virtually? Such questions are more than thought experiments. They point to a need to measure such distances and explore how and under what circumstances distances may be most effective for any institutional activities. These are practical concerns for the distance educator, for support staff, and for the accreditor. These are also matters for grant proposals, presentations, recognition, and awards.

This study also has implications for the distance education or distance operations leader. Fletcher (2017) noted that "Critical realists seek to explain and critique social conditions. This

makes it possible—indeed, desirable—to produce concrete policy" (p. 191). While institutional policy will naturally vary according to culture, ethos, budget, or other unique college or university variables, this study does suggest potential considerations that may broadly apply. As this study has shown, a distance operations system includes more than educational delivery. Because temporal and transportational distances exist in the physical domain of transactional distance, a distance operations system should carefully consider its technological capabilities—not only tools such as a learning management system but also digital textbooks, library access, and support services. Synchronous and asynchronous tools and processes need to be evaluated in terms of the advantages and disadvantages they afford as well as the ways in which they support intra-classroom and extra-classroom activities and the mission and vision of the institution. Perhaps most importantly, the evaluation and selection of tools should be considered with a systems view of the entire institution in mind and not merely distance education, as a distance operations system will involve elements, interconnections, and purposes of the entire institution, no matter the delivery mode of a single course or program. As a result of this study, this systems view is the stance I will take as a distance operations leader: distance is bigger, "online" is bigger than the boundary inside which I have heretofore placed it, implying that a systems view is necessary to facilitate both theory and practice, as advocated by Moore and Kearsley (2012). I invite other leaders to join me in the vision of this perspective.

Because socio-personal and cognitive distances exist in the psychological domain of transactional distance, a distance operations system should carefully consider its communication practices and training mechanisms. Because communication in a digital environment differs from that in an in-person environment in fundamental ways, it may be that computer-mediated communication practices become necessary training topics in addition to routine how-to and

why-to professional development sessions. Further policy may address expectations of quality in all interactions as well as cadence, frequency, and purpose as more is learned about how distance can be best utilized for what purpose. As a result of this study, I am considering that human resource departments may be a fruitful alternative vehicle for delivering some trainings after the pandemic, especially for institutions that maintain a strong distance learning focus. I invite other leaders to think deeply with me about the meaning and purpose of training for all stakeholders in a distance environment.

While faculty resistance has been a frequent concern for the distance education or operations leader, the data indicate that overt resistance was not a large factor in distance operations. This finding makes intuitive sense as government mandated campus closures meant that distance operations were the only option for completing the spring term. Whether overt faculty resistance will return after the pandemic is over remains to be seen. However, the analysis for this study revealed resistance in more subtle ways—ways in which participants may not have been aware. A "you can't" or "you just can't" stance regarding distance education opportunities and possibilities may or may not be true and may or may not be justified. "You can't" places a boundary around and limits what is achievable. As a result of this study, I intend to be proactive about providing information and demonstrating possibilities that can break the "you can't" negative feedback cycle. I invite other leaders to join me in removing this boundary barrier to innovation.

Final Statement

The study revealed transactional distance as a characteristic and generative mechanism of the human system of higher education operations during the period of study, both in its distance operations and—in fall—its residential operations. The four types of transactional distance

represent spaces of communication and understanding that must be navigated by human actors in the system as they relate to other systemic elements. The findings of this study revealed that distance operations constituted a system of interrelated components behaving both positively and negatively in patterned ways, and those components comprised the resources, tools, and perspectives from which actors navigated the demands of transactional distance. This study extends the definition of transactional distance as proposed by Transactional Distance Theory (Moore, 1973, 1993) by recognizing a transactional distance beyond the interactions of teacher and learner to also include transactions among higher education actors across the system. Further, this study recommends that the construct of *dialogue* as proposed by the theory be re-visited to account for the effects of negative communications, actions, or thought processes. The typology of distance proposed by this study can serve as a foundation for further research into how to measure such distances and how and under what circumstances distances may be most effective for any institutional activities.

REFERENCES

Abramson, C. I. (2013). Problems of teaching the behaviorist perspective in the cognitive revolution. *Behavioral Sciences, 3*(1), 55–71. https://doi.org/10.3390/bs3010055

Allen, I. E., & Seaman, J. (2003). *Sizing the opportunity: The quality and extent of online education in the United States, 2002 and 2003*. The Sloan Consortium. https://www.onlinelearningsurvey.com/reports/sizing-the-opportunity.pdf

Allen, I. E., & Seaman, J. (2011). *Going the distance: Online education in the United States, 2011*. Babson Survey Research Group. https://files.eric.ed.gov/fulltext/ED529948.pdf

Allen, I. E., & Seaman, J. (2016). *Online report card: Tracking online education in the United States*. Babson Survey Research Group and Quahog Research Group, LLC.

Allen, I. E., & Seaman, J. (2017). *Digital learning compass: Distance education enrollment report 2017*. Babson Survey Research Group. http://onlinelearningsurvey.com/reports/digtiallearningcompassenrollment2017.pdf

Allen, I. E., Seaman, J., Lederman, D., & Jaschik, S. (2012). *Conflicted: Faculty and online education, 2012*. Inside Higher Ed, Babson Survey Research Group, and Quahog Research Group, LLC. https://files.eric.ed.gov/fulltext/ED535214.pdf

Anderson, T., & Dron, J. (2011). Three generations of distance education pedagogy. *The International Review of Research in Open and Distributed Learning*, *12*(3), 80–97. https://doi.org/10.19173/irrodl.v12i3.890

Anderson, T., & Garrison, D. R. (1998). Learning in a networked world: New roles and responsibilities. In C. Gibson (Ed.), *Distance learners in higher education* (pp. 97–112). Atwood.

Anderson, T., & Zawacki-Richter, O. (2014). Conclusion: Towards a research agenda. In O. Zawacki-Richter & T. Anderson (Eds.), *Online distance education: Towards a research agenda* (pp. 485–492). Athabasca University Press.

Archer, M., Decoteau, C., Gorski, P., Little, D., Porpora, D., Rutzou, T., Smith, C., Steinmetz, G., & Vandenberghe, F. (2016, December 23). *What is critical realism?* [Blog]. Perspectives: A Newsletter of the ASA Theory Section. http://www.asatheory.org/2/post/2016/12/what-is-critical-realism.html

Arnold, R. D., & Wade, J. P. (2015). A definition of systems thinking: A systems approach. *Procedia Computer Science, 44*, 669–678. https://doi.org/10.1016/j.procs.2015.03.050

Ayres, L. (2008). Semi-structured interview. In L. M. Given (Ed.), *The SAGE encyclopedia of qualitative research methods* (Vols. 1–2, pp. 810–811). SAGE Publications, Inc.

Baker, A. (1919). *The life of Sir Isaac Pitman (inventor of phonography)* (Centenary ed.). Sir Isaac Pitman & Sons, Ltd. https://openlibrary.org/books/OL7146616M/The_life_of_Sir_Isaac_Pitman_(inventor_of_phonography)

Baker, M., Hartocollis, A., & Weise, K. (2020, March 6). First U.S. colleges close classrooms as virus spreads. More could follow. *The New York Times*. https://www.nytimes.com/2020/03/06/us/coronavirus-college-campus-closings.html

Banathy, B. H. (1991). *Systems design of education: A journey to create the future*. Educational Technology Publications.

Baran, E., Correia, A.-P., & Thompson, A. (2011). Transforming online teaching practice: Critical analysis of the literature on the roles and competencies of online teachers. *Distance Education, 32*(3), 421–439. https://doi.org/10.1080/01587919.2011.610293

Bartlett, L., & Vavrus, F. (2016). Case studies: An overview. In *Re-thinking case studies* (pp. 27–49). Routledge.

Bazeley, P., & Jackson, K. (Eds.). (2013). *Qualitative data analysis with nvivo* (2nd edition). SAGE Publications Ltd.

