

ENGINEERING STUDENT EXPERIENCES BUILDING RELATIONSHIPS WITH
ACADEMIC ADVISORS IN A DISTANCE PROGRAM

by

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ABSTRACT

Enrollment in distance higher education programs has grown tremendously over the past 20 years and continues to grow today at a rate faster than main campus programs. Higher education institutions are responsible for providing support services that encourage student success and satisfaction in distance programs. Distance students have different characteristics than traditional campus enrollees including being older, more likely to be employed, and more likely to be supporting a family (Burke, 2017). Research has shown that students who integrate into their higher education experience by engaging with peers, faculty, and staff have more successful outcomes than those who do not (Astin, 1984; Pascarella & Terenzini, 2005; Tinto, 1993). Academic advising is one student services component that is well suited for engagement with students and providing an avenue toward a meaningful relationship that promotes successful outcomes. Students with strong relationships with an academic advisor are more informed, prepared, motivated, confident, and have a greater sense of belonging (Kyte, Collins, & Deil-Amen, 2020; Powell, Demetriou, & Fischer, 2013; Smith & Allen, 2014). Understanding this relationship in a distance setting provides pathways to better student support services and outcomes.

This research used a qualitative single case study method to explore the relationships between engineering distance students and academic advisors. Through interviews with 17 current students and review of seven advising-related documents, I sought to better understand how and why distance students build relationships with academic advisors through the three pillars of Moore's Transactional Distance Theory – structure, dialogue, and autonomy. Students experienced advising structures through orientation, required advising, and advisor availability.

The advisor and students created dialogue through the modes of communication used, proactive outreach, advisor attitude, and personalization. Students viewed themselves as highly autonomous but still needed an advisor to balance academic and personal responsibilities, to work through unforeseen situations, and for confirming information.

DEDICATION

I dedicate this dissertation to my family – my wife Emily, my two sons Rhett and Graham, my brother Ryan, my dad Terry, and my mom Lisa. I can't articulate the ways that you all have impacted my life, but I can say that I would not be in this position and the person I am today without each of you. I love you all.

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CHAPTER 1

INTRODUCTION

Relationships matter in higher education. Dating back to the emergence of higher-learning institutions in the United States, the bonds between faculty-student and student-student were a key component of campus life (Cook, 2009). As access has expanded greatly in the United States over the past 75 years, students from highly diverse backgrounds enter a vast range of institution types seeking personalized definitions of success (Trow, 2000). Today, students enroll in college seeking academic and social growth in hopes of creating greater professional opportunities; developing relationships with faculty, staff, and peers can be integral to nurturing that growth. Community colleges, state flagships, regional universities, private liberal arts colleges, for-profit online institutions to name a few all provide different expectations, experiences, and levels of access for potential students; however, all can deliver the outcomes students desire if they are able to successfully guide students and provide the necessary resources to succeed. In 2018, more than two-thirds of Americans age 25-30 had at least some college experience (United States Census Bureau, 2019). With such a high percentage of the population entering the doors of higher education, the opportunity and challenge rests with postsecondary institutions to provide a meaningful experience that leads to greater personal and societal achievement. Leaders of higher education institutions (HEIs) accept this challenge, at least in rhetoric, often citing the responsibility to educate a diverse population and not just transmit knowledge but holistically develop individuals to contribute to society. The implementation of

these lofty mission and vision statements means developing intentional designs that allow students to encounter the right people at the right time.

Students who are able to integrate to life on campus by becoming involved and engaged with peers, faculty, and staff are more likely to achieve successful outcomes than those who do not (Astin, 1984; Pascarella & Terenzini, 2005; Tinto, 1993). Acclimating to the demands of college and to the college environment can be especially difficult for first-generation students, minority students, students from rural communities, and students from lower socio-economic backgrounds (Adams, Meyers, & Breidas, 2016; Mitchall & Jaeger, 2018; Schafft & Prins; 2009). These students often face additional barriers and challenges in higher education and may lack the support outside the institution to help them persist. It is vital that students find a connection to campus that allows them to feel comfortable and confident in their ability to succeed. The interactions that students have with members of the campus community influence their sense of belonging and play a key role in the decision to leave or persist (Tinto, 1993). Providing a meaningful student experience and resources to encourage successful student outcomes is a top priority for institutions. HEIs attempt to create environments and build structures to facilitate student engagement and foster the relationships that lead to student success (Chickering & Gamson, 1987; Kuh, 2008). As institutions use every resource imaginable to try to encourage student persistence, retention, and ultimately graduation, understanding the nature of student relationships with peers, faculty, staff, and administrators is vital for improving outcomes.

Academic advising is one component of higher education that is well suited for relationship building. Students frequently work with a single advisor from enrollment to graduation with regularly scheduled, often mandated, interactions. While advisors serve a variety

of functions to promote student success, the primary responsibility involves semester-by-semester and long-term degree planning (Ender, Winston, & Miller, 1982). Academic advisors also serve as a hub to direct students to various institutional resources meaning they are often the person a student reaches out to when they have an issue. Because of this dynamic, academic advisors are well positioned to understand the challenges and struggles students face putting them in position to guide the student through difficult circumstances toward the student's desired outcomes. Students who engage with an academic advisor are more informed about academic requirements and campus policies, are more likely to have a plan to meet their educational goals, and are more likely to have at least one significant mentor on campus (Smith & Allen, 2014). Intentional advisor communication has been shown to increase students' feeling of inclusion and belonging while also improving motivation, self-efficacy, and confidence (Kyte, Collins, & Deil-Amen, 2020; Powell, Demetriou, & Fischer, 2013). These outcomes point to larger institutional goals and are reasons why academic advising is frequently cited by administrators as a means for improving student success (Habley et al., 2010). This study focused on the communication and relationship built between students and advisors in a distance setting.

There are numerous obstacles, though, that can prevent a meaningful relationship from forming between an advisor and student. Advisors may find their role and freedom to get to know students' aspirations on a more personal level handicapped by a narrow focus from administration on course prescription (Carlson, 2020). If an advisor's role is defined as helping students plan classes semester by semester, while other entities on campus like the career center or faculty handle career and professional inquiries, students may see less of a need to form a strong bond with their advisor. A lack of experience outside the world of academe can keep advisors from being able to offer the practical advice students seek related to their future goals.

Finally, large caseloads are another obstacle that may limit the ability of advisors to engage with individual students in a meaningful way. When advisors work with so many students that deeper, reflective conversations seem like an interference to the task of herding students through their degree requirements, interactions will be perfunctory and stifle the chance for stronger connection (Carlson, 2020). In the advising world, the dilemma of increasing caseloads and the need to engage students on a personal level can be summarized as the transactional versus relational problem. Transactional advising refers to the processes that students are required to complete in order to do things like register for and drop their classes (Noonan-Terry, Waiwaiole, & Garcia, 2019). Transactional interactions between advisors and advisees can serve a purpose but should not be the basis for the advising operation as it limits the potential benefits of an advisor-student relationship. Relational advising takes intentional steps to build trust among advisees, open channels of communication, and create a sense of belonging for the student. The purpose of relational advising is to give students a space where they feel acknowledged, listened to and valued (Noonan-Terry et al., 2019). Advising centers embark with goals of facilitating meaningful interactions between advisors and students; however, in practice, a lack of professional training, time and caseload commitments, and narrowly defined job descriptions can reduce advisors to a transactional role meant to move students forward through their degree programs without engaging in a significant way.

Along with these challenges, students and advisors who work in a distance setting have an extra layer to work through on the path to a consequential relationship. Distance students are, by definition, not on campus, so from the beginning there is a physical gap between the student and advisor that must be traversed. Distance students do not have the luxury of stopping by an advisor's office, meeting up for coffee, or experiencing any of the potential benefits from an in-

person encounter. This physical separation means that distance advisors and administrators must find ways to leverage technology to allow for transformative exchanges between advisors and students (Morris et al., 2013).

Distance programs provide access to populations who may not be able to attend in a traditional setting like those from rural communities, older working adults, those serving in the military, and the incarcerated (Bacolod, Mehay, & Pema, 2018; Burke, 2019; Calhoun, Green, & Burke, 2017). Over the past two decades, online enrollments have exploded leaving administrators to grapple with how best to serve, retain, and graduate this population. Distance students experience higher education in a different environment, and they may have significantly different needs and goals compared to traditional students (Stevenson, 2013). With that in mind, researchers should understand how and why these students build relationships during their higher education experience. In this study, I present the findings on one relationship in particular – the student-advisor relationship in a distance engineering program – to better understand the process through which this relationship is established, developed, and maintained.

Background

The history, growth, and current status of online education provides context for understanding the scope of the problem this study seeks to address and the relatively short timeframe in which the problem has arisen. Distance students are the focus of this study, so addressing the characteristics of this population and what is known about their experiences is necessary to understand the context in which this study is set.

Engineering programs face distinct challenges with respect to integrating, retaining, and graduating students. I will provide a summary of these challenges that inhibit successful student outcomes. Finally, I will review the history and professionalization of academic advising and key

theories and models that have emerged in the past 40 years to provide a general overview of the field and the contemporary landscape.

History of Distance Education

Distance education in the United States predates the internet by more than 100 years (Kentnor, 2015). In the late 1800s, institutions like Illinois Wesleyan College, Chautauqua University, and the University of Chicago introduced correspondence education programs in which course materials were sent to students by mail to be completed (Verduin & Clark, 1991). The University of Chicago's correspondence program established under William Harper Rainey was particularly successful enrolling more than 3,000 students in 350 courses showing the early potential of distance education. The advent of radio and later television offered new mediums through which to deliver postsecondary courses; however, neither caught on in the way some expected in terms of generating a mass audience (Kentnor, 2015). In 1919, the University of Wisconsin created the first federally licensed radio station for educational broadcasting. Colleges and universities followed suit in the early 1920s and by the end of the decade 176 institutions had broadcasting licenses. However, most college stations were used to broadcast social material like sporting events, concerts, and produced entertainment content (Buckland & Dye, 1991). Radio was ultimately more popular as a distance education tool in Europe and other countries around the world than in the United States. Television similarly did not catch on for the purpose of educating people away from the institution. The University of Iowa was the first known university to use television for educational broadcasts in the mid-1930s (Koenig & Hill, 1967). The demand for access to television licenses and the lack of mobilization from HEIs led to difficulties with the Federal Communications Commission (FCC) in securing airwaves for educational purposes. It was not until 1952 that the FCC responded to requests from the

education sector to reserve channels specifically for educational purposes (Kentnor, 2015). In the subsequent decades through the 1970s, television and radio became more common tools for classroom instruction but were not used widely to provide distance education. It was not until the early years of the internet that the phenomenon of distance education that we know today truly began.

The creation and use of the internet in the late 1980s led to a 30-year rise in distance education. The University of Phoenix was the first institution to offer an online education program through the internet, launching its first offerings in 1991 (Kentnor, 2015). The University of Phoenix was and still is a for-profit institution and was a harbinger for the highly competitive battle to enroll students and survive between for-profit and non-profit institutions alike. In 1992, shortly after the University of Phoenix's initial foray into online higher education, the Alfred P. Sloan Foundation, a non-profit philanthropic organization, began issuing grants to universities and colleges to develop quality online educational opportunities (Kentnor, 2015). During the mid-1990s, there was slow growth in the online offerings of traditional nonprofit institutions but that began to accelerate in 1998 with New York University's launch of NYU online, a for-profit subsidiary of the non-profit institution. This path became a popular trend in the late-1990s and early 2000s as many nonprofit institutions created for-profit online arms to attempt to break into the market dominated by the University of Phoenix (Kentnor, 2015). Many of these institutions failed to understand the dynamic landscape of online education at that time and ultimately ended up folding their online subsidiaries. Online branches of traditional brick and mortar institutions had difficulty competing with the nimbleness, adaptivity, and marketing of the leading for-profit institutions led by the University of Phoenix. This intense competition for students continued through the early 2000s as the number of distance students significantly

increased. Between 2002 and 2008 the number of distance students tripled from 1.6 million to nearly five million (Seaman, Allen, & Seaman, 2018). That number continued to increase over the following decade with clear winners and losers emerging in the online higher education marketplace.

In reviewing the history of online education over the past 30 years, the disconnect between the stated and actual motivations of institutions is worth considering. Beginning back with the correspondence programs of the late 1800s, HEIs have labeled distance education a means of providing access and opportunity to those who otherwise would not have it (Lee, 2017). This continued through the rise of online education with institutions establishing online programs to reach marginalized student populations and provide meaningful educational experiences through technology. These altruistic motives are positioned in contrast to the business-driven, competitive marketplace that has characterized the past 20 years of online education in the United States. Lee (2017) noted that online programs with open enrollment policies would appear to be providing access by decreasing barriers but viewed another way this could be seen as an exploitative tactic to enroll unprepared students with little chance for success without expansive support systems in place. For-profit institutions have taken the brunt of public discourse on predatory enrollment practices, but these criticisms can be applied to the entire distance sector. The fierce competition for students and desire to maximize profits mean that institutions may be incentivized to cut corners in expenses for high quality teaching and support programs to prioritize the bottom line (Lee 2017). When profits are prioritized to the point where necessary support programs are limited or cut, then the access provided to those from disadvantaged backgrounds cannot be viewed as a genuine opportunity but as another tightly controlled system that supports dominant social groups while continuing to marginalize minority

populations. The specifics for how distance education programs are implemented, structured, and maintained to address the educational needs of all students must be considered in order to understand the history and future of online learning. The ideas of maximizing profits and providing access to disadvantaged populations do not necessarily have to be mutually exclusive, but it is worth examining where the balance lies for individual institutions and distance education.

Rhetoric versus reality in defining distance education

From the outset, one of the primary stated purposes of distance education has been to provide greater access to those who may not be able to attend a brick-and-mortar institution, which subsequently diversifies enrollment and grows the educated populace (Peters, 2008). Distance education has fulfilled this promise by increasing enrollments among historically less represented populations; however, Levin (2007) argues that access demands more than simply letting disadvantaged populations in. It takes providing resources to accommodate the unique needs of all students to achieve authentic access. According to Lee (2017), distance education programs and distance education research tend to focus on the theoretical positive outcomes of online learning when defining distance education instead of addressing the reality of delivery and student experience. As an example, distance education rhetoric defines the experience as being interactive and collaborative, using technology to enhance the learning benefits of those who enroll (Swan, 2010). However, in practice, professors have reported that designing courses that meet those standards is too time-consuming, challenging, and expensive (Kanuka & Brooks, 2010), while students have expressed that synchronous social learning activities are overly demanding and not as effective as individual assignments (Paechter, Maier, & Macher, 2010).

Lee (2017) argued that throughout the history of distance education, institutions have defined it in terms of what it should or could do like improving access and creating better, more flexible modes of delivery through technology without looking critically to see if those ends are being achieved. Because online offerings are so expansive now, finding a definition that encompasses all programs is challenging (Schlosser & Simonson, 2010). Lee (2017) proposed that a more scientific definition should be used and that distance education can be boiled down to two necessary components: a separation of student and instructor and the use of technology to bridge that physical distance. Whether distance education has fulfilled that criteria of access is one of the concerns this study seeks to address.

Distance Students

Finding comprehensive demographic information on distance-learning students is a challenge, but what the existing published work demonstrates is that online students have different characteristics than traditional on-campus students. As a group, online students are older, more likely to have full-time or part-time work, more racial and ethnic diversity, lower socioeconomic status, and more likely to be supporting a family (Calhoun, Green, & Burke, 2017). According to U.S News and World Report, the average age for a student enrolled in a fully online undergraduate program is 32 and 84% of this population is currently employed (Friedman, 2017). These student characteristics result in a unique challenge for distance education providers to create degree programs and support services that cater to the needs of this population. Even though distance programs offer education with no geographic limitations, most students still choose to study close to home. For students enrolled in fully-distance programs, 56% attend an institution within their home state (Seaman, Allen, & Seaman; 2018). Clinefelter, Aslanian, and Magda (2019) similarly found in a survey of current and prospective distance

learners that two-thirds enrolled or planned to enroll at an institution within 50 miles of their home. These statistics indicate that distance programs provide access through the convenience and flexibility required by the majority of students who balance work, family, and other responsibilities rather than providing access to those with geographic limitations in terms of higher education options.

A 2018 survey supports this idea that convenience is a primary reason students choose online learning. Forty-seven percent of students enrolled in an online program said that they chose online learning because of existing commitments that did not allow for campus attendance (Bastrikan, 2020). An additional 21% said they chose online learning, because it was the only way for them to pursue their field of interest meaning more than two-thirds of distance students made their decision based on convenience and access. Distance students are concentrated more heavily in fewer degree programs than traditional students. More than 60% of all undergraduate distance students are enrolled in four fields – business, health professions, education, and computer science (Gallagher, 2019). This narrow concentration speaks to the practical, career-focused intentions of most students enrolled in distance programs. In terms of student satisfaction with their degree program, distance students are far more likely to rate their educational experience positively (73%) than primarily on-campus students (53%) (Gallagher, 2019). Online students are also more likely than traditional campus students to express that they would choose to re-enroll in the program they entered should they have to make the decision again.

While enrollments have continued to increase steadily over the past decade though leveling off slightly, retention rates for distance students have emerged as a primary concern. The dropout rate for online courses and programs has been found to be between 50% and 70%, a

notably higher percentage than for traditional in-person instruction (Lehman & Conceicao, 2014). This phenomenon has begun to be a target for research and practical application alike. Researchers seeking to understand this high attrition rate have found that instructor behaviors and characteristics influence student success and satisfaction. Instructors who are accessible, who display empathy to different viewpoints, and who provide timely feedback have been linked higher persistence rates and greater student satisfaction (Heyman, 2012; Jackson, Jones, & Rodriguez, 2010; Jones, 2010). Instructors who were able to model strong academic and personal behaviors and also establish environments that challenge students' points of view creating greater levels of engagement also contributed to higher levels of satisfaction and retention (Brooks, 2003; Herbert, 2006). As the competition for distance students remains strong, institutions that can effectively retain and graduate the students that enroll will gain an advantage making this one of the biggest challenges that institutions will seek to conquer in the coming years.

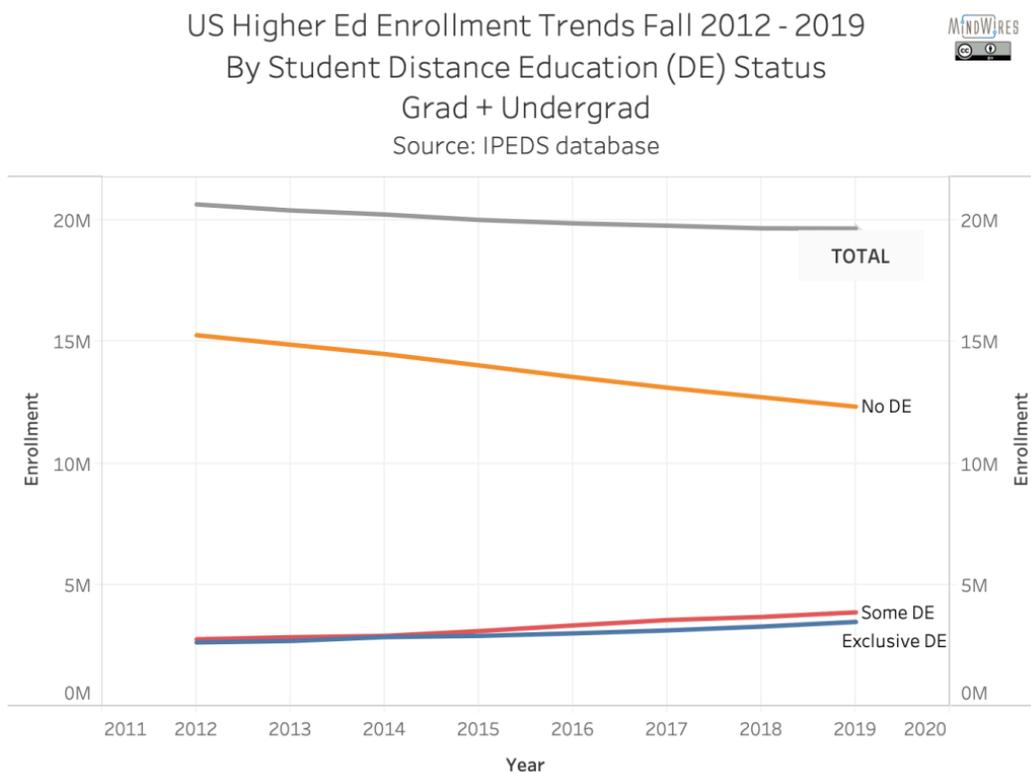
Current Context of Online Education

Online enrollment in higher education has experienced tremendous growth over the past two decades. As recently as 2002, students taking at least one online class made up less than 10% of postsecondary students. In 2017, that percentage had risen to 31.6% of students with 14.9% of that total taking courses exclusively online (Seaman et al., 2018). As overall enrollment has stagnated and declined slightly in recent years, online enrollment continues to increase. Online enrollments increased by an average of 5.6% in the years 2012-2016 while overall enrollments decreased in each of those years (Seaman et al., 2018). More than seven million students took at least one online class in 2019 with more than five million of those at the undergraduate level (Hill, 2021). The picture for students enrolled in entirely online programs is

similar. Fifteen percent of all students enrolled in colleges and universities in the United States are enrolled in a fully online program (Ginder, Kelly-Reid, & Mann, 2019). Figure 1.1 shows the steady decrease in overall enrollment from 2012-2019 and the corresponding increase in students enrolled in some or all distance-learning courses.

Figure 1.1

Higher Education Enrollment Trends (Hill, 2021)



While most distance students, 1.46 million, are enrolled at four-year undergraduate institutions, the 869,000 students enrolled in online graduate programs makes up 29% of the entire graduate population; this is a much higher share than the percentage of online undergraduate students (Ginder et al., 2019). The distribution of fully online students between public, private non-profit, and for-profit institutions is considerably different from those who

attend campus. For-profit institutions enroll 21% of distance learners, making up a sizable chunk of overall enrollment. Public institutions still make up the largest percentage at 53% with the other 26% coming from private non-profit institutions, but compared to total student enrollment where public institutions enroll 72.9%, fully online programs have a substantially more balanced distribution between the three sectors. While enrollments are spread out more evenly across institution types, there have been clear winners and losers in the competition to enroll online students with several institutions emerging as the leaders in this area.

Distance student enrollments are heavily concentrated in a relatively small number of institutions. Nearly half of all distance students are enrolled in only 5% of institutions (Seaman et al., 2018). Ten institutions account for more than 10 percent of total distance student enrollment while making up a mere 0.21% of institutions. The concentration of students at a select few institutions has decreased slightly in recent years mostly due to a decline in enrollment at the biggest for-profit institutions (Seaman et al., 2018). The University of Phoenix in particular decreased its enrollment from 162,003 to 129,332 between 2015 and 2016, a loss of 20.2% of its students.

This dramatic concentration of students at a few institutions means that leaders at these institutions have an outsized effect on the overall landscape of distance education with the decisions, policies, and structures they put in place. This rise of “mega-universities,” institutions enrolling 50,000 or more students, is one of the biggest trends in distance education today (Gardner, 2019). Over a ten-year period between 2008 and 2017 when overall undergraduate enrollment stayed relatively flat, institutions like Liberty University, Southern New Hampshire University, Western Governors University, Arizona State University, and Grand Canyon University managed to at least double their enrollment. Southern New Hampshire had the most

pronounced growth over that period, increasing enrollment from 6,888 in 2008 to 92,032 in 2017, a 1300% jump (Gardner, 2019). These institutions have concentrated on recruiting and marketing to the 30,000,000 adult learners in the United States who had already completed some college courses but never received a degree. Simplifying procedures for sending and evaluating transcripts as well as instituting intrusive advising practices like calling students to check in if they are falling behind in their work are a few of the new developments that these institutions have implemented. Mega-universities have received backlash from some in higher education saying that the online experience is a poor substitute for the rich educational experience higher education aims to provide (Gardner, 2019). However, based on the population served and feedback from students about what they desire in a program, leaders at these institutions have defended mega-universities as providing a different but necessary option for students seeking a less expensive, convenient alternative to the traditional higher education experience.

