Using Needs Assessment to Create an Integrated Academic Advising Assessment Plan

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This study used a multi-methods needs assessment with directed content analysis to learn how academic advising assessment could be used to understand the effectiveness of the advising system at a private research institution and to design an assessment plan that met the needs and allowed the institution to evaluate the academic advising system. Data were collected through an artifact analysis of advising professional organizations, qualitative interviews with assessment coordinators at six external institutions, an artifact analysis of the institution's internal advising documents, a survey of the institution's advisors, and a group interview with institutional administrators. The data were used to build a pilot assessment plan for implementation at the institution.

Key findings from the study indicate that while not formalized into a campus-wide plan, assessment work may already be happening at the institution, and this work could be united into an intentional assessment plan that provides useful and actionable feedback for continual improvement. Regularly reviewed advising assessment plans grounded in literature and informed by the institutional needs of advisors and administrators can help institutions understand advising effectiveness and implement evidence-based changes to support student success. Practical and theoretical implications resulting from the study are that a taskforce with a designated chair to spearhead the advising assessment work was the best fit model for the institution's context; the institution should focus on advisor workload when implementing an assessment plan; the institution should use advising assessment work to help support the institution's values of

diversity, equity, and inclusion by using the data collected to understand how the advising system impacts students based on identities and group memberships; and that the institution should increase the presence of advising and assessment on the university's website.

This study fills gaps in the literature by adding to the understanding of advising assessment by highlighting the challenges institutions face when developing assessment plans and providing a framework for using best practices recommendations to build an assessment plan within a specific institutional context.

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Preface

This dissertation is dedicated in full to Kyle – my partner, my greatest support, and the calm during the storms. Your reassurance and continual compassionate grace allowed me to achieve a dream I set many years ago. To my parents – thank you for believing in me. To the colleagues who have encouraged me through the late nights and early mornings – I am grateful for your support in the advancement of the scholarship of academic advising. To my classmates – I appreciate the insights, experiences, and expertise that every one of you brought to our conversations. You have all made me a more reflective and compassionate person.

This journey would not have been possible without the unparalleled guidance, support, and tireless work of Dr. Maximilian Schuster. Thank you for pushing me to grow as a scholar practitioner. Dr. Jen Gilbride-Brown, I appreciate the unwavering faith you showed in allowing me to unearth a problem of practice within our professional world. Dr. Colleen Mayowski, I am grateful for your continual support and your expertise in the world of assessment.

1.0 Introduction

In recent years, higher education institutions are being asked from both internal and external stakeholders to show accountability and provide evidence of the value of earning a college degree (Eckel & King, 2004). Tuition continues to rise, and families, students, and government funding bodies question any investments that colleges or universities make into resources not directly related to classroom learning or degree completion. Spending on professional and managerial higher education staff has increased in recent years (Desrochers & Hulbert, 2016), and some have described this as a concerning example of administrative bloat (Zywicki & Koopman, 2017). In particular, the value of student services, like academic advising, has come into question. Spending on non-faculty student services personnel like career counselors, admissions staff, registrar staff, and academic advisors accounted for the fastest growing salary expense for higher education institutions from 2003 to 2013 (Desrochers & Hurlburt, 2016). One explanation offered for the increase in spending is that institutions need to invest in resources that support the delivery of their institutional mission and goals (Frye & Fulton, 2020). Colleges are increasingly expected to offer students full, holistic support, which warrants additional staffing and salaries for career counselors, advisors, and admissions officers (Carlson, 2014).

Advisors are widely noted as vital contributors to student retention and persistence, and the collective institutional recognition of advising as an important part of the student experience can help support a shared goal of student success (Campbell & Nutt, 2008). Advising has been said to be a key component in striving to reach desired institutional outcomes, and assessment of advising can help institutions understand the impact these services have on a student's experience

(Campbell, 2005a). Charlie Nutt (2004), the Executive Director of The Global Community for Academic Advising (NACADA), stated "the interest in and need for assessment of our students' academic advising experiences has become a major issue on our campuses" (para. 1). Still, the area of assessment in advising has been slow to grow in the past 15 years. In their recent text on the evolution of academic advising, Grites, Miller and Voller (2016) describe four eras of academic advising. In the first era, from 1620 to 1870, advising was widely unrecognized as a function separate from faculty teaching. From 1870 to 1970, advising began to appear as a professional area, but the specific practices and models remained unexamined. From 1970 to 2003, advising slowly began to be studied with the development of advising theory and scholarship. Grites et al. (2016) note that higher education has entered a new age of advising – an era where the challenge to advising comes in connecting advising theory to practice and measuring the impact of advising on outcomes. Identifying if advisors are meeting the goals of their programs and addressing stakeholder skepticism about the value of advising programs in the overall student experience are critical reasons for folding assessment into the landscape of academic advising work (Lynch, 2000).

While assessment has not become common practice in many academic advising programs, it has become a core component of educational programs of higher education. Most colleges and universities have formal measures in place to assess student learning outcomes and institutional effectiveness at both the academic department and overall university level (Hart Research Associates, 2016). Much of this shift towards assessment is based on compliance with requirements imposed by accrediting bodies and state and federal government requirements (Smith, Szelest, & Downey, 2004). These accrediting bodies primarily focus on teaching and learning outcomes. For example, the Higher Learning Commission, a regional accrediting body,

has five criteria for institutional accreditation: mission; integrity; teaching and learning quality, resources and support; teaching and learning evaluation and improvement; and resources, planning and institutional effectiveness. Advising is only mentioned as a sub-criterion of teaching support (Higher Learning Commission, 2020). The assessment methods designed to provide evidence of meeting accrediting standards can provide evidence of the value of attending college, but they are primarily focused around classroom learning and may not be easily transferrable to non-curricular functions like academic advising. Institutions are challenged with creating clear and effective assessment programs for academic advising that move beyond a customer service-based model for advising (Steele & White, 2019).

Academic advising literature suggests that holistic, student-focused services contributes to a student's ability to explore professional and personal goals and can enhance a student's undergraduate experience (CAS, 2013; NACADA, 2006). Assessment methods and data collection can help support these statements and answer the demands for accountability (Campbell, 2005a). Academic advising in higher education is a field that is primarily based on relationships and conversations. Because of the relational nature of the work, institutions may struggle to find ways to assess academic advising functions and provide evidence of their value or success in achieving stated (or implicit) objectives (Nutt, 2004; Steele & White, 2019). Academic advising also involves more than just the relationship between a student and advisor – there are relationships with other campus partners who support students in areas like career services, counseling, and academic support. The involvement of these other offices in advising work can make measuring the effectiveness of the advising program difficult (Lynch, 2000). Another challenge in assessment is that true experimentation and manipulation of advising programs cannot be used to evaluate cause and effect since ethical guidelines suggest that all students should have access to

best advising practices (Lynch, 2000). These challenges can make advising assessment difficult work, and they may serve as roadblocks for institutions in developing and implementing advising assessment plans. Without assessment plans in place, institutions may have difficulty understanding the effectiveness or impact of their advising programs on student success and institutional outcomes. In my professional context, I have an academic advising role within an advising system where the absence of an assessment plan has led to questions about how various aspects of our advising system impact students. These uncertainties coupled with the call from the literature for advising programs to develop and implement assessment plans lay the foundation for the contextual setting of this inquiry.

1.1 Inquiry Context and Setting

My inquiry is situated within my place of practice, Carnegie Mellon University (CMU). I serve as the Senior Academic Advisor for the Undergraduate Economics Program, which is a part of the Tepper School of Business. CMU is a highly selective private university classified as a Research I institution. CMU has an enrollment of approximately 14,500 students (7,000 undergraduate students) from 113 countries (CMU, 2019). There are seven schools and colleges within CMU, and each operates according to a highly decentralized, independent model. Many decisions are made at the department or college level, which gives academic units a significant level of flexibility in designing curricula, developing policy and procedures, and creating the student experience. Because of this decentralized model, delivery of academic advising is varied across campus, and the institution has just recently begun the work of developing and adopting campus-wide goals for academic advising programs. The decentralization serves as both a strength

and weakness for academic advising. Flexibility allows departments to develop programs that best fit the needs of their students, but it becomes difficult for the university to evaluate the impact of advising. Holistic, developmental advising is widely accepted as the standard model for supporting student success (NACADA, 2006), but without centralized guidance on advising, programs are able to choose their own methods of delivery. Advising delivery models vary by department. Some departments, like mine, have full-time staff advisors whose primary job function is to provide academic advising. Others use faculty advising models where students are assigned to a faculty member based on major or interest, and a departmental administrator does the routine, procedural tasks of advising like assisting with course registration, tracking degree progress, and certifying degree completion. In other cases, students experience both models where they are assigned a dedicated staff academic advisor during their first year or first two years, and then transition to a faculty advisor for the remainder of their undergraduate tenure. Some departments operate with very low student to advisor ratios (about 40 students per advisor), while others have very high ratios (upwards of 300 students per advisor).

CMU currently has no comprehensive assessment method for evaluating the effectiveness of academic advising. The institution is about to begin the work of developing a campus-wide, institutional model for evaluating our academic advising services. This inquiry is an opportunity to provide a systematic exploration of advising assessment within the institutional context of CMU. The findings from this study have the potential to move the institution from discussion and desire to action.

1.2 Stakeholders

When viewed as a system, academic advising involves multiple individuals and groups, technological systems, and policies and procedures. To frame the inquiry within the contextual setting of CMU, it is necessary to understand the key stakeholder groups that play a role within the advising system. Heifetz, Grashow, and Linsky's (2009) work on organizational analysis provides a framework for analyzing the stakeholder groups and their relation to advising assessment. It is not only important to identify the groups, but to also identify their role within the inquiry setting. Each group's values, loyalties, and relationship to the problem must be carefully considered since an assessment plan for advising should account for the needs of the stakeholders. Naming their values and loyalties and building an assessment plan with these in mind will increase the likelihood of getting buy-in and support from these key stakeholder groups.

First, the advisors are a central stakeholder group since they are the ones responsible for delivering advising services. Advisors' values include student satisfaction and student success, but they also value job security and approval from their supervisors. Because of this, their loyalties lie to multiple groups including students, the department, and themselves. Remembering that the advisors have internal values and motivators in addition to the external, shared values of the campus community will be an important factor when exploring advising assessment.

Department heads and non-advising faculty are also related to the problem of advising assessment, since they are also parts of our larger educational system and contributors to the overall picture of student success. They also have a stake in the student experience, and value student success, student satisfaction, job security, and faculty satisfaction. Since these individuals are not actively serving in an advising role, they may not value advising as a key component of the student experience and contributor to student success. They may not be aware of the services provided

through academic advising programs and may not be familiar with the value of developmental advising approaches.

University administrators are a third key stakeholder group. Administrators are concerned with the most effective use of financial and human resources and are interested to know if academic advising serves to increase the student experience. Administrators are responsible for answering questions of accountability to external partners who may want to see evidence that academic advising is a necessary part of the university system. They are also ultimately the ones who oversee advising across campus, and understanding their needs related to evaluating academic advising is an important piece of the inquiry.

Table 1 summarizes the stakeholders involved in academic advising and outlines their values and loyalties described above.

Table 1 Stakeholder Analysis: Assessment of Academic Advising

Stakeholder	Relationship to Advising	Values	Loyalties
Advisors	Primary role	Student satisfaction Student success Consistent job performance Supervisor approval	Students Department Campus community
Students	Primary role	Student success Student satisfaction Access to resources	Self Family/support system
Department Heads	Secondary role	Student success Student satisfaction Faculty satisfaction Staff (advisor) satisfaction	Dean and upper-level administration Students Faculty
Faculty	Secondary role	Independence Research-focus Access to quick information about student requirements Academic freedom	Dean and upper-level administration Students External research partners
Upper-level Administrators (Provost, Deans, Senior Associate Deans)	Tertiary role	Academic freedom Institutional success Faculty satisfaction Student success Student satisfaction	Campus reputation Faculty Students External stakeholders

While there are several stakeholder groups involved in the problem of assessment of academic advising, the key groups that will be targeted in this inquiry are advisors and administrators. Students are included in the stakeholder analysis since they play a key role in the advising system, but they were not a targeted group for inclusion in this study. This study focused on identifying and prioritizing the needs of these advisors and administrators related to advising assessment.

1.3 Problem of Practice

With the contextual landscape described and the targeted stakeholder groups reviewed, the problem of practice can now be defined. Carnegie Mellon University does not have a comprehensive assessment method for evaluating the effectiveness of its academic advising programs. CMU is decentralized, with colleges operating according to their own policies and procedures. There has been a noticeable lack of coordination in advising programs. Individual advisors and campus administrators may have different and competing goals for advising. Without an overarching framework for advising programs, advising delivery is inconsistent. The only current campus-wide method of assessment for academic advising programs on campus is a campus-wide student advising satisfaction survey. The survey was first created in 2004, and it is administered on a rotating basis two out of every three years (Hoolsema, 2019). The survey aims to assess student satisfaction with eight characteristics related to the academic advising relationship (Hoolsema, 2019). The past three survey collections have received an average response rate of 42.5% (Hoolsema, 2019). The response data is primarily quantitative.

There are many issues surrounding the use of a singular, optional student satisfaction survey as the only method for assessing academic advising. Creamer and Scott (2000) note that these problems include survey bias, unrepresentativeness, and low response rates. Because advising is a multidimensional process that involves multiple constituent groups, evaluating its effectiveness through only one method does not provide a full picture or useful data (Powers, Carlstrom, & Hughey, 2014). CMU's use of a singular survey does not allow us to provide comprehensive evidence of the effectiveness of academic advising programs. Despite the problems with using a single survey as the only measure of advising, administrators at CMU evaluate advising programs and individual advisors based primarily on this survey's results. Inconsistent models evaluated during a singular snapshot have enduring consequences for departments and staff. Hiring, promotions, and funding decisions are made based on the feedback received in the survey.

I talked with several full-time staff advisors in informal interviews prior to the formalization of this study to better understand their perspective and gather background information to frame the contextual setting of the inquiry. These interviews were used to inform the problem of practice and were not included as part of the data collected or analyzed within the study. During these conversations, several advisors mentioned inconsistencies in advising practices. They described student success as a driving force behind their motivations, but noted that there was a need for better alignment and shared expectations for advising amongst advisors and administrators. Another common theme was that advisors did not believe that the current student satisfaction survey provided enough information to assess advising effectiveness. One advisor noted that the institution could do a better job of setting and measuring objectives for advising programs.

CMU's lack of formalized goals for advising programs and lack of assessment plan for evaluating the effectiveness of advising has tangible implications for students, staff, and administrators. Academic advising plays a significant role in the undergraduate student experience, and through advising, students "learn to become members of their higher education community, to think critically about their roles and responsibilities as students, and to prepare to be educated citizens of a democratic society and a global community" (NACADA, 2006). While the advising relationship has the potential to be a powerful positive force in reaching the goals of retention, persistence, and satisfaction, the framework and delivery of advising programs is critical. If a student perceives a negative experience with advising, this may impact the student's willingness to engage in the advising system in the future (Nelson, 2013). Without an assessment plan in place, it is unclear if our advising systems are resulting in effective, developmental advising and positive experiences for students. With the student satisfaction survey as the only method of advising assessment, the contribution of advising to the overall student experience is unclear, and there is little data to justify the investment of new financial and human capital resources into these areas. Advising assessment is a stated initiative of the CMU Vice Provost for Education's Office, and this study is motivated by a personal and organizational desire to learn more about the effectiveness and impacts of our advising system. Through an exploration and inquiry about the needs of administrators and advisors within the CMU advising system, a detailed and comprehensive assessment plan can be developed that if implemented, would help the institution systematically learn how advising contributes to individual and collective student experiences.

1.4 Inquiry Questions

Academic advising has been said to play an important role in student success (Campbell & Nutt, 2008). Recent professional and scholarly literature has supported the need for institutions to develop and implement ongoing assessment cycles for academic advising (Lynch, 2000). Assessment of advising allows institutions to evaluate the influence these programs have on the student experience and determine if advising programs are achieving the desired and stated outcomes. The goal of this study was to explore the needs of campus advisors and administrators in assessing the effectiveness of academic advising. This study sought to answer the following inquiry questions:

1. What work has been done in creating and implementing comprehensive assessment cycles for advising programs at other institutions?
2. What processes and practices are currently in place at CMU for assessing academic advising programs?
3. How are these processes and practices used in determining the effectiveness of academic advising programs at CMU?
4. What needs do advisors and administrators at CMU have in assessing academic advising?
5. What would an assessment plan look like for assessing advising at CMU that would move the organization from the current to the desired state?

1.5 Significance of Study

This study is significant in the Carnegie Mellon context as well as in the broader advising assessment literature. While there is a notable presence of work in the existing literature related to advising delivery models and the importance of advising on the student experience (Campbell & Nutt, 2008; Drake, 2011; Habley & McCauley, 1987, King, 1993; Petress, 1996), the "development and assessment of learning outcomes for the advising experience is a new arena for most campuses" (Nutt, 2004, para. 6). Professional organizations suggest that institutions can benefit from the ongoing use of advising assessment (Campbell, 2005a; Campbell 2005b; Grites, 2003; Lynch, 2000), but there are few examples in the literature of a step-by-step process for building an advising assessment plan within a specific institutional context. The literature suggests challenges that institutions may face when beginning the work of advising assessment (Lynch, 2000), but there are few examples of how these challenges can be proactively addressed in practice during the assessment plan development phase. This study fills conceptual gaps in the literature in three ways. First, it provides a transparent framework for developing an integrated model for assessing advising within the context of an institutional system. This extends the recommendations for advising assessment from CAS (2013) and NACADA (2019a) by offering a tangible, implementable model in practice. Second, it provides a full and transparent presentation of the selection of learning outcomes and the identification of data collection measures that form the foundation of the plan. While the literature discusses the importance of learning outcomes for advising programs (Lindhorst & Schulenberg, 2007; McClellan, 2011; Martin, 2007), there are few examples of how individual institutions applied these recommendations to forming advising learning outcomes that support their unique missions, values, and contexts. Third, the inquiry adds to the literature by providing an in-depth case study of how specific institutional needs can be

discovered and used to build an assessment plan at the campus-wide level. This creates a model that can be implemented by other institutions who wish to undertake advising assessment work.

In addition to the significance within the scholarly literature, this study has personal significance for my own professional trajectory and identity as a scholarly higher education practitioner. CMU administrators have identified an interest in exploring how advising programs impact the student experience and contribute to student outcomes, and this study provides an opportunity to use my advising role within our organization to do a systematic exploration of these interests. As a researcher embedded within the organization, I am invested in the work of the institution and in the actionable, meaningful use of the findings from this study. My professional background as an academic advisor has allowed me to see first-hand how impactful advising can be and the significant role that it can play in student success. As an active participant within the advising system, I have always been curious about the ways in which our system is experienced by individual students. I have seen inequities in student experiences with advising, and this study allows our institution to learn how evidence-based change can support a more equitable advising system. I have personal goals for my advising practice that guide my work, and in recent years I wanted to know more about what factors contributed to differences in the ways students experienced my advising. I designed and implemented informal mechanisms for measuring my own advising effectiveness through student exit interviews, surveys, and student advisory committee group discussions. This individual advising program-level feedback has led to changes within my own advising work, and this study was an opportunity to further explore the challenges, needs, and possibilities related to advising assessment within the larger campus system. As a scholar-practitioner, this inquiry was motivated by the desire to learn how advising programs and practices can be improved to better support students, and by the desire to create a system that

allows us to explore how student and advisor identities impact their experiences as participants within the advising system.

CMU's campus holds regular open advisor network meetings, and the conversations often center around measuring our advising practices and understanding how our system may be supporting or hindering the students we serve. This study was an opportunity to combine my personal advising career experiences with the institutional desire to learn more about advising effectiveness. My positionally allows me to investigate these curiosities within a localized sphere of influence, and to use the findings from these investigations to support improvements within our educational systems.

While the findings from this study have immediate implications for my professional contextual environment, they also extend the literature and contribute to the existing scholarly work related to advising assessment. The assessment plan, implementation recommendations, and assessment data analysis plan that resulted from this inquiry provide an example of how the recommendations for advising assessment in the literature (CAS, 2013; NACADA 2019a) can be translated into action at CMU and throughout the broader higher education community.

2.0 Review of Supporting Scholarship

In order to build a foundation for this study and position the inquiry questions related to academic advising assessment within the existing professional literature, it is necessary to first understand the history, progression, and current landscape of academic advising and assessment. This chapter reviews supporting scholarship about the history and development of academic advising models, how institutional structure impacts organizational fit for advising models, the challenges of assessing academic advising to understand its effectiveness, and recommendations for developing and using an academic advising assessment plan. The chapter begins with a brief introduction of the historical and theoretical underpinnings of academic advising. As higher education institutions became more numerous and diversified, academic advisors became an important factor in student success. Advising has grown into a career field where theoretical frameworks inform varied advising delivery models. The concept of organizational fit in designing advising delivery models is also reviewed. There is no one-size-fits-all model for academic advising – the ability for an advising model to contribute to student success is dependent on institutional characteristics like size, mission, role of faculty, and academic programs. Next, the landscape of accountability for academic advising programs and the challenges these programs face in using data to assess outcomes and drive decision making is explored. Because of the relational nature of the work, assessing advising's effectiveness can be difficult. The literature related to the assessment process in academic advising is reviewed, and a final summary notes the themes and trends that emerged from the literature to inform this dissertation in practice.

2.1 Historical and Theoretical Underpinning of Academic Advising

To effectively conceptualize assessment in academic advising, it is important to understand the theoretical frameworks that inform advising practice. Advising models and theories vary widely and include theories that represent students in their various social identities, the year they are in college, their vocational interests, etc. A brief review of the history and common advising models is useful for understanding the landscape and context of academic advising.