Beaudoin, M. (2018). United States of America. In A. Qayyum & O. Zawacki-Richter (Eds.), *Open and distance education in Australia, Europe and the Americas: National perspectives in a digital age* (pp. 103–116). Springer. https://doi.org/10.1007/978-981-13-0298-5_12

Benjamin, L. T. (1988). A history of teaching machines. *American Psychologist, 43*(9), 703–712. http://dx.doi.org.ezproxy.csp.edu/10.1037/0003-066X.43.9.703

Bernard, R. M., Abrami, P. C., Borokhovski, E., Wade, C. A., Tamim, R. M., Surkes, M. A., & Bethel, E. C. (2009). A meta-analysis of three types of interaction treatments in distance education. *Review of Educational Research, 79*(3), 1243–1289. https://doi.org/10.3102/0034654309333844

Berners-Lee, T. (2020). *People of the W3C: Tim Berners-Lee*. World Wide Web Consortium (W3C). https://www.w3.org/People/Berners-Lee/

Bhaskar, R. (2008). *A realist theory of science* (2nd ed.). Verso. (Original work published 1978)

Bhaskar, R. (2016). *Enlightened common sense* (M. Hartwig, Ed.). Routledge.

Blatter, J. K. (2008). Case study. In L. M. Given (Ed.), *The SAGE encyclopedia of qualitative research methods* (Vols. 1–2, pp. 68–71). SAGE Publications, Inc.

Bloom, B. S. (1956). *Taxonomy of educational objectives, handbook 1: Cognitive domain* (2nd ed.). Addison-Wesley Longman Ltd.

Bogardus, E. S. (1930). Social-distance changes in educational procedure. *The Journal of Educational Sociology, 3*(8), 497–502. https://doi.org/10.2307/2961323

Bolliger, D. U., & Wasilik, O. (2009). Factors influencing faculty satisfaction with online teaching and learning in higher education. *Distance Education, 30*(1), 103–116. https://doi.org/10.1080/01587910902845949

Boote, D. N., & Beile, P. (2005). Scholars before researchers: On the centrality of the dissertation literature review in research preparation. *Educational Researcher, 34*(6), 3–15.

Bousbahi, F., & Alrazgan, M. S. (2015). Investigating IT faculty resistance to learning management system adoption using latent variables in an acceptance technology model. *The Scientific World Journal*, *2015*, 1–11. https://doi.org/10.1155/2015/375651

Bozkurt, A., Akgun-Ozbek, E., Yilmazel, S., Erdogdu, E., Ucar, H., Guler, E., Sezgin, S., Karadeniz, A., Sen-Ersy, N., Goksel-Canbek, N., Dincer, G. D., Suleyman, A., & Aydin, C. H. (2015). Trends in distance education research: A content analysis of journals 2009-2013. *The International Review of Research in Open and Distributed Learning*, *16*(1), 330–363.

Brennan, K. (2016). The Victorian MOOC. *Hybrid Pedagogy*. https://hybridpedagogy.org/the-victorian-mooc/

Brinkmann, S. (2018). The interview. In Norman K. Denzin & Y. S. Lincoln (Eds.), *The SAGE handbook of qualitative research* (5th ed., pp. 997–1038). SAGE Publications, Inc.

Bullough, E. (1912). “Psychical distance” as a factor in art and as an aesthetic principle. *British Journal of Psychology*, *5*, 87–117.

Bunk, J., Li, R., Smidt, E., Bidetti, C., & Malize, B. (2015). Understanding faculty attitudes about distance education: The importance of excitement and fear. *Online Learning*, *19*(4). https://doi.org/10.24059/olj.v19i4.559

Bunker, E. L. (2003). The history of distance education through the eyes of the International Council for Distance Education. In M. G. Moore & W. G. Anderson (Eds.), *Handbook of distance education* (pp. 49–66). Lawrence Erlbaum Associates.

Bunt, S. (2018). Critical realism and grounded theory: Analysing the adoption outcomes for disabled children using the retroduction framework. *Qualitative Social Work*, *17*(2), 176–194. https://doi.org/10.1177/1473325016664572

Cabrera, D. (2006). *Systems thinking* [Dissertation, Cornell University]. https://ecommons.cornell.edu/bitstream/handle/1813/2860/DerekCabreraDissertation.pdf;sequence=1

Cabrera, D., & Cabrera, L. (2019). What is systems thinking? In M. J. Spector, B. B. Lockee, & M. D. Childress (Eds.), *Learning, design, and technology: An international compendium of theory, research, practice, and policy* (pp. 1–28). Springer International Publishing. https://doi.org/10.1007/978-3-319-17727-4_100-1

Cabrera, D., Cabrera, L., & Powers, E. (2015). A unifying theory of systems thinking with psychosocial applications. *Systems Research and Behavioral Science*, *32*(5), 534–545. https://doi.org/10.1002/sres.2351

Cabrera, D., Colosi, L., & Lobdell, C. (2008). Systems thinking. *Evaluation and Program Planning*, *31*(3), 299–310. https://doi.org/10.1016/j.evalprogplan.2007.12.001

Campbell, S. (2010). Comparative case study. In A. J. Mills, G. Durepos, & E. Wiebe (Eds.), *Encyclopedia of case study research* (Vol. 1). SAGE Publications, Inc.

Chaloux, B., & Miller, G. (2014). E-learning and the transformation of higher education. In M. G. Moore (Ed.), *Leading the e-learning transformation of higher education: Meeting the challenges of technology and distance education* (pp. 3–22). Stylus.

Charmaz, K. (2006). *Constructing grounded theory: A practical guide through qualitative analysis*. SAGE Publications, Inc.

Clark, A. M. (2008). Critical realism. In L. M. Given (Ed.), *The SAGE encyclopedia of qualitative research methods* (Vols. 1–2, pp. 167–169). SAGE Publications, Inc.

Cohen, D., & Crabtree, B. (2006, July). *Qualitative research guidelines project*. http://www.qualres.org/HomeRefl-3703.html

Collier, A. (1994). *Critical realism: An introduction to Roy Bhaskar's philosophy*. Verso.

Collins, C. S., & Stockton, C. M. (2018). The central role of theory in qualitative research. *International Journal of Qualitative Methods*, *17*(1), 1609406918797475. https://doi.org/10.1177/1609406918797475

Cooper, P. A. (1993). Paradigm shifts in designed instruction: From behaviorism to cognitivism to constructivism. *Educational Technology*, *33*(5), 12–19.

Corbin, J. M., & Strauss, A. (2008). *Basics of qualitative research: Techniques and procedures for developing grounded theory* (3rd ed.). SAGE Publications, Inc. https://b-ok.cc/book/2495402/ad9a84

Corson, D. (1991). Bhaskar's critical realism and educational knowledge. *British Journal of Sociology of Education*, *12*(2), 223–241.

Creswell, J. W., & Poth, C. N. (2018). *Qualitative inquiry & research design: Choosing among five approaches* (Fourth edition). SAGE Publications, Inc.

Cruickshank, J. (2004). A tale of two ontologies: An immanent critique of critical realism. *The Sociological Review*, *52*(4), 567–585. https://doi.org/10.1111/j.1467-954X.2004.00496.x

Cuban, L. (1986). *Teachers and machines: The classroom use of technology since 1920*. Teachers College Press.

Danermark, B., Ekström, M., & Karlsson, J. C. (2019). *Explaining society: Critical realism in the social sciences* (Second edition). Routledge, Taylor & Francis Group.

Delgaty, L. (2018). Transactional distance theory: A critical view of the theoretical and pedagogical underpinnings of e-learning. In *Interactive Multimedia—Multimedia Production and Digital Storytelling*. https://www.intechopen.com/books/interactive-multimedia-multimedia-production-and-digital-storytelling/transactional-distance-theory-a-critical-view-of-the-theoretical-and-pedagogical-underpinnings-of-e-

Denzin, Norman K. (1978). *The research act: A theoretical introduction to sociological methods* (2nd ed.). McGraw-Hill.

Denzin, Norman K., & Lincoln, Y. S. (Eds.). (2018). *The SAGE handbook of qualitative research* (5th ed.). SAGE Publications, Inc.

Diehl, W. C. (2019). Debate, confusion, and cohesion in distance education. *American Journal of Distance Education*, *33*(4), 229–229. https://doi.org/10.1080/08923647.2019.1670907

Dron, J. (2014). Innovation and change: Changing how we change. In O. Zawacki-Richter & T. Anderson (Eds.), *Online distance education: Towards a research agenda* (pp. 237–265). Athabasca University Press.

Durkheim, É., & Lukes, S. (2014). *The rules of sociological method: And selected texts on sociology and its method* (W. D. Halls, Trans.; Free Press trade paperback edition). Free Press.