Engineering Education

Graduation rates in engineering programs are notably lower than overall graduation rates in postsecondary education. Thirty-three percent of students enrolling in an engineering degree program at a four-year institution graduate in four years (Yoder, 2018). That number is eight percentage points lower than the 41% four-year graduation rate for all students entering a four-year college or university (Bustamante, 2019). Six-year graduation rates show a similar discrepancy with 55% of students who begin in an engineering program earning an engineering degree in six years compared to 62% for all students who enroll at a four-year institution (Yoder, 2018). Diversity among engineering graduates is another documented issue. Women and underrepresented minorities continue to make up a smaller percentage of STEM graduates than the overall population and enrollment in higher education would suggest (Varma, 2018).

Considerable effort and resources have been dedicated to recruiting and graduating more women and minorities in STEM fields, but the percentage of graduates remains unchanged over the past decade (Varma, 2018). Increasing the number of women and minority graduates in STEM fields is essential to building the national workforce in these areas. Other developed countries are now graduating a higher percentage of their populations with STEM degrees, which will eventually cause the United States to lose its standing as one of if not the science and technology leaders in the world (Xue & Larson, 2015). Improving graduation rates in engineering programs begins with understanding the underlying issues that lead to student attrition. Research on engineering programs points to a number of reasons why students do not persist encompassed in academic preparedness and institutional factors that lead to students leaving engineering.

Academic Preparedness and Pre-College Preparation in Engineering

Students enter engineering programs with varying levels of academic preparedness, which has been shown to be a key factor in student retention (Haag et al., 2007; Meyer & Marx, 2014; Ohland et al. 2008). Higher high school grades and higher SAT scores are predictive of higher completion rates in engineering programs. Croft and Grove (2006) disputed this finding by showing that high school achievement is not a reliable predictor of first-year success in engineering due to the variability of high school math and science instruction. Students who start at a higher-level math course like calculus based on standardized test scores or a math placement exam are more likely to persist in an engineering major than students who start at a lower level math like algebra or pre-calculus (Chen, 2013). Pre-college academic preparation has also been linked to academic self-efficacy, another factor that contributes to a student's likelihood of succeeding in an engineering program (Xu, 2016). Students who believe they have the skills and training to handle the rigorous course requirements perform better than students who do not.

Along with academic preparation and self-efficacy for succeeding in engineering courses, a lack of understanding regarding the demands of the courses and of the field of engineering in general lead to students dropping out (Koenig et al., 2012; Tseng, Chen, & Sheppard, 2011). Students report being surprised by the time commitment and difficulty of introductory engineering courses, which leads to seeking out a different major. This lack of understanding could be addressed with effective institutional communication. When students are disappointed with the course content and find out that engineering is not what they expected, it can result in a lack of motivation that leads to poor performance and eventually changing majors or dropping out (Prieto et al., 2009; Tseng et al., 2011). Improving high school education in math and science and providing greater exposure to engineering disciplines at the secondary level have been suggested as ways to improve student preparation to produce stronger student outcomes in engineering programs.

Pre-college preparation explains some of the reasons why students struggle and eventually leave engineering, but it is not a full explanation. Women outperform men in high school grades, standardized test scores, and college completion and yet still are significantly underrepresented in engineering fields (Harper & Quayle, 2013). This lack of representation cannot be explained by pre-college factors alone meaning that institutional factors must also be considered to better understand student attrition in engineering programs.

Institutional Factors Affecting Engineering Student Success

After enrolling in an engineering program, students experience an array of institutional influences that affect their decision to persist or drop out. Negative experiences with faculty in terms of teaching and mentoring, poor academic advising, an unwelcoming environment, and the complicated curricula have all been cited as reasons that students leave engineering programs

(Duncan & Zheng, 2005; Haag et al. 2007; Prieto et al., 2009; Sutton & Sankar, 2011; Xu, 2016). Xu (2016) found that teaching quality and lack of access to academic support were the most important factors in a student's decision to leave an engineering program. This echoes the findings of Haag et al. (2007) that unapproachable faculty was a key component in student attrition. However, engineering faculty are still reluctant to embrace the notion that faculty behaviors have a significant influence on student success (Yoder, 2012).

Coinciding with negative student experiences with faculty, research shows that a “chilly climate” in engineering programs contributes to student attrition (Duncan & Zheng, 2005; Sithole et al., 2017). While an unwelcoming environment has been explicitly studied in terms of the effect on women and minority students, broader studies related to engineering student attrition have found that it is an issue that affects a wide range of students (Duncan & Zheng, 2005; Mara et al., 2012). Components of the chilly climate include lack of flexibility in teaching and learning techniques, a “weed out” culture, unavailability of faculty and staff, lack of receptiveness to women and minority students, and minimal emphasis on collaboration and student engagement (Duncan & Zheng, 2005; Mara et al., 2012; Sithole et al., 2017; Xu, 2016). The cumulative effect of challenging course material, unsatisfactory pre-college preparation, difficulty connecting with faculty, and an unwelcoming environment is that a higher percentage of students choose to leave engineering majors than students do in other disciplines.

Academic advising in engineering has been omitted from this section and will be explored extensively in Chapter II.

History and Professionalization of Academic Advising

While elements of advising have taken place on college campuses since the inception of Harvard University in 1636, academic advising in its current state traces back to the G.I. Bill,

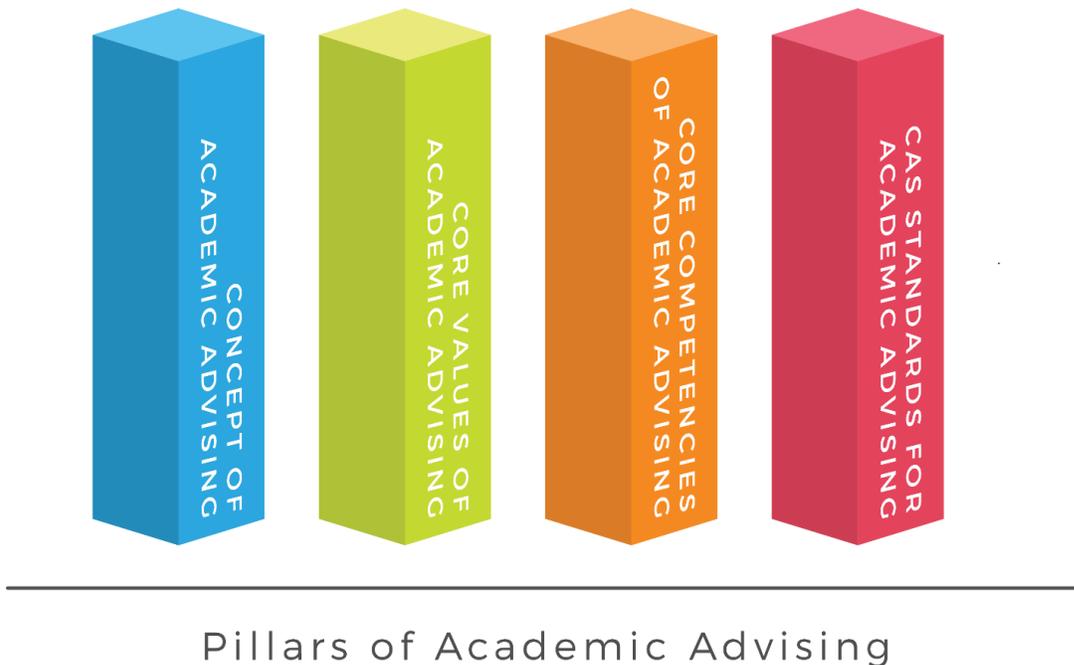
which allowed veterans to enter higher education after World War II through government subsidies (Cook, 2009). The G.I. Bill opened the door for more diverse students to attend college and was one of the first steps in the massification of higher education that took place through the 1960s and 1970s (Trow, 2000). Growing student populations and increasing diversity made institutions more complex and created the need for more specialization including in the area of academic advising (Cook, 2009). During the 1970s, academic advising became more professionalized with the development of research and theory around the practice of advising and the launch of the National Association of Academic Advisors (NACADA) in 1979 (Cook, 2009). However, several obstacles have impeded the field of academic advising gaining recognition as a profession (McGill, 2019). A lack of required education or training to become an advisor, limited specialized knowledge produced in the field, and a slowing in the development of theory in the 25 years leading to the turn of the century are a few of the factors that have challenged the professionalization of advising (McGill, 2019). Another major hurdle has been producing a unified definition of academic advising. NACADA tried and failed to create such a definition through a task force in the early 2000s, opting instead to develop a concept of advising practice (NACADA, 2006). Despite this attempt to consolidate advising methods into a singular definition, Cate and Miller (2015) accurately said, “the definitions of academic advising equal the number of postsecondary institutions” (p. 41). During the 21st Century as higher education has experienced stagnant and in some cases reductions in appropriations and overall financial resources, advisors have seen caseloads increase in conjunction with directives to improve student outcomes.

Academic Advising Roles, Models, and Theories

Advising models and practices vary considerably across institutions (Cate & Miller, 2015; Lynch & Stucky, 2000). Advisors fill multiple roles including leading new student orientation, planning degree progression, helping students choose courses, providing career and graduate school consultation, and directing students to applicable campus resources (Ender et al., 1982). Over the past 40 years since its inception, NACADA has been instrumental in plotting the course for academic advising nationwide. NACADA provides four pillars of academic advising: Concept of Academic Advising, Core Values, Core Competencies, and Standards and Guidelines (Pillars of Academic Advising).

Figure 1.2

Pillars of Academic Advising (<https://nacada.ksu.edu/Resources/Pillars>)



Each pillar has a supporting document that provides the guiding principles of academic advising best practices. Several advising theories and models contribute to the values espoused in the NACADA pillars. Crookston (1972) was one of the first to develop a theory of academic

advising in which he positioned the academic advisor as a teacher who acts on a spectrum from prescriptive to developmental. Prescriptive advising is characterized by transactional interactions between the advisor and student in which the advisor gives the student information on courses, majors, and policies with less emphasis on student development. Developmental advising aims to help students explore their major, course, and career options while instilling skills that prepare them for life beyond college. That same year, O'Banion (1972) proposed a model of advising that used professional staff instead of faculty to advise students. Other influential advising theories include intrusive advising and appreciative advising (Bloom, Hutson, & He, 2008; Glennen, 1975). The key characteristic of intrusive advising is the advisor initiates contact with the student, reaching out at critical points during their academic career to provide guidance and support (Glennen, 1975). Appreciative advising is a collaborative process between the advisor and student in which the advisor poses meaningful open-ended questions to the student to guide them toward their academic, career, and personal goals (Bloom et al., 2008). Appreciative advising features six phases - disarm, discover, dream, design, deliver, and don't settle – that allow the advisor to understand the student's position and help facilitate a plan toward the student's goals. None of these models are specifically geared toward distance students, but NACADA does provide standards for online advising. Below are a few of the relevant provisions (NACADA, 2010).

1. Employ a myriad of technologies in the delivery of distance education and related services
2. Provide an orientation to introduce new students to the distance education environment
3. Provide appropriate student support services for distance learners as they would for students on campus

4. Provide a single point of contact for the services commonly accessed by distance learners
5. Create opportunities for connection and community with the institution, faculty, staff, and other students
6. Respond to the unique needs of distance learning students, rather than expecting them to fit within the established organizational structure

Covid-19 Impact on Academic Advising

The Covid-19 pandemic has had a tremendous effect on all aspects of higher education, and academic advising is no exception. Advising personnel had to move all services online immediately when campuses closed in March 2020 and establish new ways to stay connected with students when in-person interactions were not an option (Doyle, 2020). Orientation programs, course registration processes, graduation checks, and compass courses among other advising responsibilities had to be shifted to an online setting. The changes caused by the pandemic have lasted more than a year and will likely have permanent effects on advising practices as institutions assess the best ways to provide student support through academic advising moving forward.

Statement of the Problem

In 2008, 4% of students in higher education were enrolled in a fully distance program (Radford, 2011). By 2018, the percentage had grown to more than 15% representing more than 3,000,000 distance students in the United States (Seaman, Allen, & Seaman, 2018). Online engineering programs specifically have seen significant growth both in terms of graduate and undergraduate enrollment (U.S. Department of Education, 2018). Distance engineering undergraduate enrollment climbed from 2.3% of total enrollment in 2011-12 to 5.1% by 2015-16

with 380,000 engineering students taking at least one class online (U.S. Department of Education, 2018). The growth in online enrollment demands attention for support services to help students succeed. Distance students have noted demographic differences from traditional campus students (Calhoun, Green, & Burke, 2017). Retention and persistence rates for distance students are notably lower than for traditional students (Lehman & Conceicao, 2014). These two statements suggest that HEIs have yet to identify and implement services for distance students that at least match the services provided for on-campus students or at least that the outcomes for distance students are not yet on par with their traditional peers. Distance students do not have the luxury of walking to an office on campus to address a need; they are reliant on technology and the online structures set up by the institution to carry out the functions necessary to achieve their goals. Academic advising for distance students is not excluded from this reality. It is unknown if or how these variations in delivery change the nature of the student-advisor relationship. A strong relationship between student and advisor is predicated on listening, trust, communication, and instilling a sense of belonging (Noonan-Terry et al., 2019). Understanding how those ends are accomplished in an online setting and how students perceive that process is fertile ground for inquiry.

The ability of HEIs to successfully recruit, retain, and graduate engineering students has ramifications that affect not only the institutions and individual students, but the national workforce and global competitiveness of the United States in an increasingly technology-driven economy (Ambrose, 2019). In 2012, the President's Council of Advisors on Science and Technology projected that the United States needed to produce approximately one million more Science, Technology, Engineering, and Mathematics (STEM) graduates in the next decade to maintain global preeminence in the fields (Executive Office of the President of the United States,

2012). The shortage of STEM workers has been attributed to several causes including K-12 science and math education, poor national messaging about the importance of science-related careers, and low STEM retention and graduation rates (Ambrose, 2019; Xue & Larson, 2015). Researchers have found that engineering students have low levels of satisfaction with academic advising, and lack of satisfaction with advising is strongly correlated with poor retention rates (Drake, 2011; Haag et al., 2007).

Students with a positive academic advising relationship are more informed, more confident, and have greater self-efficacy than those who do not (Kyte, Collins, & Deil-Amen, 2020; Powell et al., 2013; Smith & Allen, 2014). Effective academic advising also contributes to desired institutional outcomes like greater student satisfaction and higher retention rates (Bloom et al., 2008; Drake, 2011; Egan, 2015). Advisors play a key role in serving as a connection point on campus for students who may otherwise not engage with faculty, staff, and peers. Because students are typically required to see an advisor for course planning each semester, a relationship of some sort between student and advisor will exist. Advising interactions can take on many forms from a brief e-mail exchange about whether to drop a class or not to an hour-long conversation about professional and life goals and how education fits into that picture. Within this wide range of possible interactions, students will have different expectations and needs from an advising relationship. When advisors are able to build a level of trust, students have an outlet to address internal and external problems that contribute to their ability to succeed. Conversely if the student has a negative or no relationship with an academic advisor, he or she must find another resource to fill that gap or suffer the negative consequences of that void. Whether the student-advisor relationship will be positive and contribute to the student's success depends on many factors including the structures set up to facilitate advising, the communication between

advisor and student, and the level of autonomy students feel related to their advising needs (Moore, 1993).

Research on academic advising points to the idea that the context and environment that the advising takes place in matter (Kim & Feldman, 2011; Shields & Gillard, 2002). Minimal literature exists about the relationships of advisors and students in a distance setting, and how and why those relationships are formed. Distance programs assert that they provide access to marginalized, non-traditional populations that may not have access to higher education otherwise; however, to provide “authentic” access institutions must provide the necessary support to give students an opportunity to succeed (Lee, 2017). Academic advising is one such support structure that HEIs must establish and continue to improve in order to promote access and student success. Meanwhile engineering students have high levels of dissatisfaction with academic advising and are less likely to persist than students in other majors, but the advisor-student relationship has not yet been explored in a distance setting (Haag et al., 2007; Yoder, 2018).

Purpose

The purpose of this qualitative case study is to better understand how and why distance engineering students develop relationships with their academic advisors, and how the elements of transactional distance – dialogue, structure, and autonomy – contribute to that process. Academic advising is an essential service at HEIs. Advising is a key link for providing students with necessary information, plans to meet their academic and personal goals, and a hub to connect students to other institutional resources. Engineering student experiences with academic advising in a distance setting have not been studied but need to be understood. Distance students interact with academic advisors in a different environment than traditional on-campus students,

so it follows that the process through which they build a relationship will also be different.

Developing a better understanding of how and why students build relationships with academic advisors in a distance setting provides insight into how to structure and implement practices that address student needs and promote successful student outcomes.

Significance

The student-advisor relationship is one of the few long-term points of connection initiated by institutions. While admissions counselors may work closely with students prior to enrollment, and faculty can try to establish an accord during a semester-long class, student-advisor relationships often last for the duration of the student's enrollment. Understanding how the relationship between advisor and student evolves in a distance setting from the student perspective could provide insight into how this relationship could be used to promote communication, student success, and student satisfaction.

This issue affects not only institutions with significant distance populations but all institutions. The recent events of the Covid-19 pandemic have forced postsecondary institutions around the world to shift the entire higher education experience online. Teaching and learning, admissions, student affairs, and orientation are just a few of the areas that are having to reinvent processes with little to no preparation because of this disruption (Doyle, 2020; Hoover, 2020; Lederman, 2020; Marinacci, 2020). Traditional advising centers have had to adjust services to meet the needs of students. Developing and implementing new ways to engage with students from incoming students attending orientation to graduating seniors in need of a degree audit has been a daunting challenge. The use of video-conferencing software like Zoom has been the primary means of creating face-to-face opportunities to work with students, but the Covid-19 disruption has led to far more subtle changes in multiple areas. At many institutions, advising

personnel were instrumental in supporting students as they adjusted to online learning and dealt with any Covid-related challenges (Turner & Farr, 2020). Building new online support systems while maintaining many of the standard advising responsibilities like new student orientation and preparing students for registration has created added stress on advising centers. The transition has been far more thorough than a shift of services from in-person to Zoom for advising appointments. On the other side of this equation, students are receiving this information through new means, and how they are interpreting and processing it is not yet known. Advisors across the country and across the world had to engage with new and returning students in completely different ways than they were in February 2020 prior to the pandemic outbreak. Understanding how relationships are built online will help prepare institutions for the next disruption that makes on-campus interactions impossible.

The results of this study will provide insights for those working in the field of academic advising to open the channels for communication and build stronger relationships with distance students. Given the different demographic characteristics of distance students and the non-traditional setting in which the relationship is developed, advisors may need new approaches to connect with distance students and provide the support they need and desire. Administrators seeking ways to improve student outcomes in distance programs will be able to use this study as a building block in establishing structures and best practices for academic advising online. Even for advisors and administrators who do not typically work with distance students, this study will give a glimpse into how student-advisor relationships are formed remotely, which as the Covid-19 pandemic has illustrated could be a useful piece of knowledge in the event of a disruption to typical on-campus services. Last, students currently enrolled or considering enrolling in a distance program could use the study to better understand how the student-advisor relationship

functions in a distance setting. This information would allow students to approach the relationship with appropriate expectations and an understanding of how to make the relationship work for them.

Overview of Methodology

The design for this qualitative study employed a single case study method to explore how and why distance engineering students form relationships with an academic advisor. The single case study method allowed me to study a specific population in a bounded program to better understand how and why the components of transactional distance – structure, dialogue, and autonomy – contribute to the student-advisor relationship in a distance setting. I conducted semi-structured interviews using web-conferencing software with 17 current distance learning students in a mechanical engineering undergraduate program to collect the data. I also reviewed supplemental sources like advising webpages, advising forms, e-mails from the advisor, and the curriculum flowchart to triangulate the data. Data analysis consisted of a multi-cycle coding process to determine themes and subthemes addressing the research questions.

Organization of Dissertation

This dissertation is divided into five chapters. In Chapter 1, I introduced the study by providing background information, explaining the problem, defining the purpose, and outlining the significance. In Chapter 2, I reviewed the current literature related to academic advising in a distance setting and advising for engineering students. I also discussed the gap in the literature the study will fill and the theoretical framework. Chapter 3 is a description of the methodology I implemented to complete the study including the research design, rationale for qualitative inquiry, research questions, and an explanation of site and subject selection. I presented the findings of the study in Chapter 4 addressing the three research questions introduced in Chapter

3. In Chapter 5, I interpreted the findings and gave recommendations for practice as well as directions for future research.

CHAPTER 2

LITERATURE REVIEW

In this chapter, I review the current literature on engineering advising and advising in distance education. The purpose of this section is to provide an overview of the existing research on the topics and to demonstrate a gap in the literature that this study aims to fill. The literature review is divided into two primary categories – engineering advising and advising distance students – with subcategories that relate to the research purpose. The chapter concludes with a summary of Transactional Distance Theory, the conceptual framework I will use in this study.

Academic Advising in Engineering Programs

Academic advising is a common component of engineering degree programs in the United States. Advising in engineering is similar to advising in other disciplines in that the primary purpose is to help students plan their path through the curriculum on a semester by semester basis while serving as a hub to direct students to resources to promote success and satisfaction (Ender et al., 1982). However, there is a meaningful distinction between engineering advising and advising for most other degrees that warrants attention independent of other disciplines. Engineering curricula are highly structured and are built on a series of pre-requisites requiring students to progress sequentially through courses (Codgell, 1995). This rigidity creates a dynamic in which students are highly reliant on academic advisors to ensure they enroll in the correct courses at the correct time. Failure to do so can result in delays to the student's graduation timeline and increased financial burden (Codgell, 1995). Engineering students are retained at lower rates than students in other majors, and those who are retained take longer to

graduate (Van den Bogaard, 2012). With these outcomes in mind, the advisor-student relationship takes on added importance in engineering degree programs. This section includes three themes in engineering advising - student dissatisfaction with academic advising, advising as a factor in student success, and underrepresented populations' experiences in advising.

Student Dissatisfaction with Engineering Advising

Research on student experiences with advising in engineering programs shows that students encounter problems with their advisors that lead to dissatisfaction (Haag et al., 2007; Marra et al., 2012; Meyer & Marx, 2014; Sutton & Sankar, 2011). In a national study of undergraduate engineering students, Haag et al. (2007) found that 53% of students reported having issues with inadequate advising. Students were found to have higher levels of satisfaction with course-related information provided by advisors including schedule building and degree planning with lower levels of satisfaction for supplemental factors like helping students find mentors, providing information on the quality of faculty, and identifying internship opportunities (Sutton & Sankar, 2011). However, when students receive course information from advisors that they deem incorrect or insufficient, the damage can lead to attrition (Meyer & Marx, 2014). Factors that contribute to engineering students' dissatisfaction with advising can be categorized into four subcategories – advisors providing incorrect information, a lack of individual attention, limited availability and communication, and difficulty understanding the professional-faculty advisor dynamic.

Providing incorrect information

Poor academic advising in the form of misinformation related to course sequencing and graduation requirements is a critical factor in students choosing not to pursue a degree in engineering (Haag et al., 2007). Engineering students who receive incorrect information from

advisors encounter more severe consequences than students in other majors due to the prerequisite-heavy nature of the curriculum. Advising mistakes lead to financial ramifications for students and can delay progress resulting in increased time to finish the degree (Codgell, 1995; Meyer & Marx, 2014). Students also report feeling discouraged when advisors do not acknowledge their mistakes and instead attempt to revert the blame back to the student (Meyer & Marx, 2014; Packard, Gagnon, & Senas, 2012).