The delivery of postsecondary education has changed dramatically over the past 200 years. When colleges first began offering degrees in the United States, the programs were small, the curricula were prescriptive, and course programs were intended to lead directly to a given career field (Cook, 2009). As institutions became more numerous, student bodies became more diversified, and curricular offerings became greatly expanded, there was a clear need for institutions to provide guidance to students (Cook, 2009). Johns Hopkins University and Harvard University implemented the first advising models in the 1870s with structures where faculty members provided student consultations as a part of their roles (Cook, 2009). Early advising work fell into three foundational categories: psychological, vocational, and academic (Cook, 2009). Academic advising began to grow as a specialty and profession during the 1970s as the number of community colleges increased and student populations changed to include more first-generation, lower socioeconomic status, and part-time learners (Cook, 2009). In 1972, the Carnegie Commission on Higher Education published a report that recommended institutions increase their emphasis on advising. The report characterized advising as a relevant and impactful component of the student experience (Cook, 2009). This report caused a shockwave in the advising community, and O'Banion (1972) and Crookston (1972) published what are considered seminal works in the field of developmental advising. Crookston (1972) outlined a clear difference

between the type of prescriptive advising that had been the standard model up to this point, and his new model for developmental advising. Until the 1970s, advising typically took a prescriptive form where the advisor served as an authority figure who told the student what to do. Crookston's (1972) new model was one of developmental advising and was grounded in student development theory. He argued that if the advisor and student partner together and engage in an ongoing series of relationship-based tasks, the advisor can serve as both a guide and a teacher who shares in the process of goal development and achievement (Crookston, 1972).

O'Banion (1972) proposed that advising should extend beyond just prescriptive course scheduling and include exploration of life goals, exploration of career goals, assistance in choosing a major, and advice on scheduling courses. He argued that in order to truly fulfill all of these roles, advisors needed to have a core role on college campuses. Impactful advising cannot take place as a tangential, add-on job function (O'Banion, 1972). With the introduction of these new theories, advising functions transitioned away from faculty and towards advising centers staffed by full-time professional advisors (Grites, 1979).

Advising continued to grow as a student services function, and in 1979 the Global Community for Academic Advising (NACADA) was established to support the profession of advising and encourage scholarly research and publication on best practices and impactful advising (Beatty, 1991). Since its inception, NACADA has grown to include a journal, national and regional conferences, committees and interest groups, topics-based institutes, awards and recognition programs, research grants, and degree-granting masters programs in academic advising (Cook, 2009). NACADA promotes the developmental view of advising and provides a document titled "Concept of Academic Advising," which outlines the structure of an ideal advising program (NACADA, 2006). The organization believes that the process and relationship of

advising connects students to their institutions, encourages skill-development in critical thinking and ethical-decision making, and supports individual student educational ownership (NACADA, 2006). NACADA advocates for a developmental advising approach where the roles of both the advisor and student are clarified, the advisor explains the purpose of advising, and advising practices are connected to learning outcomes (NACADA, 2006; Wallace, 2007).

Further indication of the importance and relevance of academic advising in the overall student experience came in 1986 when the Council for the Advancement of Standards (CAS) released a set of professional standards and guidelines for delivering quality student learning, programs, and services (Cook, 2009). CAS standards are designed to be benchmarks for institutions to use in order to deliver quality non-curricular programs, and the inclusion of standards for academic advising programs legitimized advising as a critical component of the undergraduate experience. The CAS standards for advising say that advising programs should have a mission; have intentional advising program and service design; have a focus on student learning, development, and success; have an assessment plan that documents progress towards the mission and goals; and create environments that support access, equity, diversity, and inclusion. Within these standards, CAS supports a developmental, relationship-based model for advising (CAS, 2016).

In practice, advising has transitioned from prescriptive-based frameworks to delivery models based on the developmental theory. Current models of delivery now focus on student engagement and partnership where advising is based on a shared activity that "includes the education and the development of the whole student and acknowledges that these dimensions cannot be treated independently" (Grites, 2013, p. 12). A significant amount of work has been done to examine the benefits that developmental academic advising has on student experience,

student persistence, and student success. Academic advising has been said to "play a role in connecting students with learning opportunities to foster and support their engagement, success, and the attainment of key learning outcomes" (Campbell & Nutt, 2008, p. 4). Advisors have been described as advocates, referral agents, educators, and change agents in the lives of students (Petress, 1996). Drake (2011) describes three key factors that contribute to student retention and persistence – early use of learning support systems, participation in first-year programming initiatives, and intentional academic advising. He notes that "students who are the happiest and academically the most successful have developed a solid relationship with an academic advisor" (Drake, 2011, p. 10). In their report on factors that influence student retention and persistence, Klepfer and Hull (2012) found that students who frequently met with an advisor had higher persistence rates than those who did not. They suggested that having an ally who can help students navigate the postsecondary experience is a critical component in degree completion (Klepfer & Hull, 2012). When viewed as a central teaching experience that parallels the learning students experience in a classroom, advising has the potential to be a value-add program that supports institutional goals of persistence and student satisfaction (Campbell & Nutt, 2008).

2.2 Organizational Fit for Delivery of Advising Models

While the advising relationship has the potential to be a powerful positive force in reaching the goals of retention, persistence, and satisfaction, the framework and delivery of advising programs is critical. Student perception of advising as a negative experience can contribute to disengagement in the advising system (Nelson, 2013). What constitutes effective and beneficial academic advising depends in a large part on the structure of the institution. King (1993) suggests

that the way advising services are delivered should depend on four factors: "the mission of the institution, the nature of the student population, the role of faculty, and the programs, policies, and procedures of the institution" (p. 47). Habley and McCauley (1987) conducted one of the first comprehensive surveys related to academic advising delivery models. They surveyed 396 higher education institutions to characterize the different models of advising programs and evaluated the impact that the organizational characteristics of each institution had on which model was ultimately selected. Habley and McCauley (1987) found that a primarily faculty-based advising model was more common at small institutions, while centralized advising offices were most frequently used at larger institutions. In their discussion, the authors indicate the importance of considering all institutional characteristics and mission when designing an advising model to have the most impact and effectiveness (Habley & McCauley, 1987). The authors suggest that readers use their findings as a guide for designing or reimagining campus advising programs. They caution administrators to consider the institution's size and classification when selecting an advising model. For example, they note that a large, public research institution would not best serve its students by implementing a faculty-only advising model, and that a small, private religious institution may not want to use a decentralized, satellite advising office model.

Researchers have built upon this foundational study and explored institutional factors other than size. Lynch and Stucky (2001) conducted a similar survey with over 2,500 advisors at various institutions across the country. They found significant differences in the delivery of advising services based on the institution's research classification and institution size. The differences included who was responsible for delivering advising functions (faculty vs. staff), the topics that were discussed during advising appointments, the length and frequency of advising appointments, and the mode of delivery (in person vs. online) (Lynch & Stucky, 2001). Faculty advisors were

more common at large research institutions. Advisors spent more time on career and graduate advising at four-year institutions than at two-year institutions, and advising appointments were much shorter at research institutions than at liberal arts institutions (Lynch & Stucky, 2001). Their study helps provide comparisons about advising delivery in practice, but it does not offer prescriptive conclusions that advising administrators can use in designing advising programs.

2.3 Challenges of Accountability in Academic Advising

Advising has grown to become a common student service function on college campuses, and in the era of increasing accountability and data-driven decision-making, recent literature has focused on measuring and defining successful or impactful academic advising programs. Outcome data like graduation rates, retention rates, exit interview data, and student portfolio or capstone completion have been used to drive academic decision-making in higher education for years (Hart Research Associates, 2016), but it was not until the early 2000's that stakeholders began asking for this type of evidence from non-academic areas of higher education, like academic advising offices (Smith et al., 2004). Much of this shift towards accountability is the result of the need to comply with requirements imposed by accrediting bodies and state and federal governments (Smith et al., 2004). Key stakeholder groups like students and administrators are also questioning the value of these student services functions in the overall cost of the undergraduate experience, and academic advisors should be prepared to answer questions of effectiveness (Grites, 2003). In addition to meeting demands of external accountability, advising programs also have internal reasons to develop and implement assessment programs. Advising is a "complex system that is designed to produce outcomes" (Lynch, 2000, p. 337). As such, assessment allows advising

programs to understand how and what students are learning by participating in advising. It guides programs in making improvements with the ultimate goal of increasing student satisfaction and degree completion in the academic advising process (Campbell, 2005a). Assessment also allows programs to determine the impact they are having on the overall student experience (Lynch, 2000).

While there has been a recent push towards accountability for advising, the literature present challenges that institutions may face when creating advising assessment plans (Macaruso, 2004). Academic advising is a field that is primarily based on relationships and conversations, and because of the relational nature of the work, institutions may struggle to agree upon the expectations and intended outcomes for advising programs (Lynch, 2000). Academic advising is a complex system that involves more than just the relationship between a student and advisor. Other campus representatives are involved, and the bilateral flow of information between the student and advisor often involves referrals and recommendations to other offices. The inclusion of external partners can make measuring the successfulness of advising programs difficult (Lynch, 2000). Much of the previous work around assessment in advising has focused on surveying students to gauge satisfaction, but these methods alone are not enough to demonstrate the worth or value-added of advising offices (Grites, 2003). Student satisfaction surveys "do not address the outcome of advising, namely, student learning" (Marcaruso, 2004, para. 2). They can help give evidence of how a student feels about their advisor or the advising process, but they do not provide direct evidence of a student reaching intended outcomes from the advising process. Another challenge in assessment is that true experimentation and manipulation of advising programs cannot be used to evaluate cause and effect since ethical guidelines suggest that all students should have access to best advising practices (Lynch, 2000). Despite the challenges, the

need to institutionalize a formal, consistent assessment process for advising programs is timely and a widely discussed topic in recent scholarly and practitioner-based works.

2.4 Assessment Cycle in Academic Advising

To provide evidence that advising programs enhance the student experience and are an important component of the undergraduate experience, the literature supports the use of a comprehensive assessment cycle. There are many different suggestions for an advising assessment cycle based on industry standards and applied research. Here, I provide a broad overview of some of these suggestions for best practices in advising assessment from the literature. It should be noted that just as considering the institutional context is important when designing an advising program delivery model, it is also important when considering an assessment cycle. Macaruso (2004) cautions that "because each institution is unique, each assessment program must…be unique so that it will be consistent with the values of the institution" (para. 3). While institutional differences should be a core consideration, higher education institutions can still look to industry standards to provide a framework when creating an assessment program. The main resource that serves as the baseline for assessment models in academic advising is the CAS (2013) standard for assessment of advising. The CAS (2013) standard for assessment includes recommendations for creating a culture for assessment, setting advising program goals, developing an assessment plan to measure those goals, and gathering and using evidence. Key recommendations that CAS (2013) lists for each stage of advising assessment are summarized below.

Table 2 CAS Recommendations for Advising Assessment

Culture of assessment
Ongoing cycle
Financial, human, technological resources
Goals and outcomes
Program goals and outcomes guide work
Measures should map to outcomes
Assessment plan
Based on assessment cycle
Ethical practices
Culturally responsive and inclusive
Engage stakeholders in assessment activities
Multiple measures of data collection
Manageable processes
Reporting and using findings
Use results to demonstrate effectiveness
Use results for continuous improvement
Share results and plan for improvement
Monitor improvement

CAS (2013) stresses that advising programs must approach these assessment plans as ongoing cycles. The CAS recommendations for assessing advising programs are comprehensive, but the organization provides little specification about how advising programs can structure assessment programs in practice. Researchers have found that despite CAS's recommendation for advising programs to assess their work on an ongoing basis, many programs do not have cohesive assessment plans in place. Powers et al. (2014) found that only 58% of the 230 institutions they surveyed had formal measures to assess their advising programs. While regional accrediting bodies like the Higher Learning Commission ask institutions to engage in evaluation and improvement of educational programs, this work is not required for academic advising programs as part of the accreditation process (Higher Learning Commission, 2020). Institutions have cited lack of access to assessment resources and lack of time to develop assessment programs as the main reasons why they do not engage in an ongoing cycle of assessment of academic advising

programs (Macaruso, 2004). To combat these concerns, researchers and practitioners have used the CAS standards to provide more practical guidance in developing an implementable assessment program. The steps recommend by CAS (2013) and NACADA (2019a) in an assessment cycle involve:

1. Creating and adopting a mission, vision, and learning outcomes;
2. Identifying measures that would indicate achievement of learning outcomes;
3. Implementing data collection measures; and
4. Reviewing the data collected from the assessment measures to develop and implement a change management plan for continuous improvement.

A detailed review and a deeper exploration of each of these recommended steps is provided in the following sections.

2.4.1 Step 1: Mission, Vision, and Learning Outcomes

An assessment program should be a "systematic, systemic, relationship process" (Campbell, 2005b, para. 1). Hanson and Huston (1995) note that assessment needs to ask who uses academic advising, how students experience advising, and if the objectives of the advising program are being achieved. Assessment plans should include a process evaluation of how effectively services are being delivered, and an outcomes assessment of how well the program is accomplishing its stated objectives (Lynch, 2000). Lindhorst and Schulenberg (2007) suggest that a foundational step in designing an assessment process is defining the advising unit's mission, vision, values, and goals. Without a clear mission in place, it is impossible for an advising program to assess its ability to contribute to a student's overall experience. Lynch (2000) argues that all personnel responsible for the delivery of academic advising must reach a consensus on the

definition of advising within their own context and agree to the stated mission. Advising units should also develop clear student learning outcomes for their programs (McClellan, 2011). The advising program's goals should be connected to the overarching institutional mission and strategic objectives (Powers et al., 2014). Despite the strong recommendations from the practitioner literature to develop learning outcomes, a NACADA survey reported that only about 25% of member institutions have developed student learning outcomes for their advising programs (Macaruso, 2004). To encourage advising programs to set learning objectives, researchers have suggested viewing the advising process as teaching, and they have documented the similarities between the learning process that happens in academic courses and the learning process that can result from a student-focused, developmental advising program (Hanson & Huston, 1995). Wallace (2007) likens the advising process to teaching and suggests that in order to maximize the benefit from the relationships, advisors need to teach students how to become responsible advisees. Advising should encompass all levels of Bloom's (1956) taxonomy of learning, beginning with basic policies and procedures and moving towards developing goals and skills for lifelong learning (Wallace, 2007). Campbell and Nutt (2008) also suggest that academic advising is a form of teaching, and as such, the advisor needs to develop a clear curriculum, specify learning outcomes, and identify appropriate ways to measure those learning outcomes.

Martin (2007) emphasizes the importance of establishing learning objectives and stresses that "advisors need to know what they are teaching through their interaction with their advisees, and the students need to know what they are supposed to learn through their interaction with an academic advisor" (para. 2). She suggests that similar to an academic course, advising programs should develop learning objectives that focus on the areas of information, skill development, and

cognitive development (Martin, 2007). These learning objectives provide specific, measurable goals for advising practices.

2.4.2 Step 2: Measurement and Indicators

Once advising programs establish an agreed upon mission statement, goals, and learning outcomes, the next step in the process is establishing an agreed upon model for the delivery systems of advising functions (Lynch, 2000). Next, the assessment plan needs to identify indicators that will be used to measure the success of the advising program. Lynch (2000) provides a comprehensive list of potential indicators advising programs may use depending on the institution's desired outcomes from the advising program. These indicators include advisee use of referrals, course selection, number of contacts, academic performance, satisfaction ratings, co-curricular involvement, drop-add transactions, graduation rates, career placements, time to graduation, and student follow-up (Lynch, 2000).

2.4.3 Step 3: Data Collection

Once the indicators have been identified, the assessment process should specify the data sources that will be used or collected to measure these indicators (Lynch, 2000). Some of these data sources may include course schedules, advisor notes, degree audits, grade reports, student tracking systems, survey results, interview responses, focus group data, and observations (Lynch, 2000). Current literature stresses the importance of including multiple sources of data to provide a truly multidimensional assessment (Creamer & Scott, 2000). In a study of 230 advising units, Powers et al. (2014) found that only 7.8% used three or more measures to assess advising learning

outcomes. Many institutions rely primarily or heavily on student satisfaction data to evaluate advising programs (Macaruso, 2004). There are problems associated with only using a student satisfaction survey to measure advising. It may be that only students who have had a notably positive or negative advising experience feel compelled to complete the survey (Creamer & Scott, 2000). If the survey results are the only data being used to assess the program, the feedback may be biased or non-representative. The advising program then is not able to use objective data as the basis for making the decisions about long-term improvements or broad changes (Creamer & Scott, 2000). Because advising is a complex process that involves multiple constituent groups, evaluating its effectiveness through only one method would not provide a full picture or useful data (Powers et al., 2014).

2.4.4 Step 4: Reporting and Change Implementation

The next step in the assessment process is preparing a final report of the data (Lynch, 2000). The report should be shared with all advisors and administrators. While distribution of the data is important, it is critical that the assessment process does not end with sharing results. Many advising programs successfully define objectives, measure them, and report the results, but they never actually utilize the results to make change (Smith et al., 2004). The assessment cycle should be a dynamic, ongoing process where results are used to make improvements (Creamer & Scott, 2000).

2.5 Self-study Tools for Assessment

Assessment in advising is a relatively new concept. A few tools have been recently developed to aid institutions in introducing the assessment cycle to their advising programs. One of the most widely used tools is the CAS self-assessment guide. CAS provides paper and electronic guides for each of the functional standard areas, including academic advising (CAS, 2018). These workbooks allow administrators to rate their program's delivery of each criterion related to the CAS standard and develop a plan for making improvements. Many advising programs use the CAS self-guide as a starting point for developing a comprehensive assessment plan (White, 2006).

NACADA also offers resources targeted towards developing assessment plans for advising administrators. In particular, NACADA offers two intensive institutes: the first is the assessment institute offered annually, and the second is the advising summer institute offered twice each year (NACADA, 2018). I had the opportunity to attend the NACADA summer institute in June of 2018, and several of the sessions focused on developing sustainable and impactful advising assessment plans. Key learnings from this institute were that assessment needs to be supported by the leaders of the organization, assessment should be viewed as a necessary component of continuous improvement, and that actively including advisors in the development and implementation of an assessment plan can greatly impact the plan's success. Institute faculty emphasized that a granular, extensive assessment is not inherently more effective than a more basic, easily implementable plan. The plan has to strike a balance where it is robust enough to allow for evidence-based decision making, but simple enough to be implementable within the confines of current and future resources.

2.6 Assessment Programs in Practice

While institutions have been slow to translate assessment to the area of academic advising, there are a few examples of institutions that have adopted ongoing, comprehensive assessment plans based on the recommendations from practitioner research and scholarly findings. Here, I review three models that are exemplar illustrations of well-designed assessment models in practice.

2.6.1 University of Cincinnati

The University of Cincinnati (UC) is a public research university with a student enrollment of approximately 44,000 (University of Cincinnati, n.d.). The institution has a robust advising program, and it even has a strategic planning committee devoted solely to academic advising. Recent changes in Ohio state legislation have shifted funding models to use student degree completion rates as a key factor in resource allocation. Because of this, UC assembled a task force to review how advising fits into the larger picture of student retention and degree completion and created a strategic plan for their advising program (University of Cincinnati, 2015). The task force conducted a thorough strategic planning process from 2012 to 2013, and the advising strategic plan was adopted in 2014. The first step in the process was to create a mission and vision statement. UC's mission statement for advising is "the UC Advising community engages and supports students through teaching and collaboration to achieve their academic, personal, and professional goals" (University of Cincinnati, 2017c, p. 9). The vision statement is as follows:

> The UC Advising community will advance a personalized educational environment in which all students achieve their goals through exploration, reflection, and engagement. We

> are committed to inclusion, teaching, and lifelong learning, and we are global leaders in advising practice, scholarship, and innovation (University of Cincinnati, 2017c, p. 9).

Next, the task force conducted a SWOT analysis and developed five strategic goals for the advising community. Each goal included specific, implementable tactics.

While the overall strategic plan highlights many of the best practices in advising, I will focus specifically on the assessment component. UC's fifth goal is to "become an industry leader in the assessment of student advising practices" (University of Cincinnati, 2015). It is clear that they have recognized the importance of assessment and have made it a cornerstone of their plan. Within this strategic goal, the tactics include developing standards for advising outcomes, creating a comprehensive system for evaluating these outcomes, and formalizing an assessment plan with participation by all advising units (University of Cincinnati, 2015).

Many of the features in UC's assessment strategy are consistent with the best practices for advising assessment. The assessment measures are based on learning outcomes that were established as part of the overall strategic plan. These outcomes are clearly communicated to all stakeholder groups (advisors, students, faculty, etc.) through an advising syllabus. The syllabus outlines student responsibilities, advisor responsibilities, and desired outcomes of the advising relationship (University of Cincinnati, 2017b). The desired outcomes are based on the CAS industry standards.

Also key in the assessment process is the inclusion of multiple measures of effectiveness. Prior to the implementation of the new advising strategic plan, UC relied solely on student satisfaction surveys for assessment. With the new strategic goal of becoming an industry leader in assessment, UC invested financial and human capital resources into creating and identifying key measurement tools. These measures include quantitative metrics like retention rates,

graduation rates, and number of advising interventions based on targeted student populations (transfer, international, athletes, etc.). They also collect qualitative data from a survey of entering students about student engagement, a student satisfaction inventory, and a student survey of advising key indicators (University of Cincinnati, 2017a). UC publicly shares some of the results of these assessment measures. They state that first-year students report generally positive feedback about the advising process, but upperclass students reflect less satisfaction due to high advisor turnover rates and high student-advisor ratios (University of Cincinnati, 2015). The fact that this information is widely available to individuals within and outside of the organization supports a transparent and comprehensive assessment program. They are not trying to "hide" their results or only put forth interpretations of the data made by high-level administrators – they provide the raw data from their surveys for review by all.