EDEN Secretariat. (2016, November 16). *Tutorials vs. Virtual classes—Michael Grahame Moore interviewed by Steve Wheeler #EDEN16* [Video]. YouTube. https://www.youtube.com/watch?v=Tk54MCXsfaM&feature=youtu.be

Edirisingha, P. (2019). Transactional distance theory as a framework for a qualitative evaluation of distance learner experience. *ICERI2019 Proceedings*, 7319–7326. https://doi.org/10.21125/iceri.2019.1740

Elger, T. (2010). Critial realism. In A. J. Mills, G. Durepos, & E. Wiebe (Eds.), *Encyclopedia of case study research* (Vol. 1, pp. 253–256). SAGE Publications, Inc.

ENIAC. (2015). In C. J. Cleveland & C. G. Morris (Eds.), *Dictionary of energy* (pp. 202–203). Elsevier.

Erickson, D. (2020, April 1). *Q&A: A founder of distance education weighs in on its educational benefits*. University of Wisconsin-Madison. https://news.wisc.edu/qa-a-founder-of-distance-education-weighs-in-on-its-educational-benefits/

Feasley, C. E. (1991). The research, evaluation, and documentation of independent study. In B. L. Watkins & S. J. Wright (Eds.), *The foundations of American distance education: A century of collegiate correspondence study* (pp. 231–253). Kendall/Hunt Pub. Co.

Fiedler, K. (2007). Construal level theory as an integrative framework for behavioral decision-making research and consumer psychology. *Journal of Consumer Psychology*, *17*(2), 101–106.

Field, K. (2020, March 25). 5 lessons from campuses that closed after natural disasters. *The Chronicle of Higher Education*.

Firmin, M. W. (2008). Unstructured interviews. In L. M. Given (Ed.), *The SAGE encyclopedia of qualitative research methods* (Vols. 1–2, p. 907). SAGE Publications, Inc.

Fischer, K. (2020, February 7). American colleges seek to develop coronavirus response, abroad and at home. *The Chronicle of Higher Education*.

Fletcher, A. J. (2017). Applying critical realism in qualitative research: Methodology meets method. *International Journal of Social Research Methodology*, *20*(2), 181–194. https://doi.org/10.1080/13645579.2016.1144401

Fogarty, T. J., Jonas, G. A., & Parker, L. M. (2013). The medium is the message: Comparing paper-based and web-based course evaluation modalities. *Journal of Accounting Education*, *31*(2), 177–193. https://doi.org/10.1016/j.jaccedu.2013.03.002

Forrester, Jay W. (1994). System dynamics, systems thinking, and soft OR. *System Dynamics Review*, *10*(2–3), 245–256. https://doi.org/10.1002/sdr.4260100211

Forrester, Jay Wright. (1961). *Industrial dynamics*. M.I.T. Press.

Fusch, P., Fusch, G. E., & Ness, L. R. (2018). Denzin's paradigm shift: Revisiting triangulation in qualitative research. *Journal of Social Change*, *10*(1). https://doi.org/10.5590/JOSC.2018.10.1.02

Garrison, D. R. (2017). *E-learning in the 21st century: A community of inquiry framework for research and practice* (3rd ed.). Routledge.

Garrison, D. R., Anderson, T., & Archer, W. (2000). Critical inquiry in a text-based environment: Computer conferencing in higher education. *The Internet and Higher Education*, *2*(2–3), 87–105.

Giossos, Y., Koutsouba, M., Lionarakis, A., & Skavantzos, K. (2009). Reconsidering Moore's transactional distance theory. *European Journal of Open, Distance and E-Learning*. https://www-eurodl-

org.ezproxy.csp.edu/materials/contrib/2009/Giossos_Koutsouba_Lionarakis_Skavantzos.htm

Giossos, Y., Koutsouba, M., & Mavroidis, I. (2016a). Development of an instrument for measuring learner–teacher transactional distance. *American Journal of Distance Education*, *30*(2), 98–108. https://doi.org/10.1080/08923647.2016.1156374

Giossos, Y., Koutsouba, M., & Mavroidis, I. (2016b). Response from Giossos, Koutsouba, and Mavroidis. *American Journal of Distance Education*, *30*(4), 277–277. https://doi.org/10.1080/08923647.2016.1232989

Given, L. M. (Ed.). (2008). *The SAGE encyclopedia of qualitative research methods* (Vols. 1–2). SAGE Publications, Inc.

Gokool-Ramdoo, S. (2008). Beyond the theoretical impasse: Extending the applications of transactional distance education theory. *The International Review of Research in Open and Distributed Learning*, *9*(3). https://doi.org/10.19173/irrodl.v9i3.541

Gorsky, P., & Caspi, A. (2005). A critical analysis of transactional distance theory. *Quarterly Review of Distance Education*, *6*(1), 1–11.

Grier, D. A. (2013). ENIAC. In H. R. Slotten (Ed.), *The Oxford encyclopedia of the history of American science, medicine, and technology*. Oxford University Press.

Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigms in qualitative research.pdf. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (pp. 105–117). SAGE Publications, Inc.

Guba, E. G., & Lincoln, Y. S. (2005). Paradigmatic controversies, contradictions, and emerging confluences. In N. K. Denzin & Y. S. Lincoln (Eds.), *The Sage handbook of qualitative research* (3rd ed., pp. 191–215). SAGE Publications, Inc.

Guri-Rosenblit, S. (2014). Distance education systems and institutions in the online era: An identity crisis. In O. Zawacki-Richter & T. Anderson (Eds.), *Online distance education: Towards a research agenda* (pp. 109–129). Athabasca University Press.

Haigh, F., Kemp, L., Bazeley, P., & Haigh, N. (2019). Developing a critical realist informed framework to explain how the human rights and social determinants of health relationship works. *BMC Public Health, 19*(1), 1571. https://doi.org/10.1186/s12889-019-7760-7

Hanford, E. (2019). *The story of the University of Phoenix*. American Public Media. http://americanradioworks.publicradio.org/features/tomorrows-college/phoenix/story-of-university-of-phoenix.html

Harisim, L. (2017). *Learning theory and online technologies* (2nd ed.). Routledge. https://doi.org/10.4324/9781315716831

Hartwig, M. (2015). MetaRealism. *Journal of Critical Realism, 14*(4), 339–349. https://doi.org/10.1179/1476743015Z.00000000073

Heinich, R. (1966). Application of systems concepts to instruction. *American Annals of the Deaf, 111*(5), 603–616.

Hillman, D. C. A., Willis, D. J., & Gunawardena, C. N. (1994). Learner-interface interaction in distance education: An extension of contemporary models and strategies for practitioners. *American Journal of Distance Education, 8*(2), 30–42. https://doi.org/10.1080/08923649409526853

Hoddy, E. T. (2019). Critical realism in empirical research: Employing techniques from grounded theory methodology. *International Journal of Social Research Methodology, 22*(1), 111–124. https://doi.org/10.1080/13645579.2018.1503400

Hoffman, D. L., Novak, T. P., & Schlosser, A. E. (2001). The evolution of the digital divide: Examining the relationship of race to Internet access and usage over time. In B. M. Compaine (Ed.), *The Digital Divide: Facing a Crisis or Creating a Myth?* (pp. 47–97). The MIT Press.

Hohlfeld, T. N., Ritzhaupt, A. D., Dawson, K., & Wilson, M. L. (2017). An examination of seven years of technology integration in Florida schools: Through the lens of the Levels of Digital Divide in Schools. *Computers & Education*, *113*, 135–161. https://doi.org/10.1016/j.compedu.2017.05.017

Holmberg, B. (1986). *Growth and structure of distance education*. Croom Helm.

Holmberg, B. (2005). *The evolution, principles and practices of distance education*. Bibliotheks- und Informationssystem der Univ.

Holshue, M. L., DeBolt, C., Lindquist, S., Lofy, K. H., Wiesman, J., Bruce, H., Spitters, C., Ericson, K., Wilkerson, S., Tural, A., Diaz, G., Cohn, A., Fox, L., Patel, A., Gerber, S. I., Kim, L., Tong, S., Lu, X., Lindstrom, S., … Pillai, S. K. (2020). First case of 2019 novel coronavirus in the United States. *New England Journal of Medicine*, *382*(10), 929–936. https://doi.org/10.1056/NEJMoa2001191

Hrastinski, S. (2009). A theory of online learning as online participation. *Computers & Education*, *52*(1), 78–82. https://doi.org/10.1016/j.compedu.2008.06.009

Huang, X., Chandra, A., DePaolo, C., Cribbs, J., & Simmons, L. (2015). Measuring transactional distance in web-based learning environments: An initial instrument development. *Open Learning: The Journal of Open, Distance and e-Learning*, *30*(2), 106–126. https://doi.org/10.1080/02680513.2015.1065720

Hubler, S. (2020, August 15). As colleges move classes online, families rebel against the cost. *The New York Times*. https://www.nytimes.com/2020/08/15/us/covid-college-tuition.html

Irion, Theo. W. H. (1929). Some practical problems of educational research. *The Phi Delta Kappan*, *12*(2), 33–34.