Lack of individual attention

Students in engineering describe advising experiences in which their individual circumstances are not considered, and instead they are treated “like a number” (Marra et al. 2012; Packard et al., 2012; Sutton & Sankar, 2011). Students perceive that engineering advisors are too busy or too overwhelmed to help with unique problems like financial stress, extended time away from school, or specific career ambitions, so the advisor provides general advice that can apply broadly to all students (Meyer & Marx, 2014). The lack of personalized attention results in students feeling that advising does not accomplish anything beyond directing students to classes, a task that some students feel can be accomplished without institutional support. The expectation is that an advisor is monitoring degree progress and can alert the student when a potential issue arises, however in practice this type of proactive outreach is found to be lacking (Meyer & Marx, 2014). Engineering advisors not listening to specific concerns and trying to move all students through the curriculum in the same fashion creates frustration for students leading to dissatisfaction with the program (Packard et al., 2012).

Lack of availability and communication

Not being able to meet with an advisor in a timely fashion and limited communication from the advisor were also reasons that led to dissatisfaction from students (McCuen, Gusah,

Gifford, & Srikantaiah, 2009; Packard et al., 2012). Students perceived that advisors have inflexible meeting times and were too busy to help if an urgent issue ever arose. When students do have an opportunity to meet with their advisor, they report feeling rushed and not having enough time to thoroughly address their concerns (McCuen et al., 2009). Outside of meetings, students feel that advisors do not communicate well about opportunities and resources available like tutoring and scholarships (Sutton & Sankar, 2011). This finding echoes concerns related to an overall unwelcoming atmosphere in engineering programs where students are not introduced to extracurricular opportunities and are not encouraged to engage with elements of the institution outside the classroom (Sithole et al.; 2017).

Professional and Faculty Advising

Most professional advisors working in engineering programs are not engineers by trade (Zhang & Dinh, 2017). Professional advisors serve the role of curriculum experts helping students map out their courses each semester and directing them to available resources (Khalil & Williamson, 2014). Because they do not have formal engineering training, staff advisors are not sufficiently equipped to help students understand the content of courses and may struggle to give professional advice having never worked in the field. The responsibility for those conversations is often placed on faculty advisors (Khalil & Williamson, 2014; Miville & Sedlacek; 1995). Faculty advisors are designated faculty members in an engineering department who are available to students seeking a variety of information from career advice to academic support. The distinction between professional and faculty advisors is often lost on students creating confusion about who to see for what issues (Khalil & Williamson, 2014). Miville & Sedlacek (1995) found that students seek out faculty advisors and professional advisors for the same reasons – registration, course selection, and information about requirements – pointing to the conclusion

that students do not understand the difference between faculty and staff advisors. More recent studies have found that this issue continues to persist in engineering advising programs.

Khalil & Williamson (2014) reported similar findings regarding students' understanding of faculty and staff advisors noting that students were confused by the separate roles and listed similar functions for both advisors when asked to explain their duties. In a system designed to have upperclassmen work more closely with faculty advisors with freshmen and sophomores working with a professional advisor, upperclassmen still sought help from professional advisors more often than freshmen and sophomores with the most frequent reason being concerns about graduation requirements (Khalil & Williamson, 2014). Students lack of understanding in terms of faculty and staff advising responsibilities creates challenges for faculty and professional advisors as the expectation is that either advisor should be able to answer questions on any topic. Sithole et al. (2017) called for the need for defined advising structures and systematic training for faculty advisors in engineering. The more complicated a student's situation is, the more necessary it is to have organized advising structures to address the unique needs of the individual. However, faculty are often left with the task of figuring out advising on their own through trial and error and with the low value placed on academic advising in terms of faculty evaluation, advising often becomes a low priority task (Sithole et al., 2017; Toney, 2001). Recommendations to improve the transition from faculty to professional advising include understanding student needs, introducing students to department structures, providing opportunities for engagement, and continuously evaluating advising practices (Mosher, 2017). The lack of clear delineation between professional and faculty advisor responsibilities is one of the reasons that students express dissatisfaction with advising in engineering programs.

Strategies for increasing satisfaction

Increased student satisfaction with engineering advising has been shown to improve retention and ease the transition to a different major for students who choose to leave (Tseng et al., 2011). Methods that have been shown to help increase satisfaction include assigning an individual advisor to each student, requiring students to meet with an advisor each semester, partnering with campus resources to provide career counseling and mentoring, and providing a means for students to provide timely feedback on their advising experience (Sutton & Sankar, 2011). Improving student satisfaction is a worthwhile endeavor for its own sake, but also carries added importance because of the correlation it has to student success (Drake, 2011).

Engineering Advising as a Factor of Student Success

Academic advising is one of a confluence of factors that contributes to a student's decision to persist or leave an engineering program (Cromley, Perez, & Kaplan, 2016; Marra et al., 2012; Xu, 2016). Retention is a complex issue that involves personal, pre-college, and institutional factors. Poor academic advising is one institutional factor that is cited repeatedly as leading to student attrition from engineering programs. In a study of three public institutions in the state of Tennessee, Xu (2016) found that accessibility to help from faculty and support services like academic advising was the most influential factor in student persistence for engineering majors. Marra et al. (2012) looked specifically at students who had chosen to leave an engineering program and found that negative perceptions of academic advising increased over time until the student made the decision to change majors or drop out. Qualitative inquiry into student attrition in engineering programs has yielded similar findings. Students who receive incorrect or incomplete information from advisors, who feel their concerns are not listened to and addressed, or who feel discouraged by their advisor after academic struggles may choose to

withdraw (Meyer & Marx, 2014; Sutton & Sankar, 2011). If a student chooses to persist, poor academic advising can increase time to graduation as a single mistake can delay progress for up to a year (Haag et al., 2007; Van den Bogaard, 2012). With the fact that academic advising in engineering programs is a factor in student success clearly established, researchers have begun to examine advising intervention programs aimed at increasing retention rates.

Interventions to Improve Retention

Advising interventions to improve retention rates are frequently aimed at small segments of the overall enrollment who are less likely to be retained (Ricks et al., 2014; Rodgers, Blount, & Tribble, 2014; Wilson et al., 2012). Underrepresented populations like women and racial minorities as well as students with financial or academic risk factors may be the target of such initiatives. Interventions can be programs that begin prior to a student enrolling and last throughout the duration of enrollment or can be as short as a single semester (Bowman et al., 2019; Rodgers et al., 2014; Wilson et al., 2012). Common characteristics of engineering advising initiatives include frequent one-on-one contact with students borrowing from the tenets of intrusive advising and low student-to-advisor ratios (Ricks et al., 2014; Rodgers et al., 2014). In the programs that have been studied, faculty advisors are used more frequently than professional advisors with the intention of providing a single resource who can discuss the curriculum, course content, and professional opportunities. Some other intervention components found in some but not all programs are selective criteria for which advisors participate, advising training for working with diverse populations (Rodgers et al., 2014), and scholarships for students who fulfill their academic requirements (Ricks et al., 2014).

Researchers have found that advising interventions in engineering have a positive effect on student success indicators like retention, GPA, and completion rates (Bowman et al., 2019;

Ricks et al., 2014; Rodgers et al., 2014; Wilson et al., 2012). In a longitudinal study of an engineering learning community in which students had frequent one-on-one and group contact with faculty advisors, Ricks et al. (2014) found that retention and completion rates improved for students who participated though only marginally. Wilson et al. (2012) and Rodgers et al. (2014) studied similar first-year programs aimed at disadvantaged students and found that participation drastically increased retention rates. In a single semester goalsetting intervention for engineering students on academic probation, students who completed the goalsetting worksheet and met with their advisor for a 30-minute conversation about the responses showed significantly higher GPAs than previous semesters and higher GPAs compared to those who did not complete the exercise (Bowman et al., 2019). Advising interventions to improve student success in engineering programs are typically effective; however, there are downsides to consider. Intervention programs that target only a small segment of students may have a negligible effect on overall retention rates (Ricks et al., 2014). By devoting more resources to a smaller group, less time and availability may be available to support the entire population. Advising interventions require significant time, energy, and in some cases money to achieve the desired outcome (Ricks et al., 2014). Institutions may deem that the costs to operate such initiatives is too high to justify their enactment or continuation. Engineering departments may choose to tweak overall practices in hopes of creating a larger, scalable effect in terms of retention. Taking steps to improve the advising process by assigning a specific advisor to each student, making advising mandatory each semester, connecting advising practices with professional and campus resources, and allowing students to give feedback on their advising experience have been shown to increase student satisfaction (Sutton & Sankar, 2011). These practices have not been studied directly in Engineering programs as a factor in retention, but student satisfaction with academic advising

has been shown to be highly correlated with retention (Drake, 2011, Tinto, 2006). Besides targeted interventions and adjusting processes to better serve student needs, engineering advising centers are attempting to leverage technology through the use of learning analytics to improve student retention and satisfaction.

Learning analytics in engineering advising

Learning analytics is a relatively new development in higher education and academic advising in which data are collected, examined, and shared to identify patterns with the intention of allowing for greater evidence-based decision making (Barnevold, Arnold, & Campbell, 2012). Multiple researchers have studied how learning analytics are being incorporated into the advising practices in engineering programs. One common way that learning analytics are used is to collect information like grades and engagement from the institution's learning management system (LMS) and provide that information to advisors (Krumm, Waddington, Teasley, & Lonn, 2014). This practice allows advisors to identify students who are making poor grades or are not completing assignments and reach out before the situation worsens. One challenge is to provide the appropriate amount of usable data such as to not overwhelm the advisor with unnecessary information resulting in noise (Charleer et al., 2018; Krumm et al., 2014). Krumm et al. (2014) found that advisors requested that several data points about students' usage of certain LMS tools be removed because they were not useful. Similarly, in a study observing the development of a learning dashboard for advisors to use in meetings with engineering students, researchers found that creating a visual display that captured the most relevant data was a struggle between the dashboard creators and advisors (Charleer et al., 2018).

A second form of learning analytics used in engineering advising programs is predictive analytics, developing statistical models to predict academic outcomes. In a study of predictive

analytics-based academic advising for first-year undeclared engineering students, Chen and Upah (2020) found that students who were advised based on predictive analytics were more likely to change their major and sooner than students who did not. This result was not the intended outcome of using predictive analytics; however, the result of students changing majors more quickly may result in greater overall retention rates at the institution though not in engineering (Chen & Upah, 2020). The intent of these new learning analytic techniques is to supplement advisors' experience and anecdotal approaches to supporting students with meaningful data to improve student success.

Advising for Underrepresented Populations

Women and racial minorities are underrepresented in engineering programs (Varma, 2018), and researchers have sought to explain this lack of representation by looking at institutional factors like academic advising. This section will also examine advising for international students, a growing population in engineering bachelor's programs, and transfer students.

Women and minority students

Women in engineering face multiple problems with academic advising including a lack of role models, limited career guidance, and discouraging interactions (Anderson, 1995; Helman, Bear, Colwell, 2020; Packard & Jeffers, 2013). Researchers have found that women do not receive the same attention and opportunities from faculty advisors compared to male students, and this adversely affects the desire to persist (Anderson, 1995). Packard and Jeffers (2013) observed that women who have access to intentional, proactive advising from a person with expert knowledge in an engineering field are more likely to be retained. A positive relationship

with an advisor increases the sense of belonging for women in an engineering discipline, another factor correlated with persistence (Helman et al., 2020).

Racial minorities experience similar challenges with advising in engineering programs. In a study of black students who chose to change majors away from engineering, Brent, Mobley, Brawner, and Orr (2019) found that the most common theme was poor academic advising. Students cited apathetic advisors who were unwilling to help with unique challenges, difficulty reaching the advisor, lack of responsiveness, and unsupportive conversations as reasons why their advising experience was lacking. More than 80% of students reported improved advising experiences in their new major (Brent et al., 2019). Black students have also been found to experience micro-aggressions in the student-advisor relationship in the form of feeling ignored and unsupported (Burt et al., 2019). These experiences caused black students to question their place in a graduate engineering program along with the relationship with the advisor. Long et al. (2018) found that inadequate academic advising was an institutional barrier that male black and Latino students experienced in college. Students described a lack of interest from the advisor, being advised to take courses without appropriate preparation, and limited availability as challenging aspects of their relationship with an academic advisor.

Advising practices that are common and effective for majority populations may be less effective for minority students. Coronella (2018) found a developmental advising model did not encourage persistence for first-generation Latina engineering students. Latina students benefited from a validating approach to advising, which improved their experiences and increased persistence (Coronella, 2018). Researchers have found that women and racial minorities have different needs and experiences in engineering academic advising, a potential factor in the under-representation of these groups.

International students

More than 20% of all international students enrolled in higher education in the United States are enrolled in an engineering program (Institute of International Education, 2015). Academic advising can be challenging for international students and advisors because of cultural differences that can create barriers to effective communication (Zhang & Dinh, 2017). Advisors who are open to learning about different cultures and who have positive attitudes toward cultural diversity are more likely to improve intercultural communication. International students often exhibit different behaviors in an advising setting based on their previous experiences with education in their home country (Zhang & Dinh, 2017). Some examples of these behaviors that advisors have noted include a lack of understanding that grades and academic curricula are not negotiable leading to bartering initiated by the student, animated conversations, and asking multiple staff and faculty the same question in hopes of receiving a favorable answer (Zhang & Dinh, 2017). Zhang and Dinh (2017) argue that it is not solely the responsibility of the international student to adjust to the academic and social norms of American higher education, but that institutions must attempt to understand where these students are coming from to ease that transition with advisors playing a pivotal role.

Transfer students

About half of all STEM students, which includes engineering, begin their postsecondary education at a community college (Starobin & Lanaan, 2010). Strong academic advising through the transfer process for engineering students can reduce delays to degree progress and improve student persistence (Packard, Gagnon, LaBelle, Jeffers, & Lynn, 2011; Packard et al., 2012). However, students express problems with academic advising in the community college transfer process including high student to advisor ratios that limit access to the advisor, active and

passive misinformation, and not knowing who their advisor is (Packard et al., 2012). Active poor advising refers to when an advisor provides the student with information that is inaccurate such as advising a course that does not transfer or recommending the wrong class as a pre-requisite. Passive poor advising is when an advisor omits key information that the student needs to be successful leaving the student to try to navigate the transfer process on their own (Packard et al., 2012). Both active and passive misadvising have been listed by students as frustrating elements of the transfer process.

Faculty advisors play a key role in helping community college engineering students successfully transfer to a four-year program (Packard, Tuladhar, & Lee, 2013). Faculty advisors are seen as being helpful in the transfer process when they embed conversations about advising and transferring in the classroom setting. By providing motivation and guidance in the classroom, faculty make the transfer process seem clearer and less daunting for students (Packard et al., 2013). Faculty advisors with more availability outside the classroom and who reported higher levels of satisfaction and responsibility for the advising process also received more favorable opinions from students. Investment from academic advisors in the transfer process helps students navigate the process more efficiently with fewer credits and less time lost increasing the chances for persistence and timely graduation (Packard et al., 2011).

Advising Distance Students

Distance students have different characteristics from traditional students including being older, more likely to have full-time or part-time work, more racially and ethnically diverse, lower socioeconomic status, and more likely to be supporting a family (Calhoun, Green, & Burke, 2017). Distance students also experience higher education in a different environment where all interactions are facilitated through the internet. Academic advising practices have had to be

developed to meet the needs of this student population. I review the current literature on advising distance students under three themes - student success, student needs and experiences, and the use of tools and technology.

Student Success Factors in Distance Advising

Retaining students in distance programs has proven to be a challenge for higher education institutions with national retention rates between 30% and 50% for fully online programs (Lehman & Conceicao, 2014). Multiple studies have looked at advising initiatives and practices in search of a positive correlation to retention. Nichols (2010) evaluated the effects of implementing a series of new advising practices including a mandatory online orientation, messages of support from the advisor, and scheduled advisor phone calls on undergraduate retention of at-risk students. The year after the initiatives were implemented, retention rates rose by 12% (Nichols, 2010). The study used a mixed methods approach, and interviews with retained students after the new initiatives were introduced revealed that students tended to attribute their success to intrinsic factors like motivation and hard work rather than extrinsic factors like support services. In a similar study focused on graduate and undergraduate veteran students, Richardson, Ruckert, and James (2015) compared the year over year retention rates in an online program after the implementation of an advising degree map. The purpose of the degree map was to organize the advising process, help students feel connected to their program, ease concerns about money by outlining the time to graduation, and help students stay on track to graduate. The year after introducing the degree map, the program saw a 7.9% increase in retention and a 5.02% increase in graduates (Richardson et al., 2015). Students who used the degree map were more likely to enroll in academic support programs, continue taking courses, register for more courses per term, and achieved better graduation rates than those who did not

use the degree map. No association was found between time away from college and the perceived need of the degree map meaning the tool was perceived as equally valuable by all veteran students regardless of their gap in enrollment time. Advisors noted that a lot of work up front was necessary to make the degree maps effective including understanding the student's work schedule, how many courses they could take per semester, and career goals. The use of the degree map encouraged autonomy for the students and created more time for personalized advising (Richardson et al., 2015).

Institutional Behaviors in Distance Environment

To serve distance students, institutions and advisors exhibit certain behaviors to promote student success. A common institutional trend in creating advising programs for online learners is to take existing practices for traditional campus students and adapt them to the online environment (Cordeiro & Muraoka, 2015; Miller et al., 2019; Zhang, Gossett, Simpson, & Davis, 2015). Miller et al. (2019) studied the transition of an established, effective advising program for traditional students on academic probation to the distance environment. The program used the Appreciative Advising model (Hutson et al., 2008) and created actionable items for each of the six stages of the framework. In adapting the program online, tweaks were made to the required in-person meeting criterion to allow for phone conversations and e-mail interactions with the student. The research showed a significant difference in the percentage of students who remained on probation for those who responded to at least one communication versus those who did not (Miller et al., 2019). The study also noted significant increases in persistence and a significant decrease in suspensions year over year after the program was implemented. In adapting a business degree for distance learning, Cordeiro and Muraoka (2015) described the need to appoint an academic liaison for each student. The liaison worked with the student from the

admissions process through the first year, serving as an advisor during that transitional phase. Beyond that point, students moved forward to work with faculty advisors. In these cases where an established program is moved online, institutions use existing templates but are forced to modify certain practices in order to better engage with distance students.

The literature also pointed to cases in which institutions created entirely new programs and partnerships to address the unique needs of distance learners. Morris et al. (2013) examined the development of an online social work program aimed at providing access to students in rural areas who could not access a traditional campus. The advising element of the program emphasized using multiple modes of communication to build relationships with students. Faculty members, who served as advisors, were encouraged to deconstruct and reconstruct the student-faculty relationship and embrace new technologies to create a new campus experience (Morris et al., 2013). The researchers argued that relationships are formed through shared meaning, not the act of real-time face-to-face contact, and that synchronous and asynchronous methods can be used to connect with students. Besides addressing macro concerns like access, institutions create initiatives to address the internal needs of online students after they are enrolled in a program (Guy & Eimer, 2016). After experiencing issues with students not knowing where to find and how to use certain resources, Rasmussen College adopted a one-stop support model (OSSM) in which the advisor served as the primary contact for a range of services. This transition expanded the breadth of the advisor's role while creating greater collaboration between multiple areas of campus (Guy & Eimer, 2016). The study focused on the effects to library services used by distance students and found that with the OSSM model several areas of engagement like online chat interactions, visits to the LibAnswers page, and visits to the LibGuide page increased significantly. Creating institutional practices that use the advisor as a gateway to other resources

on campus can improve cross-campus collaboration and provide greater knowledge of and access to those resources for online students (Guy & Eimer, 2016).

Little research has been published on the effects that Covid-19 has had on online advising practices; however, Hu (2020) proposed a model for building technology-mediated advising structures to support students at community colleges during and after the pandemic. With goals of establishing trust and a sense of belonging and creating a recursive process that students can access easily when issues arise, the model consists of three key elements – virtual connection, reflection, and synchronistic advising. Virtual connection refers to providing broad access to allow students to stay connected with their advisor. Synchronistic meetings allow for relationship-building and in-depth communications to address student needs. Finally, reflection allows for students to grow from the experience and become more self-directed in future instances.

Advisor Behaviors in Distance Environment

In the distance student-advisor partnership, advisors exhibit certain behaviors to elicit positive or negative responses from students. Setting goals and high expectations for students are two advisor behaviors that have been found to be important in motivating students and improving academic self-efficacy (Niari, Manousou, & Lionarakis, 2016; Schielzo, Nepper, & Smith-Jentsch, 2012). Studying the Pygmalion Effect and how its implementation by advisors was received by graduate students, Niari et al. (2016) found that setting high expectations and following through with behaviors that reinforced those expectations like providing encouragement, offering feedback, and listening led to positive emotions and established trust with students. Students reported feeling guided by their advisors and that they would be lost without their oversight. Setting goals is an important aspect of distance learning because of the

autonomy students have, so advisors who provide goal orientation early in a student's program allow them to take ownership of their learning outcomes (Schielzo et al., 2012). In an assessment of an online mentorship program, Schielzo et al. found that advisors and peers who work through a goal orientation training program had more effective relationships and greater learner self-efficacy upon completion. In conjunction with goal setting, clear communication from the advisor with relevant, individualized information contributes to positive experiences for distance students (Simpson, 2018). Simpson (2018) found that a centralized advising system in which the advisor serves as the hub for communication, problem solving, relationship management, and administrative processing was effective for working distance students.

Student Perceptions of Online Advising

Another subset of the research focused on distance student perceptions of academic advising and how those perceptions related to student success measures like satisfaction, retention, and GPA. Hillstock and Havice (2014) looked at the post-admission behavioral patterns of retained students in a two-year online degree program and found that academic integration was significantly correlated to academic advising. 90.4% of the 197 retained students surveyed reported that their advising experience was adequate or better than adequate (Hillstock & Havice, 2014). Implementing new virtual advising services including an online chat feature and WebEx sessions increased online students' satisfaction with advising and led to higher ratings for advising effectiveness, outcomes, and benefits compared to a control group without the increased services (Madi-McCarthy, 2018). In terms of what support undergraduate remote students perceived as most important to their own retention, Netanda, Mamabolo, and Themane (2019) established that financial support and academic support were the two most important factors. For new students, academic support was the highest ranked factor while continuing

students rated academic support second behind financial support. The qualitative phase of this mixed-methods study revealed that students felt that having instructors and advisors who were available and responsive was a key element in their own success (Netanda et al., 2019). In a broader study seeking to find how academic advising impacts student learning outcomes in a variety of institutional contexts, distance students who reported stronger relationships with their academic advisor had statistically significant higher GPAs (Lanlan & Fosnacht, 2019). The quantitative study also reported that the frequency of advising meetings contributed to higher self-reported gains in terms of cognitive and affective development for distance students (Lanlan & Fosnacht, 2019).