The final key of an effective advising assessment program is utilizing this data to make interventions and changes that lead to better accomplishment of the stated mission and desired outcomes. Based on the data UC collected through their assessment process, they made several adjustments to their advising model. They restructured advising duties and job descriptions so that students would have the same advisor for their entire tenure, they trained specific advisors to work with specific student populations like athletes and honors college students, they adopted new early alert technology systems, and they created a new online training for advisors to increase consistency across campus (University of Cincinnati, 2015).

UC is notably transparent in their academic advising strategic plan and assessment model. All of this information is readily available to internal and external audiences, and UC has done a notable job of communicating the rationale behind their increased focus on advising functions and the role they believe advising plays in student experience and degree completion. It will be critical

for UC to continue to treat the assessment plan as an ongoing, iterative cycle. It may be easy for UC to think of assessment as a one-time, check and fix type of program. In order to continue improving upon the delivery of advising services and support the overall goal of accountability and transparency, they will need to treat assessment as work that is never truly complete.

2.6.2 University at Buffalo

The University at Buffalo (UB), part of the State University of New York system, is a public research institution with an enrollment of about 30,000 students (University at Buffalo, 2017b). UB has utilized a formally defined assessment plan for their academic advising programs, which makes it a good candidate for inclusion in this review. UB's mission for advising is "academic advisors are dedicated to teaching students how to access essential information and acquire the skills to make well-informed decisions that will lead to the achievement of their education, career and life goals" (University at Buffalo 2017a, para. 1). The vision statement is "to empower students to be active, responsible learners who take full advantage of the many opportunities the university provides in the areas of academics, research, and community and global engagement" (University at Buffalo, 2017a, para. 2). This vision is consistent with the developmental model for academic advising.

Based on this mission and vision, UB created a full advising assessment plan for implementation during the period from 2016 to 2019. The assessment team created an initial report and has written updates for each year of its implementation. Best practices suggest that the first step in an assessment plan is to establish program goals and intended student learning outcomes (CAS, 2013). UB has identified student learning outcomes, and these outcomes provide a firm foundation for measuring the effectiveness of the program. The student learning outcomes include

things like “students will know whom to contact for help, students will know the requirements of their major, students will know how to register for classes, and students will understand course loads necessary for timely progress” (Academic Advising Assessment Team, 2016). These are clear, can be measured, and connect to the overall vision of their advising program.

Based on their stated learning outcomes, the UB team created a full assessment plan which included multiple measures to assess effectiveness. The plan outlines each tool, the rationale for its use, the timeframe for data collection, and which of the learning outcome(s) it measures. The tools include an annual advising survey, a requirements rubric, a goals rubric, an orientation survey, student data on course registration and completion, tutoring survey data, website usage data, a student quiz about registration knowledge, and survey data from other student services units (Academic Advising Assessment Team, 2016). The plan also outlines the specific action steps that each departmental advising unit will take to implement the various tools. Assigning tasks to specific operating units is critical for a successful assessment process since it creates direct accountability. Morrill (2007) notes that establishing “accountability and deadlines for the achievement of goals” is a crucial part of strategy implementation (p. 190). The methods of data collection in UB’s assessment plan are extremely comprehensive and include both quantitative and qualitative data and feedback from multiple stakeholder groups (advisors, students, and campus partners). Their strong framework could serve as a model for peer institutions. The final piece of the assessment plan is that the assessment team provides an executive summary and recommendations based on the data collected through implementation to the entire advising community each year. These summaries are available to the public through UB’s advising website.

The first summary was provided in September 2017 and addresses the three specific learning goals of “students will know their requirements for the UB curriculum, students will know

the requirements for their major, and students will understand the requirements for acceptance to their major" (Academic Advising Assessment Team, 2017, para. 2). The assessment team compiled the data from all of the various tools and found significant evidence in support of effective accomplishment of these three learning objectives. Student survey data, website usage, and course registration and completion data indicate that the vast majority of students understood the requirements and were on track to completing them (Academic Advising Assessment Team, 2017). The other six learning objectives will be evaluated in years two and three of the implementation process.

UB's overall assessment process demonstrates many of the best practices for assessing advising effectiveness. One specific strength is the transparency and widespread communication about the process. The assessment team has clearly included all stakeholders in the process design, and the results are not kept insular to a small group of administrations. Because advising happens with the frontline staff, it is critical that the results, both positive and negative, are shared with these individuals. It is also important that assessment is an ongoing, adaptive process that results in changes to the advising program for increased effectiveness in student learning. We see clear evidence of this in that UB approaches assessment as a cycle where the initial impact was evaluated after the first year of implementation (Academic Advising Assessment Team, 2016). UB has used the findings from this first cycle to redirect their course of action and create more narrowly defined advising student learning objectives.

2.6.3 Texas A&M University

Texas A&M University (Texas A&M) is a public research-intensive university with an enrollment of over 62,500 students (Texas A&M, 2018a). A recent legislative enactment, Senate

Bill 36, mandated that the Texas Higher Education Coordinating Board, the highest authority in the state for public higher education, establish an assessment plan for measuring the quality and effectiveness of academic advising at every public institution of higher education (Texas A&M, 2018c). As a result of this mandate, Texas A&M developed a comprehensive assessment plan which is consistent with the best practices suggest by the literature and professional organizations.

Texas A&M has an intentionally designed, transparent assessment process which follows many of the recommended steps of the advising assessment cycle. They note that the assessment process is designed to review the curriculum of advising, the pedagogy of advising, and student learning outcomes (Texas A&M, 2018d). Their website even includes a comprehensive diagram of their assessment cycle with includes the following steps: develop program mission and outcomes, design an assessment plan, implement the plan, interpret and evaluate the information, and modify and improve (Texas A&M, 2018d). The have also identified relevant stakeholder groups which include students, alumni, parents, employers, advisors, staff, faculty, administrators, and taxpayers (Texas A&M, 2018c).

The mission statement for advising at Texas A&M is that "academic advising is a collaboration between a student and an academic advisor. Through teaching and learning experience, the student sets goals, acquires information and services, and makes decisions consistent with interests, goals, abilities and degree requirements" (Texas A&M, 2018e, para. 1). In addition to the mission statement, the university has seven values that place academic advising as a central component in student learning. Texas A&M uses their mission statement and values as the foundation for their assessment plan. They provide an extensive rationale on a publicly available website about why advising is a critical piece of the student experience and contributor to student success (Texas A&M, 2018c). To establish the desired learning outcomes for their

advising programs, Texas A&M used the CAS standards to create a comprehensive set of outcomes that "were developed to be measurable at the program, department, college and university level and can be used by individual advisors or advising units" (Texas A&M, 2018b, para. 4).

A committee of nine academic advisors from across the institution developed the learning outcomes for academic advising, and these outcomes are published in the school's undergraduate catalog (Texas A&M, 2018d). During the data collection phase, Texas A&M uses multiple measures including quantitative and qualitative student data, and a self-study rubric (Texas A&M, 2018d). Texas A&M created the self-study rubric based on the ten CAS standards for advising. It details numerous sub-criteria and requires individual advisors, departments, or colleges to rate the delivery of these sub-criteria in their advising programs on a scale from "does not meet" to "exemplary" (Texas A&M, 2013). This scale is extremely thorough. Once the information and data has been collected, the university compiles an assessment report and presents this to the administration. From these conversations, the assessment team develops an action plan with specific modification and improvement steps with a timeline for implementations (Texas A&M, 2018d).

While Texas A&M's initial motivation for creating an assessment plan was the external governmental mandate, they created a sustainable, actionable, and comprehensive process. An innovative piece of their plan is the integration with a campus-wide online assessment system called WEAVEonline. "WEAVEonline is a central repository for program assessment process documentation. Each degree-granting program and many student, administrative, and academic support offices are required to use WEAVEonline to document assessment processes and program improvements" (Texas A&M, 2018f). WEAVEonline is designed to connect learning outcomes

across academic and co-curricular units to the overall strategic plan and goals. This is an important example of how campuses can tie academic advising assessment plans into the larger institutional vision and operation.

2.7 Summary

The current landscape of the demand for accountability from internal and external stakeholders in higher education supports the need for assessment in academic advising. The review of the literature, professional organization resources, and institutional models in practice show that advising has moved from a transactional experience to a transformational process, and suggest that advising can be a significant factor in the student experience and student success. Developmental advising has become the accepted theoretical model and standard for advising, but its mode of delivery is enacted differently depending on factors like institution size, student demographics, and academic programs. Some institutions use a professional staff advising model, some use a faculty-based advising model, and some institutions transition students from a staff-based advising center to faculty advisors as students progress in their degree programs. Other institutions have multiple methods of advising delivery that differ based on departments or programs.

The multiple delivery models and relational nature of advising work may contribute to the assessment of academic advising remaining an organizational challenge. Much work has been done on the theory and delivery of academic advising, but little has been done on the assessment of academic advising in practice. Since academic advising can play such a critical role in student success, higher education institutions need to recognize the necessity of an advising assessment

plan. Assessment of advising allows institutions to evaluate the impact these programs have on individual student experiences and student success.

While resources exist to guide programs in the development and implementation of an assessment plan, the process of crafting a plan that fits within the institutional context is time-consuming and requires an ongoing commitment by campus stakeholders. The literature only provides a few examples of effective assessment cycles that are grounded in the literature and built upon the organization's context and culture. The examples in practice show that there is not one definitive model that can be readily applied to every institution. There is a clear need for considering the contextual factors and stakeholder demands in the design of an assessment plan, and this inquiry conducts that review in order to design an academic advising assessment plan for CMU.

3.0 Inquiry Plan

This study focused on the use of academic advising assessment plans to help institutions understand the effectiveness of advising programs. The study was structured as a needs assessment and used directed content analysis methodology. In content analysis, "the aim is to attain a condensed and broad description of the phenomenon, and the outcome of the analysis is concepts or categories describing the phenomenon" (Elo & Kyngas, 2008, p. 108). In this study, assessment of advising was the phenomenon at the center of the investigation. Directed content analysis uses a pre-existing theory or research as the starting point for the coding process (Hsieh & Shannon, 2005). The NACADA (2019b) and CAS (2013) recommendations for advising assessment are widely accepted as best practice standards. NACADA (2019b) states that its assessment resources provide "expertise in support of…assessment of academic advising" (para 1). CAS (2016) standards are "agreed upon by the profession-at-large" (para 1). Because of their wide acceptance and adoption, they were used as the existing coding framework for the directed content analysis. Key concepts from the NACADA and CAS assessment recommendations were used to generate the initial coding framework that was used throughout the study. As data were collected throughout the study, the data were reviewed for the representation of new categories within the coding framework. The presence of new categories resulted in the addition of new subcodes to the coding framework.

Directed content analysis was an ideal method of analysis for this multi-method needs assessment because it involved using an existing framework to understand a phenomenon, and it allowed for the extension and support of previous research (Hsiech & Shannon, 2005). Through the coding framework generated from NACADA and CAS, directed content analysis helped

understand assessment plans in practice while providing an analytical, evidence-based pathway for designing an advising assessment plan for CMU.

3.1 Inquiry Questions

This study explored the following inquiry questions:

1. What work has been done in creating and implementing comprehensive assessment cycles for advising programs at other institutions?
2. What processes and practices are currently in place at CMU for assessing academic advising programs?
3. How are these processes and practices used in determining the effectiveness of academic advising programs at CMU?
4. What needs do advisors and administrators at CMU have in assessing academic advising?
5. What would an assessment plan look like for assessing advising at CMU that would move the organization from the current to the desired state?

3.2 Approach and Data Collection

To investigate the inquiry questions, I conducted a multi-method needs assessment that examined the current best practices for assessing academic advising, explored the needs related to advising assessment within the organization, developed a recommended plan for advising assessment at CMU, and collected feedback about the plan from CMU administrators. The study

used qualitative artifact analysis, individual qualitative interviews, a qualitative and quantitative survey, and a qualitative group interview. The data gleaned from these sources was analyzed through a coding framework generated through directed content analysis. The needs assessment design was ideal to support this inquiry because a needs assessment research design allows the researcher to determine what needs are important to the organization or group, compare the current condition to the desired condition, and develop strategies and support for institutional action (Sleezer, Russ-Eft, & Gupta, 2014). A needs assessment can be motivated by a variety of reasons, including a mandate from organizational leaders, a change in organizational context, or demand from the organization's members (Reviere, Berkowitz, Carter, & Ferguson, 1996). In this inquiry, the needs assessment was motivated by CMU's desire to understand the effectiveness of advising and desire to operationalize a system that would allow campus leaders to evaluate academic advising programs. It was also motivated by advisor dissatisfaction with the current assessment plan, which consists of a singular student satisfaction survey. Sleezer et al. (2014) define a need as the gap between the current condition and a desired condition. In order for a need to be present, there must not only be a gap between the current and desired state, but the gap must be acknowledged as a need by the community, and the gap must have the potential to be closed (Reviere et al., 1996). CMU's current state of advising assessment fits the criteria of the existence of a gap between the current state and desired state of advising assessment and the potential for the gap to be closed.

Needs assessment research design allows for the use of multiple inquiry methods, and the most commonly used are interviews, focus groups, document review, and surveys (Tutty & Rothery, 2001). This multiple method needs assessment approach provides the foundation of my research design. Tutty and Rothery (2001) recommend the use of multiple methods of data

collection and multiple sources of information to allow for triangulation of the data. Triangulation "involves checking information that has been collected from different sources or methods for consistency of evidence across sources of data" (Mertens, 2015). Using multiple methods of collection contributes to trustworthiness and transferability of findings (Mertens, 2015). The needs assessment occurs at two levels (a): the macro-level by examining the system of higher education institutions (CMU is a part of this macro system), and (b): the micro-level looking at CMU as an organization.

Figure 1 represents a systems-based view of higher education and situates this study within the larger landscape. Within the higher education ecosystem, professional organizations like NACADA and CAS inform the work of educational institutions. Educational institutions also look to peer and non-peer institutions for examples of policies and procedures in practice.

Berkowitz (1996) suggests researchers who use a needs assessment inquiry design should start by creating a methods matrix to guide the study. A methods matrix connects the research questions to the instruments and data for analysis. It adds clarity and structure to the study by linking the instruments and methods together (Berkowitz, 1996). Table 3 shows the methods matrix that was used in this study.

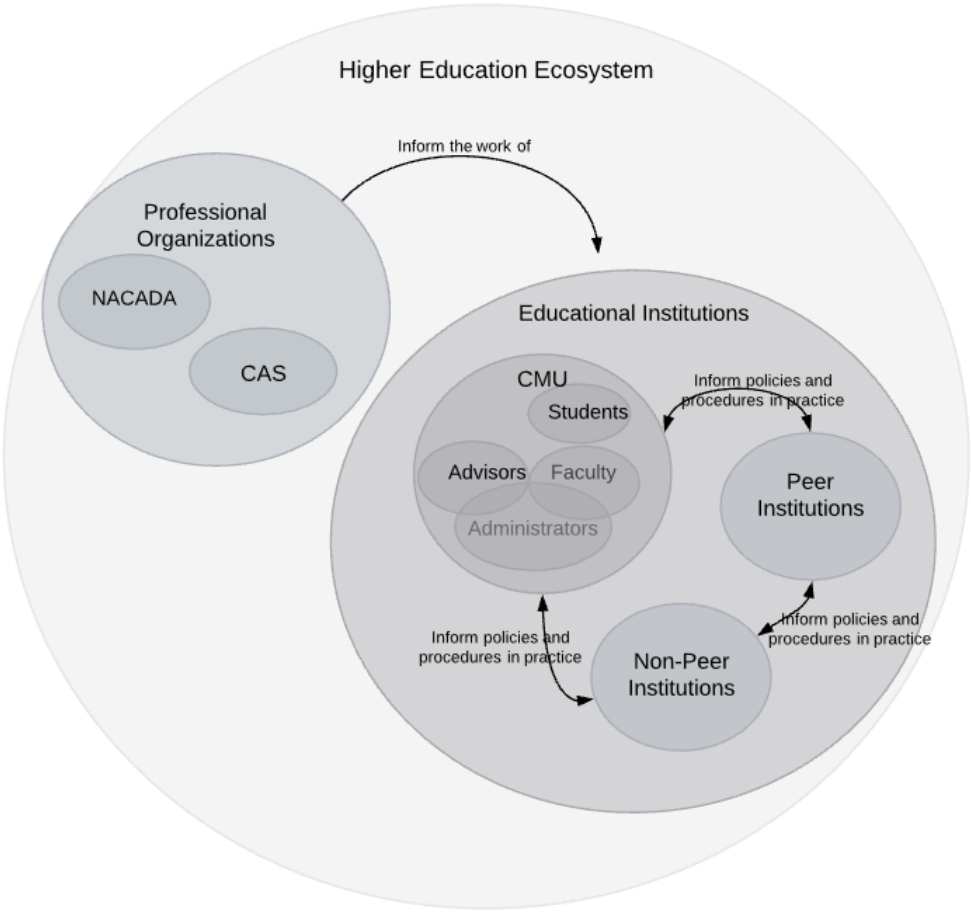


Figure 1 Macro and Microsytems of CMU Advising Assessment

Table 3 Methods Matrix

Method	Participants	Data Sources	Analysis
Artifact review	NACADA and CAS	NACADA and CAS assessment plan recommendation documents	Directed content analysis - The recommendations for the assessment process in the documents served as the primary coding framework. Each piece of the assessment process was a primary code. A chart was created to show the coding framework.
Individual semi-structured interviews	Exemplar external institutions and administrators	Interview documents, documents related to the advising assessment plans	Directed content analysis - The coding framework was applied to the interview notes. The coding framework was revised, and new codes were added for pieces of the assessment plan that we present in the institutional assessment plans but not in the NACADA or CAS recommendations.

Table 3 (continued)

Artifact review	CMU	CMU documents related to advising assessment (student advising survey, CMU advising statement, CMU advising ecosystem)	Directed content analysis - The coding framework was applied to internal CMU documents that related to academic advising assessment.
Survey	CMU advisors	Survey responses from survey sent to all members of the CMU advising distribution list	Directed content analysis - The coding framework was applied to the survey responses. Descriptive statistics (summary counts, averages, and percentages) were used for closed-ended questions.
Group interview	CMU administrators	Group interview with six CMU administrators	Directed content analysis – The coding framework was applied to the group interview responses.

My first inquiry question focused on what work has been done in creating and implementing advising assessment plans. To answer this question, I first did an artifact review with NACADA and CAS documents related to recommendations for advising assessment plans. These documents were used to create the primary coding framework for the study. Next, I conducted interviews with administrators at six external institutions who have working advising assessment plans. I applied the coding framework to build a picture of what pieces of the code were present in practice at these institutions. The next inquiry questions asked what processes and practices are currently in place at CMU for assessing academic advising programs and how these processes and practices are used in determining the effectiveness of academic advising programs. To investigate these questions, I reviewed artifacts, including CMU documents related to advising assessment. I applied the coding framework to see which pieces of the code were present in the assessment documents. The next inquiry question asked what needs advisors and administrators have in assessing academic advising. I distributed a survey to all CMU advisors to learn about their perceptions of assessment of academic advising at CMU and their hopes related to advising assessment. The final inquiry question asked what an assessment plan would look like for

assessing advising at CMU that would move the organization from the current to the desired state. For this inquiry question, I used the findings from the preceding inquiry questions to design an assessment plan for CMU. The plan was built upon the professional organization recommendations, the external institution examples in practice, and the internal survey data. I presented this plan to a group of advising administrators and conducted a semi-structured group interview and gathered their feedback on the plan.

3.2.1 Phase 1: External Review

3.2.1.1 Artifact Analysis

The study used the recommendations and standards from NACADA and CAS as the guiding coding framework for understanding advising assessment. To build this framework, I first did an artifact analysis on the literature available through NACADA and CAS about advising assessment (see Appendix A). The documents included the CAS standard for advising assessment, the NACADA website on assessment in advising, and presentation slides from a NACADA summer institute on advising assessment. An artifact analysis was appropriate to address this inquiry question since it provided comprehensive data about existing recommendations for advising assessment in the professional literature (Mertens, 2015). The information collected showed the specific steps, processes, and considerations involved in the best practices of academic advising assessment.

As I reviewed these materials, I followed Hsiech and Shannon's (2005) directed content analysis framework where the initial code was developed using the research work presented in the NACADA and CAS documents. To create the code, a primary code was developed for each of the recommended main components of an assessment plan discussed in the literature. These

primary codes included mission and outcomes, measurement, data collection, interpret results, use results, and implement change. As I began reviewing the documents, there were recommendations that fell within one of the primary code areas. Each of these recommendations was assigned a subcode and grouped together with other subcodes that related to a primary code. For example, the mission and outcomes primary code include subcodes for aligned with institution, goals, objectives, what students know, what students value, or what students do. After an initial review of the documents, there were recommendations for advising assessment that did not fit within one of the primary codes. Following the process of directed content analysis, these pieces of data were reviewed to determine if they represented a new category (Hsiech & Shannon, 2005). These data displayed the common themes of factors that contribute to the successful use of advising assessment and considerations that institutions should keep in mind as they develop and implement an advising assessment plan. Two new categories were created for these themes – success factors and considerations. Each piece of data within the themes was assigned a subcode. Figure 2 shows the coding scheme based on the review of the best practices documents. The column headings show the primary codes (the main pieces of an assessment model), and the boxes below show the subcodes. A subcode was included in the diagram if it was mentioned at least once in the artifacts. Each code that was found at least once is included in the diagram in order to build a full picture of an aspirational advising assessment plan as suggested by the professional organization documents.