Jackson, A. Y., & Mazzei, L. A. (2018). Thinking with theory; A new analytic for qualitative inquiry. In Norman K. Denzin & Y. S. Lincoln (Eds.), *The SAGE handbook of qualitative research* (5th ed., pp. 1240–1275). SAGE Publications, Inc.

Jaffee, D. (1998). Institutionalized resistance to asynchronous learning networks. *Journal of Asynchronous Learning Networks*, *2*(2), 21–32.

Jaschik, S., & Lederman, D. (2019). *2019 Survey of Faculty Attitudes on Technology*. Gallup and Inside Higher Ed. https://www.insidehighered.com/system/files/media/IHE_2019_Faculty_Tech_Survey_20191030.pdf

Katz, D., & Kahn, R. L. (1966). *The social psychology of organizations*. John Wily & Sons, Inc.

Kebritchi, M., Lipschuetz, A., & Santiague, L. (2017). Issues and challenges for teaching successful online courses in higher education: A literature review. *Journal of Educational Technology Systems*, *46*(1), 4–29. https://doi.org/10.1177/0047239516661713

Keegan, D. (1996). *Foundations of distance education* (3rd ed). Routledge.

Kelderman, E. (2019). *The looming enrollment crisis: How colleges are responding to shifting demographics and new student needs*. The Chronicle of Higher Education.

Kentnor, H. E. (2015). Distance education and the evolution of online learning in the United States. *Curriculum and Teaching Dialogue*, *17*(1–2), 21–34.

Kett, J. F. (1994). *The pursuit of knowledge under difficulties: From self-improvement to adult education in America, 1750-1990*. Stanford University Press.

King, E. (2015). *Best practices in online program development: Teaching and learning in higher education*. Routledge.

Koro-Ljungerg, M., MacLure, M., & Ulmer, J. (2018). D...a...t...a..., data++, data, and some problematics. In Norman K. Denzin & Y. S. Lincoln (Eds.), *The SAGE handbook of qualitative research* (5th ed., pp. 29–71). SAGE Publications, Inc.

Larreamendy-Joerns, J., & Leinhardt, G. (2006). Going the distance with online education. *Review of Educational Research; Washington*, *76*(4), 567–605.

Leavy, P. (2017). *Research design: Quantitative, qualitative, mixed methods, arts-based, and community-based participatory research approaches*. Guildord Press.

Leckie, G. (2008). Researcher roles. In L. M. Given (Ed.), *The SAGE encyclopedia of qualitative research methods* (Vols. 1–2, pp. 771–777). SAGE Publications, Inc.

Lederman, D. (2019, December 17). *The biggest movers online*. Inside Higher Ed. https://www.insidehighered.com/digital-learning/article/2019/12/17/colleges-and-universities-most-online-students-2018

Lederman, D. (2020a, April 22). *How teaching changed in the (forced) shift to remote learning*. Inside Higher Ed. https://www.insidehighered.com/digital-learning/article/2020/04/22/how-professors-changed-their-teaching-springs-shift-remote

Lederman, D. (2020b, April 29). *An argument for "remote" rather than "online" instruction*. Inside Higher Ed. https://www.insidehighered.com/digital-learning/article/2020/04/29/why-remote-instruction-may-be-better-online-high-touch

Legon, R., Garrett, R., Fredericksen, E. E., & Simunich, B. (2020). *Chloe 5: The pivot to remote teaching in spring 2020 and its impact* (The Changing Landscape of Online Education, 2020, p. 40). https://www.qualitymatters.org/qa-resources/resource-center/articles-resources/CHLOE-project

Leiner, B. M., Cerf, V. G., Clark, D. D., Kahn, R. E., Kleinrock, L., Lynch, D. C., Postel, J., Roberts, L. G., & Wolff, S. (1997). Brief history of the Internet. *ACM SIGCOMM Computer Communication Review*, *39*(5), 22–31. https://doi.org/10.1145/1629607.1629613

Lewin, K. (1939). Experiments in social space. *Harvard Educational Review*, *9*, 21–32.

Lewin, K. (1951). *Field theory in social science* (D. Cartwright, Ed.). Harper & Brothers Publishers. https://archive.org/details/fieldtheoryinsoc00lewi

Liberman, N., & Trope, Y. (1998). The role of feasibility and desirability considerations in near and distant future decisions: A test of temporal construal theory. *Journal of Personality and Social Psychology*, *75*(1), 5. https://doi.org/10.1037/0022-3514.75.1.5

Live coronavirus updates: Here's the latest. (2020, August 6). The Chronicle of Higher Education. https://www.chronicle.com/article/live-coronavirus-updates-heres-the-latest

Lowenthal, P. R., Wray, M. L., Bates, B., Switzer, T., & Stevens, E. (2012). Examining faculty motivation to participate in faculty development. *International Journal of University Teaching and Faculty Development*, *3*(3), 149–164.

Magda, A. J., & Aslanian, C. B. (2018). *Online college students: Comprehensive data on demands and preferences*. The Learning House, Inc.

Maxwell, J. A. (2013). *Qualitative research design: An interactive approach* (3rd ed.). SAGE Publications, Inc.

Mazoué, J. G. (2012). The deconstructed campus. *Journal of Computing in Higher Education, 24*(2), 74–95. https://doi.org/10.1007/s12528-012-9054-2

McGinn, M. K. (2008). Secondary data. In L. M. Given (Ed.), *The SAGE encyclopedia of qualitative research methods* (Vols. 1–2, pp. 803–804). SAGE Publications, Inc.

McGinn, M. K. (2010). Data resources. In A. J. Mills, G. Durepos, & E. Wiebe (Eds.), *Encyclopedia of case study research* (Vol. 1, pp. 274–276). SAGE Publications, Inc.

McKee, T. (2010). Thirty years of distance education: Personal reflections. *International Review of Research in Open and Distance Learning*, *11*(2), 100–109.

McMillan, J. H., & Schumacher, S. (2010). *Research in education: Evidence-based inquiry* (7th ed). Pearson.

McVey, M. G. (2019). Transformational journey of educators in technology: A study of tenured business faculty. *American Journal of Distance Education*, *33*(4), 230–244. https://doi.org/10.1080/08923647.2019.1639432

McWilliam, E., & Lee, A. (2006). The problem of 'The problem with educational research.' *The Australian Educational Researcher*, *33*(2), 43–60. https://doi.org/10.1007/BF03216833

Meadows, D. H. (2008). *Thinking in systems: A primer* (D. Wright, Ed.). Chelsea Green Pub.

Menon, T. (2015). Roy Bhaskar. *Social Scientist, 43*(1/2), 83–86.

Merriam, S. B. (1998). *Qualitative research and case study applications in education* (2nd ed.). Jossey-Bass Publishers.

Merriam, S. B., & Tisdell, E. J. (2015). *Qualitative research: A guide to design and implementation* (4 edition). John Wiley & Sons.

Miller, D. W. (1999, August 6). The black hole of education research. *The Chronicle of Higher Education*, A17.

Miller, G., Benke, M., Chaloux, B., Ragan, L. C., Schroeder, R., Smutz, W., & Swan, K. (2014). Foreseeing an actionable future. In M. G. Moore (Ed.), *Leading the e-Learning transformation of higher education: Meeting the challenges of technology and distance education* (pp. 210–234). Stylus.

Mitchell, L. D., Parlamis, J. D., & Claiborne, S. A. (2015). Overcoming faculty avoidance of online education: From resistance to support to active participation. *Journal of Management Education*, *39*(3), 350–371. https://doi.org/10.1177/1052562914547964

Mohr, S. C., & Shelton, K. (2017). Best practices framework for online faculty professional development: A Delphi study. *Online Learning*, *21*(4), 123–140. https://doi.org/doi: 10.24059/olj.v21i4.1273

Moore, M. G. (1972). Learner autonomy: The second dimension of independent learning. *Convergence*, *5*(2), 76–88.