Distance Students' Needs and Experiences in Academic Advising

Several studies have examined distance students' perceptions of academic advising online with a particular focus on perceived needs and experiences. A theme that emerged across the research applying to undergraduate and graduate distance learners was the need for prompt responsiveness from the advisor (Gravel, 2012; Karakolodis, 2018; Schroeder & Terras, 2015). Gravel (2012) found that undergraduate students identified receiving personalized advising, help with academic decision-making, and help selecting courses as the three greatest perceived needs in terms of advising. In the qualitative component of this mixed methods study, timely communication from the advisor came up in multiple accounts as students described a quality personalized advising experience. The online environment also seems to decrease the amount of time that a student is willing to give for a reasonable response window. Comparing online, cohort, and on-campus graduate learners, Schroeder and Terras (2015) noted that distance students expect a response from their advisor within hours, that they experience frustration after 24 hours, and begin to worry after 48 hours. This finding diverged from cohort and on-campus

graduate students who gave more leniency in the expected response time from advisors. Building on the need of prompt responses from advisors, online students desired an individual, personalized advising experience (Gravel, 2012; Karakolodis, 2018; Schroeder et al., 2016). In a comparison study of how graduate students viewed faculty advisors versus professional advisors, Karakolodis (2018) established that distance learners value advisors who reach out proactively and who take an interest beyond academic requirements. Advisors who displayed traits like caring, supportiveness, and approachability were perceived more favorably. The study documented significant differences in student perceptions of faculty and professional advisors with professional advisors rated more favorably in all of the chosen measures (Karakolodis, 2018). Kara and Can (2019) supported the finding that online graduate students seek an individualized relationship with an advisor. Seeking to understand students' perceived needs from tutors and advisors, the study concluded that the top three ways advisors can support distance students is by creating a learner-centered atmosphere, providing caring and personalized communication, and having the necessary knowledge base to help the student progress (Kara & Can, 2019). Online students want their advisor to treat them as "more than a number" and to be supportive and motivating through challenges (Gravel, 2012). Details like remembering a student's name, their previous concerns, and asking questions to probe for the underlying meaning of an issue were listed as ways advisors can personalize the experience. Despite findings that online students desire a close relationship with an advisor, Kuhn and Garcia (2020) found that more than 78% of online students spend less than one hour working with an academic advisor during a semester. The study also found a weak correlation between advising frequency and student satisfaction.

A third theme present in the current research was the idea of connectivity between distance students, advisors, and their program. Schroeder et al. (2016) found that students desire a high level of connectivity with faculty and advisors, with less desire expressed for connection with other students. The study compared desired connectivity to experienced connectivity using factors like immediacy, authenticity, intimacy, and trust. The findings indicated that students experience a higher level of connectivity with advisors than with faculty or peers (Schroeder et al., 2016). Specifically, advisors rated higher than faculty members in the immediacy and trust constructs. The study concluded that high levels of connectivity between the distance student and their advisor correlated to high levels of connectivity to their degree program. In a similar study of online undergraduate Theology students at Laidlaw College, Smith, Erlam, Quirke, and Sylvester (2014) sought to explain perceptions of connectedness to advisors, tutors, and peers. The survey instrument featured questions to measure the social, teaching, and cognitive presence students experienced through the program. Echoing the findings of Schroeder et al. (2016), Smith et al. (2014) found that students felt most connected to their advisors though levels of connection were high in all three areas.

Technology and Tools

Advising students in an online setting has presented opportunities and challenges related to adapting tools and technologies to better serve students. Distance student advising needs must be met through other means outside of the traditional face-to-face encounter with an advisor, and the research suggests that multiple platforms are being used to bridge this gap. Learning Management Systems (LMS) are software applications traditionally used to administer, document, and track educational courses through the internet; however, LMSs can also be used for advising purposes (Ullman, 2009). Ullman (2009) assessed the effectiveness of an LMS

advising module created for nursing students at Purdue University. The LMS course was necessitated by the need to meet the growing number of enrollees in the program, more than 400, with only one advisor. The module featured materials and resources including how to communicate with the advisor, how to make an appointment, required forms, plans of study, and announcements. Satisfaction with the module was high for students, administrators, and the advisor (Ullman, 2009). The study also reported increased engagement from students and increased efficiency in terms of managing a large online student caseload. Supporting the notion that students seek to engage with their advisors through an LMS, Parenti (2013) found that video conferencing, instant-messaging, and e-mail were the top three tools offered in an LMS that students perceive as necessary to improve outcomes. Alden (2013) used a quantitative approach to address how students felt mobile platforms could best be adopted in distance learning. In a survey of graduate students at the National Defense University, Alden (2013) found that more than 60% of respondents favored choosing specific capabilities to implement for use on mobile platforms, while another 30% said that all applications should be built for mobile use. The top two responses for the most important aspects to adapt to the mobile platform were receiving alerts about assignment and appointments and being able to communicate individually with faculty and advisors through voice, e-mail, and text messages (Alden, 2013).

Advising offices serving distance students have created new tools to improve advising practices in an online setting. Two primary reasons have emerged for why advisors have shifted practices to use technology to connect with students. First, economic uncertainty has led to many student services offices struggling to do more with less which facilitates the need to discover new practices in the name of efficiency (Blumenstyk, 2015; Junco, 2010). Second, current students have grown up in the digital world, and it is imperative for advisors to be able to meet

them where they are (Gaines, 2014; Junco, 2010). Integrated Planning and Advising for Student Success (iPASS) is a technology-based support system for advisors funded by the Bill & Melinda Gates Foundation aimed at providing more holistic coverage of a student's college experience. In a study of how the iPASS system functioned in practice, Mayer et al. (2019) found that institutions increased responsiveness, implemented new advising technologies, and used new communication strategies to increase contact with students. However, the changes had only a modest effect on student behaviors and no discernable effects on academic performance.

Ambrose and Ambrose (2013) proposed that a new blended model of advising was needed to reach distance students and built their framework around the use of ePortfolios. The researchers argued for the need to move online advising from transactional to transformational with a "pre-engage, engage, re-engage," ethos. The ePortfolio consisted of an advising syllabus and asks students to collect artifacts from their coursework to establish a foundation for advising sessions and improve engagement through shared responsibility (Ambrose & Ambrose, 2013). By providing a basis for the student-advisor relationship beforehand then giving students guidance for reflection and review after meetings, the researchers suggest that the ePortfolio is a pathway to more meaningful interactions with online students. Faculty members advising distance graduate students reported the process to be too time consuming, takes time away from more holistic teaching practices, and was not conducive to connecting with students (Gupta, 2018). Advisors also reported a range of advising philosophies ranging from high to low contact. To address to the prescriptive nature of distance advising, faculty in the College of Education at Colorado State University developed an online portal to encourage self-directed advising. The self-directed advising model was scaffolded to allow students to learn, grow, and take ownership of their advising process (Gupta, 2018). The progression included orientation, goal setting,

course sequencing, resource sharing, and self-assessment. The self-directed advising model and blended advising model that use new tools specifically to cater to distance students are examples of emerging practices in the area of online advising.

Some technologies used in advising distance students aim to enhance the student-advisor partnership, while others seek to replace the need for an advisor altogether. Analytics are a key tool for many decision-making processes in higher education including advising. Phillips (2013) suggested that data analytics should be used by advisors to enhance their practices and introduced a program called eAdvisor to help students find an appropriate major and keep them progressing toward their degree. This process allows advisors to be more informed and efficient, programs to be more cost effective, and students to experience better outcomes (Phillips, 2013). Thompson and Prieto (2013) studied a fully virtualized advising program and found benefits to be consistent quality and 24-hour availability. On the downside, their findings showed that an automated advising system was not able to replicate the encouragement and personalization needed in an advisor-student relationship (Thompson & Prieto, 2013). Capuano et al. (2009) described a learning algorithm, Learning Intelligent Advisor (LIA), that could be built to achieve desired advising outcomes for students. The advisor created a set of learning experiences within a specific domain to reach a particular outcome. Students defined their learning preferences and proceeded through the activities until the desired outcome is reached with the algorithm updating as necessary. In a pilot at a vocational school in Italy, a group of students using the LIA achieved stronger results than a control group without access to the new technology (Capuano et al., 2009).

Gap in the Literature

The current body of literature on academic advising in a distant setting is limited. Researchers have investigated measures that lead to student success outcomes, explored institutional and advisor behaviors in distance learning, and identified the importance of technology in serving this student population. Student perceptions and expectations indicate a desire and need for a strong connection with academic advisors. The research also points to distance students experiencing strong connectivity with advisors, a characteristic that has been shown to be lacking in engineering advising programs. However, to date there is no research that explores how engineering student-advisor relationships are formed in a distance setting. Given the distinct characteristics of the distance environment, the established retention challenges in engineering programs, students' lack of satisfaction with engineering advising, the unique characteristics of distance students, and the growth in online enrollment, this is an area that requires investigation. This study seeks to better understand how and why distance students form relationships with academic advisors.

Conceptual Framework

I will use Moore's Theory of Transactional Distance (1993) as the conceptual framework for this study. The theory posits that the distance embedded in distance education is not related to space or time but is psychological and can be mitigated through certain measures. Interactions between students and instructors or other university entities can reduce the transactional distance experienced by students. Transactional Distance Theory was first conceived by Moore in 1972 to capture the identity of teaching and learning that takes place when the teacher and learner are separated (Moore, 1993). At that time online learning was not yet a possibility; however, many forms of distance education using the technology of the time from mail to radio to television had

been around for nearly 100 years. Moore's goal in creating Transactional Distance Theory was to help define distance teaching and learning as its own pedagogical domain instead of as an aberration from the traditional classroom experience (Moore, 1993). Moore outlined these thoughts in a presentation at the World Conference of the International Council for Correspondence Education (ICCE) in 1972:

As we continue to develop various non-traditional methods of reaching the growing numbers of people who cannot or will not attend conventional institutions but who choose to learn apart from their teachers, we should divert some of our resources to the macro-factors, i.e. describing and defining the field discriminating between the various components of this field; identifying the critical elements of the various forms of learning and teaching, in short building a theoretical framework which will embrace this whole area of education. (Moore, 1973, p. 661)

Moore conceived Transactional Distance Theory (TDT) as consisting of three interrelated components: structure, dialogue, and autonomy (Moore, 1993). The interaction and balance of these three components results in greater or less transactional distance meaning transactional distance is not a fixed quantity but a variable explained by the levels of structure, dialogue, and autonomy. This dynamic captures the wide spectrum of distance programs ranging from the highly-structured that are extensions of behaviorist and cognitive learning theories to the dialogue-focused stemming from a learner-centered constructivist approach (Moore, 1993). Each of the three components of TDT will be explained in more detail in the following sections.

Structure

Structure generally refers to the design of the course and the relative level of flexibility in the consumption of course materials based on learner preferences and needs (Moore, 1993). A

highly-structured course may have course materials like videos, readings, and lectures that are only available for a certain window of time, rigid due dates and time windows to complete assignments, and prescriptive steps to ensure that students meet the desired course objectives and learning outcomes. This type of tightly controlled course does not allow a student to deviate from the pre-determined course outline for personal reasons. In contrast, courses can also be designed with a loose structure in which students may take multiple paths in order to reach the desired learning outcomes (Moore, 1993). Students may have more input or choice in the readings to be completed, due dates for assignments, time and methods for completing tests, and the amount of collaboration with peers. Structure is a measure of rigidity or flexibility in a program, so the less structure a program has the more adaptable it can be to the individual needs and desires of students.

Dialogue

In the context of TDT, dialogue refers to a specific form of interpersonal communication initiated by the teacher aimed at enhancing the learner's understanding of the material (Moore, 1993). Every interaction between student and teacher is not considered dialogue; interactions that are not constructive or that do not help develop the student's knowledge of the subject would not be constituted as dialogue. Dialogue is constructive by definition and is characterized by a synergy between the two parties where each exchange builds on the previous. As with structure, dialogue exists on a spectrum ranging from nearly continuous opportunities for dialogue to no dialogue at all. Several factors influence the dialogue in a distance program with structure being the most prominent. Other factors include the medium of communication, the personality of the teacher, the learner's ability to effectively participate in the exchange, and cultural differences that may create barriers to dialogue (Moore, 1993). Generally, a faster medium of

communication like synchronous video conferencing will be more effective for creating dialogue than slower modes like e-mail. Openness and willingness to engage on the part of the instructor and the student increases the likelihood of producing meaningful dialogue. While dialogue is important for reducing transactional distance, some learners are better equipped than others to manage a more highly-structured, dialogue-light program.

Autonomy

The idea of learner autonomy dates back to the late 1960s and the work of Humanist psychologists like Carl Rogers (1969). Students have varying levels of ability to establish a personal learning plan, to identify resources to support their studies, and to evaluate their progress (Moore, 1993). Some distance programs allow or require a greater degree of learner autonomy than others, and all will again fall on a continuum ranging from high to low degrees of learner autonomy. There are several questions that can be asked to help determine the level of learner autonomy in a given course:

1. Is learning self-initiated and self-motivated?
2. Who identifies goals and objectives for the course?
3. Who determines the pace, sequence, and methods for information gathering?
4. Is emphasis on gathering information external to the learner?
5. How flexible is each instructional process to the requirements of the learner? (Moore, 1972, p. 83)

It should be noted that highly autonomous learners still need guidance from teachers. Instead the relationship between instructors and students with relatively high levels of autonomy will be different than those with lower-levels of autonomy. Students with lower levels of autonomy may need more emotional support and step-by-step guidance, while students with

high-levels of autonomy may only need instrumental support in the form of practical information on how to get the job done (Moore, 1993).

How Structure, Dialogue, and Autonomy affect Transactional Distance

Transactional distance is a function of structure and dialogue (Moore, 1993). The more rigidly a course is structured, the greater the transactional distance will be. Conversely, as more dialogue is produced between teacher and learner in a program, transactional distance will decrease. Structure is thus directly proportional to transactional distance while dialogue is inversely proportional. Figure 2.1 illustrates this point.

Figure 2.1

Transactional Distance Function (Moore, 1993)

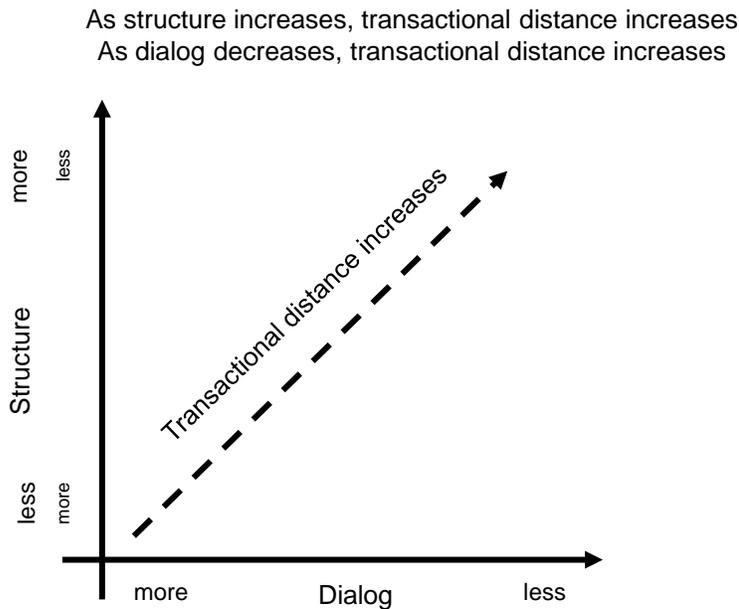


Figure 2.1. Relationship of structure and dialogue to transactional distance

The levels of structure and dialogue in a course (i.e. high or low transactional distance) determines which type of students are likely to be successful and satisfied in the course (Moore,

1993). Students with higher levels of autonomy are likely to be more comfortable in a highly-structured course with greater transactional distance. The need for high levels of dialogue will be less important for this group. Meanwhile, learners with lower levels of autonomy will be better suited for courses with relatively less structure and more dialogue allowing for increased flexibility and support to address the individual's personal needs.

Using Transactional Distance Theory in Academic Advising

While Moore's theory has been primarily used to better understand student-instructor relationships, it is also viable for evaluating the relationships of students with academic advisors. Like classroom instruction, academic advising can range from a highly structured process to one that is extremely loose and guided almost entirely by the student's needs. In a highly structured advising relationship, students may be given detailed information about the curriculum at the start of the program, directed toward resources that can help them if they encounter difficulties, issued mandatory appointments, and have a set period of time when they are able to meet or interact with their advisor. On the other hand, a distance advising program could also be set up such that a student has an academic advisor available if they have questions or need guidance, but no mandatory actions or limitations on access are presented. Dialogue in a student-advisor relationship will still be contingent on the same factors as the student-instructor relationship. The structure of the program will guide the potential for dialogue, while the advisor's personality, the medium of communication, and the student's willingness and ability to engage in a productive exchange will all factor in. Finally, students enrolled in online programs have greatly varying degrees of learner autonomy that will affect the transactional distance experienced. Some students with high autonomy will be able to choose their courses, identify the resources they need to be successful, and may only need minimal practical advice from advisors if they have

access to the necessary information. Others will fall at the other end of the spectrum and struggle to navigate the course planning and support services needed to be successful. These students will need a different advisor-student relationship that features greater emotional support and hands-on guidance during their enrollment.

TDT is an appropriate framework for this study, because many of the same characteristics that lead to student success in the classroom are also necessary in support services like academic advising. By studying the structure, dialogue, and autonomy of advising programs and how students experience these dynamics, I hope to arrive at a deeper understanding of how and why student-advisor relationships function in a distance setting.

Summary of the Literature Review

This chapter provided a review of current research on engineering advising and advising in a distance setting. Scholars have examined dissatisfaction with advising for engineering students and how advising is used to promote student success. There is also considerable literature on underrepresented populations' experiences with academic advising in engineering programs; however, research on advising distance engineering students is scarce. The body of literature on distance student needs and experiences continues to grow. The use of technology, institutional behaviors, and advisor behaviors to promote student success are areas that have received attention from researchers. The process of how and why distance students create relationships with academic advisors still needs to be addressed. By developing a better understanding of how and why distance engineering students build relationships with academic advisors, better systems and processes can be developed to meet this populations' needs.

CHAPTER 3

METHODOLOGY

This chapter covers the research methodology used for this dissertation study. The purpose of this study was to better understand how and why distance students develop relationships with their academic advisors. A qualitative case study was the best approach to address this purpose. Sections below include the rationale for the research approach, the proposed research design, research questions, an explanation of the site and subject selection, data collection procedures, delimitations, limitations, a positionality statement, data analysis, ethical considerations, and quality assurance.

Rationale for Research Approach

The purpose of this study was to contribute to a deeper understanding of the relationships between academic advisors and students in a distance setting. Using Moore's Transactional Distance Theory (1993) as a framework, I specifically wanted to understand how student-advisor relationships are developed through the constructs of structure and dialogue and what role autonomy plays in how and why students engage with their advisor. To attain the depth of data needed to support this purpose, qualitative inquiry was the most appropriate methodological approach. Creswell (2009) defined qualitative research as a mode of investigation useful for exploring and developing a better understanding of a central phenomenon. In this case, the phenomenon of transactional distance experienced by distance learners has been studied in terms of the relationship to the instructor but has not been examined regarding academic advisors.

Merriam & Tisdell (2015) stated that qualitative inquiry is not about pinpointing cause and effect, making predictions, or describing how a particular attribute manifests in certain populations but is instead about uncovering meaning. Qualitative research should provide a window for viewing how people interpret their experiences and how they assign meaning to them (Merriam & Tisdell, 2015). My viewpoint aligns most closely with a postpositivist (Patton, 2002) philosophical perspective in that I recognize that knowledge and truth are relative; however, by building evidence through thoughtful, careful examination it is possible to distinguish between more or less probable outcomes. Often these nuances and idiosyncrasies cannot be found in quantitative data and can only be unearthed through purposeful qualitative inquiry. Learning how students build relationships with advisors with the knowledge that reducing transactional distance increases students' connections to their program and institution served as an initial step toward understanding how these relationships connect to student success measures like retention, graduation, and satisfaction. Qualitative inquiry allowed for a deep exploration of academic advising for distance learners to improve the foundational knowledge base on which further research can be developed, and that is why I selected it as the appropriate mode for this study.

Research Design

This study used a single case study method focusing on students in an engineering distance degree program at a large public flagship institution. Case studies are appropriate for studying contemporary phenomena in a bounded environment chosen by the researcher (Yin, 2003). Transactional distance experienced by distance students in their relationship with their advisor fits as a contemporary phenomenon, and my desire to intimately study a small group of participants in a certain context created the boundaries justifying the case study method. Case

studies are appropriate for approaching “how” research problems and are also effective for studying a group in real-life situations where the researcher has no control over any variables as was the case for this research (Yin, 2003). The purpose of this study was to better understand how the student-advisor relationship in a distance engineering distance program develops, and I studied the group in their natural setting with no control over behaviors or variables fitting the definition of case study research. Based on the design, this research could best be described as a representative case study. A representative case study seeks to capture the common experiences of participants in an everyday situation (Yin, 2003), in this case the experiences of engineering students building relationship with advisors in a distance setting. I used interviews and documents to gather data, two commonly used methods in case study research (Creswell, 2013).

Case studies are also intended to be comprehensive and capable of providing a holistic description of the particular phenomenon in question (Savin-Baden & Major, 2013). By specifically studying the engineering student-advisor relationship in a distance setting, I was able to focus on this bounded group and achieve the desired level of depth and thoroughness necessary to explore this phenomenon. Case studies are ideal for developing descriptive information that can be used to inform professional practice (Savin-Baden & Major, 2013). As a professional working in the field of academic advising, using research to inform and improve advising practices is an ever-present goal and contributing to that field of knowledge is a worth secondary outcome of this research.

The logic behind choosing to employ a single case study related to my desire to gain a deeper understanding of how a particular group experiences an academic advising relationship in a distance setting. I believe that the advisor-student relationship and how the two communicate is important to a student’s experience in higher education. However, I do not know if the distance

student-advisor relationship may be more or less important because of the autonomy built in to distance learning degrees and the demographic differences between traditional students and distance learners. I had an intrinsic interest in a specific group and wished to understand how they experience the phenomenon of transactional distance in an academic advising relationship (Merriam & Tisdell, 2015). With that in mind, I chose a single case study to increase the focus and depth of the study. By homing in on student experiences in a single degree program, I was able to produce a deeper and richer explanation of the transactional distance phenomenon. Generalizability of results was not a primary concern for this study or qualitative inquiry in general, so establishing a narrow focus that addressed the primary research question was appropriate.

Research Questions

The following research questions were used to address the purpose of this study by using the three pillars of transactional distance theory – dialogue, structure, and autonomy – as the foundation.

1. How do student participants experience academic advising structures in a distance engineering program?
2. How do distance student participants perceive dialogue in the student-advisor relationship?
3. How do student participants' perceptions of autonomy explain the student-advisor relationship in a distance setting?

Site Selection

The site chosen for this study was a large public state flagship institution in the southeastern United States. The institution has a growing presence in the realm of distance

education with 14 undergraduate degree programs across six colleges. Flagship University has a dedicated student services staff for working exclusively with distance students; however, academic advising is not one of the functions of this centralized unit. Advising responsibilities for distance students are farmed out to the individual colleges. Flagship University has a decentralized system for advising students in which each college is able to create its own policies, procedures, and requirements. This made for fertile ground to explore relationships between distance students and advisors, because each college can structure and approach advising in a different way.

I interviewed students enrolled in the distance Bachelor of Science in Mechanical Engineering degree program at Flagship University for this study. I chose this program because of a few unique characteristics that could affect how students engage and interpret their relationship with their advisor. Yin (2003) pointed out that unique or extreme cases provide justification for choosing a single case study method, because of the distinct attributes found in the group that can be explored. First, online bachelor's degree programs in engineering are rare. In a comprehensive list of online mechanical engineering programs for 2020, there were 44 options at the master's level but only seven total in the United States for undergraduate study (Logan, 2020). The BSME is the only undergraduate engineering degree program offered online at Flagship University. Second, in order to begin taking courses in the program, certain pre-requisite math and science courses must be completed. This requirement differs from most online bachelor's degree programs that do not have any pre-requisite courses required to enroll. Finally, the distance learning degree program is the fastest growing in the College of Engineering at Flagship University. Enrollment has more than doubled in the past three years to the 259 students enrolled during the fall 2020 semester. These program characteristics mirror national trends in

online program growth, while also providing a group of students with distinct characteristics in a relatively rare online degree program. This combination presented an opportunity to explore with depth the experiences of these students in building relationships with an academic advisor online.