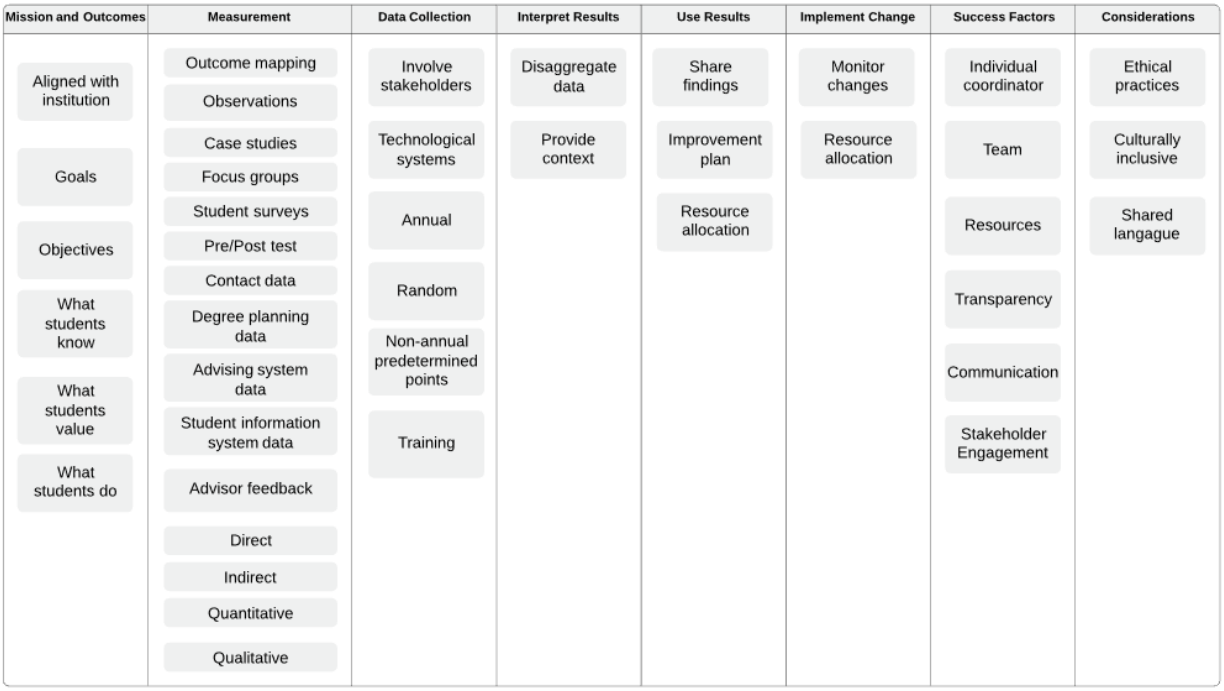


Figure 2 Coding Framework

3.2.1.2 Interviews

To continue to answer the first inquiry question and explore the larger landscape of advising at higher education institutions, I identified six external institutions that were noted by NACADA as having active advising assessment programs through the assessment of advising NACADA interest group (NACADA, 2019b). This participant selection strategy aligns with criterion sampling where cases that meet certain criteria are included in the study (Mertens, 2015). In this study, the criteria included that the institution had an active advising assessment program and that the administrator had a central role in developing and overseeing that assessment plan. Table 4 describes the institutions included in the study. The institutions and interview participants have been deidentified and will be referred to as their assigned study names.

Table 4 External Insitution List

Institution Name	Interview Participant Name	Carnegie Classification	Approximate Enrollment	Reason for Selection	Advising Assessment Plan
Institution A	Administrator A	R1	67,900	Best Practices Model	Decentralized
Institution B	Administrator B	R1	30,000	Best Practices Model	University-wide
Institution C	Administrator C	R1	16,000	CMU Peer Institution	Decentralized
Institution D	Administrator D	Baccalaureate College: Arts & Sciences Focus	3,660	Best Practices Model	University-wide
Institution E	Administrator E	R1	7,000	CMU Peer Institution	University-wide
Institution F	Administrator F	R1	29,000	Best Practices Model	Decentralized

Reviere and Carter (1996) note that in a needs assessment, looking to comparable organizations is key since these organizations may share similar target populations and may have already developed models that can be used for comparison. Two of these institutions had documents publicly available about their advising assessment programs and four did not. One of the institutions that had publicly available documents also sent me internal documents related to their advising assessment program. I applied the coding framework to the documents from these two institutions to identify which pieces of the advising assessment codes were present in their plans.

For each of the six external institutions, I identified a representative who was involved in the advising assessment program and invited them to participate in a semi-structured one-hour phone interview. These individuals had titles including Senior Consultant for Advising, Director of Advising, Assistant Provost, Associate Dean, and Assistant Dean. They worked in varying units including institutional research, the provost's office, and academic units like a college of arts and sciences and a college of education. Each had multiple responsibilities, and the assessment of advising was one component of their portfolios. I audio recorded each of the interviews and then

transcribed the interviews verbatim to generate transcripts. The main themes the interviews explored were the history and development of assessment plans, how the plans were implemented in practice, what types of measures were included, the challenges with implementing an advising assessment plan, and what contextual factors impacted the successful implementation. The interview questions were based on the CAS standards of assessment of advising programs and the NACADA national survey (NACADA, 2011) of advisors (see Appendix B). Interview questions were also informed by themes found in the work of Powers et al. (2014) where they found that less than 15% of advisors had multiple measures in place to assess advising goals, despite multiple measures being a best practice recommendation. Interviewing representatives from multiple institutions allowed me to consider how institutional factors like size, public vs. private, level of research activity, and faculty vs. staff advising models factor into assessment programs.

To analyze the data, I transcribed the recorded interviews and coded the transcripts based on the coding system developed through directed content analysis in the previous phase. Using this directed content analysis, I identified the pieces of the coding framework for advising assessment that were present in practice at external institutions. This analysis looked for the presence or absence of the assessment recommendations within the assessment models in practice to find if the models supported the framework, which aligns with the process of directed content analysis (Hsiech & Shannon, 2005). After the initial coding, there were a few pieces of data present that did not fit within an existing subcode. The coding scheme was revised to include the new or different components that were present in the transcripts but not in the professional organization theoretical framework. For example, the coding framework did not include assessment measurement methods like a website audit, advisor membership in professional development organizations, and campus resource usage data. It also did not include success factors

like advisor participation in implementation, starting with a pilot, and linking the plan to regional accreditation. These pieces were all added to the code. It is important to note that while the data collected from this portion of the study were not analyzed based on identity factors like gender, race, or sexual identity of the administrators, the interview data were raced and gendered and these identities likely played a role in how administrators viewed their experiences with their advising assessment programs.

3.2.2 Phase 2: Internal Review

Phase 2 of the study moved from external institutions and organizations to CMU as the area of focus. An artifact analysis and survey of advisors were conducted to understand the current advising assessment practices in use and the perceptions of a campus-wide advising assessment plan. These data were used to build an assessment plan. A group interview was conducted with campus administrators to learn about their perceptions of the assessment plan and the feasibility of its implementation at CMU.

3.2.2.1 Artifact Analysis

The second, third, and fourth inquiry questions (what processes and practices are currently in place at CMU for assessing academic advising programs, how are these processes and practices used in determining the effectiveness of academic advising programs, and what needs do advisors and administrators have in assessing academic advising) sought to build understanding of the current state of advising assessment and the needs of the system. This moved the inquiry from the macro- to the micro-level. To gather information about the current state of advising assessment at CMU, I started with an artifact analysis. I reviewed the current CMU advising resources to

determine what practices are currently in place at the institution-level to assess advising. The resources are housed in a shared folder on our course management system platform. There is also information related to the assessment of advising available through our Office of Institutional Research and Analysis.

There are several key documents that I included in my artifact analysis. Two years ago, a committee was convened under the direction of the Office of the Vice Provost for Education to review the current academic advising practices on campus and determine a direction for advising in the future. In particular, the committee was charged with identifying common outcomes, expectations, and assessment strategies for advising at a campus-wide level. The group is still in the early phases of this work, but with the partnership of the Office for Institutional Research, the committee has created a few documents related to the goals of advising and how advising fits into the overall organizational landscape at CMU. These documents are housed in a resource file shared by members of the committee and were a critical part of my artifact analysis.

The artifact analysis also included a review of previously collected student advising satisfaction surveys, which allowed for the student voice to be represented in the study. Table 5 lists the artifacts included in the analysis.

Table 5 Internal Review Artifacts

Artifact	Title	Format	Audience
1	Advising Survey Results 2019	Electronic Report	Internal – all of CMU
2	Revised Advising Statement and Ecosystem	Document	Internal – only advising working group
3	Carnegie Mellon University Statement on Academic Advising	Document	Internal – only advising working group

The coding scheme developed through directed content analysis was applied to each document. It was important to include the artifact analysis instead of just moving straight to conducting interviews since artifact review allows the researcher to get an idea of how the program operates without interrupting it (Mertens, 2015). Given (2008) notes that artifacts provide "a source of information not available from interview or observational data" (p. 24). Analyzing the information present within the artifacts was important for building a picture of the current state of advising assessment at CMU.

3.2.2.2 Survey

To further explore the needs related to advising assessment at CMU, I distributed a survey to all academic advisors at Carnegie Mellon. The survey questions were designed to collect information about advisors' desires and needs in assessing academic advising, advisors' thoughts about the current assessment practices, and areas for improvement in the assessment process (see Appendix C). Since the academic advisors are the frontline individuals carrying out advising programs, gaining their perspective on current assessment practices was critical to the inquiry question. Reviere et al. (1996) stress the importance of involving representatives of key stakeholder groups throughout the process of a needs assessment analysis. The survey allowed me to connect directly to the people doing the work, and Reviere et al. (1996) note that it is "more important than ever to allow these groups to speak in their own voices and to hear what they say without imposing a preconceived notion" (p. 5). Individual advisors may have their own methods of assessment in their individual practices, and learning about their beliefs and practices related to assessment was a critical component of the inquiry.

In designing the survey, I followed the principles of survey design established within the literature by Harvard University's Pew Research Center (2019), Harrison (2007), and Cuseo

(2003). The survey was succinct in order to encourage respondents to participate and generate a manageable amount of data (Pew Research Center, 2019). The final survey instrument had three main sections: formal/informal advisor goals, mechanisms advisors were using to measure outcomes, and hopes and concerns for a campus-wide advising assessment plan. It started with an introduction, moved into general questions, and finished with the more sensitive questions that elicited more emotional responses (Harrison, 2007). The questions used skipped logic so respondents only had to provide open-ended responses to questions that applied to their previous answers. Likert scale rating questions had five points, consistent with Harrison's (2007) recommendations for developing effective survey instrument scales.

In survey design, researches should consider justification for the inclusion of each item and have a group of experts review the survey as steps to ensure content validity (Sriram, 2017). After the initial survey design, Jen Gilbride-Brown, Assistant Vice Provost for Student Success and Equity at CMU, reviewed the survey and suggested edits to some of the questions. This review helped support conclusion validity, which ensures that the conclusions drawn from the data are logical and justifiable (Sriram, 2017). The survey was piloted with four campus advisors for readability, clarity, and ease of completion. Pilot participants provided feedback which was used in consultation with Jen Gilbride-Brown to make several more changes in the language of the survey. An introductory paragraph was added that described the advising ecosystem at CMU and defined academic advising. Clarification was added to the questions about informal and formal goals for advising to note that these could be college/departmental advising goals or individual advising practice goals. A statement was added to clarify that when asked about ways of measuring advising effectiveness, respondents should include any formal or informal mechanisms they are using other than the university-wide student advising survey. The language in the question

about the percentage of a respondent's job that was academic advising was clarified to ask for the percentage of the job that is perceived to be academic advising, not necessarily the amount listed in a formal job description.

The survey was sent by e-mail from Jen Gilbride-Brown to the 334 members of the advising distribution list on January 21, 2020. The pilot survey participants were members of this distribution list. The survey remained open for two weeks, and a reminder was sent by Jen Gilbride-Brown through the advising distribution list on January 29, 2020. The survey closed at 5 pm on February 5, 2020. Forty-four complete responses were recorded, for a 13% response completion rate. Sriram (2017) notes that guidelines in student affairs research for what is considered a high response rate are changing. While a high response rate is desirable, it is also important to consider the representativeness of responses to reduce nonresponse bias, which occurs when respondents differ from non-respondents. For this study, the differences in the population are related to whether the respondent has a faculty or staff role. Forty-one percent of the respondents identified as faculty and 59% identified as staff, which allowed for a representative perspective of campus advisors. Thirty respondents did not complete the survey, and these were excluded from the analysis. Four respondents answered "no" for the question "is academic advising part of your role on campus?" These responses were also excluded from the analysis.

To analyze the survey data, I first counted the number of respondents who were faculty and the number who were staff. The rest of the analysis was done in one of two ways. For closed-ended questions that required a yes or no answer or a rating on a Likert scale, I did a summary count of the number of respondents who selected each answer or point on the scale. For questions that were open-ended and allowed for a free response, key words from each response that were consistent with the previous coding framework were highlighted. Similar highlighted words were

then grouped together, and a code was created for that response. The number of times each code appeared in a response (with a maximum of one time per respondent) was counted. In directed content analysis, the meaningfulness of the data comes not through tests of statistical difference, but through frequency counts and rank order or importance (Hsiech & Shannon, 2005). Counting the number of recurrences of each code and producing descriptive statistics provides the foundation for establishing themes and patterns (Berg, 2009). Throughout the analysis, I also highlighted individual open-ended responses that provided rich responses to the inquiry questions. It is again important to note that the survey did not ask demographic or identity questions related to race, gender, or sexual identity. The data collected were not analyzed based on these factors, even though it is acknowledged that advisor identities contribute to their experiences within the advising system and advisors have raced and gendered perspectives.

3.2.2.3 Designing Assessment Plan

The final inquiry question, what would an assessment plan look like for assessing advising at CMU that would move the organization from the current state to the desired state, is the step of the needs assessment inquiry where I designed an assessment plan that could close the gap between the current state of academic advising assessment and the desired state of academic advising. I used all of the previously collected data to design an academic advising assessment plan for use at the campus-wide level. The advising assessment plan started with a theory of action logic model for advising at CMU. This model documented the system and served as a guide for the assessment plan. I also prioritized the identified needs for academic advising within the system, a key step in needs assessment (Sleezer et al., 2014).

The measures and instruments included in the assessment plan were designed to evaluate the advising system's effectiveness in meeting its objectives. These measures were formalized

and finalized based on the identified needs of the system. Part of this phase was creating recommendations for implementing the assessment plan. Reviere et al. (1996) note that "relatively little systematic written attention has been paid to practical and strategic issues of how to effectively disseminate and use the results of needs assessment to make a positive impact on policies and practices" (p. 3). Needs assessments should not be viewed as an end product, but as a catalyst for policy change (Reviere et al., 1996). This study took careful note to include this as part of the analysis. After designing the plan, I considered the external and internal factors that would impact its successful implementation within our university system. These factors included accountability assignments, organizational supports, and resource availability (Reviere & Carter, 1996).

3.2.3 Virtual Group Interview

After designing the plan and implementation recommendations, I presented the plan to six CMU administrators and conducted a group interview to receive feedback and input on the plan. The administrators were identified by Jen Gilbride-Brown for participation based on their roles related to the administration of advising programs at CMU. They were also members of the working group on advising. Four participants were associate deans in four different colleges, and two were members of the central student success unit. These CMU administrators would ultimately be responsible for championing and implementing an advising assessment plan based on their roles within the university, so the questions during this group interview were designed to collect feedback on their thoughts of the assessment plan, what challenges or roadblocks they saw in the plan, and what changes they would make to the plan's structure and content. Their support is critical for the long-term focus of implementing the plan.

The group interview was semi-structured with pre-determined questions designed to gather feedback about the assessment plan (see Appendix D). I video-recorded and took notes during the group interview. After the group interview, I applied the coding framework to my notes through directed content analysis. I identified the pieces of code that were included in participant responses and reviewed the responses for overarching themes.

3.3 Institutional Review Board

Institutional Review Board inquiry request from the University of Pittsburgh was submitted on October 4, 2019 for IRB STUDY19060349. The study was approved on October 21, 2019. This research study is an exempt research study with the Human Research Protection Office (HRPO) under category 2ii because it provides either no risk or benign risk to participants. Informed consent was obtained through a verbal statement read to participants at the start of each interview; a written statement on the first page of the survey, and a verbal statement at the beginning of the virtual group interview. Signed consent forms are not required for exempt HRPO studies. The IRB approval correspondence is included in Appendix H. Appendix E, Appendix F, and Appendix G contain the informed consent scripts that were used in the interviews, survey, and group interview.

4.0 Findings

This chapter presents the main findings from each of the methods of data collection, which included an artifact analysis of NACADA and CAS documents, interviews with assessment administrators at six external institutions, an artifact analysis of CMU advising assessment documents, a survey of CMU advisors, and a group interview with CMU administrators. The findings from each method of analysis are presented, and the themes that emerged across the methods in the study are discussed. The findings suggest that external institutions have been able to use the NACADA and CAS recommendations within their individual contexts to build useful advising assessment plans. The iterative nature of the plans has supported a culture of assessment where results and data are used to inform changes to advising systems. The findings also suggest the readiness of CMU advisors and administrators for a campus-wide advising assessment plan. Their needs related to advising system effectiveness can be addressed by building and implementing a plan that is grounded in literature and best practices and centered on shared advising learning outcomes. Through data collected through this study, it is clear that CMU advisors are already doing advising assessment work in individual advising practices. Integrating this work into a systematic assessment plan would allow CMU to understand the effectiveness of the advising system and use the feedback as part of an ongoing cycle of continuous improvement.

4.1 Key Findings by Method

4.1.1 Phase 1: External Artifact Analysis

The NACADA and CAS documents suggested key components of an advising assessment plan, but were clear that there is no one-size-fits-all assessment plan that can be implemented at every institution (CAS, 2016; NACADA, 2019a). The key steps of assessment that overlapped between the organizations included having a mission and outcomes, using multiple measures to assess these outcomes, tying the measures directly to outcomes, interpreting the results, and using the results to build an improvement plan and implementing change. Other key components that were present in both organizations were involving stakeholders, particularly advisors, in the assessment planning and implementation process, designing an assessment plan that evaluates the program and not individual advisors, and having an assessment team to coordinate and oversee the process. There are important considerations when designing an assessment plan – advisors should be brought into the process early, and the plan needs to keep the advising program as the unit of analysis, not the advisors themselves. Assessment should be viewed as an ongoing cycle where all components are continually reviewed and modified to provide useful and actionable data. There should be clear communication about how assessment results are used to evaluate advising programs and make changes. The recommendations from NACADA and CAS build an overarching framework for institutions to use when designing an assessment plan. Institutions need to consider their own institutional contexts and identify multiple measures that can provide information about an advising program's effectiveness in meeting identified outcomes. This work should be coordinated by a team of key stakeholders, including advisors.

4.1.2 Phase 1: External Review Interviews

The differences that exist in models for advising delivery was clear from the external institution interviews. The six interview participants had models that included all staff advising, all faculty advising, mixed faculty and staff advising, and peer advising. Their respective assessment plans in practice showed commonalities, but they all demonstrated institution-specific characteristics. Advising assessment plans were more common at the department or school level, and less common at the centralized, campus level. The decentralized assessment plans were particularly common within the research institutions. All of the institutions designed their assessment plans as long-term projects, and one participant described their institution's plan as a three-year cycle.

The commonalities that emerged from the interviews were that the administrators created plans based on specific advising learning outcomes, that a combination of an individual coordinator and team approach were used to oversee the assessment plan creation and implementation, that multiple data collection measures were used in practice and differ based on the institution's characteristics like size and mission, and that assessment plan feedback was used to develop and act upon improvement plans. These institutional experiences demonstrate ways to translate the NACADA and CAS recommendations into practice. As CMU moves towards the creation and implementation of a campus-wide assessment plan, it can incorporate the factors seen across external institutions like multiple measures of data collection, assigning an assessment coordinator and assessment team, and using feedback to build and enact an improvement plan.

Two participants spoke about the importance of grounding the assessment plan in literature, and in particular using the NACADA recommendations as a baseline for advising learning outcomes. These were the only two who described advising learning outcomes in the language

used by NACADA – what students know, value, and do. Since only two administrators referenced the NACADA framework for learning outcomes, this suggests that a challenge in assessment plan creation may be the initial groundwork of identifying robust learning outcomes which align with NACADA and CAS recommendations. CMU can benefit from this finding by recognizing the recommendations for learning outcomes, acknowledging the common pitfall of adopting incomplete learning outcomes, and using a critical lens to develop advising learning outcomes that focus on what students know, value, and do.

Another commonality was that the majority of participants started with an initial assessment plan that focused on a few critical learning outcomes for the first rounds of assessment. Additional outcomes were added to plans in subsequent iterations. This is consistent with the professional organization literature which supports the view of assessment as an ongoing cycle where the process is continually revised. It also serves as guidance in developing a new assessment plan, suggesting that plan developers identify and focus on key learning outcomes for the initial implementation. For many, the process of developing shared outcomes took a significant amount of time, with Administrator F noting a year-long process. All of the participants noted that communication with stakeholders during the assessment plan design, implementation, and use in decision-making was a critical factor in assessment success. They all also reinforced the need to be transparent with advisors about the purpose of doing advising assessment. Their assessments were not intended to be an evaluation of individual advisors, but designed to help measure advising program effectiveness and support advisors in doing their work.