Moore, M. G. (1973). Toward a theory of independent learning and teaching. *The Journal of Higher Education*, *44*(9), 661–679. https://doi.org/10.2307/1980599

Moore, M. G. (1989). Editorial: Three types of interaction. *American Journal of Distance Education*, *3*(2), 1–7. https://doi.org/10.1080/08923648909526659

Moore, M. G. (1991a). International aspects of independent study. In B. L. Watkins & S. J. Wright (Eds.), *The foundations of American distance education: A century of collegiate correspondence study* (pp. 287–306). Kendall/Hunt Pub. Co.

Moore, M. G. (1991b). Speaking personally—With Reidar Roll. *American Journal of Distance Education*, *5*(2), 76–80. https://doi.org/10.1080/08923649109526755

Moore, M. G. (1992). Distance education: The foundations of effective practice [Review of *Distance education: The foundations of effective practice*, by J. R. Verduin & T. A.

Clark]. *The Journal of Higher Education*, *63*(4), 468–472. https://doi.org/10.2307/1982124

Moore, M. G. (1993). Theory of transactional distance. In D. Keegan (Ed.), *Theoretical principles of distance education* (pp. 20–35). Routledge.

Moore, M. G. (2015). Historical perspectives on e-learning. In B. H. Khan & M. Ally (Eds.), *International handbook of e-learning volume 1: Theoretical perspectives and research* (pp. 41–49). Routledge.

Moore, M. G. (2019a). Preface. In M. G. Moore & W. C. Diehl (Eds.), *Handbook of distance education* (4th ed., pp. xi–xvi). Routledge.

Moore, M. G. (2019b). The theory of transactional distance. In M. G. Moore & W. C. Diehl (Eds.), *Handbook of distance education* (4th ed., pp. 32–46). Routledge.

Moore, M. G., & Diehl, W. C. (Eds.). (2019). *Handbook of distance education* (4th ed.). Routledge.

Moore, M. G., & Kearsley, G. (2012). *Distance education: A systems view of online learning* (3rd ed.). Wadsworth Cengage Learning.

Moore, M. G., & Shin, N. (Eds.). (2000). *Speaking personally about distance education: Foundations of contemporary practice*. American Center for the Study of Distance Education, Pennsylvania State University, College of Education.

Murphy, E., & Rodríguez-Manzanares, M. A. (2012). Rapport in distance education. *The International Review of Research in Open and Distributed Learning*, *13*(1), 167–190. https://doi.org/10.19173/irrodl.v13i1.1057

Nathan, M. J., & Sawyer, R. K. (2014). Foundations of the learning sciences. In R. K. Sawyer (Ed.), *The Cambridge handbook of the learning sciences* (2nd ed., pp. 21–43). Cambridge University Press.

Norman, E., Tjomsland, H. E., & Huegel, D. (2016). The distance between us: Using construal level theory to understand interpersonal distance in a digital age. *Frontiers in Digital Humanities*, *3*. https://doi.org/10.3389/fdigh.2016.00005

Oleson, A., & Hora, M. (2014). Teaching the way they were taught? Revisiting the sources of teaching knowledge and the role of prior experience in shaping faculty teaching practices. *Higher Education (00181560)*, *68*(1), 29–45. https://doi.org/10.1007/s10734-013-9678-9

Oliver, C. (2012). Critical realist grounded theory: A new approach for social work research. *British Journal of Social Work*, *42*(2), 371–387.

Park, R. E., & Burgess, E. W. (2009). *Introduction to the science of sociology*. Project Guetnberg. https://www.gutenberg.org/files/28496/28496-h/28496-h.htm (Original work published 1921)

Patton, M. Q. (2008). Evaluation criteria. In L. M. Given (Ed.), *The SAGE encyclopedia of qualitative research methods* (Vols. 1–2, pp. 301–303). SAGE Publications, Inc.

Paul, R. C., Swart, W., Zhang, A. M., & MacLeod, K. R. (2015). Revisiting Zhang's scale of transactional distance: Refinement and validation using structural equation modeling. *Distance Education*, *36*(3), 364–382. https://doi.org/10.1080/01587919.2015.1081741

Pittman, V. (1991). Academic credibility and the "image problem": The quality issue in collegiate independent study. In B. L. Watkins & S. J. Wright (Eds.), *The foundations of American distance education: A century of collegiate correspondence study* (pp. 109–134). Kendall/Hunt Pub. Co.

Pollard, K. M., & Jacobsen, L. A. (2019, March 15). Appalachia's digital gap in rural areas leaves some communities behind [Blog]. *Population Reference Bureau*. https://www.prb.org/appalachias-digital-gap-in-rural-areas-leaves-some-communities-behind/

Poole, W. C. (1927). Distance in sociology. *American Journal of Sociology*, *33*(1), 99–104.

Preissle, J. (2008). Ethics. In L. M. Given (Ed.), *The SAGE encyclopedia of qualitative research methods* (Vols. 1–2, pp. 273–277). SAGE Publications, Inc.

Pressey, S. L. (1962). Basic unresolved teaching-machine problems. *Theory into Practice*, *1*(1), 30–37.

Pressey, S. L. (1963). Teaching machine (and learning theory) crisis. *Journal of Applied Psychology*, *47*(1), 1–6.

Prior, L. F. (2008). Document analysis. In L. M. Given (Ed.), *The SAGE encyclopedia of qualitative research methods* (Vols. 1–2, pp. 230–232). SAGE Publications, Inc.

Protection of Human Subjects, 45 C.F.R. § 46. (2018). https://www.ecfr.gov/cgi-bin/retrieveECFR?gp=&SID=83cd09e1c0f5c6937cd9d7513160fc3f&pitd=20180719&n=pt45.1.46&r=PART&ty=HTML#se45.1.46_1116

Quintana, C. (2020, July 29). *"The virus beat us": Colleges are increasingly going online for fall 2020 semester as COVID-19 cases rise*. USA TODAY. https://www.usatoday.com/story/news/education/2020/07/29/covid-college-fall-semester-2020-reopening-online/5530096002/

Ragin, C. C. (2014). *The comparative method: Moving beyond qualitative and quantitative strategies*. University of California Press. http://ebookcentral.proquest.com/lib/cusp-ebooks/detail.action?docID=1698820

Ragnedda, M., & Muschert, G. W. (2013). *The Digital Divide: The Internet and Social Inequality in International Perspective*. Routledge, Taylor & Francis Group. https://doi.org/10.4324/9780203069769

Richmond, B. (1994). System dynamics/systems thinking: Let's just get on with it. *Systems Dynamics Review*, *10*(2–3), 135–157.

Rittel, H. W. J., & Webber, M. M. (1973). Dilemmas in a General Theory of Planning. *Policy Sciences*, *4*(2), 155–169.

Rose, S. N. (1991). Collegiate-based noncredit courses. In B. L. Watkins & S. J. Wright (Eds.), *The foundations of American distance education: A century of collegiate correspondence study* (pp. 67–92). Kendall/Hunt Pub. Co.

Ross, S. M., & Morrison, G. R. (2012). Constructing a deconstructed campus: Instructional design as vital bricks and mortar. *Journal of Computing in Higher Education*, *24*(2), 119–131. http://dx.doi.org.ezproxy.csp.edu/10.1007/s12528-012-9056-0

Rothbauer, P. M. (2008). Triangulation. In L. M. Given (Ed.), *The SAGE encyclopedia of qualitative research methods* (Vols. 1–2, pp. 892–894). SAGE Publications, Inc.

Rumble, G. (2019). *Planning and management of distance education*. Routledge. (Original work published 1986)

Ruth, S. (2018). Faculty opposition to online learning: Challenges and opportunities. *Journal of Technology in Teaching and Learning*, *14*(1), 12–23.

Rutzou, T. (2016, July 13). *What are the criteria of judgmental rationality?* [Blog]. Critical Realism Network. http://criticalrealismnetwork.org/2016/07/13/rationality/

Ryan, C. (2018). *Computer and internet use in the United States: 2016* (ACS-39; American Community Survey Reports). U.S. Census Bureau. https://www.census.gov/content/dam/Census/library/publications/2018/acs/ACS-39.pdf

Saba, F. (2003). Distance education theory, methodology, and epistemology: A pragmatic paradigm. In M. G. Moore & W. G. Anderson (Eds.), *Handbook of distance education* (pp. 3–19). Lawrence Erlbaum Associates.

Saba, F. (2014). Methods of study in distance education: A critical review of selected recent literature. In O. Zawacki-Richter & T. Anderson (Eds.), *Online distance education: Towards a research agenda* (pp. 151–171). Athabasca University Press.