I also chose this program because of the nature of the advising protocols for currently enrolled online students. The distance program makes up about 20% of the overall undergraduate enrollment in the mechanical engineering department. All distance students are assigned to a single professional advisor with whom they work from admission to graduation, and students are required to interact with their advisor each semester in order to be cleared to register for the next semester's classes. Students in the program do not work directly with faculty or any other entity for required advising purposes at any point in their academic career potentially suggesting added significance for the student-advisor relationship. These structural components along with the distinguishing characteristics of the institution, program, and students produced fertile ground to examine online student-advisor relationships through the lens of transactional distance.

Participant Selection

The participants for this study were currently enrolled undergraduate students in the BSME program at Flagship University. All students enrolled in the program must have completed certain math and science pre-requisite courses meaning each had at least some level of previous higher education experience, and the vast majority of participants were transfer students with the only exception being a student who changed from a main campus degree program to the Mechanical Distance Learning degree. The research design did not include additional delimiters in relation to the population as the experiences of newly enrolled students versus students who have been in the program for multiple years for example, provide pathways to interesting

insights on how students perceived the relationship with their advisor at different stages of their academic career.

To recruit students to participate in this study, I sent an e-mail to the 259 students enrolled in the BSME degree program at Flagship University during the spring 2021 semester. To obtain the list of student contact information, I worked with the Undergraduate Program Coordinator for the department of Mechanical Engineering. After multiple solicitations, 24 students said that they were willing to participate in the study. Of those 24, 20 set up an interview time using a Sign-Up Genius registration form. Three students did not show up for their interview, and after multiple failed attempts to reschedule I decided to proceed with analysis of the 17 completed interviews to determine whether I achieved data saturation. Participants who agreed to participate in the 45-minute to hour-long Zoom interview were asked to fill out a brief demographic Qualtrics survey and choose an interview time using the aforementioned Sign Up Genius form. Participants were offered a \$10 Amazon gift card for participating, which was sent digitally at the conclusion of the interview.

The 17 participants made up a diverse group representative of the population studied with similarities to overall demographic characteristics of distance students. Most participants were older than traditional college age with only three falling in the 18-24 age bracket. Fifteen of the 17 participants were employed full-time while working to earn their engineering degree online fitting with previous research that 80% or more of distance learning students are employed. Table 3.1 shows general demographic characteristics of the participants. I used pseudonyms to protect participants' identities.

Table 3.1 *Participant Demographics*

Participant	Gender	Race	Age	Employment Status	Marital Status
Allen	M	Black/African American	18-24	part-time	single
Bill	M	White	18-24	full-time	single
Connor	M	White	18-24	not employed	single
Dave	M	Black/African American	35-39	full-time	married
Ernie	M	White	35-39	full-time	married
Fred	M	White	35-39	full-time	married
Greg	M	Black/African American	40-44	full-time	married
Howard	M	White	30-34	full-time	married
Alice	F	Black/African American	30-34	full-time	divorced
John	M	White	45-49	full-time	living with partner
Kliff	M	White	30-34	full-time	married
Larry	M	White	35-39	full-time	married
Mark	M	White	25-29	full-time	married
Nick	M	White	25-29	full-time	married
Oliver	M	White	35-39	full-time	married
Ron	M	White	40-44	full-time	married
Ted	M	White	40-44	full-time	married

Data Collection Procedures

I conducted one-on-one semi-structured interviews with 17 current distance learning students via video conferencing software to collect data for this study. The semi-structured format allowed for a pre-established list of questions to be asked of all participants while allowing for follow-up questions in given circumstances for clarification and further explanation (Merriam & Tisdell, 2015). The chosen structure allowed me to pick up on audible and visual cues and to pursue leads that led to richer data. Because of my positionality (discussed below) having worked in academic advising for more than 10 years, I am confident that the freedom to adapt the protocol to better address the research questions and overall purpose of the study was beneficial.

Interviews lasted between 36 and 55 minutes based on participants' responses. A copy of the interview protocol is included in the Appendix. Because of the geographic diversity of distance students, in-person interviews were not an option for this study. It was also appropriate in a study of distance students to meet the students in their "natural" learning environment, which in this case is online. Video interviews using Zoom were chosen over phone interviews to allow the interviewer and subjects to interact in a face-to-face setting. Some advantages of video interviews include verifiability of the interview subject, ability to build rapport and react to nonverbal cues, and democratizing the research process providing access to those who might not be able to participate otherwise (Iacono, Simmons, & Brown, 2016). After gaining permission from participants, I recorded each interview using Zoom and the recording function on my phone as a backup. I also used Zoom to produce transcriptions of the interviews, which I then reviewed and edited by listening to the audio recordings. All Zoom recordings and transcripts were stored in an encrypted Box folder. Backup recordings were stored on my password-protected cell phone.

Collecting documents for this study was an organic process spurred by the data provided by participants during interviews. Participants repeatedly referenced resources like the online advising forms, curriculum flowchart, and webpages, and multiple students found and shared information from the initial e-mails during their interviews. I settled on the seven documents – two initial e-mails, two advising forms, two advising webpages, and the curriculum flowchart – after completing the interviews. The documents served to enhance and triangulate the data collected through the interviews, while providing perspective on how the student-advisor relationship was presented to students through these static resources. I was able to access the webpages, advising forms, and curriculum flowchart through publicly available information

online, and I received permission from the Institutional Research Board to request copies of the initial e-mails from the program advisor which the advisor willingly provided.

Document Analysis

Document analysis was the second mode of inquiry used for this study. Yin (2003) said that using multiple sources of evidence is essential for conducting a sound case study. I reviewed two advising worksheets, two advising webpages, a curriculum flowchart, and two introductory e-mails from the advisor to students to look for evidence that pertained to dialogue, structure, and autonomy in the student-advisor relationship. These documents provided stable resources that were used to find descriptive information, evaluate historical perspective, and note changes over time (Merriam & Tisdell, 2015). I analyzed the general advising webpage for students in the College of Engineering at Flagship University and a second webpage that described the advising process and methods for advising. I reviewed two separate online forms that students could use to complete their advising requirement based on their degree progress. The two initial e-mails from the advisor were the first pieces of communication that students received from the advising center introducing them to the program and advising practices. Finally the curriculum flowchart was a visual resource given to students displaying a semester-by-semester guide for the path to graduation. Table 3.2 shows the title, type, and word count of each document.

Table 3.2 *Documents*

Title	Type	Word Count
Welcome to “Flagship’s” BSME-DL program!	E-mail	1,252
Advising Follow Up	E-mail	360
College of Engineering Advising	Webpage	218
Advising Process	Webpage	1,056
Degree Completion Plan Form	Advising Form	595
E-Advising Form	Advising Form	186
Mechanical Engineering Flowchart	Flowchart	365

By reviewing documents associated with the advising of distance students, I was able to more accurately triangulate the themes that emerged in the interviews.

Data Analysis

All interviews were video recorded with a backup audio recording to ensure that participants’ responses were represented accurately (Savin-Baden & Major, 2013). The process of analyzing and coding the data for common themes began at the conclusion of the first interview and continued as an ongoing process throughout data collection (Merriam & Tisdell, 2015). After each interview, I immediately wrote an analytic memo highlighting key takeaways, considering directions that the research was heading, and noting any observations that would not appear in the transcript (Saldana, 2013). Zoom produced transcripts of the interviews that were available between 12 and 36 hours after completion. When the transcripts arrived, I reviewed and edited them using the audio recording at which point they were ready for initial coding.

I completed three cycles of coding for each of the transcripts. In the initial coding phase, I read through each transcript line by line and labeled the data using methods best suited to this

study based on the purpose and research questions including but not limited to descriptive, structural, process, and values coding (Saldana, 2013). An example of first-cycle coding is provided in Table 3.3 below.

Table 3.3 *Example of First-Cycle Coding*

Participant	1 st Cycle Codes	Question #	Quote
Kliff	modes of communication convenience work schedule	4	All communications been done through email usually. My schedule is very tight so my work schedule, I go in early and I leave late.

Each interview produced between 39 and 80 initial codes for a total of 840 at the conclusion of first-cycle coding with 241 unique codes applied. The pillars of transactional distance namely dialogue, structure, and learner autonomy served as the basis for second-cycle coding. I analyzed the initial coded data and placed applicable information under one of the three constructs outlined in the research questions. I placed data that did not fit under structure, dialogue, or autonomy into a fourth category to be discussed in recommendations for future research. I attempted to keep the focus sufficiently narrow as overly diffuse analysis does not yield meaningful results; however, I was also mindful not to repress any themes that emerged outside the established themes of transactional distance (Merriam & Tisdell, 2015). After placing the initially-coded data into the appropriate category addressing one of the three research questions, I identified patterns in the codes that focused the data toward sub-themes under the themes of structure, dialogue, and autonomy (Saldana, 2013). Table 3.4 shows an example of second and third cycle codes.

Table 3.4 *Example of Second and Third Cycle Coding*

Participant	1 st Cycle Codes	Question #	Quote	2 nd Cycle	3 rd Cycle
Mark	Experience Balancing Working	4	She was able to give me her advice, based on other students experiences not getting specific, but how courses look, does she think I can handle these successfully as a full-time working adult because, yes, a lot of her customers are full time working adults.	Autonomy Dialogue	Balancing Thoroughness

I analyzed the webpages, advising forms, advising e-mails, and flowchart for evidence related to advising structure, dialogue, and autonomy. I used similar coding techniques employed in analysis of the interviews to group and categorize information from the documents. I copied the contents of the webpages, forms, and e-mails into a word document and performed line-by-line analysis to establish initial codes then grouped those codes into themes related to the research questions. Upon completion of all interviews and coding cycles, I outlined the themes and subthemes to determine the most effective way to accurately represent the findings (Creswell, 2009; Saldana, 2013).

Delimitations

In order to conduct a case study, certain delimitations must be set in order to bound the case (Yin, 2003). I chose the delimitations for this study in consideration of the purpose to better understand how and why distance students build relationships with academic advisors. The first delimitation was to only include distance students as participants. I chose to focus on the student perspective as opposed to the advisor perspective, because I believed that understanding the student experience was more likely to provide insights for practice that address student needs, a goal of this study. This study was also limited to currently enrolled undergraduate students. Choosing currently enrolled students assured that the experiences with academic advising were fresh and reduced the possibility of revisionist impressions colored by outcomes if previously

enrolled students were included. I chose to make undergraduates the focus of this study, because undergraduate students make up the largest percentage of online enrollment and professional academic advising is more common in undergraduate programs (Seaman et al., 2018). To narrow the pool of potential students more and give the study more clearly defined boundaries, I chose to interview students in one particular degree program at one institution. These students all worked with one advisor at the time of the interview, so variations in advisor quality and approach were not a concern with this delimitation in place.

I chose to conduct all interviews using video-conferencing software, because the selected participants were online students and thus located all over the country. This allowed me to engage with the participants in the same environment that they experience their degree program and potentially advising interactions. I also had access to the benefits that video conferencing provides like being able to assess non-verbal cues and body language, and the ability to record the interviews to ensure accuracy in transcription.

Limitations

As with all research, there were limitations to this study. While it was expected that participants would be open, honest, and forthcoming about their experiences with academic advising it is possible that that was not the case, which would affect the information collected. I did not have direct interactions with students in the program being studied prior to the interviews; however, I do hold a position in the college in which the program is housed. If students knew who I was, they may have been inclined to answer questions differently to meet what they perceived as my expectations. As the researcher for this qualitative study and given that the researcher is an important instrument in qualitative inquiry (Merriam & Tisdell, 2015), my personal biases could have also influenced the findings in this study even though steps were

taken to mitigate this possibility. Interviews with participants were conducted at a particular moment in time that may not fully capture the scope of their relationship with their advisor. Recency bias if the student had recently had a particularly positive or negative experience with their advisor could have influenced the information shared. Last, interviews were conducted using one particular technology-based medium. While it is not expected that using Zoom changed participant's responses, technical challenges or discomfort in that setting could have influenced participants' responses and subsequently the results.

Positionality Statement

I have been working in higher education, specifically in the area of academic advising for a decade. During that time, I have worked in athletics as an advisor to multiple teams, as a pre-professional advisor to students aspiring to attend law school, and as a supervisor to a team of advisors working in one of Flagship University's colleges. I have worked with a diverse population of students and professionals and have undoubtedly developed viewpoints regarding the value of advising that could color the analysis of this study. I took steps to mitigate any biases that could have influenced the results of this study including keeping a reflexive journal, reviewing the data with trusted colleagues, and triangulating the data using multiple sources. My position working in an advising center during the Coronavirus pandemic afforded me the opportunity to contribute to the transition to online services for all students. This transition included creating explanatory videos for purposes ranging from showing how to make an appointment to providing tips for student success, developing digital forms and flowcharts to help students understand their academic path toward graduation, and finding new methods to meet a variety of needs from veteran military benefits to international student completion letters.

Advisors in my department also experienced a significant increase in e-mail interactions as students are unable to drop in to address a problem.

My experience working with distance populations outside of the recent shift to online services caused by the Covid-19 pandemic was limited. I have not advised or taught distance students though I have used online tools to help create access and efficiency for students. My interest in distance students pertains more to my view that online education is likely to make up a greater percentage of the higher education whole in the future and learning how to best serve those students will be essential for successful programs and institutions. I was more driven to understand the true nature of the distance student-advisor relationship than by any self-serving notion to boost the importance of academic advising. This, along with the measures outlined above, is why I am confident that any biases I have did not interfere with the validity of this study.

Ethical Considerations

Before beginning the study, I submitted an application to the institution's Institutional Review Board to ensure participant rights were protected and upheld. The anonymity of participants and confidentiality of interviews was a priority in this research study. Participants were assigned pseudonyms that were used throughout the process to decouple their responses from their identity. All participants who chose to participate in the study did so of their own free will, and I provided relevant information to allow them to make an informed decision regarding whether to participate or not. All participants read and signed an informed consent form that I reviewed with each participant prior to their interview. Digital interview data were stored in an encrypted folder on a secure cloud drive, while all physical data were locked in a filing cabinet in

my personal office. Participants were provided a detailed explanation of the purpose of the study and will be given access to the final product when the dissertation is completed.

Quality Assurance

I established the credibility of this study by taking measures to ensure internal and external validity as well as reliability (Yin, 2003). Through persistent observation of my role as researcher, accurately transcribing the data, verifying unclear points with participants, using multiple sources of evidence, and building any potential explanations offered through logical pattern matching, I ensured internal validity. By using theory to guide the study, reviewing the literature to identify relevant research, and using a uniform protocol for each interview, I increased the likelihood of having external validity. Reliability comes from creating a detailed plan of action that maps out step by step how the study will be done (Yin, 2003). I outlined each step undertaken to complete this study making it possible for future researchers to replicate it and ensuring reliability. I acknowledge that potential biases and pre-conceived assumptions may influence the interpretation of data. To negate this possibility as much as possible, I took reflexive notes after each interview acknowledging my reactions throughout the duration of the study. After reviewing interview transcripts, I reached out to participants to confirm or clarify quotes through the process of member checking when necessary (Creswell, 2009; Merriam & Tisdell, 2015).

Reaching data saturation was another critical part of quality assurance for this study. Data saturation is reached when no new data or themes are present and the study is able to be replicated (Guest, Bunce, & Johnson, 2006). Data saturation varies depending on the study meaning there is not a set of pragmatic guidelines to ensure saturation has been reached. After completing 17 interviews, I proceeded with coding and analysis of the interviews and

documents. At the end of that process, it was clear that no new ideas or themes were surfacing thus data saturation had been achieved.

Finally, by using multiple sources to collect data including interviews, webpages, advising forms, and advising e-mails, I was able to triangulate the findings to provide a more comprehensive understanding of the student-advisor relationship in a distance setting.

Triangulation is the use of multiple methods and sources to better explain the phenomena and validate the data (Patton, 1999; Saldana, 2003). By using static sources in conjunction with interviews, I was able to review information that participants cited for elements of structure, dialogue, and autonomy and confirm their experiences.

Summary of Methodology

In this chapter, I explained the methodology and research design used for this dissertation study. I conducted a qualitative single case study to explore how and why distance engineering students form relationships with an academic advisor. I outlined the research questions used to guide the study and justified the subject and site selection. I explained the use of semi-structured interviews conducted using web-conferencing software for data collection and reviewed the process for analyzing the data. Finally, I discussed ethical considerations and the efforts taken to ensure a valid study aimed at contributing to the body of knowledge in the realms of distance learning and academic advising.

CHAPTER 4

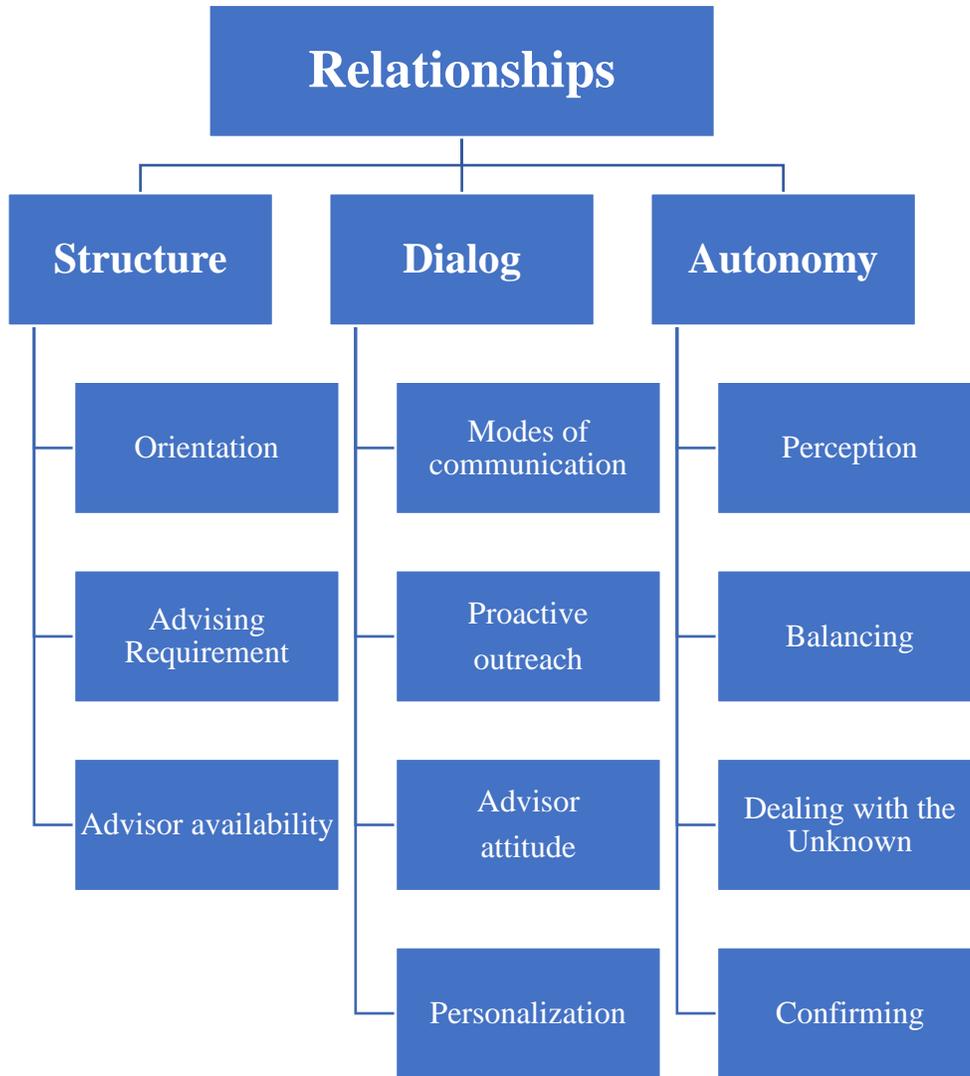
FINDINGS

In this chapter, I share the findings from the study addressing how and why distance students form relationships with academic advisors through the framework of Transactional Distance Theory. I interviewed 17 distance students currently enrolled in the mechanical engineering undergraduate degree program at Flagship University. I also analyzed two advising webpages, two online advising forms, the curriculum flowchart, and two initial e-mails sent from the advisor to students to help better understand and triangulate responses from participants.

I coded the data in three phases using the pillars of transactional distance – structure, dialogue, and autonomy – as the basis for analysis. I present the findings in the following sections with advising structure, dialogue, and student autonomy representing the main themes. Under those headings, I discuss several sub-themes including orientation, required advising, advisor availability, modes of communication, proactive outreach, advisor attitude, personalization, perceived autonomy, balancing, dealing with the unknown, and confirming.

Figure 4.1

Distance Student-Advisor Relationships through Transactional Distance Theory



Advising Structure

Advising structures are the systems and processes in place that determine how students are able to engage with their advisor. How students experience these structures and how flexible or rigid they are is a factor in the transactional distance a student will experience in a distance program. This section will address the study’s first research question: How do student participants experience academic advising structures in a distance engineering program? Three

main structural themes emerged during the study – orientation to the program, the advising requirement, and advisor availability.

Orientation

Unlike traditional on-campus students, distance students are not required to complete an orientation session prior to enrolling. This lack of structure provides flexibility for students, however it creates a dynamic in which the student does not know exactly what to expect when starting out. Participants discussed areas of confusion and anxiety after being accepted, their initial contact with their advisor, and the process of setting a path toward degree completion with their advisor.

Confusion and Anxiety

Most participants alluded to experiencing feelings of confusion and anxiety during the period prior to enrolling for the first time. Eleven participants mentioned feeling confused or anxious with the most common reasons being issues pertaining to transfer credit and general nervousness about beginning a new program online. Without clear guidelines outlining the steps from admission to enrollment, students were left to wait for information or seek it out on their own. John, who recently started the program, summarized this sensation well:

I was just trying to find my footing. With this, going back to school and doing it through distance learning which I haven't done before. There was a lot of 'I'm not sure what to do, how do I do this, how do I do that.'

Greg, a full-time employee who began taking classes in the program a few years ago shared a similar sentiment, "Being a distance-learning student and being new to the University, I didn't know exactly what to expect, and I think I could have used an opportunity to just kind of understand what's available."

Several students had concerns about transferring their previously earned credits in and getting them to apply properly toward their degree requirements. All participants had to transfer in credits, because not all courses required for degree completion are offered through the online program. Participants discussed trying to work through the registrar's office for transfer credit evaluation, but ultimately much of that process ran through their advisor. Seven participants talked about challenges regarding transfer evaluations, and Ron shared an experience that ended up carrying forward into his first semester:

When I was initially starting this and I was trying to get some approvals for my credits, I ended up after I even had been taking a class on distance learning then I found out that I didn't actually get some of my credits that I thought I was going to have. So then I was short with some prerequisites, and I had to do a petition to get these classes approved.

Other students had similar experiences in which the transfer evaluation process took several weeks to complete, and the advisor had to help facilitate that undertaking.

Initial Contact

Without a formal orientation session to introduce the student and advisor, most participants recalled their first interaction with the advisor as an introductory e-mail. One participant, Ernie, who started the program several years ago as a post-graduate had trouble identifying who his advisor was at that time:

At first, I had no idea who even my advisor was. It was really hard to find out who that person was, it was even harder to get that person to respond to me by email in anything that resembled a timely manner.

For those who started the program more recently, the introductory e-mail was a common starting point for their relationship with their advisor. At least three participants searched for and shared

information from the actual e-mail during the interview. The “introductory e-mail” actually consisted of two e-mails that contained a wide-range of information. There was a personal introduction, explanations for multiple processes including transfer credit evaluation that seven participants mentioned struggling with, attached resources including the curriculum flowchart to help with course selection, and guidance on choosing classes including personal recommendations based on the student’s progress. Kliff discussed how he received this communication and how it differed from his expectations:

I came in thinking I wasn't getting any help at all like it was just going to be a brick wall. Right off the bat she had a to-do list of what we what we needed to have and are the tentative schedule is very nice.