Initial advising assessment work began at many institutions by one individual who drove the initiative, but all spoke about the necessity of an assessment team to support the ongoing work. The assessment teams took shape in different ways depending on the institutional context and

tendency towards decentralized decision-making at the college or program level. In many cases, the continuation of advising assessment work was tied to a single person and dependent on that person remaining in their role. At some institutions, one individual was responsible for assessment within their college or program, and this individual represented their program as part of a campus-wide committee. In their interview, Administrator D described a committee model where members rotate every two years. The committee oversees all campus assessment work, including advising assessment, and was formed to prepare for a recent regional accreditation visit. The committee was comprised of rotating faculty members, with each department selecting new members to serve on the committee for a two-year term. One committee member was selected to serve as chair for a two-year term. Administrator D noted the committee structure made it hard to continue assessment momentum, and it led to periods of downtime at the beginning of each two-year term as new committee members familiarized themselves with the assessment process. A key takeaway is that institutions need to think about creating sustainable assessment cycles that can function independently of specific individuals and committee members.

One key difference in the assessment plans in practice was the type of measures each institution used. While many administrators spoke about the limitations of student survey data, it was still one of the most widely used measures. Other measures included post-appointment questionnaires, academic planning data, advising event-based surveys, graduation plans, and course registration data. Half of the participants included advisor feedback as part of the assessment plan. The difference in instruments aligned with differences in advising models. Those with faculty advising models chose to use only one or two instruments in order to streamline the process and keep the additional ask of faculty members low.

All of the institutions used assessment plan feedback to make identifiable changes. Administrator B's institution used degree planning data to more effectively schedule courses, and also developed a more efficient note-taking system that allowed advisors to bulk upload notes. Administrator A used the feedback to design a campus-wide advisor communication plan to share information about new policies and procedures. All of the participants had plans for the assessment work including adding more robust measures, and plans for moving from a departmental plan to a campus-wide plan. In their interviews, Administrator A and Administrator F both described future assessment plans as moving the college-level plans to campus-wide plans that allow for customization within each program.

Another common way that participants were using data collected through assessment was to build the content for advisor professional development sessions. For example, Administrator D talked about feedback from a student survey indicating that the institution was not reaching the targeted goal for the percentage of students who reported knowing where to go on campus to receive writing help, which was one of their stated advising learning outcomes. As a result, Administrator D incorporated information about the campus writing center into the next advisor training meeting. Another theme that emerged was that advising assessment was used to understand the needs of different groups of students within the institution. Administrator E found that transfer students had higher levels of dissatisfaction, so to help connect transfer students with a point of contact prior to their matriculation, the institution made more proactive transfer student outreach a priority. Administrator C talked about how their institution planned to use advising assessment to understand how advising practices impacted underrepresented minorities, first generation students, and low-income students, and how they could provide these groups with customized support. Of particular interest to CMU was Administrator F's finding through advising

assessment that students who entered their first year with a significant number of credits from advanced placement coursework did not find initial advising appointments helpful and subsequently formed negative opinions of advising. As a result, the institution redesigned the initial advising experiences for these students. The literature on advising assessment does not talk about using assessment results to target support for different student populations, so the findings related to this practice are informative for the future of advising assessment work.

One area that all participants had difficulty measuring within their assessment plans was the use of campus resources based on advisor referrals. Administrator C's institution measured usage numbers of career services and assumed that some of this usage was based on advisor referrals, but recognized that this was an indirect measure. The literature related to advising assessment does not address this particular difficulty. Finally, a consistent theme was that there will be disagreement amongst stakeholders throughout assessment design and implementation. The difficult nature of the work should be embraced, and participants cautioned against allowing this to halt the forward momentum. The data collected from the interviews suggest that advising assessment plans in practice show consistency with the NACADA and CAS recommendations. Administrators tailored assessment plans to their institutional contexts and through ongoing cycles of implementation were able to collect data to understand advising program effectiveness. Administrators used the data collected through assessment in different ways, which demonstrated that an advising assessment plan can be effective in informing institutional actions designed to support student success.

4.1.3 Phase 2: Internal Review Artifact Analysis

The internal artifact analysis shows that there were minimal pieces of the advising assessment best practice coding framework present at CMU. While the institution did have an internal document that included a paragraph on the mission of advising, this document has not been shared externally and had not been formally adopted by all campus advising programs. The only assessment measurement present was a student survey that was distributed two out of every three years. This survey gathered quantitative and qualitative data, and the questions were based on student perceptions of advisor behavior and knowledge, not on the NACADA recommendations of what students know, value, and do related to advising. The survey focused on the individual academic advisor as the unit of analysis, as opposed to the overall advising program or advising system. The survey was inconsistent with the recommendations from the literature in that it was not tied to learning outcomes. For example, one of the questions on the survey was "my advisor is knowledgeable about other academic programs" (Hoolsema, 2019, p. 5). While the intention of the question may be to understand if student needs for information about degree program options are being met, it appears to be more of a measure of advisors' knowledge of all possible degree options and requirements. This is indicative of the evaluative nature of the survey instrument where the questions focus on student perceptions of advisors and not necessarily the advising system. In the survey results artifact document, this criterion received one of the lowest student satisfaction scores (Hoolsema, 2019). This could be interpreted as students expressing dissatisfaction with advising, but perhaps neither advisors nor students expect advisors to be knowledgeable about degree programs outside of their departments and fields of expertise. Because there are no clearly established campus-wide learning outcomes or goals for CMU advising programs, it is unclear what the survey questions are designed to measure and what the

low score for this survey item means. One aspect of the survey that was consistent with NACADA and CAS recommendations was that the results were disaggregated by college and major. This is important given the decentralized model at CMU and the differences in advising delivery. There was no evidence in the artifacts of the survey results being tied to an improvement plan or continuous cycle of assessment. Also notable was that there was no campus-wide presence of advising or advising assessment on the university's website. The artifact analysis indicated that CMU did not have an advising assessment plan that was consistent with NACADA and CAS recommendations. The work of this study informed the creation of an advising assessment plan and filled a gap in understanding the effectiveness of campus advising programs. This work extended previous work related to advising assessment by using the institutional context of CMU to design an advising assessment plan.

4.1.4 Phase 2: Internal Review Advisor Survey

Through questions that asked CMU advisors about their current practices and thoughts about advising assessment, the survey revealed the areas that were important to advisors in creating a comprehensive advising assessment plan. Survey results indicated that almost all of 44 respondents (91%) had informal goals for their advising practices. While informal goals were nearly universal among survey participants, maintaining and adopting formal advising goals were much less common, with only one-third of participants (34%) stating formal goals. The formal goals fell into 15 categories, while the informal goals were broader and spanned 24 categories. The most frequently mentioned formal goals were related to academic planning, career planning, and administering policies, and the most frequently mentioned informal goals were more personal and related to developing individual student relationships, providing referrals, and supporting

student skill development. This indicates that advisors view their work and programs as aiming to accomplish a wide variety of goals. There is little shared agreement and language used when describing the goals of advising programs, which indicates a significant need in developing and adopting shared outcomes for advising.

Advisors were asked to rate how important it was to measure six different factors in order to assess the effectiveness of academic advising where 0 was not important, 1 was slightly important, 2 was moderately important, and 3 was very important. As shown in Table 6, survey respondents gave all of the factors high ratings for importance in assessing advising. Quality of information and referrals had the highest average importance, while student satisfaction with the advisor-student relationship and advisor workload also received high ratings of importance to advisors. Although respondents felt that all of these factors were important to measure, few respondents were actually measuring them. Table 6 also shows the percentages of respondents who had a mechanism in place for measuring each factor. The three factors that had the highest rating of importance (quality of information and referrals, student satisfaction with the advisor-student relationship, and student satisfaction with advising-related technology) had the fewest number of respondents who reported using mechanisms to measure these factors. This indicated that there was a need for streamlined mechanisms that advising programs can use to measure factors that they feel are important in understanding advising effectiveness.

Table 6 Importance and Existance of Mechanisms for Measuring Academic Advising

Survey Item	Average Importance (0 = not important 3 = very important)	Percentage of advisors with a mechanism in place for measuring item
Student satisfaction with the advisor-student relationship	2.48	22.73%
Student satisfaction with advising-related technology	2.02	6.82%
Advisor workload	2.41	N/A[a]
Number and/or length of advising appointments	2.02	38.64%
Quality of information/referrals	2.80	11.36%
Graduation and persistence rates	2.30	31.82%

[a]Advisor workload was measured by asking respondents about the number of advisees and percentage of job that is academic advising

When asked about the mechanisms advisors were currently using to measure the factors of advising, 24 different mechanisms were mentioned. While there were a wide variety of mechanisms reported, only four of the mechanisms were used by more than four respondents. These most commonly used mechanisms were online scheduling systems, electronic student surveys, internal tracking of persistence rates, and senior exit surveys.

Ninety-three percent of respondents felt that advisor workload was an important factor to include when assessing academic advising programs. Respondents were asked how many advisees they had including formally assigned advisees and students with whom they regularly discuss academic advising. The answers varied greatly from 0-25 students to over 300 students per advisor. The mode for number of advisees that survey respondents had was 0-25 advisees. Respondents also reported a large variance in the percentage of their job that was academic advising. Responses ranged from 0-10% to 91-100%, with the mode percentage of job dedicated to advising students being within 71-80%. This indicates that advising caseloads differ greatly

across campus, and an assessment plan could be useful in understanding how the advising system supports advisors with varying caseloads.

Having a campus-wide assessment plan for advising was important to advisors (68% agreement), but few (32%) agreed that CMU currently has an effective plan. Notably, no respondents strongly agreed with the statement that CMU currently has an effective plan for assessing academic advising. Survey respondents showed common hopes and concerns related to the creation of a new campus-wide assessment plan. The most frequently mentioned hopes were that the plan would allow for departmental flexibility, that advisors would be engaged in the plan development, and that the plan would be built on shared expectations for advising. The most common concerns for the creation of a new assessment plan were that it would increase advisor workload, and that it would not be useful in improving the advising system.

4.1.5 Phase 2: Internal Review Group Interview

Using the findings from the professional organizations artifact analysis, interviews with assessment administrators, and survey of CMU advisors, I developed a tentative draft for a comprehensive, campus-wide advising assessment plan for CMU. In this plan (see chapter 5 for full overview), I utilized CAS and NACADA standards and focused on a yearlong iterative strategy using instruments such as student surveys, advisor surveys, student information system data, career center usage data, degree progression data, and advisor professional development engagement data to provide information about defined advising learning outcomes. The initial proposed plan was built on ten learning outcomes and outlined the resources necessary to support the plan, the timeline for data collection, and recommendations for implementation of the initial iteration. I provided six administrators at CMU with the plan and hosted a group interview to learn

about the plan's overall feasibility, the outcomes and instruments included in the plan, and the anticipated challenges of implementation. The group interview revealed commonalities in CMU administrator perceptions about the CMU assessment plan. One clear theme was the necessity of an advising assessment plan. Five CMU administrators' initial reactions were of appreciation for the plan, with CMU Administrator 1 going as far as to call it "long overdue." CMU Administrator 2 noted that university leadership has been stalled in the advising assessment process because they "have had a hard time seeing a way forward on assessment." Administrator 2 noted it has been difficult to take the first steps, but that this plan provided a road map for central leadership to see a way forward.

Consistent with the best practice recommendations, all of the CMU administrators recognized the need for multiple measures in an assessment plan. CMU Administrator 4 said the plan would address the issue with our current use of a singular measure since in "just looking at one set of survey results, we are missing the context. We need to look across the system." The CMU administrators were particularly interested in the advisor survey and the student survey. CMU Administrator 3 noted that the advisor survey would provide a formalized data collection procedure grounded in research that would help understand advisor perspectives and needs beyond anecdotal conversations. As an associate dean, CMU Administrator 3 felt confident in being able to use the feedback collected through this survey to advocate for resources like a standardized scheduling system for advisors within their college. They noted, "we all have these internal discussions where everyone knows where the struggle is, but being able to use data to advocate for things like scheduling that everyone can access and being able to standardize these practices across campus would be great."

A persistent theme in the literature and external institution review was the importance of departmental flexibility within an assessment plan, and CMU administrators reinforced this theme. Four CMU administrators agreed that while the institution needs to look at advising as a campus-wide system, we also need to allow for differences in the college and program-level advising models. In contrast to the theme of flexibility that was persistent throughout the study, CMU Administrator 4 provided an alternate viewpoint by suggesting that the level of decentralization and flexibility has led to our current state of the absence of a comprehensive, effective way to assess advising. They said, "I think flexibility can go really far really fast. There needs to be some understanding of how far the advising system can stretch to be flexible before it breaks and then we're not as effective as an institution." CMU Administrator 4 cautioned that the plan needs to include guidelines about which pieces are not optional, and needs to clearly define the level of flexibility that allows us to recognize differences while still collecting comprehensive, informative data that can be used to improve the effectiveness of our system.

A key area of agreement was the need for the assessment plan to allow for assessing the level of cultural responsiveness within our system. CMU Administrator 5 felt the plan did not provide us with enough information about the ability of the system to deliver equitable advising to a wide range of students. CMU Administrator 1 agreed, and specifically mentioned the desire to understand how our system supports international students. This feedback was critically important to the advising assessment plan since an assessment plan should allow the institution to understand how the system is supporting students and promoting student success. Cultural responsiveness and equitable support are important values of CMU, so the assessment plan needed to capture the advising system's effectiveness in delivering on these values. As a result, questions were added

to the advisor survey that ask about advisors' confidence and ability in supporting students from different backgrounds.

Through questions about potential challenges and gaps within the assessment plan, feedback was collected that informed additional changes to the plan. Three CMU Administrators agreed that on initial review, it appeared that the plan was a multi-layered, ambitious ask with a potentially unrealistic number of new processes and procedures. They shared that after reading the details of each component of the plan, they saw that many of these pieces were already happening but were not integrated into a formal assessment plan. From this feedback, an edit was made to the plan to simplify the diagram by highlighting which pieces were new and which pieces were currently in existence.

Two CMU administrators agreed that in order to understand the effectiveness of the advising system, the plan needed to collect information about advisors' perceptions about their role in the system. CMU Administrator 1 noted, "I would want to know what does advising mean to you, and does that change by college and program. There's going to be an element that is different based on the disciplinary focus of each college, and how can that inform our practice?" To capture this, the advisor survey was updated to include questions that collected advisor perceptions about advising. CMU Administrator 3 suggested the plan needs to provide more clarity about who would have access to the feedback collected through the plan. Transparency and communication about the plan's purpose and use was a persistent theme in the literature and echoed by CMU Administrator 3, so a section was added to the implementation recommendations that outlined the communication and distribution plan.

As key stakeholders and administrators who would be overseeing the implementation of a campus-wide advising assessment plan, the participant feedback was used to refine the assessment plan and implementation recommendations.

4.2 Key Findings Across Methods

4.2.1 CMU advisors and administrators are ready for an advising assessment plan that is built on universal goals for advising program.

CMU advisors and CMU administrators expressed similar thoughts and beliefs about the readiness for a campus-wide assessment plan, and the feedback suggested that both stakeholder groups are prepared for the work involved in building and implementing a plan that is based on shared advising goals. The majority of CMU advisors (68%) believed that advising assessment is important to their work, and all of the CMU group interview administrator participants believed the university is in clear need of a formalized way to understand advising effectiveness. In the external institution interviews, all of the administrators described themselves as driving change agents that introduced advising assessment to their institutions and kept the cycle moving forward. The work of this study can serve as a catalyst for bringing advising assessment to CMU to meet the desire that both advisors and administrators expressed to understand the impact of advising.

The NACADA and CAS recommendations for advising assessment and interviews with external institution advising assessment administrators revealed the importance of using shared outcomes as the foundation of an assessment plan. The review of CMU advising artifacts showed no campus-wide presence of advising or advising assessment to external audience, and few CMU

advisors reported having formally stated goals (34%). While there may not be a formal presence of shared advising outcomes, most CMU advisors reported having informal goals for advising (91%). Advisors believe their advising work is designed to support a wide range of outcomes including academic planning, career planning, administering policies, developing individual student relationships, providing referrals, and supporting student skill development. Best practices recommendations and external institution advising administrators suggested building an assessment plan on a manageable number of shared advising outcomes, but cautioned that programs may get stuck in the outcome development phase. External institution Administrator F described a year-long period where their institution struggled to agree on outcomes for advising programs. The CMU advisor survey data suggests that CMU may be in this period of inaction, verbalized by one respondent who said, "we still haven't finalized final campus advising goals/outcomes, so I think a campus wide assessment revamp is years in the making." CMU Administrator 2 shared similar sentiments during the CMU administrators group interview when they said that central leadership has had difficulty envisioning a unified assessment plan built on shared expectations for advising. Learning that this is a common pitfall from the external institution review helps identify evidence of this pattern of thought at CMU. It allowed for the realization that this is a common roadblock, and attention can now be given to overcoming this roadblock as the assessment plan is developed. This will likely be one of the biggest challenges that CMU faces in the implementation of an advising assessment plan since it requires a culture change and shift from the current state.

CMU advisor survey data suggested CMU advisors agree on what factors are important to measure in advising, and this agreement helped provide a unified foundation for pushing past the outcome development phase. CMU advisors agreed that student satisfaction with the advisor-

student relationship (100% agreement), student satisfaction with advising-related technology (95% agreement), advisor workload (93% agreement), number and length of advising appointments (91% agreement), quality of information and referrals (98% agreement), and graduation and persistence rates (98% agreement) were important factors in academic advising. These factors showed consistency with the CAS recommendations for outcomes of advising program, and they informed the selection of the outcomes that were the foundation of the CMU advising assessment plan. CMU administrators supported the use of these outcomes in assessing the effectiveness of our advising system.

4.2.2 Advising assessment work is happening in ad hoc ways at CMU, and uniting this work under a campus-wide assessment plan could provide useful and actionable feedback for continuous improvement.

Individual CMU advisors are currently measuring the effectiveness of their advising programs, but this work is happening in isolation and it is unclear how these individual advisor-based efforts support continuous improvement. Coordinated advising assessment plans led to positive changes within advising systems at external institutions, and uniting the efforts already occurring in individual advising practices at CMU under a comprehensive, streamlined assessment plan could magnify the impacts of these individual efforts. The CMU advisor survey and CMU administrator group interview revealed that both groups see an assessment plan as important to their work. External institution advising administrators provided tangible examples of ways that advising assessment was used to improve advising systems and support student success. Despite the recognition of value, only 32% of CMU advisors felt that CMU currently had an effective method for assessing academic advising, and only 41% believed that advising programs currently

have enough information to understand advising effectiveness. With no formal plan in place, CMU advisors were using individual mechanisms to evaluate their advising and reported 28 different ways of measuring advising in practice. CMU advisor survey data showed the most commonly used measures were student surveys, online scheduling systems, internal tracking, senior exit surveys, electronic records, and informal student feedback.

While the many reported measures indicate a desire from advisors to learn more about advising effectiveness, trying to integrate all of these measures into an assessment plan would not be consistent with best practice recommendations. NACADA and CAS recommend finding a balance between using a singular measure, which is the current state of campus-wide advising assessment at CMU, and a complicated, time-consuming multiple-measure assessment plan. External institution Administrator B cautioned that the work of advising assessment can stall in the measurement planning phase as plan designers try to consider every possible mechanism that could be included. External institution Administrator B's institution overcame this by selecting a few key outcomes to start with and then added additional outcomes in subsequent implementation cycles. An assessment plan needs to be simple enough that it is feasible, but robust enough that it provides usable data that can help the institution make decisions and improvements.

CMU administrators agreed that the assessment plan would be difficult to implement if it included multiple new methods of data collection. Consideration of the mechanisms currently in place at CMU, the mechanisms in use by external institutions, and the CMU administrators' expectations that the plan not introduce an unrealistic amount of new mechanisms informed the decision about which mechanisms to include in the final assessment plan.

4.2.3 An advising assessment plan for CMU grounded in literature and informed by the needs of advisors and administrators can help the institution understand advising effectiveness, but it needs to be regularly reviewed and revised.

The literature and examples in practice show that advising assessment plans can lead to valuable information about the effectiveness of advising programs, but to lead to positive change, assessment must be viewed as an ongoing process that involves regular review and adjustment. Through the findings from artifact analyses, interviews, and a survey of CMU advisors, an advising assessment plan was created that moves the institution forward in understanding advising effectiveness. The plan was built on the shared agreement among advisors about what factors are important in advising work, and utilized mechanisms that individual advisors were already using to measure these factors. By formalizing and standardizing an assessment plan, the work that advisors were already doing can be streamlined. The assessment plan addressed the most pressing hopes and concerns advisors reported in the CMU advisors survey. The most frequently reported hopes were that the plan allowed for departmental flexibility and that there was consistent implementation in all colleges, while frequently reported concerns were that it would be built upon expectations for advising that were not shared, and that it would not be useful. The plan was designed to account for differences in advising models, but still allowed for consistent implementation.

The initial assessment plan is just the first step in creating a culture of improvement for academic advising at CMU. The review of NACADA and CAS recommendations showed that best practices in advising assessment require institutions to design assessment plans that are framed as ongoing cycles. The steps recommended by NACADA as part of the assessment cycle are identifying desired outcomes, assessing outcomes, interpreting evidence, planning based on the

evidence, implementing, and then beginning the process again (NACADA, 2019a). The survey of CMU advisors revealed that a common hope for advising assessment was that results would be shared and used to improve advising across departments. As demonstrated by the responses from external institution interview participants, an assessment plan has the potential to lead to changes that positively impact the student advising experience. NACADA talks about assessment plans as living and breathing documents, and this assessment plan should be reviewed on an ongoing basis to ask if it is still meeting the needs of advising stakeholders.