Saba, F. (2016). Letter to the Editor. *American Journal of Distance Education*, *30*(4), 275–276. https://doi.org/10.1080/08923647.2016.1232983

Saba, F., & Shearer, R. L. (1994). Verifying key theoretical concepts in a dynamic model of distance education. *American Journal of Distance Education*, *8*(1), 36–59. https://doi.org/10.1080/08923649409526844

Sarkar, D. (2019). Distance operations. *Geographic Information Science & Technology Body of Knowledge*, *2019*(Q3). https://doi.org/10.22224/gistbok/2019.3.3

Sawyer, R. K. (2014). Introduction: The new science of learning. In R. K. Sawyer (Ed.), *The Cambridge handbook of the learning sciences* (2nd ed., pp. 1–18). Cambridge University Press.

Sayer, R. A. (2000). *Realism and social science*. SAGE Publications, Inc.

Schwandt, T. A., & Gates, E. F. (2018). Case study methodology. In Norman K. Denzin & Y. S. Lincoln (Eds.), *The SAGE handbook of qualitative research* (5th ed., pp. 600–630). SAGE Publications, Inc.

Scott, D. (2010). *Education, epistemology and critical realism*. Taylor & Francis Group. http://ebookcentral.proquest.com/lib/cusp-ebooks/detail.action?docID=1195811

Scott, J. C. (1999). The Chautauqua Movement. *The Journal of Higher Education, 70*(4), 389–412. https://doi.org/10.1080/00221546.1999.11780769

Seaman, J. E., Allen, I. E., & Seaman, J. (2018). *Grade increase: Tracking distance education in the United States*. Babson Survey Research Group. http://www.onlinelearningsurvey.com/highered.html

Sewart, D. (2014). *Through the mirror of ICDE: From correspondence to distance to online*. International Council for Open and Distance Education. https://static1.squarespace.com/static/5b99664675f9eea7a3ecee82/t/5e15c37b4de27a2740bc18a9/1578484603658/davidsewart-throughthemirroroficde-fromcorrespondencetodistancetoonline.pdf

Shaffer, S. C. (2005). System dynamics in distance education and a call to develop a standard model. *The International Review of Research in Open and Distributed Learning*, *6*(3). https://doi.org/10.19173/irrodl.v6i3.268

Shoolman, H. (2017). Enlightened common sense: The philosophy of critical realism. *Journal of Critical Realism*. https://doi.org/10.1080/14767430.2017.1340011

Shrock, S. A. (2012). A reaction to Mazoué's deconstructed campus. *Journal of Computing in Higher Education*, *24*(2), 104–118. http://dx.doi.org.vwu.idm.oclc.org/10.1007/s12528-012-9055-1

Simon, G. (2014). Systemic inquiry as qualitative inquiry. In G. Simon & A. Chard (Eds.), *Systemic inquiry as qualitative inquiry* (pp. 3–29).

Simonson, M., Schlosser, C., & Orellana, A. (2011). Distance education research: A review of the literature. *Journal of Computing in Higher Education*, *23*(2–3), 124–142. http://dx.doi.org.ezproxy.csp.edu/10.1007/s12528-011-9045-8

Soomro, K. A., Kale, U., Curtis, R., Akcaoglu, M., & Bernstein, M. (2020). Digital divide among higher education faculty. *International Journal of Educational Technology in Higher Education*, *17*(1), 21. https://doi.org/10.1186/s41239-020-00191-5

Steinmetz, G. (2004). Odious comparisons: Incommensurability, the case study, and "small n's" in sociology. *Sociological Theory*, *22*(3), 371–400.

Stone, B. (1973). The arts in the remote learning situation. *Higher Education*, *2*(2), 185–186.

Strauss, A., & Corbin, J. (1998). *Basics of qualitative research: Techniques and procedures for developing grounded theory* (2nd ed.). SAGE Publications, Inc.

Swann, J., & Pratt, J. (Eds.). (2000). *Improving Education: Realist Approaches to Method and Research* (1 edition). Continuum.

Taylor, M., Turk, J., & Sanchez, C. (2020, May 21). *College and university presidents respond to COVID-19: May 2020 survey*. American Council on Education (ACE). https://www.acenet.edu/Research-Insights/Pages/Senior-Leaders/College-and-University-Presidents-Respond-to-COVID-19-May-2020.aspx

Tenopir, C. (2008). Online systems for information access and retrieval. *Library Trends*, *56*(4), 816–829. https://doi.org/10.1353/lib.0.0005

Trope, Y., & Liberman, N. (2003). Temporal construal. *Psychological Review*, *110*(3), 403–421. https://doi.org/10.1037/0033-295X.110.3.403

Trope, Y., & Liberman, N. (2010). Construal-level theory of psychological distance. *Psychological Review*, *117*(2), 440–463. https://doi.org/10.1037/a0018963

Turk, J., Soler, M. C., Chessman, H., & Gonzalez, Á. (2020, December 10). *College and university presidents respond to COVID-19: 2020 fall term survey, Part II*. American Council on Education (ACE). https://www.acenet.edu/Research-Insights/Pages/Senior-Leaders/College-and-University-Presidents-Respond-to-COVID-19-2020-Fall-Term-Part-Two.aspx

Uppal, C., & Sundar, S. S. (1998). The psychological importance of "distance" in distance education. *Instructional and Developmental Communication Division*. Annual International Communication Association (ICA) Conference, Jerusalem, Israel.

U.S. Department of Education. (2020a). *Accreditation in the United States*. https://www2.ed.gov/admins/finaid/accred/accreditation_pg12.html

U.S. Department of Education. (2020b). *Fast facts*. Institute for Educational Sciences, National Center for Educational Statistics. https://nces.ed.gov/fastfacts/display.asp?id=80

U.S. Department of Education, National Center for Education Statistics. (2019a). Table 315.10. Number of faculty in degree-granting postsecondary institutions, by employment status, sex, control, and level of institution: Selected years, fall 1970 through fall 2018. In *Digest of education statistics, 2019 tables and figures*. https://nces.ed.gov/programs/digest/d19/tables/dt19_315.10.asp

U.S. Department of Education, National Center for Education Statistics. (2019b). Table 315.30. Percentage distribution of full-time faculty and instructional staff in degree-granting postsecondary institutions, by level and control of institution, selected instruction activities, and number of classes taught for credit: Fall 2003. In *Digest of education statistics, 2019 tables and figures*. https://nces.ed.gov/programs/digest/d19/tables/dt19_315.10.asp

U.S. Department of Education, Office of Planning, Evaluation and Policy Development. (2010). *Evaluation of evidence-based practices in online learning: A meta-analysis and review of online learning studies* [2010]. https://www.geteducated.com/images/pdfs/doe_online_education_finalreport.pdf. https://files.eric.ed.gov/fulltext/ED505824.pdf (Original work published 2009)

von Bertalanffy, L. (1950). The theory of open systems in physics and biology. *Science, 111*(2872), 23–29.

von Bertalanffy, L. (1972). The history and status of general systems theory. *The Academy of Management Journal*, *15*(4), 407–426. https://doi.org/10.2307/255139

Walsh, I., Holton, J. A., Bailyn, L., Fernandez, W., Levina, N., & Glaser, B. (2015). What grounded theory is…a critically reflective conversation among scholars. *Organizational Research Methods, 18*(4), 581–599. https://doi.org/10.1177/1094428114565028

Watkins, B. L. (1991). A quite radical idea: The invention and elaboration of collegiate correspondence study. In B. L. Watkins & S. J. Wright (Eds.), *The foundations of American distance education: A century of collegiate correspondence study* (pp. 1–36). Kendall/Hunt Publishing Company.

Watson, J. B. (1913). Psychology as the behaviorist views it. *Psychological Review*, *20*(2), 158–177. http://dx.doi.org.ezproxy.csp.edu/10.1037/h0074428

Wedemeyer, C. A. (1981). *Learning at the back door: Reflections on non-traditional learning in the lifespan*. University of Wisconsin Press.

Wedemeyer, C. A., & Childs, G. B. (1961). *New perspectives in university correspondence study*. Center for the Study of Liberal Education for Adults.