Multiple themes that emerged under the dialogue research question were apparent in this initial outreach including positivity, personalization, proactivity, and thoroughness. The following passage from the first e-mail exemplifies the thoroughness throughout the communication:

The very first thing you need to do is log into (student login) and go to your Degree Works page (tutorial [here](#)). Your Degree Works will show you credit that has already been evaluated and added to your degree program. Courses that did not have an equivalent or were not applied to your program fall to the bottom “Elective Courses” section. If you’re bringing in quite a bit of transfer credit from a two-year institution, you may see courses appear under a “Not Counted Toward Degree” meaning you’ve probably hit the 50% max of courses from a two-year institution (more information [here](#)). If you’re a post-graduate student, don’t fret! Courses aren’t automatically pulled from your prior degree(s) and applied, I have to go in and find the equivalencies and then request that they be manually added.

One element that was absent from this initial e-mail was a list of ways to contact the advisor. When asked directly, more than half of the participants said that they thought a single face-to-face Zoom meeting when they got started would have been useful. Larry, a full-time employee and father, put his feelings on an initial Zoom meeting as follows:

I do like the Zoom because it's more personable you know what I mean. I think at first maybe it would have been more personable if she set up a zoom call, 'Hey you know, congratulations on getting accepted,' maybe we Zoom and we talked about a few things and then send out an email. You know it's kind of like a face-to-face to make it more campus-like, a more personable kind of feel, I think, would have been good.

Beginning the relationship with a face-to-face encounter over Zoom to work through any initial concerns was an idea many participants supported as a means of reducing uncertainty and establishing understanding with the advisor.

Setting a Path

Ten participants talked about the importance of pre-enrollment interactions with their advisor to determine a path forward through the program. Most were concerned with creating a plan to efficiently move through the curriculum and graduate in a timely manner, and a few were also interested in discussing potential pathways to certain careers. Participants received the curriculum flowchart, a visual aid showing how students should proceed through the curriculum based on pre-requisites, in one of the initial e-mails from the advisor. Only one flowchart existed for main campus and distance students in the program, so it did not include specific pathways for online students. While the flowchart provided one standardized approach to navigating the curriculum, participants discussed needing guidance based on their personal circumstances

especially initially. Ted, who has been enrolled in more than one online degree programs, shared his perception:

I think that the guiding thing it's along the same road in that I think you really need to in your first couple of classes or your first time doing all this, you kind of need a little bit more structure. You get to where you kind of, having being guided through all the angles and kind of figure out, 'Okay well this I see all that on my own. My advisor told me about that, so I'm not going to go that way, I'll go this way.'

The advisor being able to provide multiple pathways to accommodate the personal needs of the individual will be discussed in more detail in future sections on personalization and balancing. In the second e-mail, the advisor provided a personalized flowchart and a list of courses the student was eligible to take based on what he or she had already completed:

Please see attached flowchart. A course with an "X" means it is complete and on DegreeWorks. *If applicable*, three diagonal lines mean that if you're a postgraduate (second degree seeking) student, you're exempt from those general education requirements. *If applicable*, the circled "P" means there is a course that I feel we could petition for to cover the requirement; I can initiate this on your behalf.

Early planning can also help prevent mistakes in the future. Alice put it this way:

I think it does help because it gives a sense of, it does help with direction. Because, just imagine, had I not been told this class wasn't available then I'd be trying to register and it wouldn't be available, then I'd have to look okay what other class is available then next thing I know it's too full and I can't get in. So I think it's helpful to have it to help guide you in the right direction, but what i'm saying is I don't want to make the mistake to begin with, I want you to prevent me from making a mistake.

The opportunity to engage with the advisor and create a plan prior to beginning classes gave participants a feeling of security and motivation as they began the program.

Required Advising

A second structural aspect of the distance engineering program that students experienced while forming relationships with their academic advisor was the semesterly advising requirement. Participants discussed their understanding of the rule with almost all saying that they had to work with their advisor through one of the specified options in order to be cleared for the upcoming semester. A few participants were unsure if there were any requirements that must be met to register for the upcoming semester. Alice's answer was representative of the majority of the group:

The only rule I'm aware of is that we have to, they do put a hold on our account, so we do have to be advised by them prior to registering for the semester, and we can do that face to face or the online form. That's the only rule of which I'm aware.

Themes related to the advising requirement included understanding the options for being advised, flexibility, and the necessity of an advising requirement.

Understanding Advising Options

When asked about the options distance students have for being advised each semester, many participants exhibited hesitancy in naming all the options. Long pauses and filler words were common, and two participants pulled up an e-mail from their advisor while answering to make sure they provided accurate information. Participants named options like meeting face-to-face, having a phone call, and e-mailing back and forth with the advisor, but the two most common responses were filling out an online form and scheduling a Zoom meeting. Bill, one of the youngest participants in the study, had this to say:

I believe there's two different forms that I am able to submit, I think, one or the other, to be able to sign up for classes. I think I'm able to have a Zoom meeting or some kind of meeting with my advisor.

Oliver was more direct and concise with his response saying, "You can do it through Zoom or you can fill out the form. It goes to your advisor, and they approve it." Besides checking an advisor e-mail for advising options, other participants talked about checking the advising website. The webpage describing the advising process stated the mandatory advising requirement and listed options like Zoom appointments, in-person appointments, drop-ins, and online forms. The page provided links to the forms and to schedule an appointment with an advisor. There was no information on the page aimed directly at distance students; however, the general structural options available for distant students were present. While several participants struggled to name the advising options confidently, no participants shared any complaints about a lack of options or a need for different options specifically for the advising requirement.

Flexibility

Participants were asked whether they thought the process for advising each semester was flexible or rigid. Answers were split. Eight participants felt the advising requirement was mostly flexible, three felt it was rigid, and six said that it was a combination of the two. For those who found the process to be flexible, they focused on the multiple options and the convenience of not having to have a synchronous session. Fred appreciated not being forced to have a meeting when he does not have any pressing issues:

In my case I've never really had any questions about what to take or when I could take it, so it is nice to be able to just fill out that form and move on. I guess if I had to, I was required to have a meeting or be advised face to face every month regarding classes, so

far, I would probably view that as a little bit of a waste of time. I don't necessarily have any questions on that particular topic.

Ron chose to have a Zoom meeting with his advisor and relayed that his advisor allowed him to make his own decisions:

That conversation that you can have with your advisor in order to register for your class could be very flexible. Like I said, my conversation didn't require much, it was 'Hey I need this class and it's offered now, can I take it,' and I got to take it so that wasn't very hard wasn't very strict. But outside of that I'm sort of choosing my own classes, I'm choosing when I want to take my classes based on what's offered, and so it's very flexible in that sense.

The participants who found the process rigid had different reasons for that experience. Greg expressed that by having an advising requirement that must be completed in a set period of time, that process is inherently rigid. Ernie focused more on the limitations of class offerings each semester, which caused him to feel restricted. Connor, another of the youngest participants, had the most problems with the advising requirement:

There are some ways, where it feels kind of fairly rigid. Like the advising form honestly feels useless to me. Because it's not really advising if you're sending something and you're getting a rubber stamp regardless of if it makes sense. It's not advising.

The online E-Advising form requires students to enter demographic information then enter tentative courses for the upcoming semester. Students can enter comments and are encouraged to list goals or questions, which could promote dialogue under Transactional Distance Theory. In Connor's experience, that did not happen. He went on to say that the lack of constructive back

and forth dialogue produced by the advising form made it more of an impediment than a positive tool for course planning:

I'm more likely to screw something up entering class over and over again in two or three different places than I am just going straight to the class registration thing and registering directly there. Because I don't get any actual feedback on the advisory form, and I don't get any errors caught there's just more chances for me to screw something up.

The advisor can provide comments on the form, but for some students that was not an effective way to communicate.

For those who said that the advising requirement featured both flexible and rigid elements, the general sentiment was that the rule itself was rigid but the options for working with the advisor were flexible. Oliver summarized that sentiment:

In a sense it's rigid, in the sense that you do have to meet with your advisor like, that's a hard point there's no getting past that. You don't meet with the advisor you don't get the class, so that is very rigid, but I'm not saying that that's wrong. That conversation that you can have with your advisor in order to register for your class could be very flexible.

The idea that having some structure in place to force an interaction with the advisor each semester was viewed positively by participants who noted some rigidity in that it keeps things organized and efficient. Oliver continued his thought:

I think it makes it easier, it gives you gives you a guideline to go by. You know there wasn't a form that kind of explain what was expected than you I mean I would imagine advisor would really know how to approach things in a state of definitely the advisor and have to sort through. I guess a bunch of emails asking a bunch of random questions about classes versus giving a form because kind of organize it.

Nick noted that how much flexibility students observed in the advising process was subjective, which was apparent from the responses.

Necessity

Participants shared strong opinions regarding whether or not they felt the advising requirement was necessary and if it helped strengthen the relationship with their advisor. The majority of participants said that requiring at least one interaction with the advisor each semester was positive. Making sure students choose appropriate classes for their degree progress and sharing any new information were reasons participants shared as to why this rule was important. Nick said, “There should be hopefully a litany of information that I don't have, because I'm not the advisor, and that should be somewhat of a funnel for that information is just meeting with them at a minimum of once a semester.” Greg pointed out that the required meeting helps students avoid mistakes saying, “I think it's necessary or you're going to have some people signing up for stuff that they're not ready to handle and then they're going to be complaining.” A few participants who said that the advising requirement was necessary still found the actual interaction to be transactional. Ron, who works full-time and is married, summed up this position:

I have to meet with my advisor and just say yeah, this is the class that I want to take right, and like that's it. I don't know if there is supposed to be more of a conversation or not because there wasn't one. This semester leading into this semester, it was ‘Hey I want to take this class, I have the prerequisites, can I take it?’ That was it.

A vocal minority of students felt that interacting with their advisor once per semester was not necessary, at least in its current format. Aligning with other students who felt the interaction was too transactional, Ernie had this to say:

What the advisor role that I see now at Flagship University is in fact a pin clearer right. And that pin only gets cleared if you select classes, that you can take. I can have a computer system do that for me. I put in the right classes, and it tells me ‘hey you don't have the prerequisite for that, sorry try again.’ That doesn't you know that's not helpful at all. I don't need a person, on the other end of the computer approving what I'm taking. Connor also felt that he did not get anything positive out of the required advising exchange, “It's not really advising. It feels like going through the motions for the sake of that's what you do. Honestly with the current advising system will be better off just not having to get advised and clear it automatically.” Participants generally understood and appreciated the need for an advising requirement. Despite options for completing the requirement, some students still felt that their needs were not met with a lack of functional feedback from the advisor serving as a main concern. The concept that a small group of students felt they did not receive the necessary help and guidance through their relationship with their advisor will be explored in greater detail in the subsequent sections on Dialogue and Autonomy.

Advisor Availability

Participants pointed to advisor availability as another prominent structural component that affected how they engage with their academic advisor. Fourteen of the 17 participants work full-time while pursuing their degree. They discussed the importance of having an advisor who is accessible in light of their limited available time. Mark said, “Having the advisor available to answer questions makes a big difference for a distance student whose only form of communication they have is basically email.” Like the required advising options, participants were familiar with the methods available to communicate with their advisor as Kliff summarized:

I know if I need to contact her either through email, phone, or Zoom meeting I know it's accessible. It's been explained in the emails, these are the different ways that you can access your advisor and set up a schedule, so the information is laid out.

The advisor's typical work schedule and how that fits with a distance learning population as well as the positives and negatives of having a single point of contact for advising were common themes related to advisor availability.

9-5 Work Schedule

Half of the participants who work full-time acknowledged the challenges of working with their advisor because of their limited time during the day. With 16 of 17 participants working at least part-time, finding time for a meeting or to interact with the advisor during typical business hours was difficult. Greg said:

I get to work early in the morning. Today was one of those days where I knew, you know, we had this call, so I press myself to make sure that I was home and available even though I could have done it at work if I had to. But my normal hours, my free time, I work where I do my work and I'm available are definitely in the evenings and so, if you if you're trying to contact me through the day normally I'm working unless it's on the weekend.

While understanding that the advisor has a life outside of work and cannot be available all the time, multiple participants did say that being able to reach their advisor outside normal business hours would be useful. Ron shared his viewpoint:

I'm not saying that I would expect her to make herself available to me, you know 24-seven because that's not realistic. I mean she has to have a life too, but sometimes that's a frustration and because sometimes depending on how busy I am at work that's kind of the

difficulty is that I have to do a lot of that stuff at work. So sometimes if work is really busy I don't have an opportunity to look at that stuff until after and then it's late, you know she's already done, because it's five o'clock by the time I get home so it's five o'clock for her.

The inability to connect synchronously due to conflicting schedules meant more e-mail interactions for this group. Not being able to have live interactions with the advisor led to multiple students describing situations where issues linger because of the delays inherent in e-mail exchanges. Ron elaborated on how that back-and-forth works:

My questions will always pop up at home or a lot of it will because this is not an everyday thing for me. It's not always on my mind. Sometimes you know things come up to deadline and so I'll ask a question and it's after hours, and I have to wait for a while to get a response. And that's sometimes the problem with emails is that I asked a question I have to wait to the next day to get a response and then it's like later that day I can kind of deal with it, and then I have to ask my question and I wait a day and so sometimes that's what happens is the communication is sort of drawn out.

Single Point of Contact

A final theme that emerged under the structural umbrella related to advisor availability was student experiences working with a single point of contact. Eight participants wove in thoughts about working with a lone advisor during the interview with a range of feelings both positive and negative. Having a single advisor was seen as valuable for providing stability and understanding of a student's academic history, but on the downside having only one person to reach out to created issues for participants when that person was not available. Multiple participants expressed the value of having a consistent person to reach out to when issues arise.

Mark valued that consistency as much as any other element of his relationship with his advisor noting, “One of my favorite things I’ve enjoyed forward in time since 2000, late 2019 maybe was having a consistent advisor throughout the process; a familiar face, or name rather than that face.” Nick agreed that consistency was valuable:

I just want there to be someone who can answer my questions when I send an email or give a phone call. I just want someone to be there on the other line you know what I mean. I don't necessarily, you know, it's handy having the same person.

Another group of students felt that having a single point of contact available for advising needs created problems. When a distance student has difficulty connecting with their advisor, participants felt they had nowhere else to turn. Howard had not experienced issues personally, but he summed up this dilemma saying “You don’t have just the accessibility and being able to you know walk into an office and meet face to face. I haven't really had any issues with my advisor for the most part.” Other participants expressed frustration when their advisor was not available. The webpages, e-mails, and advising forms analyzed for this study did not provide information for who students should reach out to when they are unable to reach their advisor, though participants did say that their advisor communicates well about absences and expected wait times during busy periods. Alice blamed heavy workloads that limit the advisor’s availability for preventing a more personable relationship from developing:

If they just gave us more time to try to reach out to us or let us know that they are available for time so that I know I can come to you because you have the time available.

Right now, I don't feel like I know to her, because I don't feel like she has the time.

Finally, one participant said that having only one point of contact was setting the system up for failure. Ernie used his professional experience to explain the problem in his eyes:

I'm the quality manager where I work. There are tasks within the quality department that are highly specialized right, but they're highly important as well. If I only allow one person to become the expert and nobody else, then my team will fail period. I have to cross train or at least make other people available. I don't need a whole group of experts that know how to do one thing I need a good subject matter expert and then I need a lot of proficient people.

The split opinions on having a single advisor as a point of contact make it a challenging structural decision when advising distance students.

Advising Dialogue

Dialogue, as it pertains to transactional distance, is a specific kind of communication initiated by the teacher, or advisor in this case, that enhances a student's understanding of the pertinent information. Highly structured requirements reduce the opportunity for dialogue by limiting the time and ways that students can engage with their advisor. Increased dialogue leads to a stronger connection to the program, while a lack of dialogue contributes to greater transactional distance. Participants experienced dialogue and the absence of dialogue through their relationship with their academic advisor. This section will address the study's second research question: How do distance student participants perceive dialogue in the student-advisor relationship? The main themes that emerged regarding dialogue in distance advising were the modes of communication, proactive outreach, advisor attitude, and personalization.

Modes of Communication

A major theme related to dialogue between students and advisors was the modes of communication used to engage. All participants cited e-mail as one of the main ways they communicate with their advisor if not the only way. Ernie was one of the majority of students to

say that the only way he has communicated with his advisor has been through e-mail, “It's all email. It's 100% strictly email.” Several participants revealed that they had no issue with an e-mail-only relationship with their advisor, because e-mail serves their needs and gets the job done. Larry said, “As far as right now, in my experience e-mails, I mean, I've been able to take care of everything.” Reasons for using e-mail included convenience, flexibility, avoiding face-to-face interactions, and creating a record of the conversation. E-mail was consistently viewed as a positive form of communication that participants were able to fit into their busy schedules balancing work and families. However, multiple participants did note drawbacks to e-mail communication, particularly when it is the only form of interaction. Fred shared:

A conversation or phone calls might have been able to explain my situation a little bit better than trying to write emails. Something slips through the cracks, and it doesn't get interpreted right, and then that, I get to send another email to try to clear it up. You know it's just a long process; it's time consuming.

Bill agreed that information shared between student and advisor can get lost in translation over e-mail as well as some of the personal nuances of face-to-face engagement:

How you write the emails, like what language are you going to use with some certain persons, are they going to take this the wrong way? I'm not going to take this too seriously so literally when it's not that big of a deal, but something that they need to be thinking about.

Building on Bill's comment, eight participants discussed the limitations of not being able to see their advisor in person. Most attributed it to being an adjustment from previous experiences of being able to physically stop by an office when a problem arises. When that

option is not available, the ability to quickly solve a minor issue or to get immediate help becomes more difficult. John elaborated on this point:

One of the things I miss about in-person education is having people right there you know. You go to your class, you can discuss what you did, things with your classmates right there. If you don't understand something right at that moment you're able to ask a question about it. So it's the same kind of thing if you're right there in front of your advisor.

Nick and a few others touched on the lack of opportunity for spontaneous interaction that can help build rapport:

I used to, if I was walking by my advisor's office just stopping there, and if they were in their office just poke my head in there really quick just to say hello. Now I might do more work on my own part, to do, to answer little questions right. There was a convenience if I was walking down the hallway, hey stick my head in here, 'Hey what do I do for this.'

The lack of opportunity for interactions between students and advisors outside the formal channels in a distance setting removes one avenue for creating dialogue and developing the relationship.

The vast majority of respondents mentioned Zoom as an optional mode of communication that emerged over the past year. Nearly all participants said that Covid-19 had not had any effect on the way they communicate with their advisor, but two noted that the pandemic may have been a catalyst to introduce video conferencing options. John and others felt that Zoom could make up most of the gap created by not having in-person encounters:

I would say, probably most of it. If the advisors have the time to be able to do that. It doesn't matter as long as you're able to talk to somebody, it doesn't matter if you're right

in front of them or it's across the Internet. That certainly would be, I think, adding more to their plate because it's harder to make time for a Zoom call.

The Advising Process webpage outlined the general topics a student could discuss during a Zoom appointment, many of which participants mentioned wanting more communication about: “Individual Zoom appointments are 20-minute meetings with your advisor via Zoom and are used for semester and/or degree planning, co-op discussions, study abroad planning and addressing any other academic goals and interests.”

Despite voicing a desire for greater structural flexibility in terms of modes of communication, only a few participants had actually met with their advisor on Zoom. Those participants had mixed reactions. One participant was turned off because the advisor did not turn her camera on:

My very, very first time meeting her was through Zoom. It was okay, but for the fact that she didn't have her video on. Now okay, I'm one of those people when I had Zoom meetings at home working from home I didn't have the video on ever so I get it, but this was my first time meeting her right. My expectation was that, I don't know you, I'm just meeting you, you're just meeting me, I want it to have that personable relationship with her to see what she looks like, know who she is. And then, after that okay, no video, do whatever makes you feel comfortable.

Even if most participants had not used the Zoom option yet, they appreciated having it as an option. The most frequent reasons given were that it provided security knowing that a face-to-face appointment is possible, and it can be used as an efficient way to address more complex issues. John said:

You can do a Zoom call if necessary. I'm feeling like if there's things that really just you're having a problem and it's kind of, you have too many concerns to really put in an email, and in a way I think that might be able to it may save some time. Because I think it probably takes longer to hash out a bunch of answers typing them out than it does just to converse with somebody sometimes.

E-mail continued to serve as the dominant mode of communication after the option for face-to-face interactions through video conferencing software like Zoom was introduced. Many students touched on the missing element of the relationship usually found from in-person engagement, so video conferencing could fill that role as advisors and distance students become more comfortable with the technology assuming it remains an option after the pandemic subsides.

Proactive Outreach

Participants were split in terms of who most often initiated outreach between the student and the advisor. Seven participants said initiation was mutual with the advisor reaching out with information on a regular basis and the student reaching out when he or she had an issue. Fred was among the group who viewed initiation as mutual, and he outlined the proactive information provided by his advisor saying, "I think it goes both ways. We usually get something at the beginning of the semester or around the time regarding the critical dates like withdrawals, registration, and the last day to drop, and all that kind of stuff." Ten participants shared positive experiences with the proactive e-mails sent from the advisor reiterating Fred's point that the information provided was valuable and needed to help students stay on track. Mark believed that his advisor made efforts to communicate as effectively as possible adding "She's always working

to continue to improve her communication methods and clarity and the information available, and making those resources for new students available. She's done a great job.”

However, other participants found the proactive communication from the advisor to be too transactional and lacking a personal touch. Larry held this opinion:

It's just kind of like a machine. I mean it's like a notification alert from your calendar you know, ‘Hey advisement, ding dong, time to start your registration.’ It’s more a mechanical thing than it is a, you know, personal process or a relational thing.

Participants who responded that they typically initiate communication with their advisor did not consider these updates as proactive communication. Besides the reminders about important dates and required processes to complete, these students believed the advisor should provide more holistic information related to their overall goals with career opportunities being the most common response from this group. Allen said, “Some information about meetings or maybe perhaps scholarships or our campus activities that may be available pertaining to whatever you're looking for.” Larry continued:

Let us know of other resources that are available, things you know, things going on around campus. Or things to help them with the engineering program for a career. I do get career fair stuff, but it's not from the advisor. It’s from another avenue.

The appropriate amount of outreach each semester from the advisor ranged from at least once per semester to "constant contact” with a few participants sharing that they would be annoyed if their advisor reached out more than she currently does. The “Advising Process” webpage described the advisor’s responsibility to provide routine updates to students on requirements and availability. One point that several participants latched onto was the need for at least one individualized outreach each semester to the student as a type of check-in. Mark

related that he and potentially other students would benefit from such a practice saying “Maybe a monthly update, your pulse check, I think a pulse check would be fantastic. Sometimes if left to our own devices, we all have busy lives. I think it's easy to let certain things go unchecked.” Some believed the pulse check should be incorporated for all students, while Connor suggested that it should be used for students showing signs of struggling suggesting, “I guess ideally having some way of tracking how students are doing on stuff. I don't know how that would work, but some system to let the advisors see how the students are doing so they can preemptively reach out.” Greg pointed out that the opportunity for a check-in was always available, but it had not dawned on him to use it because of his busy schedule, “And you know, even when I think about it, it is encouraged to set up an appointment if you need to. And that's encouraging the communication. It's not required for us, you don't have to, but it's definitely encouraged.” Greg's statement highlights that even with structural flexibility and proactive outreach to promote dialogue, students still bear some responsibility for taking advantage of the available options. Participants defined proactive communication from their advisor in different ways. Many felt that the communication was valuable and provided the information they needed to be successful, which would constitute dialogue under the definition of transactional distance. Others desired something more individualized meaning they were not engaging in dialogue with their advisor through those regular e-mails.