4.3 Summary

The findings suggest that when done intentionally and systematically, advising assessment can support student success and allow an institution to continually improve. Assessment should be viewed as an ongoing cycle built upon shared outcomes for advising within the institution's unique context. While institutions may be challenged by agreeing on advising outcomes, CMU advisors and administrators showed agreement on the important factors of advising. These factors were used as the foundation of the assessment plan and were used to write learning outcomes that supported the NACADA recommendations of assessing what students and advisors know, value, and do within the advising system. By learning about the mechanisms that CMU advisors were already using to measure advising effectiveness and the measures that have been successfully implemented at external institutions, instruments were included in the proposed CMU advising assessment plan that mapped directly to the advising learning outcomes and reflected the informational needs CMU advisors and administrators had about the advising system's effectiveness. Sharing assessment results with advisors and tying these results to change

initiatives are not afterthoughts – they are critical steps in an assessment cycle. This finding informed the creation of a communication and distribution plan for the assessment results.

The findings suggest that advising assessment is difficult work, but if institutions are aware of the common roadblocks, they can recognize these roadblocks, actively push through them, and build forward momentum. CMU advisors and administrators believe that advising assessment is important, and there are clear examples in practice of how assessment results can be used to build improvement plans and inform institutional action. The creation of a CMU comprehensive advising assessment plan that is grounded in the findings of this study can be used to move the institution forward in understanding the impact of advising on student success.

5.0 Proposing an Integrated Academic Advising Assessment Plan

The key findings from the needs assessment analysis were used to design a proposed advising assessment plan for CMU. The steps recommended by NACADA and CAS for assessment plan design were used to guide the process. The first step was to establish the key learning outcomes that served as the foundation of the plan. These outcomes were grounded in the campus's shared developmental view of advising and a working document that described the purpose of academic advising at CMU. Next, mechanisms that would provide data to help understand if the university was meeting the desired outcomes were identified. These outcomes were selected based on the needs assessment study. Recommendations for using the results to build improvement plans were provided since the study revealed that moving through the data collection phase and utilizing the results as part of a continuous improvement cycle is critical for a successful assessment plan. Finally, implementation suggestions were given that provide guidance in how CMU would roll out the plan for its initial iterative cycle.

The plan is built on best practices and CMU needs, and uses terminology specific to CMU systems and processes. These terms include:

- **Stellic Audit System**: Degree audit system where students and advisors can collaborate on degree planning and scheduling requirements.
- **Scheduling System**: An online platform that allows students to schedule advising appointments. Some examples currently in use at CMU include Schedule Once and Appointment Plus.
- **CPDC**: The Career and Professional Development Center (CPDC) provides centralized career services to all undergraduate students.

- **Catalog**: All undergraduate academic programs, degrees offered, course descriptions, and university policies are included in this yearly digital publication.
- **Advisor Professional Development**: An advising professional development committee coordinates an ongoing series of advisor network gatherings, deep dive interactive sessions, a reading group, and cohort-based advising groups available to all interested campus advisors.
- **Advisor Onboarding**: A newly developed process for orienting new advisors to the advising ecosystem involves completion of an online course, reflection exercise, in-person orientation session, and a mentorship program.
- **Student Advisory Committee**: Each department is encouraged to support a student advisory committee of current students representing different class years and majors within the department.
- **Advising Canvas Page**: A campus-wide advising page on the Canvas platform, the university's course management system, where advisors post updates, questions, resources from advising professional development sessions, and share information.

5.1.1 Mission and Desired Program Outcomes

The first step in building the plan was to identify the mission and desired program outcomes for advising at CMU. A working group has been crafting a statement on advising. While it is not formally adopted or publicly distributed, this statement served as the mission when designing the assessment plan. The statement, as written in a working group internal document, says the following:

> Carnegie Mellon University commits to support excellence in academic advising. Even with the university's diverse offerings, a cohesive academic advising approach can directly impact the educational success of every undergraduate and graduate student. High quality advising rests upon (1) robust central resources, (2) discipline specific variations at the college- and program-levels, (3) skilled academic advisors of all types, and (4) engaged, committed students. By conceptualizing advising as an ecosystem, CMU creates an environment that fosters long-term outcomes that benefit students studying at CMU as well as making a difference as lifelong alumni. (Carnegie Mellon University, 2018, para. 1).

CMU has also not formally adopted campus-wide advising program outcomes. The working group's ecosystem document includes desired advising practices tools, strategies, student behaviors, and student outcomes. From this list, I identified ten key learning outcomes to include in the initial version of the assessment plan, and included outcomes related to NACADA's recommendations of what students and advisors know, value, and do. A key theme from the external institution review was that the initial assessment plan should start small and have the potential to be expanded in scope and scale in future iterations. The working group document on the goals of the advising system uses language that frames outcomes from both the student and the advisor perspective to convey that advising work is part of a system where both the student and the advisor are active participants in the relationship. The key outcomes used in the proposed assessment plan are also framed this way. The key program outcomes for the initial assessment plan were as follows:

- Students and advisors will develop a plan to explore and achieve students' interests and goals.

- Students and advisors regularly meet to ensure they are completing degree requirements in a timely manner as outlined in their educational plan.
- Students use STELLIC to monitor their progress toward completing their educational plan and degree requirements.
- Students know and follow all academic policies and procedures (as outlined in course catalog, program handbook, etc.).
- Students are able to maintain good academic standing in the university.
- Advisors discuss with students career preparation and planning resources (CPDC, Career Advisors in Colleges, internship opportunities, etc.)
- Advisors have reasonable caseloads that allow students to have personal contact with their assigned advisors.
- Advisors have supervision and reporting lines that appropriately reflect the actual work of advisors.
- Advisors experience a comprehensive, university-level onboarding designed to establish common understanding of vision for and responsibilities of advisors in achieving impact.
- Advisors share knowledge and information across departments, enabling advisors to make strong referrals and connections.

The feedback from the advisor survey was also a key component in developing the shared outcomes for advising. The outcomes were chosen with consideration of Martin's (2007) advice that learning outcomes for advising should focus on skill development, information transfer, and cognitive development. They also build upon Bloom's (1956) taxonomy of learning by including layers of basic policies and procedures through skills for lifelong learning (Wallace, 2007).

5.1.2 Measures and Data Collection

In the next step of plan development, I considered measures that could be used to provide evidence of each of the shared outcomes. This process involved considering data that was already being collected and data that could potentially be collected. The mechanisms already in use by CMU advisors and revealed through the advisor survey were foundational. One of the most important considerations was including multiple measures of qualitative and quantitative data (Creamer & Scott, 2000). The assessment plan outcome map in Figure 3 identifies the measures that would provide information about each of the outcomes. The outcome map lists the measures that can be implemented campus-wide, the campus partners that will be needed to assist with implementing and collecting data for each measure, and optional departmental additions to the campus-wide plan.

Table 7 provides a full description of each measure, assignment of responsibility, frequency of collection, and recommended timeframe for collection. The student survey (Appendix I) is a revision of the current student satisfaction survey. The student survey is designed to explore the learning outcomes related to what students know, value, and do related to academic advising. The survey also asks questions about student expectations for an advising relationship and their satisfaction with the advising system. Instead of the current survey questions where students are only evaluating the advisor behavior and knowledge, students are asked to reflect on their own behavior and knowledge. This survey was built upon the NACADA recommendations and the examples in practice from external institutions. Before it is rolled out as part of the assessment plan, the survey should be piloted for readability and validity with a small number of students. It can be expected that there will be revisions to the survey.

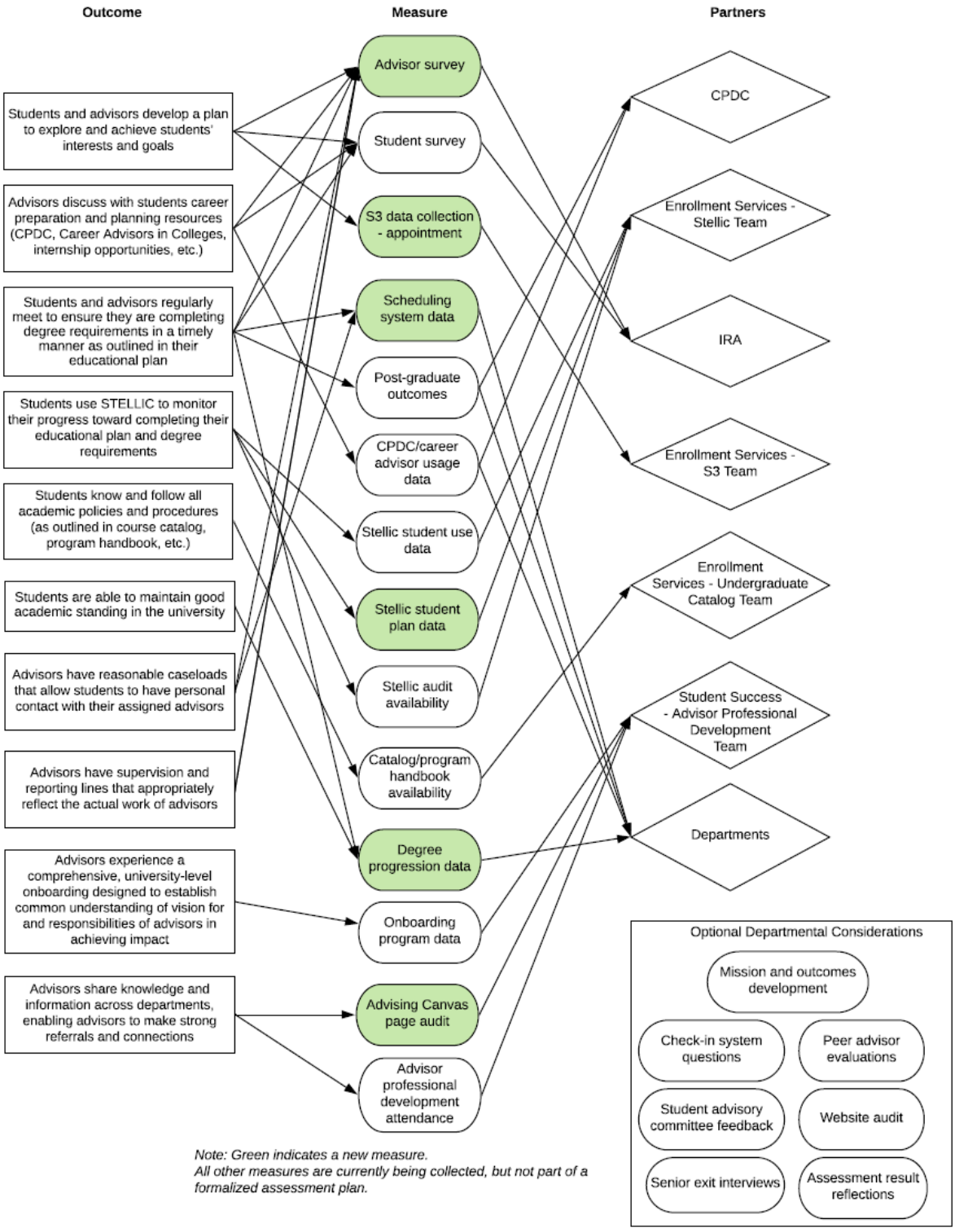


Figure 3 Proposed CMU Advising Assessment Plan Outcome Map

Table 7 Campus-wide Measures for Proposed CMU Advising Assessment Plan

Measure	Summary	Primary Responsibility	Supporting Responsibility	Frequency	Timeframe
Student Survey	See Appendix I	IRA	Departments	Yearly	Spring
Advisor Survey	See Appendix J	IRA	Departments	Yearly	Fall
S3 Data	S3 memo field to indicate that an advisor has had at least one contact with student that semester. A report will summarize these contacts.	Enrollment Services - S3 Team	Departments	Each Semester	Fall, Spring
Scheduling System	Departments will use appointment scheduling and check-in software for advising. Report of appointment data will be generated each year.	Departments		Yearly	Summer
Post-graduate outcomes	CPDC/Career Advisors for each department will generate a report of the post-graduate outcomes.	CPDC/Career Advisors	Departments	Yearly	Fall
CPDC Usage Data	CPDC will use scheduling and check-in software. Report of contact data will be generated each year and distributed to departments.	CPDC		Yearly	Fall
Stellic Data	Report generated for each department which shows Stellic student usage rates, Stellic student planning rates, and Stellic audit availability for all degrees within that department.	Enrollment Services - S3 Team	Departments	Yearly	Summer
Catalog/ Program Handbook Data	Catalog/program handbook will be reviewed to see that the curricular requirements are listed for every degree option.	Enrollment Services - Undergraduate Catalog Team, Departments	Departments	Yearly	July
Onboarding Program Data	Onboarding participation data (FocusU module completion rates, orientation participation rate, and onboarding feedback) summarized into a report.	Student Success - Advisor Professional Development Team		Yearly	Summer
Canvas Page Data	Advising Canvas Page will be reviewed for advisor enrollment and advisor usage data.	Student Success - Advisor Professional Development Team		Yearly	Summer
Degree Progression Data	Departments will prepare a report that indicates students on track to graduate in 6 years, students with academic actions, and withdrawals.	Departments		Yearly	Summer

Table 7 (continued)

Advisor Professional Development	A report that summarizes advisor engagement in professional development opportunities (network gatherings, reading groups, cohort groups) will be prepared and distributed to departments.	Student Success - Advisor Professional Development Team		Yearly	Summer

Once a finalized survey has been adopted, it will be distributed to all students by Institutional Research and Analysis. The most recent iteration of the student advising survey had a 49.7% response rate, and this high rate is in part attributed to incentivization by offering all students who complete the survey a campus dining credit (Hoolsema, 2019). In order to retain this high response rate, I recommend continuing to incentivize student participation. The descriptive statistics collected through the survey should be reviewed in conjunction with the data collected through the multiple mechanisms in the assessment plan. The survey data can be reviewed in totality, as well as by disaggregated student segments like department, first-generation, underrepresented, transfer, gender, international student status, and sexual orientation. Reviewing the data based on identified student populations will provide feedback about how effective the advising system is at reaching the targeted learning outcomes for key student groups.

The advisor survey (Appendix J) is a new instrument. This survey was designed and included based on NACADA recommendations, examples in practice at external institutions, and CMU administrator feedback. The survey questions explore advising caseload, advisor knowledge of systems and policies, advisor engagement in professional development, advisor perceptions of support of advising from the institution, and advisor perceptions of the expectations of advisors in the advising relationship. These questions map directly to the learning outcomes related to advisor knowledge, behavior, caseloads, and reporting lines. The advisor survey should also be piloted

with a small group of advisors for readability and validity, and will be distributed by Institutional Research and Analysis. Incentivizing advisors to complete the survey similarly to the dining credit offered to students may help promote a high response rate. The descriptive statistics can be analyzed in their totality as well as by college or department.

The plan also included recommendations for measures that departments may choose to use in addition to the campus-wide measures. These are based on measures that the advisor survey indicated are already being used in some departments. Tying these into the larger assessment plan will help departments integrate this data and feedback into an ongoing assessment cycle. Table 8 describes each of these optional measures.

Table 8 Optional Departmental Measures for Proposed CMU Advising Assesment Plan

Measure	Summary
Mission and outcomes development	Departments should consider creating a program-level mission and learning outcomes for their program. These outcomes will help guide the advising work and provide the foundation of a departmental advising assessment plan. See Advising Program Worksheet in Appendix K.
Check-in system questions	Departments who use a check-in system for appointments may consider incorporating rotating questions into the check-in process. These questions could be related to what students know (ex: Do you know how to access your degree audit? Do you know where to get career-related support?) what students value (I understand the value of regular communication with my academic advisor, I believe exploring career options is important), and what students do (I regularly use Stellic to monitor my degree progress, I use faculty office hours for most courses). These questions can be customized to help departments learn about student behaviors and attitudes related to advising.
Student advisory committee feedback	Departments who have student advisory committees can use meetings with this group to ask for advising program feedback. The feedback can be in the form of an open forum, peer discussion groups, or brief questionnaires. Questions and discussion topics can be customized to allow programs to collect feedback on specific outcomes.
Senior exit interviews	Departments who conduct senior exit interviews can consider incorporating questions related to advising.
Assessment result reflections	Departments can schedule an intentional retreat day to review campus-wide and departmental advising assessment feedback and reflect on the impact of the feedback for the program.

Table 8 (continued)

Peer evaluations	Advisors can consider asking a colleague to conduct a peer review of an advising session and provide feedback on the advising program. See Advising Peer Evaluation Guide in Appendix L.
Website audit	Departments can conduct annual reviews of their website/course management platforms to evaluate the advising program's presence.

5.1.3 Implementation Plan

A key factor for a successful advising assessment plan is ownership by an individual coordinator who would oversee the campus-wide assessment plan. Based on the contextual environment at CMU, I recommend central ownership of the ongoing advising assessment cycle by the student success group. Since the initiative requires participation from many units across campus, the coordination will need to come from a central, authoritative unit. An assessment committee or team with representatives from each college and each campus partner unit can be used to oversee the implementation and ongoing use of assessment data. This work may be folded into the work of the existing working group on student success which contains representatives from each school. The advising assessment work aligns with their overarching objectives. As an ongoing cycle, advising assessment should continue to be reviewed through a critical lens, and the plan should be revised and modified so that the information it collects helps the university understand the effectiveness and impact of advising programs. This team can continue the initial momentum to move the implementation from a small scale to a campus-wide implementation and use assessment findings to revise the process and make positive change.

Prior to implementation, the assessment team should present the assessment plan to the Associate Deans Council for feedback and to address any potential concerns. The assessment plan

should also be presented to a campus-wide audience of advisors and department heads. The assessment team should provide clarity about the purpose of the assessment plan and the intended uses of the data collected through the plan. Advisors should be given the opportunity to ask questions, provide feedback, and review the plan before its implementation.

A critical factor in the success of implementing the advising assessment plan is a full understanding of the resources that will be required to successfully launch and sustain the assessment cycle (see Table 9).

Table 9 Resources for Successful Implementation of Proposed CMU Advising Assessment Plan

Unit	Responsibility	Resources
IRA Staff	Develop survey instruments	Staff time
	Deploy survey instruments	
	Analyze survey results	
Enrollment Services Staff	Develop S3 functionality	Staff time, finances
	Provide training on S3 functionality	
	Collect and report catalog data	
	Collect and report Stellic system data	
CPDC Staff	Deploy post-graduate outcomes survey	Staff time
	Collect and report CPDC usage data	
Advisor Professional Development Coordinator	Collect and report advisor onboarding data	Staff time, finances
	Collect and report advising Canvas Page data	
	Collect and report advisor professional development data	
	Create platform for discussion of assessment plan cycle	
University	Support departmental use of advising scheduling system	Finances
Assessment Coordination Team	Produce yearly report of assessment data	Staff time
	Advise departments on change initiatives	
	Provide training opportunities for ongoing assessment cycle	
	Ongoing meetings to use assessment data and review cycle	
Department Heads	Commit to ongoing assessment cycle	Staff time, finances
	Create departmental supplementary assessment plan	
	Reinforce advisor participation in assessment plan	
	Implement departmental supplementary assessment plan	
	Utilize assessment plan data to implement change	

Table 9 (continued)

Advisors	Collect and report degree progression data	Staff time, finances
	Engage in professional development offerings	
	Use appointment scheduling system	
	Use S3 appointment tracking functionality	
	Create Stellic audit plans	
	Submit catalog/program requirements	

I recommend piloting the assessment plan in one college during the 2020 – 2021 academic year. Good candidates for consideration would be colleges that have multiple advising program models and have leadership that is committed to understanding the relationship of advising to student experience and success. The assessment plan is designed to be conducted over the course of the 2020 – 2021 academic year with a full report being produced and reviewed in summer 2021. The pilot assessment cycle should begin with communication with all campus partners in late summer 2020, initial rollout in the fall 2020 and spring 2021, and a review in the summer 2021.

5.1.4 Interpret and Use Results

Smith et al. (2004) note that many advising programs who establish outcomes and measure data never utilize and interpret the results. My recommendation is that the data is collected and compiled into a final comprehensive report each summer. Summer is the ideal time for collection and reviewing the data since this is when the university transitions to a new academic and fiscal year. Combining the data allows programs to build a richer picture and identify trends. The results should be disaggregated by department so advising programs understand how their particular advising is meeting the intended learning outcomes. This also allows the institution to understand how students in different departments engage in the advising system.

In addition to departmental disaggregation, the assessment results should be segregated based on student identities like race, gender, sexual orientation, international status, first-generation status, transfer status, and class level. CMU has a stated commitment to building a community that embraces diversity, equity, and inclusion, and advising assessment needs to support this work. Because of the differences in each student's lived experiences, they will experience the advising system differently. The assessment plan should be intentionally used to understand the experiences of minoritized and underrepresented groups at CMU and the differences in the way the advising system supports or hinders students as members of these identity groups. Garvey's (2019) review of 16 national survey instruments used in higher education research found that only six instruments included a question about sexual orientation, which is concerning given the reliance on these instruments in decision-making in higher education. In a recent open letter, the American Educational Research Association (2020) stressed the importance of collecting sexual orientation and gender identity data in survey instruments in order to better understand the challenges, educational barriers, and career barriers faced by LGBTQ persons, particularly within STEM fields. As an R1 institution with top-tier STEM programs, CMU has an opportunity to recognize the significance of the impact that advising may have on LGBTQ students and use advising assessment to better understand these student experiences. CAS (2013) states that academic advising programs must "enact culturally responsive, inclusive, respectful, and equitable practices in the provision of services" (p. 12). The data collected through the advising assessment plan needs to be used to measure the advising system's effectiveness in meeting these standards. Analyzing the data based on student identities would allow the institution to better target support and change initiatives.

The themes of transparency and communication were prevalent throughout the study, so sharing assessment feedback with the key stakeholders of the advising system is critical in creating an effective assessment cycle. The report should be distributed to college deans, advising program managers, and advisors. Beyond sharing the results, conversations about the context surrounding the results and their meaning are necessary to draw conclusions and create an improvement plan for using the information. These conversations should be organized and held on a yearly basis at the university level and department level. Each department should create a plan that identifies their key advising strengths that should be continued, names short-term goals and action steps to improve their advising program and highlights long-term initiatives that cultivate continuous improvement.