Wengrowicz, N., & Offir, B. (2013). Teachers' perceptions of transactional distance in different teaching environments. *American Journal of Distance Education*, *27*(2), 111–121. https://doi.org/10.1080/08923647.2013.773701

Whitford, E. (2020, August 12). *Hundreds of colleges walk back fall reopening plans and opt for online-only instruction*. Inside Higher Ed. https://www.insidehighered.com/news/2020/08/12/hundreds-colleges-walk-back-fall-reopening-plans-and-opt-online-only-instruction

Wood, D., Bruner, J. S., & Ross, G. (1976). The role of tutoring in problem solving. *Journal of Child Psychology and Psychiatry*, *17*(2), 89–100. https://doi.org/10.1111/j.1469-7610.1976.tb00381.x

World Health Organization. (2020a, January 30). *Statement on the second meeting of the International Health Regulations (2005) Emergency Committee regarding the outbreak of novel coronavirus (2019-nCoV)*. World Health Organization. https://www.who.int/news-room/detail/30-01-2020-statement-on-the-second-meeting-of-the-international-health-regulations-(2005)-emergency-committee-regarding-the-outbreak-of-novel-coronavirus-(2019-ncov)

World Health Organization. (2020b, March 11). *WHO Director-General's opening remarks at the media briefing on COVID-19—11 March 2020*. World Health Organization. https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020

Wright, S. J. (1991). Opportunity lost, opportunity regained: University independent study in the modern era. In B. L. Watkins & S. J. Wright (Eds.), *The foundations of American*

distance education: A century of collegiate correspondence study (pp. 37–66). Kendall/Hunt Publishing Company.

Yin, R. K. (2018). *Case study research and applications: Design and methods* (Sixth edition). SAGE Publications, Inc.

Zawacki-Richter, O. (2009). Research areas in distance education: A Delphi study. *The International Review of Research in Open and Distributed Learning*, *10*(3). https://doi.org/10.19173/irrodl.v10i3.674

Zawacki-Richter, O., Alturki, U., & Aldraiweesh, A. (2017). Review and content analysis of the International Review of Research in Open and Distance/Distributed Learning (2000–2015). *The International Review of Research in Open and Distributed Learning*, *18*(2). https://doi.org/10.19173/irrodl.v18i2.2806

Zawacki-Richter, O., & Anderson, T. (2014a). Introduction: Research areas in online distance education. In O. Zawacki-Richter & T. Anderson (Eds.), *Online distance education: Towards a research agenda* (pp. 1–35). Athabasca University Press.

Zawacki-Richter, O., & Anderson, T. (Eds.). (2014b). *Online distance education: Towards a research agenda*. Athabasca University Press. http://ebookcentral.proquest.com/lib/cusp-ebooks/detail.action?docID=4839990

Zawacki-Richter, O., Baecker, E. M., & Vogt, S. (2009). Review of distance education research (2000 to 2008): Analysis of research areas, methods, and authorship patterns. *The International Review of Research in Open and Distributed Learning*, *10*(6), 21–50. https://doi.org/10.19173/irrodl.v10i6.741

Zawacki-Richter, O., & Naidu, S. (2016). Mapping research trends from 35 years of publications in Distance Education. *Distance Education*, *37*(3), 245–269. https://doi.org/10.1080/01587919.2016.1185079

Zhang, A. M. (2003). *Transactional distance in web-based college learning environments: Toward measurement and theory construction* [Ph.D.]. Virginia Commonwealth University.

Zhang, M., Trussell, R. P., Tillman, D. A., & An, S. A. (2015). Tracking the rise of web information needs for mobile education and an emerging trend of digital divide. *Computers in the Schools*, *32*(2), 83–104. https://doi.org/10.1080/07380569.2015.1030531

APPENDIX A: INFORMED CONSENT

CONCORDIA UNIVERSITY, ST. PAUL
Informed Consent for a Research Study

Study Title: Higher Education During and After the COVID-19 Pandemic

You are invited to participate in a research study entitled Higher Education During and After the COVID-19 Pandemic. The study is being done by educational researchers Dr. Anna Farrell, Dr. Acacia Nikoi, Dr. Stephen O'Connor, and Ms. Lee Ann Dickerson of Concordia University, Saint Paul. Below you will find answers to the most commonly asked questions about participating in this study. Please read this document and ask any questions you may have before agreeing to participate in this study.

Why are the researchers doing this study?

In an effort to mitigate the spread of COVID-19, colleges and universities across the country have closed their schools and asked instructors to shift their classes online. Shifting courses designed for face-to-face learning to an online format presents unique challenges and requires new ways of approaching teaching and learning. The transition has not been uniform across campuses, but in all cases involves faculty, staff, students, and administrators.

As nearly all functions of colleges/universities shift online, the experiences and perspectives of faculty, staff, students, and administrators are valuable in understanding efforts at shifting higher education practices and policies in response to a crisis. Furthermore, it is important to investigate how those shifts may impact learning on campuses and online after the immediate crisis.

This comparative longitudinal case study seeks to follow faculty, staff, students, and administrators as they shift courses and college/university functions online during this crisis. The study asks the following questions:

1. What strategies are faculty, staff, students, and administrators using to support online education and what are their goals and objectives in doing so?
2. What challenges are faculty, staff, students, and administrators facing and how are they navigating these challenges?
3. How does this sudden shift to online education change the functioning of colleges/universities in the long term?

Why have I been asked to be in this study?

The participants selected for this study are college/university administrators, faculty, staff, and students who have experienced the sudden shift to online education due to the COVID-19 pandemic.

If I decide to participate, what will I be asked to do?

If you meet the criteria and agree to be in this study, you will be asked to do the following:

- Participate in 3-5 semi-structured interviews over the next two years. Each interview will last between 45 and 90 minutes. Interviews will be conducted over the phone or via Zoom and will be audio recorded.
- Additional participants will also participate in up to four surveys to be held over 2 years.
- You may also be invited to share invite participants to share key documents related to the transition to online learning.

What if I decide I don't want to be in this study?

Participation in this study is completely voluntary. If you decide you do not want to participate in this study, please inform the research team. If you decide to participate in this study, but later change your mind and want to withdraw, simply notify us and you will be removed immediately. You may withdraw from this study at any point, however once data is aggregated into larger themes, withdrawal of your interview data will no longer be possible as it will have informed the analysis. Your decision of whether or not to participate will have no negative or positive impact on your relationship with Concordia University, St. Paul or with any of the faculty involved in the research.

What are the risks (dangers or harms) to me if I am in this study?

The risks associated with participation in this study are minimal.

What are the benefits that may happen if I am in this study?

This study offers no direct benefits to study participants. Indirect benefits include increasing the understanding of how faculty, staff, students, and administrators are shifting higher education practices and policies in response to a crisis and how those shifts may impact learning on campuses and online after the immediate crisis has passed.

What will you do with the information you get from me and how will you protect my privacy?

To maintain privacy, we will de-identify all data. When we write up the study, we will only use pseudonyms for participants and college/university names. Furthermore, we will not specify the state or city in which the research took place. We will only use pseudonyms in interview transcriptions and memos we write. We will keep all digital data in password protected folders on password protected computers. The Principal Investigators will keep one document that links the real names to the pseudonyms—this document will be password protected and deleted when the study is complete. Audio data will also be deleted upon completion of the study.

Could my information be used for future research?

No, your data will not be used or distributed for future research purposes, even if de-identified, without gaining further consent from you.

Are there possible changes to the study once it gets started?

If, during the course of this research study, the research team learns about new findings that might influence your willingness to continue participating in the study, they will inform you of these findings.

How can I get more information?

If you have any questions, you are welcome to ask them at any point. Please also feel free to contact us at afarrell@csp.edu, nikoi@csp.edu, oconnor@csp.edu, and dickersl@csp.edu. If you have other questions or concerns regarding the study and would like to talk to someone other than the researchers, you are welcome to contact the Concordia University Institutional Review Board at irb@csp.edu.

Please keep a copy of this form for your records.