Advisor Attitude

Participants explained how they interpret and experience their advisor's attitude in a distance setting. Common words used to describe the advisor's attitude included positive, encouraging, professional, and engaged. Participants were challenged to pinpoint exactly how their advisor displays positivity with several struggling to define it. “It's not something that's like

you can just point to and say, 'Oh yeah they do this.' It's more of just an overall attitude, and it comes through in their communications. Her tone has always just been very positive," John said as he looked for an e-mail to exemplify her attitude. "She's just been very informative." More participants echoed the idea that encouragement comes through in the tone of the e-mail communications, both the personal ones and the ones sent to the entire group. Alice talked about her advisor helping her through the initial transfer process:

I think she works really hard so like I said me being a transfer student, this is actually my second Bachelors, so I had all these credits from every which way. And she was very encouraging of the fact that, yes, we do accept these credits and yes we'll petition to see it go through. All we can do is try, so she was very encouraging. I felt like she really was for my side and rooting for me, so that was good.

Beyond positivity, almost half of the participants discussed how their advisor was engaged and showed interest in them and their issues. A few compared it to negative experiences they had with advisors in the past where they felt like the advisor did not care. Ted said:

It's an engaged, being engaged I think that's a very big thing. She's just helpful, encouraging as well you know, whereas we've all had some people that are just telling me, 'Okay yep sure take that I'll sign it. I've had some that have been very, not really necessarily plugged in. They just, it's kind of more of a, 'Yeah yeah yeah' kind of thing.

Remembering details and exploring options to find solutions to problems were cited by multiple participants as engaging behaviors from their advisor. Kliff remembered an encounter mediated through an advising form from one of his first semesters:

When I first joined, the way I was told was just taking one class, because I was having a baby, or my wife and I were having a kid like right then like right in the middle of the

semester. I actually did get a follow up with her a couple of days later, seeing how everything was. Something like my pin was cleared for the next semester with a comment in there (about the baby) and I was like ‘Gosh you remember’ sweet.’

At least one participant did not feel that his advisor was engaged on a personal level and described feeling like a number as he worked with his advisor:

Making sure that my needs are met, as far as that goes, and that's pretty much non-existent. Normally I guess my relationship pretty much consists of am I in the right class that I signed up for and is the class that I need going to be available, so I can get out of here on time kind of mentality. There's not, it's not real personable, I guess, so to speak. I, and I haven't tried to make it personable either you know. She sends an email, I look at it, that kind of thing.

The participant did acknowledge his role in creating two-way dialogue, but he felt that his advisor kept the interactions transactional.

Other participants interpreted a business-like approach to advising as a positive. Several participants referenced the fact that as working professionals, they expected a professional relationship with their advisor. Nick, who conducted the interview in the car on his ride home from work, said:

I treat school right now as just a part of my business that I'm doing, and I schedule you guys in just like I would any other meeting. I give valuable time out of my day, and I expect that to be returned. It's kind of a different interaction I think, then, than with some 18-year-old knucklehead freshmen. It's a little different right, and so it's more of like a work relationship.

Responsiveness and showing up on time and prepared were characteristics participants experienced with their advisor that showed professionalism. While acknowledging the importance of professionalism, a few participants said that they enjoyed when interactions were not overly formal all the time. Bill explained:

Sure, kind of like to create a friendly atmosphere, like oh, I get help building a friendship. I'm going to be discussing with my advisor over the course of two, one and a half, two years and I want that to be a friendly atmosphere. I don't want it to be business professional, professional atmosphere the whole time.

Participants experienced interactions with their advisor through tone, professionalism, and perceived level of engagement. These characteristics were interpreted in different ways by each participant, however they were able to assess their advisor's attitude through interactions outside the face-to-face setting.

Personalization

Regardless of the mode of communication or the specific methods used, participants consistently talked about needing an advisor who was willing and able to address their individual needs. Participants touched on a wide range of personal needs like transferring in credit, advice on classes, balancing professional and academic responsibilities, finding career opportunities, and degree progress that they expect their advisor to support them on. Bill talked about the challenge he saw his advisor facing to manage the needs of her students:

This is a big part of my life that she's helping me with. I want her to know what I'm going to be angry at or what I'm concerned with before I even say it. Like yeah, it's very hard just asking a lot of her especially if she has hundreds of students doing the same thing, but I want her to be able to know where I'm coming from.

Participants experienced personalized attention from their advisor through responsiveness, thoroughness, and generating opportunities for two-way communication.

Responsiveness

One of the primary ways that the advisor personalized the advising experience and addressed individual needs was by being responsive. Fourteen participants mentioned responsiveness as a key trait for their advisor in helping build the relationship. Oliver laid out why responsive is important for a distance student:

I would think it'd be more important for a distance student, because, like you said you actually do not have as a distance student a chance to drop into your advisor and say 'Hey I need some help with this real quick,' and they can help you.

Participants felt empowered and valued when they received quick feedback from their advisor. Getting information back in a timely manner also gave participants confidence in their advisor and helped build trust.

Experiences were split regarding responsiveness from the advisor in this program. Bill, who had reached out to his advisor earlier the day of his interview, was confident he would receive a response soon confidently expressing, "My advisor has been great. I'll definitely get an email tomorrow at like 10 a.m. with an answer." Other participants expressed that there were sometimes delays in receiving responses with varying levels of frustration. Howard was understanding of his advisor's workload saying, "Sometimes it does take a little while to get a response which is fine. I get it, you know, during registration periods it gets a little backed up." In cases when a participant reached out to the advisor regarding a matter that he or she felt was urgent, not getting an immediate response led to feelings of panic and anxiety. Alice felt her advisor needed more help:

It appears as if we are understaffed with advisors, because it takes her a while to respond back to me and get back to me on things. I understand, you know, she has hundreds of students, so we're all needing something at the same time, it can be timely, but I feel like the time the turnaround time is a bit lengthy.

Ernie shared that responsiveness has improved greatly under the current advisor, but his initial struggle with getting feedback caused him to look at other programs:

Nothing much discourages me, but when I couldn't get past advisors to answer the phone, to respond to e-mails I honestly started looking for other programs at (another institution). Yeah I was ready to leave (Flagship University), because my wife was going through a distance program and her experience was completely different. They were blowing (Flagship University) out of the water as far as their responsiveness to their students. The quickest way (Flagship University) could lose students is to not respond to their individual requests or concerns or questions and treat them as numbers.”

Thoroughness

Along with fast responses, ten participants discussed the importance of receiving thorough information from their advisor to address their individual concerns. Thoroughness encapsulated concepts like providing detailed answers, addressing the whole issue not necessarily just the question presented, providing alternative solutions to problems, and being open about processes happening behind the scenes. In analyzing the two initial e-mails from the advisor, I found thorough explanations for the transfer evaluation process, pre-requisite courses, using the flowchart, and test proctoring. Again, participants shared mixed reactions regarding the thoroughness of their advisor. John has appreciated the level of detail his advisor has provided during his time in the program saying, “Like I've said before stuff is just so thorough. That all the

information I needed has been provided to me I've never had a problem navigating through the process with what she's given me." Nick spoke at length about how pleased he was with his advisor's responses:

You can tell based upon how she answers questions, the amount of detail. She isn't just answering questions. She's asking me follow-up questions to my questions that I didn't even know I need answers to right. She's like, 'Well have you thought about this?'

A few students provided examples of situations where they felt they didn't receive all the information they needed from their advisor. Fred discussed his experience navigating the appeals process for a transfer course:

I've tried to ask more specific questions about you know how the appeal process is working and what other avenues I have... I don't understand, and my only option is really to work with an advisor on these kinds of things, and you know if there's a way to go around it or other avenues to go down I haven't necessarily gotten clear answers on those kinds of questions.

When participants felt they were not receiving all the information they needed to understand a process or make informed decisions, they at times felt lost, confused, and disheartened. Ernie shared his frustration after his advising form was denied, and he did not fully understand why:

She rejected one that I guess I didn't have a prerequisite to or something like that. But it came through, and I had to read the notes that she put in the form and there wasn't a, 'Hey this is what I'm seeing, but here's some other alternatives, got it?' Does that make sense? It wasn't that personalized help to say, but you can do this, this and this and still be on track.

Two-Way Communication

Participants discussed the importance of responsiveness and thoroughness from their advisor, but also acknowledged that as students they bore some responsibility for opening the channels for effective two-way communication. Without knowing the specific circumstances each student is dealing with, the advisor would not be able to address the individual issues. The College of Engineering Advising webpage emphasized the need for two-way communication in establishing the student-advisor partnership:

Our academic advisors aim to empower students to take ownership of their educational experiences by understanding and using the available resources through communication and involvement with our office. We envision the advisor-student partnership to be one of mutual benefit and respect in order to cultivate and support learning opportunities...

Nearly three-quarters of participants talked about two-way communication, the student responsibility in that process, and how productive back-and-forth exchanges strengthen the student-advisor relationship and help keep the student on track. Mark shared about building two-way communication over time:

I trust my advisor currently. I think that it took time to establish a trust, be interacting over time, you know several semesters, the level of engagement and communication back and forth matters. I mean we all know that time in e-mails are not intended to be instantaneous but getting a reply back on email in three business days is really good and (she) typically exceeds that.

Greg mentioned on multiple occasions his responsibility to keep his advisor up to date with any problems he was having, "She's been helpful with that, I mean if I communicated what my concern has been. I think that's fair right? It's got to be a balance. She can't read my mind."

Participants spoke about sharing issues both within the program, like academic concerns and potential scheduling conflicts, as well as issues outside the program like job changes and family dynamics that could affect how they approached the program. Allen said:

I'm able to communicate what exactly, what's important to me in that particular moment or in the future. Like perhaps I'm having financial issues or having family issues or just anything that, any other criteria or any outside issues that may impede or affect my progress.

With the combination of students sharing concerns with the advisor and timely, thorough responses from the advisor, effective dialogue can be established in a distance setting, and students' personalized needs can be addressed.

Autonomy

Learner autonomy influences the level of structure and dialogue students need to be successful in an academic setting. Students who are more autonomous may be more comfortable in a highly structured program with relatively less dialogue, while less autonomous students need higher levels of dialogue and more flexible structures. This section will address the study's third research question: How do student participants' perceptions of autonomy explain the student-advisor relationship in a distance setting?

Perceptions of Autonomy

Participants generally perceived themselves as having high levels of autonomy. Fifteen participants indicated that they were at least fairly confident that they could create and follow their academic plan on their own. Some were more confident than others. Oliver said:

I'm pretty confident in that. Me, I don't feel like it's very hard to figure out what classes you need to take next, especially with the Degreeworks thing kind of separating it all out as far as what you've taken what you haven't taken.

Allen was a little less sure with planning out his path noting “For the most part, but I do need help with just general things like classes that I'm not sure what the pre-requisites are.” Several students pointed out that being in a distance program required certain levels of autonomy and self-discipline and that was to be expected when pursuing a degree online. Alice elaborated on this point:

I think it gives a sense of autonomy. I think being online it can kind of give me the sense that I can do this, and she's really just, my advisor is my guide. I don't think there's a brokenness there by being online because people who take classes online we understand that we have to have a lot of discipline, so we're already disciplined in what we're doing anyway. And I don't feel like we need our hands held along the whole process or along the way.

Several others gave concise, self-assured responses that they were capable of mapping out their degree plan independently. This high level of perceived autonomy was attributed to the necessity of being independent in an online program and previous higher education experiences.

Autonomy through Experience

Nearly half of all participants referenced their previous experiences as helping develop their autonomy in their current program. Whether it was a product of working through the academic advising process in the past or merely being older, participants expressed that the autonomy levels they currently felt developed over time. Howard, in the early-30s age bracket, shared his thoughts about taking ownership of his responsibilities:

You know I'm a little bit older. I'm not 18, so right, I kind of understand what I need to do. Alright, I got to do this, and if I don't do this then I have no one to blame for not being able to register.

Bill is a second degree-seeking student, so he has been through advising many times during his academic career:

I'm very confident with it just because this is, I started my first degree in 2014, this is my second. I'm completing this as my second degree. I've been in school for a while. Yeah but I've been through the process a few times so I'm confident.

Having been through advising processes and course planning at previous institutions, many participants felt capable of navigating that aspect without help from an advisor. Others discussed developing autonomy while enrolled in the current program. Mark spoke about how his autonomy had grown through early interactions with his advisor:

When I first started I did not have confidence in my planning... (My advisor) helped build up my confidence, you know telling me this is a decision to make, and that I recommend starting with this, this is what other people are doing, so providing information about the general trends is helpful.

Two of the three "Goals for You" listed on the College of Engineering Advising webpage dealt with building autonomy over time in the student-advisor relationship:

- Understand how to use their major flowchart, DegreeWorks and Undergraduate Catalog in order to make sound academic plans.
- Take ownership in their academic experiences and communicate intentions with their advisor.

Because of the high levels of autonomy participants felt based on experience, the situations that they needed an advisor for were more nuanced and personalized than just creating a path to graduation.

Needing an Academic Advisor

Despite the high percentage of participants who self-analyzed themselves as being autonomous, the vast majority of participants discussed how they do need an academic advisor for this program. Only one participant said that he did not need an academic advisor. Greg got right to the point saying emphatically, “Yes, you do (need an advisor), and it is because we don't know what we're doing.” Fred provided more specifics:

I think it's helped. You need some point of contact. It helped me; I definitely have needed someone to help me work through my transfer credit issues. I probably could have survived without having one just guide me on my class choices, when I should take them. But yeah just being able to work through the issues on the transcript, it's definitely been good.

A few others hesitated and contemplated the idea before relaying that they did need an advisor at least in some cases. Alice paused and thought for several seconds before providing this response in which she debated with herself:

Wow okay, having all of the resources that I would have to make the decisions about when to take my courses... Whew this is hard, because in that regard, I would say no I don't need her. I could just fly through this thing, but from my experience of course with transferring, her doing my petitions for classes that I wasn't aware of, so I would, I will give the credit and say you would have needed an advisor because she did help a lot with that aspect. I would have never known about that without her.

This sentiment leads into three main reasons why, despite strong feelings of autonomy, participants in the study felt they still needed an advisor – balancing academic and personal responsibilities, dealing with unforeseen circumstances, and confirming student understanding.

Balancing

One reason that participants discussed for needing an advisor despite feeling capable of handling many advising-related tasks on their own was that they did not have time to devote to advising issues because of their many other responsibilities. With 16 of the 17 participants holding jobs and 13 either married or living with a partner, participants were balancing work, family, and school responsibilities. Ernie recalled how different his initial experience as an undergraduate was compared to his experience as a distance student:

At least from my experience the standard distance student or I have way more stuff going on in my life than probably a typical on-campus student. I can remember when I was on campus in college for my original Bachelor's. Nothing near just the overall stuff that I have to do now right.

Having a trustworthy advisor allowed participants to take that concern out of the things that required regular attention. Twelve participants talked about their experience balancing and how their advisor played a role in that equation. Nick was adamant that he could perform advising duties on his own, but he found no need to because his advisor had earned his trust:

I'm a firm believer that anybody can do anything on their own if they put enough time to it right. It's just like what do you want to get done in your day, what do you do well, you do whatever is most important to you to fill that time. If it was important to me to spend more time and to learn everything about the (Flagship University's) mechanical engineering program and how to make a degree plan and all the prerequisites I could do

that, but it's not that important to me. It's important for me to know those things, but not important enough that I want to spend all the time on it. It's way easier if I don't and just ask someone what I gotta do.

Dave shared his experience and how his advisor helped him devote his time to more important matters:

I will say it's imperative, because you got a lot of stuff going on. I mean, I guess if you didn't, if you were just doing this program then you wouldn't need the help but everybody in this program, well everybody that I know in this program, has like whole lives.

So yeah I don't think you'd be able to do it without (an advisor). You know, working 40-45 hours a week with kids and all this other stuff... I got what, three classes I'm taking now and I'll be signing up for another next month, so I mean this is a lot. Her just doing that makes it a whole lot easier.

Bill echoed the idea that allowing the advisor to do her job is more efficient for him and saves him time:

It's a load off my back to use the phrase. Something else I've learned is to not worry about these problems anymore or like just the things that I encounter. Yeah there's probably some issues that I could easily solve by finding the right link on the website, or on the right department website, or going on the student page. I find it easier and more helpful to send an email now.

A trustworthy advisor can create time and space for autonomous distance students to focus on their academic and personal responsibilities.

Dealing with the Unknown

Participants also explained that they need an advisor to handle any unforeseeable situations that arise. Even with the self-assurance to manage routine needs on their own, participants talked about having someone to turn to in unpredictable circumstances. Greg acknowledged that even with systems in place to allow distance students to be self-sufficient, there will be times when an advisor is needed. He said, “I mean as self-directed as things are, as you try to make it, there's certain things that you just need to be guided on.” Only a few participants did not discuss how an advisor was necessary to help guide and navigate as well as fill in the gaps in knowledge that distance students encounter. Dave used an analogy to characterize why an advisor relationship is necessary for distance students. He said, “I'm from Oxford Mississippi, so I know that from here to Oxford is 237 miles. But somebody's got to, initially somebody if you have never been down that road somebody's got to you show you how to get there.” The difference between knowing the path and actually traveling the path was also summarized in a comparison by Connor:

If I had to boil it down to a simple description it's like the equivalent of a jungle guide. Basically it's like someone who knows the lay of the land, someone who knows all of the quirks of the system, someone who knows the hidden pitfalls and where to find water basically. It's like someone who knows how to work within the system, and someone who knows the system.

The notion that a distance advisor should help guide students through challenging situations, whether it be academic or personal, was echoed frequently throughout the study. When the advisor was not able to directly address an issue that arose, she was able to point students to contacts or resources to solve the problem. Greg shared an example:

She put me in contact with the people that I needed to talk with. She didn't try to tell me. She didn't try to explain. Well I'll say she gave me enough explanation, but she also pointed me in a direction that I needed to go to the person I needed to talk to... That's another reason that we need an advisor because I don't know anybody there other than her... I don't know who to email, I don't know who's that person that's sending me this, and so that was that was really beneficial.

Experienced students with high levels of autonomy still required help from their advisor to navigate the circumstances that they could not predict.

Confirming

The final role that participants felt their advisor was needed for was providing confirmation for plans and information. Eleven participants talked about how even though they were confident that they could create academic plans and handle many advising situations, their advisor confirming or adjusting plans as needed provided a sense of comfort. Howard talked about having someone there to review the plan and make sure everything was in its right place:

I think it's good to have somebody double check it to make sure obviously I'm not missing something. I'm definitely not familiar with the engineering department and the course path for everything for the distance program. I think it's worth it, at least to have somebody available that says, 'Hey you know if you want me to double check something, I'll double check it for you' and kind of offer some advice.

The main times when participants needed confirmation from their advisor was around course registration and close to graduation. Many participants discussed the importance of the advisor as they approached the end of their degree program to make sure everything was in order to

graduate. Larry shared his experience getting confirmation on his courses for through the online advising process:

For me, you know I'm busy. I can log on and I note that the courses on my planner, make sure they're available, and she gets the memo. (She) gives me the nod to go on and now if there's kind of any hiccups or things like that.

Ernie outlined the trouble that he got into when he created a plan without the necessary resources before his advisor pointed out the errors:

I laid out my graduation planner plan for graduation, and it just so happens that the plan that I laid out was based on some assumptions, because I didn't have the projected classes right. I didn't have that available to me, and that was an issue. So you know, I can lay out this plan, but I don't know if it's if it's going to work because I don't know what they're going to teach.

Participants had high levels of perceived autonomy, but still built relationships with their advisor to allow for greater balance between their academic and personal lives, to work through unforeseen challenges, and to confirm that their choices were accurate and helping move them toward their goals.

Summary of Findings

This chapter presented the findings of the study acquired through participant interviews, analysis of introductory e-mails, and analysis of online advising resources using Transactional Distance Theory as the framework. Participant experiences with advising structures, dialogue, and their perceived autonomy explained how and why distance students develop relationships with an academic advisor.

CHAPTER 5

INTERPRETATION, RECOMMENDATIONS, AND CONCLUSION

In this chapter, I interpret the findings from Chapter 4 in order to answer the research questions and address the purpose of the study – how and why distance students form relationships with an academic advisor. I examine the implications this study has for using Transactional Distance Theory to evaluate academic advising relationships. I offer recommendations for practice and recommendations for future research. Last, I share my final reflections and impressions from conducting this study.

Research Question 1: How do student participants experience academic advising structures in a distance setting?

Structure in Transactional Distance Theory refers to the design, systems, and processes that students operate in that can aid or hinder achievement (Moore, 1993). TDT states that when structures are designed to provide students with multiple options or pathways allowing for greater flexibility, distance students experience less transactional distance. Students in Flagship University's distance engineering program experienced advising structures in terms of their orientation to the program, working through the advising requirement, and the designated availability of their advisor.

One structural component that students did not encounter was a formal orientation to the program. While the lack of set guidelines when beginning the program did lead to greater flexibility, it also led to feelings of confusion and anxiety as students did not have a clear direction for getting started. Cordeiro and Muraoka (2015) found that an academic liaison who

helped students transition from the admissions process to first year enrollment was beneficial in creating a smooth transition. Without that liaison students felt lost, particularly with regard to how their transfer credit would be applied given that all participants had taken courses at other institutions prior to enrolling. It was not until they received the first communications from their advisor, that they began to understand the next steps in getting started. Most participants discussed receiving an initial e-mail from their advisor after being admitted that helped guide them through the process of getting started. A few even pulled the e-mail up during the interview to reference specific elements. When I reviewed the initial e-mails from the advisor, I found guides to help students through the transfer credit evaluation process, curriculum resources, and personal course recommendations. Students appreciated the thoroughness and personalization present in these initial e-mails, themes that would emerge in terms of student-advisor dialogue. However, approximately half of the students interviewed said that an added structural element in the form of an initial Zoom meeting would have been helpful for putting them at ease and setting a plan. Even without the required Zoom meeting though, most participants described how their advisor helped them set a long-term path toward graduation in those initial exchanges. Using the curriculum flowchart and taking into account the students personal circumstances, the advisor helped students map out a plan to reach their academic goals. However, those who felt it was unnecessary had strong feelings that showed their frustration with the process. They viewed the advising requirement as an impediment that had to be completed but did not contribute to their experience or their relationship with their advisor due to the transactional nature of their exchanges.

A second structural process that students described as contributing to how they work with their academic advisor was the semesterly advising requirement. Each student had to meet with

their advisor each semester in order to register for classes in the following semester. Students were generally aware of this rule and felt it was well-communicated if not over-communicated by the advisor throughout the semester. Students shared multiple options for completing the advising requirement including completing an online advising form and having a Zoom appointment with their advisor. Most opted for the online form for the convenience given their busy schedules but did value the option of a Zoom meeting for more in-depth conversations as needed. In terms of the flexibility of the advising process, students were split as to whether the process was flexible or rigid. Those who felt it was flexible noted the multiple options and the ease with which the online advising form could be completed at any time. The group that found the process more restrictive pointed to the inherent rigidity of having to be advised each semester and also cited the transactional nature of the advising exchange. While the online form did leave space for comments from both the student and the advisor, some students found that exchange impersonal and mechanical ultimately amounting to nothing more than a removal of the advising hold. This group of students was in the minority as most found the advising requirement necessary to stay on track and find out any updates with the program.

As a group of mostly working non-traditional students, advisor availability was an important structural piece that influenced how students engaged with their advisor. Because almost all participants worked full-time and the advisor's typical availability was during the business day, students chose to communicate more through e-mail due to lack of time for an appointment. Many students were empathetic to the challenge for an advisor to be available outside normal business hours but still expressed that it would be an option that they would appreciate. Several students commented on the value of having a single advisor as a consistent resource who understood the student's academic history; however, some students saw having a

single advisor as a structural weakness especially when the advisor was unavailable. Research has shown that engineering students who feel their advisor is unavailable or too busy to help them experience high levels of dissatisfaction. (Brent et al., 2019; McCuen et al., 2009; Packard et al., 2012). Participants in this study echoed that feeling. In perceived urgent situations when they could not reach their advisor, students felt frustrated and did not know who to reach out to. Without the option to walk into an office given the distance setting, students were left to seek out answers on their own or continue reaching out to the advisor in hopes of receiving a response.