6.0 Conclusions and Implications

This study examined the needs related to academic advising assessment and produced four key outcomes that could be utilized by CMU and other institutions for advising assessment. The first outcome was a macro-level summary of the best practices in advising assessment based on the interpretation and analysis of external interviews and artifact analysis data. This summary was useful in understanding how professional organization recommendations for advising assessment appear in practice at institutions with varied institutional characteristics. The second outcome was a micro-level needs assessment that described the needs advisors and administrators have for assessing advising at CMU. Survey data were used to understand advisor perceptions and expectations for a campus-wide advising assessment plan, a critical step in building the assessment plan. The third outcome was a comprehensive proposed plan for advising assessment at CMU grounded in the literature and based on CMU's institutional context. Advisor needs of flexibility, transparency, and workload were key factors in the plan's design. The fourth outcome was a set of implementation recommendations for the advising assessment plan based on advisor and administrator feedback and data. These recommendations described how the hopes and concerns of advisors and administrators could be proactively addressed through a clear communication and implementation plan. The findings from this study extend advising assessment literature and lead to implications for CMU and the greater higher education community.

6.1 Conclusions of Key Findings

Academic advising has been said to play a critical role in student success, but understanding the effectiveness of advising programs is nuanced and challenging work (Campbell & Nutt, 2008). Assessment of advising allows institutions to evaluate the impact academic advising has on student experience and to determine if advising programs are achieving their desired outcomes. Recent professional and scholarly literature has supported the necessity of developing and implementing ongoing assessment cycles for academic advising (Lynch, 2000). CMU senior leadership has prioritized understanding how advising impacts the student experience and contributes to student success, but without an advising assessment plan in place, evaluating the highly decentralized advising system had been a difficult task. This study addressed the needs of campus stakeholders in assessing the effectiveness of academic advising, concluded that advisors and administrators were ready for a campus-wide advising assessment plan, and produced a plan that would meet the needs of advisors and allow CMU to understand the effectiveness of the academic advising system.

Because advising work is highly dependent on the institutional context, creating a plan to assess advising effectiveness must also be grounded within the cultural and advising framework of that institution. CAS (2013) and NACADA (2019a) provide best practice recommendations for the components of a comprehensive advising assessment plan, but the recommendations are generalized and do not account for individual institutional characteristics. This study addressed needs of campus stakeholders in assessing the effectiveness of academic advising.

Key findings from the study informed the creation of a proposed CMU advising assessment plan. The plan was grounded in the CAS and NACADA best practices recommendations. Advising literature emphasizes the need for advising programs to develop comprehensive

assessment plans to understand the effectiveness of advising systems (Lynch, 2000; Nutt, 2004). The findings from this study indicate that CMU advisors and administrators echo the literature and recognize the importance of a campus-wide assessment plan within the CMU institutional context. The literature states that advising goals and outcomes are the most critical components of an assessment plan (Lindhorst & Schulenberg, 2007), but that few advising programs have formally adopted learning outcomes (Macaruso, 2004). CMU advising assessment work has been stalled in the phase of developing shared outcomes, and this analysis showed that this challenge was not unique to CMU. Through the analysis, it was discovered that while the majority of advisors do not have formal learning outcomes, many advisors share similar informal goals for advising. A comprehensive assessment plan helped formalize these goals by naming them and using shared language. The shared goals are reflective of those found in the literature as part of a developmental advising model and center around what students know, value, and do as a result of participating in the advising system (NACADA, 2006).

To measure the institution's effectiveness in reaching the desired outcomes, assessment plans should use multiple methods of data collection. Advising assessment literature suggests one of the most common challenges faced in plan design is incorporating multiple measures beyond a single student satisfaction survey (Grites, 2003), and CMU's current state of advising assessment reflects this challenge. CMU's current measure of advising effectiveness is a campus-wide student survey, which primarily measures advisor behaviors and knowledge and tells little about the advising system. While this is the only current formalized component of an advising assessment process, this study revealed that advising assessment work is happening in individual advisors' practices across CMU's campus. CMU advisors expressed a common hope for an assessment plan that included using multiple measures beyond this survey. The findings related to the measures

used by external institutions as well as the measures that were currently used by individual CMU advisors informed the selection of measures and instruments for the proposed CMU assessment plan. This supports the recommendations from the literature that assessment plans include multiple, robust qualitative and quantitative measures of data collection (Lynch, 2000).

Evidence from external institutions supported the claims from the literature that when constructed within the framework of institutional context, advising assessment can lead to continuous improvement for institutions, despite differences in size, mission, academic program, and advising models. Campbell (2005a) describes assessment as a systematic way to inform improvements in the student learning and advising process, and Lynch (2000) notes that assessment should not be viewed as a data collection process, but as a process designed to produce results. The findings from interviews with external institutions give clear evidence that assessment results can be used to make positive changes.

Assessment work, however, is not without challenges. While NACADA (2019a) and CAS (2013) provided a framework for advising assessment, they offered little insight into the challenges institutions may face when putting the recommendations into practice. The findings resulting from this study extend existing literature by highlighting the common challenges institutions face in assessment plan design and implementation. Common challenges found in the data collected from external institutions were maintaining consistent oversight of the assessment plan, using the feedback to intentionally target change initiatives to specific student populations, and clearly communicating the purpose and usefulness of advising assessment to key stakeholder groups, including advisors.

CMU advisors provided feedback to indicate these challenges could appear within the CMU advising assessment context. They expressed concerns that assessment results would be

used as part of the advisor evaluation process, that results would not lead to beneficial changes in the advising system, and that the assessment plan would increase advisor workload and be of little practical use. Knowing that these challenges were faced by other institutions and that they had the potential to develop at CMU allowed for them to be proactively addressed in the assessment plan design. The communication and implementation component of the assessment plan generated through the findings helps incorporate the concerns of advisors and provide transparency about why advising assessment is important, how the results will be used, and how the cycle is structured to understand the advising system and not just individual advisors.

CMU senior leaders have had difficulty understanding the path forward for building a robust assessment plan. Macaruso (2004) found that institutions cited lack of access to assessment resources and lack of time to develop assessment programs as the main reasons why they do not engage in an ongoing cycle of assessment of academic advising programs. This work provides a step-by-step process and resource for creating an institution-based advising assessment plan, and this study illuminated a path forward for CMU senior leaders by providing a systematic review of best practices and identifying the needs of CMU advisors and administrators.

This study also extends advising assessment literature by helping CMU understand how assessment results can be used to support student groups whose needs may differ from the needs of other student groups. Assessment literature highlights the importance of using assessment results to develop and implement an improvement plan (Creamer & Scott, 2000), but there is little written about using assessment results to better support first-generation, transfer, low income, underrepresented, international, and LGBTQ students. Examples from external institutions found as part of this analysis showed tangible ways that assessment plans could be used to support this work. The necessity of the assessment plan to explore and support equitable systems of advising

was centralized in the implementation recommendations for how CMU should analyze and use the data collected through advising assessment.

The proposed CMU assessment plan was built on best practice recommendations to address the needs that CMU advisors and administrators had in understanding effectiveness of the advising system. By utilizing this plan as a starting point of an ongoing cycle, CMU can move forward in creating a culture of improvement and designing evidence-based change initiatives that when implemented within the advising system, can support student success.

6.2 Practical and Theoretical Implications

Academic advising assessment is an understudied area in higher education. Literature suggests advising can have a positive impact on a student's experience (Campbell & Nutt, 2008; CAS, 2013; NACADA, 2006), but few institutions have comprehensive, ongoing ways of measuring the effectiveness of their advising systems (Powers et al., 2014). The findings from this study have practical and theoretical implications for CMU and the broader higher education community. These learnings extend the existing literature to help describe the challenges institutions face when designing an advising assessment plan and the process of putting best practices recommendations into action.

The first recommendation resulting from this study is that CMU should implement an advising taskforce with a designated chair to spearhead the advising assessment work. The findings indicate that a team approach is necessary to engage stakeholders and achieve representation from the decentralized units, and a task force is an ideal mechanism for serving as this team. The CMU working groups that were convened to review advising at the graduate and

undergraduate level should be combined into one advising taskforce, and advising assessment work should be the primary charge for this group. The group should include a representative from each of CMU's colleges as well as a representative from each of the key campus partners who are essential to the delivery of the proposed assessment plan. These partners are the Career and Professional Development Center, Enrollment Services, Institutional Research and Analysis, and Student Success. The working groups have been stalled in the advising outcomes development phase, and the findings from this study have shown that this roadblock is common in advising assessment work. To move through this phase, the chair should direct the task force to use the key advising outcomes included in the proposed assessment plan for an initial iteration, with the understanding that the outcomes will continue to be refined and revised in subsequent assessment cycles.

A second recommendation is that the assessment taskforce needs to consider the role advisor workload plays when designing and implementing an assessment plan. This study identified that advisors shared a common concern of the increased workload that would result from the introduction of an advising assessment plan. The findings also showed that advisors carried widely differing caseloads, so the additional demands associated with an assessment plan could result in inequitable increases in workload. Instead of a uniform policy where all advisors are asked to collect the data for their individual advising practices, this could be one area where departmental flexibility within the plan allows the advising director/department head to evaluate the department's staffing and determine the best method for data collection. One advisor who has a lower student caseload may be assigned the work of collecting the data for the department, or an administrative support staff member may be asked to assist with data collection. Taskforce members need to understand the differences in departmental workflow and advisor job

descriptions before assigning additional assessment work. The findings also indicate that resources need to be provided to support the data collection and analysis components of an advising assessment plan. Best practice examples show the necessity of partnering with institutional research and facilitating the use of technological systems in the assessment process. Leveraging these cross-campus partnerships can help reduce the potential strain on advisors and further reinforce the assessment plan's goal of understanding the advising system instead of individual advisors.

A third recommendation based on the findings of this study is that as an assessment plan is developed and implemented, the taskforce needs to outline clear communication channels for the plan's review and adoption. First, the taskforce should present the plan to the Associate Deans Council for feedback and revision. As a key stakeholder group, their understanding and approval of the plan will be critical in its successful implementation. Next, the taskforce should present the plan to all campus advisors at an advisors' network gathering meeting. The findings showed that advisors were concerned that advising assessment would be designed to evaluate individual performance, and that results would not lead to improvements in advising systems. The findings also revealed the importance of engaging advisors throughout the process of assessment plan design and implementation. In their presentation, the taskforce needs to be transparent about the plan's purpose and benefits and support the use of advising assessment to evaluate the system, not individual advisors (Lynch, 2000). Once the first iteration of the plan is underway, discussion and time for open feedback about the plan should be a standing agenda item at each subsequent advisor network gathering.

A fourth recommendation is that CMU should provide more transparency around academic advising and advising assessment to internal and external audiences through the institution's

website. The findings show that the majority of advisors and administrators share goals for advising which center around student support and success. These shared goals and the use of developmental advising models echo the best practice recommendations for advising (NACADA, 2006), but the university is missing a key opportunity to share its support of advising as a critical component of the student experience by not sharing this information on the university's website. The findings show that advising assessment plans that are grounded in theory can provide useful, valid data about advising systems and can be used to support a culture of continuous improvement. Using an evidence-based change process to increase the level of support offered to students through advising is a key strength of any institution, and particularly of an R1 institution like CMU where continual innovation in research and education and a transformational student experience are at the core of the university's mission (CMU, 2019). Building a webpage that highlights the important work that academic advisors are doing and how the assessment process is used to continually improve advising would help demonstrate how this mission is lived out in daily practice.

The findings from this study lead to a fifth theoretical and practical recommendation for advising assessment. The findings showed that in practice, external institutions were using assessment results to understand how advising impacts groups of students within the institution, but the literature offers little to guide institutions in doing this work. CAS (2013) states that academic advising programs must "enact culturally responsive, inclusive, respectful, and equitable practices in the provision of services," but does not connect assessment to supporting these culturally inclusive practices (p. 12). There is an opportunity for advising assessment to help institutions better understand the experiences of marginalized and underrepresented groups, and this intention should be built into CMU's plan. Disaggregating the data based on demographic

and affinity groups can help CMU see where resources could be injected into the advising system to help the system to better support these students. CMU has a commitment to diversity, equity, and inclusion, and states, "we must not only define these words, we must also be vigilant in our commitment to build and sustain a community that embraces these core values" (CMU, 2020, para. 3). Living out these core values would mean using the advising assessment cycle to analyze how the advising system impacts low-income, first-generation, transfer, international, and underrepresented students and making changes to the system to allow it to better serve these students.

Finally, findings from this study have theoretical and practical applications for the development of assessment plans in other functional areas of higher education. Higher education has focused on assessment and outcomes in classroom learning, but the heightened focus has shifted to assessing student services programs for their impact on overall student experience (Smith et al., 2004). A theoretical implication is that programs like career services, student activities and residence life may face similar challenges when building assessment plans, and the NACADA and CAS literature does not address these challenges. This study can be extended as a framework for building comprehensive assessment plans for other functional areas of higher education. It also provides a structure for conducting a needs assessment to systemize the process of understanding internal institutional needs within the context of best practice recommendations. In practice, institutions can review the findings from external institutions as background and use surveys and interviews of their own advisors to understand their institutional context and stakeholder needs. Using the survey and interview data, institutions can build an assessment plan that follows the best practice guidelines while addressing the needs present within their own systems.

6.3 Limitations and Future Research

Several limitations exist within the current study as well as directions for future work in this area. First, the artifact analysis and interviews with external institutions relied on the administrators providing honest, self-reported feedback. This self-reported data may have been biased in that administrators may have been reluctant to share feedback that could potentially be viewed as negative reflections of their institutions (Mertens, 2015). This may have resulted in understating the challenges institutions face when designing and implementing assessment plans. A second limitation was potential selection bias in the CMU advisor survey where advisors who completed the survey may have had strong opinions that were not representative of all advisors across campus. They may have had built-in, preconceived notions about advising assessment or may have a bias about the motivation behind the study. They may also have been hesitant to share truthful information about their practices if they felt it put them in a vulnerable position. They may also have been reluctant to share negative beliefs or information about the institution. The impact of these limitations was mitigated by providing assurance of anonymity and safeguarding of the data, but it is possible that advisors were still self-conscious when answering questions.

This study did not include demographic characteristics, such as race, gender, or sexual orientation for the participants. The external institution administrators, CMU advisors, and CMU administrators who participated in the study are gendered and raced, and their perspectives are formed by their individual identities. The data were not analyzed for raced and gendered perspectives, though these perspectives were certainly at play in this study. As part of educational institutions, advising systems play an important role in individual experiences of equity, belonging, and identity within those institutions. Understanding how individual advisor and advising administrator identities impact experiences with advising assessment is an important expansion of

this work for future study. A continuation of this work might involve interviews with select academic advisors to understand how their intersecting privileged and minoritized identities influence how they view and enact their roles within the advising system. This would allow the institution to better support advisors in their work as key deliverers of advising programs.

There were inherent limitations that stemmed from using directed content analysis as the analytical method for the study. Because directed content analysis begins with an existing framework, in this study the NACADA and CAS framework for advising, researchers may be more likely to find evidence that supports the existing theory (Hsieh & Shannon, 2005). In using the coding framework to analyze the data, rich descriptions and insights may have been reduced to the presence or absence of a code. While this was useful for understanding the components of the advising assessment framework that were present or absent and for grounding the study within a methodological framework common in qualitative research, it limited the study's ability to build a full, robust picture of the nuances of the data.

While the students were only represented in this dissertation through the analysis of institutional student survey data, future research in the area of advising assessment might include student perspectives into advising assessment plan design and implementation. Similarly, another natural progression of this work is that as assessment plans become more common in practice, it will be important to study how assessment impacts student experience and success. The literature has suggested that advising programs themselves can contribute to student success (Drake, 2011; Klepfer & Hull, 2012), but little has been done to explore how changes to advising systems based on feedback collected through advising assessment plans changes student experiences. Work that studies the impact of advising assessment plans on student outcomes could help inform institutional decision-making and further build cultures of continuous improvement. This

longitudinal work might track the impact of advising assessment plans over multiple iterations of their implementation.

Another extension of this work would be to compare the construction and implementation of advising assessment plans within varied institutional contexts. Since advising work is tied to the missions of institutions, understanding how assessment plays out differently in different institutional settings like community colleges, pre-professional schools, and small liberal arts schools, would further contribute to the field of advising assessment and serve as more nuanced guidance in assessment plan design.

During the course of this study, a global pandemic abruptly shifted the normal operations of higher education institutions across the world. Curricular and cocurricular programming moved to virtual delivery methods seemingly overnight. Academic advising no longer took place in face-to-face meetings, but through video platforms, phone calls, and e-mail communications. This shift is likely to leave lasting effects on the way advising is delivered and on the way students and advisors participate in advising systems. The technological systems that support advising work will become increasingly important, and understanding how stakeholders engage with advising technology should be central to future assessment plans.

6.4 Conclusion

As an evolving field, work that explores academic advising assessment has the potential to impact individual institutions and the overarching macro-system of higher education. This study fills gaps in the literature and adds to the understanding of advising assessment by highlighting the challenges institutions face when developing assessment plans and providing a framework for

using best practices recommendations to build an assessment plan within a specific institutional context. Findings from this study illustrate how advising systems play a critical role in student experience, retention, and success; and institutions have a responsibility to use a critical, systematic lens to evaluate how these systems can continually be improved to better serve the changing needs of their students.

Appendix A External Review Artifact List

Table 10 External Review Artifacts

Organization	Title	Format
CAS	CAS Standards for Academic Advising	Website
NACADA	Assessment of Academic Advising	Website - Article
NACADA	Assessment of Academic Advising: An Overview	Presentation Slides from 2018 NACADA Institute
NACADA	Using Data	Presentation Slides from 2018 NACADA Institute
NACADA	NACADA Assessment Cycle	Website - Graphic

Appendix B External Interview Script

Thank you for participating in my research related to assessment systems for academic advising. My name is Kathleen Conway. For this 45-60 minute phone interview, I appreciate any insight you can provide into the assessment process you use for your academic advising program.

Your participation in this interview is voluntary. You can stop the interview at any time or skip any questions. I will be taking some notes as we speak. I will keep the notes and any transcripts confidential and will not share them outside of the project. All data received from you will be given an ID#. All stored data will have this number on it and not your real name. All of your responses are confidential. I will not associate the information you provide with your name in reports, but it may be possible for someone to think they can identify you.

Given these conditions, do you agree to participate in today's interview? *[If YES, continue. If NO, stop interview and thank them for their time.]*

I would like to audio-record the conversation to check the accuracy of my notes. Do you agree to this? *[If participant agreed to have interview recorded, start recording. If not, take detailed notes.*]

Do you have any questions before we begin?

This research study is being led by me as part of my doctoral work at the University of Pittsburgh. You can reach me at kconway@andrew.cmu.edu 412-268-3121 if you have any questions.

Section 1 – Participant and Context:

1. Please state your name
2. Please state your institution and position
3. Please describe your institution

Probes: Size, type, number of students, types of programs offered, degree levels

Section 2 – Advising Models

1. Please describe the way academic advising is structured at your institution.

   Probes: Staff vs. faculty advisors, advising case load, differences among departments, advising philosophy or theoretical framework

Section 3 – Advising Assessment Process

1. Tell me about any goals you have for your academic advising programs.

   Probes: Do you have learning outcomes? What does successful advising look like?

2. Can you describe any measures that your program currently uses to assess academic advising?

   Probes: What ways do you measure if the program is meeting its goals/objectives? Measures, frequency of use, type of feedback. Formal measures? Informal measures?

3. Tell me about the history of evaluating advising within the program.

   Probes: When did you first start looking at advising assessment? How did the current measures come to be used? Have there been changes/revisions to the assessment process? Is there an overarching plan for assessment of advising?

4. How is the feedback that you collect through current advising assessment measures used?

   Probes: How has the feedback been useful? Have changes to the program been made based on feedback?

5. What about the advising assessment process is working well?

   Probes: Are there things you would continue doing? Could be the timing, types of measures, type of feedback.

6. What about the advising assessment process is not working well?

   Probes: Are there things you wish you were able to measure that you haven't been able to yet? Are there things you would stop doing? Are there things you would like to start doing?

7. What changes would you make to your assessment process?

   Probes: Without constraints, is there anything you would change?

8. What recommendations would you have for a program that is first designing an assessment plan?

Appendix C CMU Advisors Survey

My name is Kathleen Conway. I am a doctoral student at the University of Pittsburgh in Higher Education Management.

Purpose of my Study: I am exploring the assessment of academic advising. As part of my efforts to understand the ways advising is assessed at Carnegie Mellon University, I am interested in hearing the thoughts, experiences, and opinions of advisors on campus.

Participation: I am seeking the participation from individuals who have an academic advising role at Carnegie Mellon. Your participation is voluntary. You can stop your participation at any time or skip any questions. I will keep your responses confidential. I will not identify you by name or attribute any statements to you.

Survey: I estimate the survey will take 15 – 20 minutes. You will be asked a series of questions. Some of the questions ask you to rate statements on a scale, and some of the questions are open-ended.

Confidentiality and Privacy: I will not ask for any personal information, such as your name. Please do not include any personal information in your survey responses. I will not publish any quotes that might offend anyone or put anyone's employment at risk.

Risks and Benefits: There is no direct financial benefit to you for participating, and there is no foreseeable risk, except the possible breach of confidentiality, and I will follow strong data safeguarding procedures to prevent that. All information will be stored in a password protected account.

Contact: This research study is being led by me as part of my doctoral work at the University of Pittsburgh. You can reach me at kconway@andrew.cmu.edu or 412-268-3121 if you have any questions.