APPENDIX B: PARTICIPANT PSEUDONYMS

Participant Pseudonym	1980s Song Title	Artist	Year
Al	You Can Call Me Al	Paul Simon	1986
Alexander	Alexander the Great	Iron Maiden	1986
Amanda	Amanda	Boston	1986
Angelia	Angelia	Richard Marx	1989
Arthur	Arthur's Theme	Christopher Cross	1981
Axel	Axel F.	Harold Faltermeyer	1984
Billie Jean	Billie Jean	Michael Jackson	1983
Carrie	Carrie	Europe	1987
Diane	Jack and Diane	John Mellencamp	1982
Donna	Who's Holding Donna Now	DeBarge	1985
Eddie	Spanish Eddie	Laura Branigan	1985
Eileen	Come on, Eileen	Dexy's Midnight Runners	1983
Gloria	Gloria	Laura Branigan	1982
Jack	Jack and Diane	John Mellencamp	1982
Jacob	Jacob's Ladder	Huey Lewis & The News	1986
Janie	Janie's Got a Gun	Aerosmith	1984
Jeannie	Little Jeannie	Elton John	1980
Jenny	8675309/Jenny	Tommy Tutone	1981
Jessie	Jessie's Girl	Rick Springfield	1981
Jimmy Lee	Jimmy Lee	Aretha Franklin	1986
Joanna	Joanna	Kool and the Gang	1983
Johnny	Be Good Johnny	Men at Work	1982
Laura	Think of Laura	Christopher Cross	1983
Leah	Ah! Leah!	Donnie Iris	1981
Leila	Leila	ZZ Top	1981
Luanne	Luanne	Foreigner	1982
Mickey	Hey, Mickey	Toni Basil	1982
Nikita	Nikita	Elton John	1985
Rio	Rio	Duran Duran	1982
Rosanna	Rosanna	Toto	1982
Sara	Sara	Starship	1985
Shandi	Shandi	Kiss	1980
Sheila	Oh, Sheila	Ready for the World	1985
Sherrie	Oh, Sherrie	Steve Perry	1984
Tom	Tom Sawyer	Rush	1981
Valerie	Valerie	Steve Winwood	1982
Venus	Venus	Bananarama	1986

APPENDIX C: FIRST-ROUND INTERVIEW PROTOCOL

Study Title: Higher Education During and After the COVID-19 Pandemic
PIs: Anna Farrell, PhD; Acacia Nikoi, PhD, Steve O'Connor, EdD

Faculty/staff interview protocol

1. Can you tell me about your experiences in transitioning to *(early interviews)/*with *(later interviews)* [distance learning]?
    a. We've been using the term distance learning, what term(s) are you using? What do you mean when you use these terms?
    b. How did you hear that your institution was transitioning to distance?
    c. How did the institution communicate with the decision to transition to distance learning?
        i. Where are you conducting your responsibilities from? Home? Are you on campus?
        ii. How? Asynchronous? or Synchronous? Mixed?
    d. Were you a part of the decision-making process? What was your reaction?
    e. Please describe how you were prepared for the transition. *(early interviews)*
    f. Now that you've transitioned, describe a typical day and/or week. *(later interviews)*
2. What strategies are you using to support your students?
    a. Please provide some examples of supporting students.
        i. Classroom management, tech support etc.
    b. What, if any, strategies are you using to support students' families? Please provide examples.
    c. Did you modify your syllabus? If so, would you be willing to share before and after syllabi. (How were assignments changed? Were any deleted? How was grading modified? Late policies? How was attendance tracked? And what kind of guidelines were given from the institution about course modification and substantive interaction? For accessibility?)
3. What support are you receiving during COVID-19?
    a. Which individuals, offices, units, etc. are providing support? How? (e.g. technical, emotional, training, students with disabilities)
    b. Does it differ from support you have received for online distance learning prior to COVID-19?
4. What support are you giving during COVID-19?
    a. Which individuals, office, units, etc. are you providing support to? How?
    b. Does it differ from support you have given prior?
5. What challenges are you facing? How are you navigating these? (e.g. conflict resolution?)
    a. Please describe the resources available to you in meeting these challenges.
6. What opportunities have arisen? How are you navigating these?
    a. Please describe the resources available to you in taking advantage of these opportunities.
7. What suggestions for supporting distance learning would you offer other faculty?
    a. How about administrators, district officials and policy makers?

    b. How about students and their families?
8. How have your experiences with providing distance education been the same or differed from your early expectations during COVID-19? Please describe. *(later interviews)*
    a. Are there teaching strategies or practices that you have used that you will continue using once face to face courses begin?
9. How have policies and practices regarding distance education changed over time during COVID-19? *(later interviews)*
    a. Personally?
    b. At your institution?

Administrator interview protocol

1. Can you tell me about your experiences supporting the transition to *(early interviews)/*with *(later interviews)* distance learning?
    a. We've been using the term online distance learning, what term(s) are you using? What do you mean when you use these terms?
    b. How did you hear that your institution was transitioning to distance?
    c. How did the institution communicate with the decision to transition to distance learning? How did you communicate the decision?
        i. Where are you conducting your responsibilities from? Home? Are you on campus?
    d. Were you a part of the decision-making process?
        i. What factors went into making the decision to transition to online distance ed?
        ii. How did you feel about that decision?
    e. Please describe how you were prepared for the transition. *(early interviews)*
        i. Other institution? Self-prepared? Current institution?
        ii. Current institution once the decision was made to transition
    f. Now that you've transitioned, describe a typical day and/or week. *(later interviews)*
2. What strategies are you using to support faculty/staff? Other administrators? Students? Families?
    a. Please provide some examples of supporting faculty/staff? Other administrators? Students? Families?
3. What support are you receiving during COVID-19?
    a. Which individuals, offices, units, etc. are providing support? How?
    b. Does it differ from support you have received prior?
4. What support are you giving during COVID-19?
    a. Which individuals, office, units, etc. are you providing support to? How?
    b. Does it differ from support you have given prior?
5. What challenges are you facing? How are you navigating these?
    a. Please describe the resources available to you in meeting these challenges.
6. What opportunities have arisen? How are you navigating these?
    a. Please describe the resources available to you in taking advantage of these opportunities.
7. What suggestions for supporting distance learning would you offer faculty?
    a. How about administrators, district officials and policy makers?
    b. How about students and families?

8. How have your experiences with providing distance education been the same or differed from your early expectations? *(later interviews)*
9. How have policies and practices regarding distance education changed over time during COVID-19? *(later interviews)*
    a. Personally?
    b. At your institution?

APPENDIX D: SECOND-ROUND INTERVIEW PROTOCOL

1. (New participants)
    a. Faculty: Were you teaching this past spring? Were your spring courses originally slated for online or face-to-face delivery?
    b. Admin: Were you in this role this past spring?
2. What was summer like?
    a. Contributions to or receiving information about institutional decisions for fall, including changes to policy or procedure
    b. Institutional or other trainings/professional development, required or self-selected
    c. Internal discourse with faculty/staff/administration
3. How did you prepare for fall?
    a. Time, discourse with colleagues/institution, giving and receiving assistance
    b. Were student evaluations considered?
4. What was fall like?
    a. Were there surprises into fall—things you had not anticipated or planned for?
    b. Were there unresolved or persistent challenges from the previous spring?
5. What have been your experiences performing your role while wearing a mask?
6. What COVID-19-related concerns have [students, your faculty] brought to you that you have had to address or make decisions about?
7. (For faculty) Have you incorporated COVID-19 into the curriculum? Has it changed *what* you're teaching?
8. Now that you have had some time to reflect on this past spring, is there anything you would have done differently?
9. What are the top 1-3 things you've learned in your role since this past spring?
10. How are you preparing for the upcoming spring?

APPENDIX E: CATEGORIES, THEMES, CODES

Category	Theme	Code
Input	Closing/Opening	Considerations
		Determinations
	Intentions	Goals
		Philosophies
		Pledges
		Priorities
	Interventions	Academic calendar
		Conference, travel
		Course delivery
		Financial
		Large events, activities
		Materials
		Off-campus learning
		Personnel
		Physical space
		Policy
		Procedures
		Provision of services
		Remote working
		Social distancing
		Teaching and learning
		Technology
		Training
		Use of time
		Visitors
	Resources	Others

		Self
		Tools
Output	Observations	Capabilities
		Concerns
		Effects
		Needs
		Possibilities
	Outcomes	Awareness
		Behaviors
		Preparedness
		Remaining questions
		Skills
	Results	Acquisitions
		Attending, completing
		Enrolling and Retaining
		Student learning
Throughput	Contingencies	Budget
		Masks
		Uncooperative
		Preferences
		Prior experience
		Technology
		Time
		“You can’t”
	Coping Strategies	Adding or subtracting
		Balancing
		Redirecting
		Substituting
	Expectations	Directives
		For, by others
		Institution, role

	Self
Interactions	Accommodating
	Assimilating
	Collaborating
	Competing
	Correcting
	Directing
	Encouraging
	Framing
	Informing
	Objecting
	Performing, staging
	Recommending
	Refusing
	Requesting
	Responding
	Venting
Sense-Making	Analyzing
	Attributing
	Comparing
	Describing
	Evaluating
	Feeling
	Predicting
	Warranting