As Transactional Distance Theory forecasted, students valued flexibility in the structural components they encounter in a distance engineering program. As older non-traditional students with jobs and families, many desired flexibility in terms of advisor availability outside business hours and flexibility with the methods used to complete the advising requirement. Having options that could increase efficiency and cut down on wasted time, while also providing avenues for more nuanced conversations when necessary gave students a sense of comfort. However, too much flexibility early in the program including prior to enrollment seemed to be viewed negatively by the majority of participants. Not having prescribed steps after being admitted left students feeling confused and anxious about how to proceed. The advising requirement that must be completed each semester was also seen as a positive by most to ensure students did not get off the correct path. These results indicate that there is an ideal balance between flexibility and rigidity for advising structures and that overly flexible structures can be viewed just as negatively as overly rigid ones. Greater structure in the beginning so that students can learn the program and requirements, get to know their advisor, and understand the resources available with subsequently less structure as students progress into future semesters was indicated as the ideal by most participants.

Research Question 2: How do distance student participants perceive dialogue in the student-advisor relationship?

Dialogue is a specific type of communication between the advisor and student that enhances the student's understanding of policies, requirements, and resources (Moore, 1993). Dialogue is proactive and constructive by definition, and increased dialogue results in less transactional distance experienced by online students. Participants described their interactions with their advisor, and themes related to the modes of communication used, proactive outreach, advisor attitude, and personalization helped characterize the development of dialogue in the student-advisor relationship.

Students and advisors had access to multiple modes of communication for generating dialogue. A few students referenced having phone conversations with their advisor, but the vast majority focused on e-mail and Zoom meetings as the main options for engagement. Every student participant discussed the use of e-mail as the primary means of communicating with their advisor. Students typically defaulted to e-mail for the convenience, flexibility, and the permanent record of the conversation that e-mail afforded. For most students, e-mail was able to fill the needs they had for a student-advisor relationship in this program; problems could be addressed, information could be shared, and e-mail could fit into their tight schedules without creating disruptions. However, an over-reliance on e-mail was seen as a problem for some especially when it was the only mode of communication used because simple problems could drag on and meaning could be lost in translation without a face-to-face experience to draw from. For issues that could not be resolved over e-mail, Zoom meetings provided an avenue for face-to-face, synchronous interaction useful for working through more complex situations. Several students discussed the drawbacks of not being able to meet with an advisor in person, yet few had taken

the step to meet on Zoom. Again, convenience and timing were the biggest hindrances to students setting up Zoom meetings along with a lack of need to this point. Many students noted that Zoom could fill most of the gap of not being able to meet in person and that Zoom offered a path to a more interpersonal relationship with their advisor.

Participants explained how their advisor reached out proactively and described situations that led to them reaching out to the advisor. Students in the program received regular e-mail updates from the advisor multiple times per semester providing a range of information mostly related to advising, registration, and course planning. Many students shared that these communications satisfied their needs by providing information that increased their understanding and opening the door for two-way communication with the advisor. Students felt the advisor established a positive tone in the e-mails allowing them to feel comfortable when they needed to reach out for help. While most participants felt that initiation of communication came mostly from the advisor or was mutually initiated between the advisor and the student, some participants had negative experiences that could be viewed as a deficiency of dialogue. Reiterating the experiences that some students had with the online advising form, some participants conveyed that communications from their advisor were too transactional. These students wanted more from the regular e-mails sent from the advisor in terms of supplemental information about internships, careers, and other potential resources that could help them achieve their goals. This desire echoed the findings of Sutton and Sankar (2011) who found engineering students were less satisfied with supplemental information received from their advisor. A few students expressed the need for individual check-ins from the advisor at least once per semester, either for all students or at least for students who were struggling. A direct communication from the advisor was viewed as more personal than the general e-mails and would allow students to give a pulse

check for how they were doing at the time leading to more constructive interactions with their advisor.

Beyond reaching out proactively and maintaining a positive tone during interactions, the advisor generated dialogue by being responsive, thorough, and engaged in the concerns of students. Responsiveness came up consistently with almost all participants, reinforcing previous research that distance students place high emphasis on advisor responsiveness (Gravel, 2012; Karakolodis, 2018; Schroeder & Terras, 2015). Responsiveness was not only seen as necessary given that most interactions were carried out over e-mail but as a sign of professionalism, which many participants valued highly as working professionals themselves. Responsiveness helped build trust and confidence in students, while those who felt they did not receive timely responses became frustrated and skeptical of their advisor. Timely responses helped build dialogue between students and the advisor, but the content of the responses also mattered. Students valued thorough responses that addressed issues comprehensively and pointed out multiple options for reaching a resolution. Students perceived thorough, timely responses to show that the advisor was engaged in their concern and genuinely attempting to help as opposed to simply doing the job. Gravel (2012) found that distance students want to be treated as more than a number by their advisor with remembering details about the student and asking probing questions listed as means of personalizing the advising experience. This personalization occurred for many students in the distance engineering program through similar means; however, some students did not feel their personal needs were being met. These students were in the minority but felt that the attention that they did receive from the advisor was mostly transactional and did not provide the depth and proactive encounters they desired. Some proposed that the advisor may be too busy or even that

the system, meaning the online advising forms, were not set up to allow the type of meaningful back-and-forth that those students needed.

Student experiences with dialogue in a distance engineering program were explained through the modes of communication used, proactive initiation, and advisor attitude. The advisor was able to generate constructive dialogue with the majority of students through prompt responses, thoroughly addressing concerns, and conveying a positive attitude marked by professionalism, positivity, and engagement. Though students all worked with the same advisor and received mostly the same information, their personal experiences varied greatly regarding their perceptions of dialogue and communication. Students wanted individualized attention, and some found communication to be too transactional leading to a disconnect with the advisor. In Transactional Distance Theory, the variance in student experiences with dialogue can be explained by each student's learner autonomy, which will be addressed in the following section.

Research Question 3: How do student participants' perceptions of autonomy explain the student-advisor relationship in a distance setting?

Transactional Distance Theory defines learner autonomy as the ability to independently plan and address needs without the intervention of a teacher, or advisor in this case. Students in the distance mechanical engineering program at Flagship University perceived themselves as having high levels of autonomy and described how their advisor adds value given that self-reliance. This perception was attributed mostly to experience. Students pursuing this degree online are overwhelmingly transfer students, because some early degree requirements are not offered through the program. Multiple participants were pursuing a second degree. Students with experience managing course planning and academic advising issues were more comfortable with what they needed to do, because they had done it before, whether on campus or online. Some

participants also felt that the experience they had gained working with their advisor while in the program had increased their autonomy. Helping students set goals, understand resources, and plan courses can lead to greater self-reliance later in the course of study (Gupta, 2018). Despite this experience and ensuing autonomy, students overwhelmingly shared that they do need an academic advisor to be successful. Autonomous distance students still need an advisor to balance their academic, professional, and personal responsibilities, to help navigate unforeseen circumstances that arise, and to confirm information related to their program.

Students worked and built relationships with their academic advisor despite high levels of autonomy, because the advisor was able to shoulder some of the burden of academic planning and finding solutions to issues relating to the program. Many students discussed the challenges of balancing coursework with other personal responsibilities like work and family. Distance students generally are more likely to be employed and supporting a family (Calhoun et al., 2017). With limited time available, students had to prioritize what to spend time on and what to delegate. Students felt *able* to handle many advising-related circumstances on their own but were able to rely on their advisor to provide accurate information so they could devote their time and energy elsewhere. Along with sharing the responsibility for planning the path through the degree program, the advisor helped students deal with unforeseen circumstances. Most students were confident that they could find information and use available resources to address problems, but many discussed how when particularly difficult situations came up having an advisor to share knowledge and insight was essential. Students can experience a range of challenges from academic struggles to curriculum changes to financial issues and having an advisor to work through those issues with was valuable to participants. Students go through the distance program one time while the advisor guides each of the hundreds of students currently enrolled. Students

understood the value of that experience and wanted an advisor available to navigate any unknown challenges that arose. Participants who felt confident that they could make and follow an academic plan still expressed a need for an advisor to provide confirmation. This role mostly took place around course registration and graduation when the advisor could confirm that students were on an appropriate path or that all degree requirements were complete. Without confirmation, students discussed the slight uncertainty and anxiety that occurred until their advisor provided approval. This step also allowed for mistakes to be caught and corrected in the event that a plan was incorrect. Having an advisor available to give a final seal of approval gave students a sense of comfort and relief knowing that they were on the right track.

High levels of autonomy for students can decrease the need for heavy dialogue with an advisor and allow students to progress in different structural systems; however, increased autonomy does not eliminate the need for an advisor. The findings in this section showed why experienced, non-traditional distance students need and continue to engage with an academic advisor despite being highly autonomous. Students struggle to balance their academic, work, and family obligations. A positive relationship with an academic advisor can reduce the time spent planning and finding answers to academic-related problems. Students also needed an advisor when unforeseen circumstances arise requiring guidance outside the typical path through the curriculum. Finally, advisors serve as a point of authority for confirming important information giving students a sense of security in place of the uncertainty that arises without that expert confirmation.

Implications for Theory

Transactional Distance Theory states that increased structure reduces the opportunity for dialogue in a distance learning setting, which leads to less connection between the student and

the program (Moore, 1993). Learner autonomy also contributes to a student's experience; the greater the autonomy the more likely a student will be able to be successful in a tightly structured environment with less dialogue. This study found considerable evidence to support Moore's theory. Overall, participants valued flexibility in terms of modes of communication, availability of the advisor, and choosing their path through the curriculum. Some students expressed frustration when they perceived processes as overly rigid or transactional leading to a lack of dialogue with the advisor. Beyond structure, components like advisor attitude, opportunities for synchronous interactions, and students' receptiveness to participate in the relationship were themes that arose related to advisor-student dialogue. Most participants saw themselves as highly autonomous, which explains why some had no issue with a more transactional relationship in which information was shared primarily through e-mail. These findings fit neatly under Transactional Distance Theory; however, some findings related to the student-advisor relationship in a distance setting provide reasons to explore modifications when applying the theory to academic advising.

Early Structure to Initiate Dialogue

Participants expressed a need and desire for added structure prior to enrolling and in the early stages of the program. After being admitted students did not have a formal orientation to complete, and that missing structural component led to feelings of anxiety and confusion. While almost all participants were highly supportive of having multiple options for interacting with their advisor, most expressed a need for a required face-to-face meeting to help get them started and feel more comfortable with their path forward. This finding runs counter to Moore's theory that more rigid structures always reduce the opportunity for effective dialogue; however, it does support the idea that synchronous communication is an effective way to initiate dialogue. By

requiring higher levels of synchronous interaction early in a distance program, distance advisors can educate students while building trust before reducing the structural requirements as students progress. Advising relationships are more expansive than a single-semester relationship between a student and professor. The expectations and course requirements for a class can be neatly laid out in a syllabus, while the unique circumstances of individual students entering a new distance program are so varied that creating such a document to capture all of the necessary knowledge encapsulated by advising is unwieldy if not impossible. For theory purposes, the added level of complication is a reason that more structure could be needed early on to allow students to voice and work through their concerns to establish a path toward success.

One key difference between the student-advisor relationship and the student-instructor relationship that Transactional Distance Theory is most often applied to is that the student-advisor relationship develops over a longer period of time. Instead of a single semester, the student-advisor relationship is often built over multiple years. The longevity of the relationship is a reason that more structure at the beginning of the program could eventually result in greater dialogue throughout the relationship; more students may see the value in synchronous interactions with their advisor and take advantage of those options during their academic career leading to more dialogue as a result of the initial structure. This study suggests that increased initial structure to establish dialogue is needed in the student-advisor relationship before shifting to more flexible structures to maintain dialogue afterward.

Autonomy Increases over Time

A second related finding that is not accounted for in Transactional Distance Theory was that students experienced growing autonomy over time. As students worked with their advisor, gained knowledge, and grew more comfortable with the advising process and the requirements of

their program, they became more autonomous and less reliant on the advisor. This development is again a function of the added time that students work with an advisor. In a 15-week semester, it is unlikely that a student's autonomy would significantly change, but over the course of multiple years students could experience increased independence. As students felt more autonomous and capable of handling their advising affairs, their need for dialogue with the advisor decreased allowing for problems to be resolved through the more transactional medium of e-mail. This finding that autonomy increases during the course of the student-advisor relationship in a distance setting has implications for how to structure interactions to best support this population.

Recommendations for Practice

From the findings of this study, I identified several recommendations to help facilitate stronger relationships between students and advisors in a distance setting. Recommendations include a required face-to-face meeting prior to beginning classes, multiple modes of communication, flexible advisor availability, and proactive outreach from the advisor.

Required Synchronous Meeting prior to Enrolling

Participants in this study were clear that an initial face-to-face meeting with their advisor over Zoom would be a valuable requirement to help set a path through the curriculum and establish a rapport with the advisor. Students expressed a desire to get on the same page with their advisor and to understand current and future requirements to avoid confusion and anxiety. Supervisors and leaders in distance advising offices should work with advisors to create an initial onboarding meeting to help serve this purpose. Overly-structured programs do not provide the necessary pathways to generate dialogue between the advisor and students, however a single rigid requirement with clearly stated intentions would set the stage for more meaningful dialogue

throughout the student's academic career. Loosening requirements as students progress and become more autonomous would provide the needed flexibility for distance students who are often balancing work, family, and academic obligations.

Multiple Options for Communication

Most students in this study communicated with their advisor primarily through e-mail but valued the option to call or schedule a Zoom meeting to address any immediate concerns. E-mail was the communication method of choice for most students, because of the convenience and flexibility that the medium provides; however, having multiple methods of communication available gave students a sense of comfort in the event that more complex issues arose. Being able to communicate synchronously not only eliminates delays in response time but allows students and advisors to pick up on verbal and non-verbal nuances not present in e-mail.

Distance advisors should provide and clearly outline the options students have for communicating and indicate the value of each method. The widespread use of web-conferencing software like Zoom necessitated by the Covid-19 pandemic should continue for distance students as the pandemic subsides, because of the value provided by synchronous interactions with an advisor.

Flexible Advisor Availability

Most distance students and almost all participants in this study work while pursuing their degree online. The advisor in this program worked a typical 8-5 schedule, and many students expressed that having advisor availability outside of the standard work day would be useful. Students were empathetic to the fact that their advisor could not be available all the time, but administrators for distance advising programs should consider flexible, non-traditional work schedules for advisors serving an online population. Beyond availability outside the regular work

schedule, participants discussed the need for regular drop-in availability similar to a professor's office hours. Knowing a set time when the advisor would be reachable each week either by phone or Zoom would allow students to plan in advance if they have an issue that needs to be addressed. A practice like this also provides more opportunity for synchronous communication thus facilitating greater dialogue between student and advisor.

Provide Backup Contact when Advisor is Unavailable

Students valued having a single advisor to work with because of the consistency and mutual understanding built over time; however, at times when the advisor was not available, students felt anxious and helpless not knowing where else they could turn to get answers. Distance advisors and advising center supervisors should clearly communicate a point of contact when the primary advisor is unavailable to handle any urgent situations that arise while the advisor is out. Distance students do not have the option to walk into an office and find the help they need, so it is imperative that a contingency plan is communicated to them when their advisor is not available.

Personalized Proactive Outreach

Students in the distance engineering program studied received regular proactive communications from their advisor with updates about important dates, advising, scheduling, and registration. Most students appreciated these e-mail updates and found them thorough and sufficient for their needs. Other students found the e-mails too transactional. Participants who felt the advisor-initiated e-mails were not personal enough suggested a single personalized outreach during the semester. This "pulse-check" e-mail could serve as a catalyst for the student to reveal any issues that he or she was having and shows the student a personalized level of attention helping students to feel like more than a number. While it might not be practical to do

this for all students depending on the number of students the advisor works with, criteria could be established by the advisor and supervisors to determine who should receive this personal communication. First-year students and students with lower GPAs would be a reasonable starting point to establish a list for this practice.

Recommendations for Future Research

The scope of this qualitative case study was limited to a single distance engineering program at a large public research institution. To build on the findings of this study, I recommend that additional research be directed at the topics below.

Student-Advisor Relationships in other Programs and Institution Types

This study documented the communication and relationship-building practices of students in a distance engineering program with their academic advisor. Participants in the study had many similar characteristics to general distance-student demographics particularly in terms of employment and age. However, the program studied had distinct characteristics like required courses that must be completed outside the program, and engineering curricula are more prescriptive which could impact student communication with an academic advisor. Future research should evaluate online student-advisor relationships in different majors, programs, and institution types to better understand how those factors relate to the student experience.

Student Perception of Distance Advising over Time

The current study captured a snapshot of student experiences with academic advising at a particular moment in their academic journey. I did not limit participants based on their level of experience in the program; all currently enrolled students were invited to participate. This sample provided a range of experiences from students who had just completed their first semester to students who had been enrolled for several years. A longitudinal study aimed at understanding

distance student experiences with academic advising over time, from initial enrollment to completion, would provide insight into how perceptions of advising change throughout the course of study.

Minority Experiences in Distance Advising

Students who enroll in distance programs are more racially diverse than traditional campus students, and women and minorities are underrepresented in engineering programs (Burke, 2019; Calhoun, Green, & Burke, 2017; Harper & Quaye, 2013). In this study, four participants were racial minorities and one was a woman. While my analysis of the interviews surprisingly did not reveal noticeable differences in the experiences of women and minorities, previous research suggests that women and minorities face additional barriers in engineering programs and academic advising (Brent et al., 2019; Helman et al., 2020; Packard & Jeffers, 2013). A study to focus specifically on how minority students experience academic advising in a distance setting would be a valuable contribution to the literature.

Quantitative Factors Affecting Perception of Distance Advising

Another avenue to understand what students want in a distance advising relationship and what factors influence that perception would be to approach the problem quantitatively. Factors like working status, age, grades, time in the program, self-efficacy and more could be assessed for correlation to perceptions of advising.

Empathy and Satisfaction with Advising

One theme that arose in this study that did not garner significant attention due to not fitting the purpose and research questions was how student empathy toward their advisor affects how they view the relationship. Several students expressed empathetic attitudes related to the advisor's workload and other challenges associated with the position. These students seemed to

have more positive opinions of their advising relationship, but that idea was not fully developed because it fit outside the context of this study. A study focused on the relationship between student empathy and perceptions of advising would be an interesting to the body of literature on advising in a distance setting.

Conclusion

The purpose of this qualitative case study was to better understand how and why distance engineering students build relationships with an academic advisor. Using Transactional Distance Theory as the conceptual framework, I sought to explain the relationship-building process through the advising structures students encountered, dialogue between student and advisor, and students' perceived autonomy. The findings corroborated many of the principles of transactional distance. Students valued flexibility with advising options, modes of communication, and advisor availability. Students experienced dialogue with their advisor through that flexibility. Characteristics of effective dialogue included proactive outreach from the advisor, receiving thorough information, and personalized attention to address students' needs. Responsiveness was another key element of dialogue as has been established in previous research about distance student-advisor communication (Gravel, 2012; Karakolodis, 2018; Schroeder & Terras, 2015). Students who did not experience these outcomes had less meaningful relationships with their advisor and felt more disconnected from their program. Even highly autonomous students as many participants in this study were still worked with their advisor to help balance their academic and personal responsibilities as well as to receive confirmation related to issues in their program.

The results of this study provide guidance for creating better advising structures that address distance students' unique needs and help facilitate dialogue. Effective communication

from advisors to students leads to higher levels of student satisfaction, motivation, self-confidence, and self-efficacy (Kyte, Collins, & Deil-Amen, 2020; Powell, Demetriou, & Fischer, 2013). To support the ever-growing population of distance learning students, it is essential that institutions establish support systems to give students an equitable chance of achieving their goals. This study adds to the growing body of research on supporting distance students and contributes to the effort of understanding the most effective ways to approach academic advising in an online setting.

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APPENDIX A
INTERVIEW PROTOCOL

1. What should a student-advisor relationship look like in a distance setting?
2. How is your relationship with your advisor different than that ideal?
3. How does your advisor earn your trust?
4. In what ways do you and your advisor communicate, and who initiates those interactions?
5. If you were in your advisor's shoes, how would you communicate differently with your students?
6. Tell me about how these interactions contribute to your relationship with your advisor?
7. How does being in an online program change communication with your advisor?
8. What does your advisor do that encourages or discourages you?
9. What rules does your college have about academic advising?
10. What options exist for interacting with your advisor?
11. In your estimation is the advising process flexible or rigid? Why?
12. What guidance are you given to prepare for an advising meeting?

13. Do you think the advising policy in your college makes it easier to work with your advisor or not? Why?
14. Has Covid-19 changed the way you interact with your advisor? If so, how?
15. Are you confident that you can create an academic plan each semester on your own?
16. Do you need an academic advisor for this program? Why or why not?
17. What do you need your advisor for and what do you feel you are able to handle on your own?
18. Do you try to solve advising-related issues first before contacting your advisor? If so, what resources do you use?
19. Other than your advisor, who else do you seek help from for issues related to your program?

APPENDIX B

IRB APPROVAL



January 22, 2021

Tyler Roberts
Engineering Student Services
College of Engineering
Box 870200

Re: IRB # 20-11-4131: "Engineering Student Experiences Building Relationships with Academic Advisors in a Distance Program"

Dear Mr. Roberts,

The University of Alabama Institutional Review Board has granted approval for your proposed research. Your application has been given exempt approval according to 45 CFR part 46. Approval has been given under exempt review category 2(iii) as outlined below:

(2) Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording) if: (iii) The information obtained is recorded by the investigator in such a manner that the identity of the human subjects can readily be ascertained, directly or through identifiers linked to the subjects, and an IRB conducts a limited IRB review to make the determination required by §46.111(a)(7).

The approval for your application will lapse on January 21, 2022. If your research will continue beyond this date, please submit the annual report to the IRB as required by University policy before the lapse. Please note, any modifications made in research design, methodology, or procedures must be submitted to and approved by the IRB before implementation. Please submit a final report form when the study is complete.

Please use reproductions of the IRB-approved informed consent form to obtain consent from your participants.

Sincerely,


Carpantato T. Myles, MSM, CIM, CIP, EXCS™
Director & Research Compliance Officer

cc: Dr. Claire Major

Jessup Building | Box 870127 | Tuscaloosa, AL 35487-0127 | 205-348-8461
Fax 205-348-7189 | Toll Free 1-877-620-3066 | rscompliance@research.ua.edu

APPENDIX C

IRB AMMENDMENT



March 29, 2021

Tyler Roberts
Engineering Student Services
College of Engineering
The University of Alabama
Box 870200

Re: IRB # 20-11-4131-A: "Engineering Student Experiences Building Relationships with Academic Advisors in a Distance Program"

Dear Mr. Roberts:

The University of Alabama Institutional Review Board has reviewed the revision to your previously approved exempt protocol. The board has determined that the change does not affect the exempt status of your protocol.

Please remember that your protocol will expire on January 21, 2022.

Should you need to submit any further correspondence regarding this proposal, please include the assigned IRB application number. Changes in this study cannot be initiated without IRB approval, except when necessary to eliminate apparent immediate hazards to participants.

Good luck with your research.

Sincerely,

A large black rectangular redaction box covers the signature area.

Carriantato T. Myles, MSM, CIM, CIP
Director & Research Compliance Officer

Jessup Building | Box 870127 | Tuscaloosa, AL 35487-0127
205-348-8461 | Fax 205-348-7189 | Toll Free 1-877-820-3066