The questions will ask you about your thoughts on an advising assessment plan. In this context, an assessment plan refers to a campus-wide process for measuring the impact and effectiveness of academic advising on campus.

Academic advising has a significant and positive impact on the educational success of students. Carnegie Mellon University offers an “advising ecosystem” to help students navigate through their time at the university. The advising ecosystem helps students make informed decisions about their curriculum, activities, and career preparation while at the university. From transitioning into the university, to moving through their coursework, and finally transitioning to careers or postgraduate studies, the advising ecosystem seeks to support students and facilitate smooth transitions throughout their time at CMU. A large part of the advising ecosystem is your practice as an academic advisor, but it also includes factors like technology, information sharing, and policies. The following questions will ask you about your thoughts on assessing the effectiveness of academic advising and the advising ecosystem at CMU.

Q1 What is your primary role at CMU?

O Faculty

O Staff

O Other _____

Q2 Is academic advising part of your role on campus? (Do you do any academic advising as part of your position, even if it's not your primary role?)

O Yes

O No

Q3 Do you have formally stated goals for your advising program? (These could be college/departmental advising goals or individual advising practice goals.)

O Yes

O No

Q4 Please describe the formally stated goals for your advising program.

_____

Q5 Do you have informal goals for your advising program? (These could be college/departmental advising goals or individual advising practice goals.)

O Yes

O No

Q6 Please describe the informal goals for your advising program.

_____

Q7 The next set of questions will ask you about data that could be used to assess the effectiveness of advising. You will be asked to rate the importance of each factor and if you are currently using some method of measuring that factor.

Q8 How important is student satisfaction with the advisor-student relationship in assessing the effectiveness of advising?

- O Very important
- O Moderately important
- O Slightly important
- O Not important

Q9 Do you have a mechanism for measuring student satisfaction with the advisor-student relationship? (Other than the university-wide student advising survey. These could be formal or informal mechanisms.)

- O Yes
- O No

Q10 Please describe your mechanism for measuring student satisfaction with the advisor-student relationship.

_____

Q11 How important is student satisfaction with advising-related technology (registration system, degree planning system, etc.) in assessing the effectiveness of advising?

- O Very important
- O Moderately important
- O Slightly important
- O Not important

Q12 Do you have a mechanism for measuring student satisfaction with advising-related technology? (Other than the university-wide student advising survey. These could be formal or informal mechanisms.)

- O Yes
- O No

Q13 Please describe your mechanism for measuring student satisfaction with advising-related technology.

_____

Q14 How important is advisor workload in assessing the effectiveness of advising?

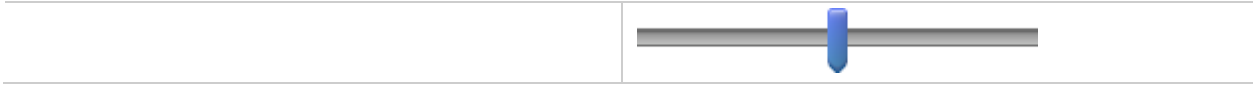
- O Very important
- O Moderately important
- O Slightly important
- O Not important

Q15 Approximately how many advisees do you have? (Including formally assigned advisees and students with whom you regularly discuss academic advising.)

_____

Q16 What percentage of your job is academic advising? (As you perceive it, not necessarily an amount listed in your job description.)

0 10 20 30 40 50 60 70 80 90 100



Q17 How important is the number and/or length of advising appointments in assessing the effectiveness of advising?

- O Very important
- O Moderately important
- O Slightly important
- O Not important

Q18 Do you have a mechanism for measuring number and/or length of advising appointments? (Other than the university-wide student advising survey. These could be formal or informal mechanisms.)

- O Yes
- O No

Q19 Please describe your mechanism for measuring number and/or length of advising appointments.

_____

Q20 How important is the quality of information/referrals given during advising in assessing the effectiveness of advising?

- O Very important
- O Moderately important
- O Slightly important
- O Not important

Q21 Do you have a mechanism for measuring quality of information/referrals given during advising? (Other than the university-wide student advising survey. These could be formal or informal mechanisms.)

- O Yes
- O No

Q22 Please describe your mechanism for measuring quality of information and referrals given during advising.

_____

Q23 How important are graduation and persistence rates in assessing the effectiveness of advising?

- O Very important
- O Moderately important
- O Slightly important
- O Not important

Q24 Do you have a mechanism for measuring graduation and persistence rates? (Other than the university-wide student advising survey. These could be formal or informal mechanisms.)

- O Yes
- O No

Q25 Please describe your mechanism for measuring graduation and persistence rates.

_____

Q26 Please list any other data you (individually or departmentally) are collecting that helps you assess the effectiveness of advising.

_____

Q27 Please list any other data that you think would be helpful in assessing the effectiveness of advising.

_____

Q28 Rate the following statements based on the level to which you agree with it.

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
CMU has an effective method for assessing academic advising	O	O	O	O	O
Advising programs have enough information about their effectiveness to make decisions	O	O	O	O	O
Having a campus-wide plan for evaluating advising programs is important to me.	O	O	O	O	O

Q29 What hopes do you have for a campus-wide plan that aims to assess the effectiveness of academic advising?

_____

Q30 What concerns do you have about a campus-wide plan that aims to assess the effectiveness of academic advising?

_____

Appendix D Group Interview with CMU Administrators Script

My name is Kathleen Conway. I am a doctoral student at the University of Pittsburgh, and I am studying the assessment of academic advising. As part of my efforts to understand the ways advising is assessed at Carnegie Mellon University, I am conducting a group interview with administrators at CMU.

This group interview will last one hour. Your participation is voluntary. You can stop your participation at any time. I will keep what you say confidential. I will not identify you by name or attribute any statements to you; however, it may be possible for someone to think they can identify you by inference because of certain details or quotes.

I will not publish any quotes that might offend anyone or put anyone's employment at risk. However, because this is a group discussion, please don't say anything you wouldn't want others to know and talk about. While I will keep what you say confidential, I cannot promise that others in the group will do the same. I do ask that everyone please respect the confidentiality of other participants and not repeat what we discuss outside of this conversation.

There is no direct financial benefit to you for participating, and there is no foreseeable risk, except the possible breach of confidentiality, and I will follow strong data safeguarding procedures to prevent that. Do you agree to participate? *[If YES, continue. If NO, allow the individual(s) to leave, then proceed.]*

I will be asking some questions and hope that each of you will share your thoughts. Please speak clearly and one at a time so that we can hear everyone. There are no right or wrong answers. You may not agree with what others say, and they may not agree with you. Also note that because we have limited time, I may have to interrupt to move us to another topic.

I will record the conversation as we talk. The recording will be destroyed at the end of the study. Do you all agree to this?

Do you have any questions before we begin today's interview? If you have any questions later, please don't hesitate to contact me by email or phone.

Questions:

1. What are your initial thoughts about the assessment plan?

2. What are your thoughts about the instruments included in the advising assessment plan?
   Probes: *Instrument specifics, types of data collected*

3. Is there information you would like to know about advising effectiveness that this plan would not collect?
   Probes: What information is missing from the plan? Is there other data that isn't being captured?

4. What challenges might you foresee in implementing this plan?
   Probes: Buy in? Timing of implementation? Compliance?

5. Do you have any additional thoughts on the assessment plan?

Additional probes to move conversation:

- *Are there additional thoughts on this topic?*
- *Would anyone like to add on to what ___ has said?*
- *I wonder if there are alternate perspectives on this issue.*
- *I hear what you are saying, ___. I'm wondering if someone else would like to speak to the same issue.*
- *What do others around the table think about this? _____, how about you?*

Appendix E External Interviews Recruitment Script

I'm currently a doctoral student in higher education at the University of Pittsburgh. For my dissertation work, I'm researching assessment plans for academic advising programs. Higher education administrators often discuss the use of assessment in academic advising, but few institutions have developed and implemented plans in practice. The purpose of this study is to explore and share best practices for assessment plans. Because of your role and experience with implementing an exemplary assessment plan for academic advising programs at your institution, you have been selected to participate in this research. As part of this study, I will be conducting 45-60 minute interviews with assessment coordinators to ask questions about their advising programs and models, their history with advising assessment, and details of their advising assessment plans. If you are interested in participating in this study, I will conduct the interview over the phone. I will audio record the interview. I will use an alias when referring to any parts of your responses in my written report. I will not identify you by name; however, it may be possible for someone to think they can identify you by inference because of certain details or quotes. I will not publish any quotes that might offend anyone or put anyone's employment at risk. I will also share my final dissertation report with you.

This study is being conducted by me, and if you have any questions please do not hesitate to contact me at kconway@andrew.cmu.edu or 412-268-3121.

Appendix F CMU Advisors Survey Invitation

I'm currently a doctoral student in higher education at the University of Pittsburgh. For my dissertation work, I'm researching assessment plans for academic advising programs. The purpose of this study is to explore best practices for assessment plans and design a plan for pilot implementation. As part of this study, I will survey academic advisors to ask questions about their advising practices and models, their history with advising assessment, and their thoughts and beliefs related to the assessment of advising at CMU. You are being invited to participate in this survey based on your role as an academic advisor at Carnegie Mellon. All information will remain confidential and the participant's identity will remain anonymous. I will not publish any quotes that might offend anyone or put anyone's employment at risk. There is no direct benefit to you for participating, and there is no foreseeable risk, except the possible breach of confidentiality, and I will follow strong data safeguarding procedures to prevent that. To access the survey, please go to https://cmu.ca1.qualtrics.com/jfe/form/SV_2l6rncNnyi5JJTD where you will find instructions for completing the survey. Proceeding past the first page of the survey implies your consent to participate in this study. The survey will be open until Wednesday, 2/5.

This study is being conducted by me, and if you have any questions please do not hesitate to contact me at kconway@andrew.cmu.edu or 412-268-3121.

Appendix G CMU Administrators Recruitment Script

I'm currently a doctoral student in higher education at the University of Pittsburgh. For my dissertation work, I'm researching assessment plans for academic advising programs. The purpose of this study is to explore best practices for assessment plans and design a plan for CMU. As part of this study, I will be conducting a 1-hour presentation and group interview related to advising assessment. You are invited to participate based on your role as an administrator at CMU. The group interview with be held via Zoom on May 15, 2020 from 11:30 am – 12:30 pm.

Your participation in the group interview is voluntary. I will be recording the conversation. The recording will be destroyed at the end of the study. I may jot notes as we talk so I can remember what you say. You can stop your participation at any time or skip any questions. I will keep what you say anonymous. I will not identify you by name or attribute any statements to you; however, it may be possible for someone to think they can identify you by inference because of certain details or quotes. I will not publish any quotes that might offend anyone or put anyone's employment at risk.

There is no direct financial benefit to you for participating, and there is no foreseeable risk, except the possible breach of confidentiality, and I will follow strong data safeguarding procedures to prevent that.

This study is being conducted by me, and if you have any questions please do not hesitate to contact me at kconway@andrew.cmu.edu or 412-268-3121.

Appendix H IRB Approval

University of Pittsburgh
Institutional Review Board

Human Research Protection Office
3500 Fifth Avenue, Suite 106
Pittsburgh, PA 15213
Tel (412) 383-1480
www.hrpo.pitt.edu

APPROVAL OF SUBMISSION (Exempt)

Date:	October 21, 2019
IRB:	STUDY19060349
PI:	Kathleen Conway
Title:	Needs Assessment for Academic Advising at Carnegie Mellon University
Funding:	None

The Institutional Review Board reviewed and approved the above referenced study. The study may begin as outlined in the University of Pittsburgh approved application and documents.

Approval Documentation

Review type:	Initial Study
Approval Date:	10/21/2019
Exempt Category:	(2)(ii) Tests, surveys, interviews, or observation (low risk)
Approved Documents:	• CMU Advising Working Group Focus Group Verbal Consent Script, Category: Waiver Script; • Jen Gilbride-Brown Verbal Consent Script, Category: Waiver Script; • CMU Advisors Focus Group Verbal Consent Script, Category: Waiver Script; • CMU Advisors Focus Group Script, Category: Data Collection; • Assessment Coordinators Interview Script, Category: Data Collection; • CMU Advisors Survey , Category: Data Collection; • CMU Advising Working Group Focus Group Script, Category: Data Collection; • Assessment Coordinators Verbal Consent Script, Category: Waiver Script; • Assessment Coordinators Recruitment, Category: Recruitment Materials; • CMU Advising Working Group Focus Group Recruitment Script, Category: Recruitment Materials; • CMU Advisors Focus Group Recruitment Script, Category: Recruitment Materials; • CMU Advisors Survey Recruitment Script, Category: Recruitment Materials; • Exempt Application Form, Category: IRB Protocol; • External Site Approval, Category: External Site Permission Letter; • External Site Approval, Category: IRB Protocol; • Study Protocol, Category: IRB Protocol;

As the Principal Investigator, you are responsible for the conduct of the research and to ensure accurate documentation, protocol compliance, reporting of possibly study-related adverse events and unanticipated problems involving risk to participants or others. The HRPO Reportable Events policy, Chapter 17, is available at http://www.hrpo.pitt.edu/.

Clinical research being conducted in an UPMC facility cannot begin until fiscal approval is received from the UPMC Office of Sponsored Programs and Research Support (OSPARS).

Appendix I Assessment Plan – Student Survey

The following questions are based on knowledge, skills, and experiences that you may have gained through experiences with your advisors. These questions help us assess how well we are reaching our goals. At the end of this survey, you will have c the opportunity to provide any additional information you would like to share about your experience with academic advising.

1. Demographic information
    a. Class year
    b. Gender
    c. Nationality
    d. Sexual orientation
    e. Race

2. How often do you use each of the following resources to help you with academic planning (ONCE PER WEEK/ONCE PER MONTH/ONCE PER YEAR/NEVER)
    a. Stellic audit
    b. SIO
    c. Course catalog
    d. Academic advisor

3. How confident are you with the following (CONFIDENCE SCALE)
    a. Understanding the course registration process
    b. Understanding the course withdrawal/drop process
    c. Understanding how prerequisites affect your ability to register for courses
    d. Understanding what is required of you to earn your degree
    e. Knowing where to find academic policies
    f. Knowing how to contact your academic advisor
    g. Your ability to complete your degree within your intended time frame

4. How important is academic advising to you as a part of your time at Carnegie Mellon? (VERY SCALE)

5. Did you talk with your academic advisor at least once in the past year? (YES/NO)
    a. If NO: Why did you not talk with your academic advisor in the past year?

6. How often do you talk with your advisor using each of the following methods? (ONCE PER WEEK/ONCE PER MONTH/ONCE PER YEAR/NEVER)
    a. In person
    b. E-mail
    c. Video conferencing (Skype, etc.)
    d. Phone

7. I believe that my academic advisor should help me with (AGREE FOR EACH)
    a. Registering for courses
    b. Discussing my academic program
    c. Discussing other academic programs
    d. Clarifying my educational goals
    e. Understanding general education requirements
    f. Finding campus resources
    g. Exploring career plans
    h. Discussing academic success strategies
    i. Maintaining balance between academics and life outside of the classroom
    j. Personal issues that impact academic life
    k. Other: _____

8. What topics do you typically talk about with your academic advisor? (CHECK ALL THAT APPLY)
    a. Course registration
    b. My academic program
    c. Other academic programs
    d. Educational goals
    e. General education requirements
    f. Campus resources
    g. Career plans
    h. Academic success strategies
    i. Maintaining balance between academics and life outside of the classroom
    j. Personal issues that impact academic life
    k. Other:_____ _____

9. What resources has your academic advisor discussed with you (CHECK ANY THAT APPLY)
    a. Career and Professional Development Center
    b. Counseling and Professional Services
    c. Academic Support options (tutoring, EXCEL groups, Supplemental Instruction, Global Communications Center, etc.)
    d. Undergraduate Research Office
    e. Student Life and Activities
    f. Residence Life
    g. Other: _____

10. After discussing any campus resources with your advisor, what best describes your plan to pursue these resources
    a. I have already pursued one or more of these resources
    b. I intend to utilize at least one of these resources, but I have not done so yet
    c. I have no plans to pursue any of these resources

11. Please rate your level of agreement with each statement (AGREE SCALE)
    a. My advisor is accessible
    b. My advisor helps me understand my academic progress
    c. My advisor provides me with appropriate campus referrals
    d. My advisor has helped me develop a long-term educational plan

12. Please rate your level of agreement with each statement (AGREE SCALE)
    a. I am well prepared for advising sessions with my advisor
    b. I don't wait until the last minute to contact my advisor with issues
    c. I know important university dates and deadlines
    d. I use Stellic to create and monitor my educational plan
    e. I know how to find academic policies and procedures

13. Rate your level of agreement with the following statements. Academic advising has helped increase my understanding of: (AGREE SCALE)
    a. My interests
    b. My career goals
    c. University policies
    d. My curricular planning
    e. Campus resources

14. How has academic advising been helpful? (OPEN)

15. Please provide any other feedback you have related to your experience with academic advising.

Appendix J Assessment Plan - Advisor Survey

1. Demographic information
    a. Gender
    b. Sexual orientation
    c. Race

2. How many assigned advisees do you have?

1. What topics do you typically talk about with your students? (CHECK ALL THAT APPLY)
    a. Course registration
    b. Their academic program
    c. Other academic programs
    d. Educational goals
    e. General education requirements
    f. Campus resources
    g. Career plans
    h. Academic success strategies
    i. Maintaining balance between academics and life outside of the classroom
    j. Personal issues that impact academic life
    k. Other:_____ _____

2. Rate your level of agreement with each statement (AGREE SCALE)
    a. I receive adequate administrative support to be effective as an advisor
    b. I have the necessary technical tools to do my job as an advisor
    c. I have access to resources for professional growth and development
    d. I actively participate in professional growth and development opportunities related to advising
    e. I feel confident in my ability to advise students from different backgrounds
    f. My advising caseload is practical for providing effective advising
    g. I know how to find information related to policies and procedures
    h. I know how to connect students with campus resources
    i. I give accurate advice and answers on curricular requirements
    j. The university values academic advising
    k. I meet with most students at least once per semester
    l. I use the Advising Canvas Page to learn about other programs and campus resources

3. How do you define academic advising?

4. What is the most rewarding aspect of your work as an advisor?
5. What is the most frustrating aspect of your work as an advisor?
6. How could CMU's advising system be improved?

Appendix K Assessment Plan - Advising Program Worksheet

This worksheet can be used to help advising programs articulate their focus and purpose. The questions allow you to think about the intended outcomes of advising and how the program's activities support these outcomes.

- How does your program support the overall mission of the university?

- How does your program embody the University's Statement on Advising?

  Carnegie Mellon University commits to support excellence in academic advising. Even with the university's diverse offerings, a cohesive academic advising approach can directly impact the educational success of every undergraduate and graduate student. High quality advising rests upon (1) robust central resources, (2) discipline specific variations at the college- and program-levels, (3) skilled academic advisors of all types, and (4) engaged, committed students. By conceptualizing advising as an ecosystem, CMU creates an environment that fosters long-term outcomes that benefit students studying at CMU as well as making a difference as lifelong alumni.

- What does your advising structure look like? (Who is involved? How is advising delivered?)

- What groups do you serve?

- What services do you offer? (Programs, drop-in hours, appointments, classroom presentations, webinars, course management pages, etc.)

- What do you want students to know as the result of participating in advising?

- What do you want students to value as the result of participating in advising?

- What do you want students to be able to do as the result of participating in advising?

- When should these outcomes occur?

- How will you know when these outcomes have occurred?

Adapted from the Guide to Program Effectiveness from UC Berkeley Advising Council, UC Berkeley (2013). Guide to program effectiveness. Retrieved from https://advisingworks.wordpress.com/introduction/

Appendix L Assessment Plan – Peer Evaluation Guide

Advising Peer Evaluation Guide

As you observe the advising session, keep in mind the Carnegie Mellon Statement on Advising:

Carnegie Mellon University commits to support excellence in academic advising. Even with the university's diverse offerings, a cohesive academic advising approach can directly impact the educational success of every undergraduate and graduate student. High quality advising rests upon (1) robust central resources, (2) discipline specific variations at the college- and program-levels, (3) skilled academic advisors of all types, and (4) engaged, committed students. By conceptualizing advising as an ecosystem, CMU creates an environment that fosters long-term outcomes that benefit students studying at CMU as well as making a difference as lifelong alumni.

Also consider the NACADA Core Competencies for academic advising. You may consider taking notes next to competencies based on what you observe.

CONCEPTUAL

Core competencies in the **Conceptual component** (concepts academic advisors must understand) include understanding of:

C1	**The history and role of academic advising in higher education.**
C2	**NACADA's Core Values of Academic Advising.**
C3	**Theory relevant to academic advising.**
C4	**Academic advising approaches and strategies.**
C5	**Expected outcomes of academic advising.**
C6	**How equitable and inclusive environments are created and maintained.**

INFORMATIONAL

Core competencies in the **Informational component** (knowledge academic advisors must master) include knowledge of:

I1	**Institution specific history, mission, vision, values, and culture.**
I2	**Curriculum, degree programs, and other academic requirements and options.**
I3	**Institution specific policies, procedures, rules, and regulations.**
I4	**Legal guidelines of advising practice, including privacy regulations and confidentiality.**
I5	**The characteristics, needs, and experiences of major and emerging student populations.**
I6	**Campus and community resources that support student success.**
I7	**Information technology applicable to relevant advising roles.**

Advisor Name: _____

Type of Session: _____ (individual appointment, group, program, etc.)

- What went well in the advising session?

- Where is there opportunity for growth?

- What did you observe that you might incorporate into your own advising work?

Core Competencies from NACADA: The Global Community for Academic Advising. (2017). *NACADA academic advising core competencies model.* Retrieved from https://www.nacada.ksu.edu/Resources/Pillars/CoreCompetencies.aspx)

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