

AN ABSTRACT OF THE DISSERTATION OF

Samantha NJ Hopf for the degree of Doctor of Philosophy in Education presented on June 2, 2021.

Title: Investigating the Use of Online Degree Audit Technology and Understanding the Student Experience.

Abstract approved:

Gloria E. Crisp

Academic advising is an integral step in a community college students higher education journey, and as such must be supported with any tools available to increase student success. Technology is becoming more highly integrated into the academic advising process as are online tools which provide access to student records, course requirements, and academic planning towards degree or certificate completion. In the current pandemic situation, social distancing and increased dependency on virtual communication brings higher expectations to how technology supports and improves the college experience. The use of online degree audit technology has not been fully explored through the eyes of actual community college students and findings are scarce in the scholarly literature. The purpose of this qualitative study was to investigate the lived experiences of community college students who had been enrolled for at least three consecutive terms and had participated in both in-person academic advising as well as having used the online degree audit software called DegreeWorks™. The focus of the research questions was to understand the student perceptions of their interactions with in-person advising processes, and how the technology impacts the quality of their academic advising experience in

terms of course selection and degree completion. This study stemmed from the constructionist and pragmatic perspectives of the researcher. Additionally, this study asked how community college students perceived the effectiveness of the face-to-face advising process as compared to the information provided by the online degree audit tool.

This qualitative phenomenological study explored community college students lived experiences with the process of academic advising and with using the online degree audit tool. Students were selected using a purposeful sampling selection process based on their usage of the online degree audit tool and continuous enrollment of four consecutive terms at a PNW community college. This study used verbatim transcript data from semi-structure interviews with community college students as the primary source of evidence. Data for this study were interpreted through a process of thematic qualitative analysis by identification of codes or categories from the transcripts which led to discovery of patterns and then the creation of themes focused on answering the research questions. This study sought to find evidence that followed three theoretical frameworks: (a) student involvement, (b) student engagement, and (c) the essential functions of academic advising.

The major findings of this study were evaluated within the guiding theoretical framework found within the body of literature on the topic: (a) advising for student success and retention, (b) technology's role in advising, (c) student persistence in their involvement with advising, and (d) functional elements of academic advising. Key insights appeared stemming from the participants experience: (a) a display of motivation and persistence, (b) evidence of intentional involvement, and (c) engagement with advising and improved retention and success. Participants described both positive and negative experiences with in-person advising as well as with the

online degree audit technology. Of the five essential academic advising functions, shared responsibility was quite evident. In addition, participants did not feel a sense of individuation when receiving in-person general advising, but when engaged with specific subject area advising from faculty or were involved with the special advising programs they expressed extreme satisfaction with the services they received. The online degree audit technology was giving both positive and negative ratings, with accurate information and the ability to avoid the cost of enrollment in unnecessary courses earning the most appreciation. The negative experiences contained frustration with navigation, lack of additional course fee, and other registration restriction information. The apparent lack of promotion and student support was a significant finding, indicating a lack of staff commitment to integrate the online degree audit technology as a key resource for academic advising to improve student success.

©Copyright by Samantha NJ Hopf
June 2, 2021
All Rights Reserved

Investigating the Use of Online Degree Audit Technology
and Understanding the Student Experience

by
Samantha NJ Hopf

A DISSERTATION

submitted to

Oregon State University

in partial fulfillment of
the requirements for the
degree of

Doctor of Philosophy

Presented June 2, 2021
Commencement June 2021

Doctor of Philosophy dissertation of Samantha NJ Hopf presented on June 2, 2021

APPROVED:

Major Professor, representing Education

Dean of the College of Education

Dean of the Graduate School

I understand that my dissertation will become part of the permanent collection of Oregon State University libraries. My signature below authorizes release of my dissertation to any reader upon request.

Samantha NJ Hopf, Author

ACKNOWLEDGEMENTS

I would like to express my sincere appreciation to the village which supported me on this journey, especially my family who never let me give up on succeeding. To my husband Dr. Steven Hopf, who bravely led us on our way through the Oregon State Community College Leadership Program, thank you for your partnership, your insights, your advice, your persistence and dedication to our success. We did it together and I love and appreciate you very much.

To my major professor, Dr. Gloria Crisp, a compassionate guide who made a commitment to get me to the finish line and held fast to that commitment. Thank you to my entire committee – Dr. Darlene Russ-Eft, Dr. Bruce Clemetsen, Dr. Tenish Tevis, and Dr. Allison Davis-White Eyes – for sticking with me and sharing your time over the many years. To the participants of this study – your voices needed to be heard which should lead to improving student services and student success. To all of my colleagues at Portland Community College and to the members of CCLP 18, especially my roomie – you were my mentors, my inspiration, my sounding boards and my reality checking system. Last, but not least, to my big brother, Dr. William Robison, who set the bar and blazed the doctor trail for us to follow. My life and goals have dramatically changed from when I began this adventure, but the end result brings me great satisfaction and justifies the sacrifices everyone has made.

TABLE OF CONTENTS

	<u>Page</u>
1 Introduction.....	1
1.1 Problem Statement	3
1.2 Gaps in the Research	6
1.3 Research Purpose	9
1.4 Research Questions	10
1.5 Significance of Study	10
1.6 Justification.....	12
1.6 Terms and Concepts.....	14
1.7 Summary.....	16
2 Literature Review.....	18
2.1 Literature Search Approach	18
2.2 Inclusion and Exclusion Criteria.....	19
2.3 Related Theory.....	19
2.4 Review of Empirical Literature.....	21
2.4.1 Student engagement/involvement in academic advising.....	22
2.4.2 Benefits or outcomes of academic advising	25
2.4.3 Technology and academic advising	27
2.4.4 Academic advisings influence on student persistence	30
2.4.6 Smith and Allen’s essential advising functions	32
2.5 Summary.....	34
3 Design of Study.....	38
3.1 Problem Statement.....	38
3.2 Research Questions.....	39
3.3 Positionality Statement.....	39
3.4 Philosophical Approach: Social Constructivism.....	40
3.5 Interpretative Phenomenology.....	43
3.6 Research Study Site.....	44
3.7 Identifying and Selecting Participants.....	46
3.8 Interview Protocol	48
3.9 Interview Procedures.....	49
3.10 Data Analysis.....	51
3.11 Ethical Considerations.....	54
3.12 Efforts to Promote Study Credibility	55
3.13 Study Limitations.....	56

TABLE OF CONTENTS (Continued)

	<u>Page</u>
4 Findings.....	57
4.1 Description of Participants.....	58
4.2 Analysis Findings.....	65
4.3 First Secondary Question.....	68
4.3.1 Theme 1: First Impressions of College Through Face-to-Face Advising.....	69
4.3.2 Theme 2: Comfort Level for Advising Process.....	74
4.4 Secondary Question Two	76
4.4.1 Theme 3: Power of Functionality of the Tool.....	76
4.4.2 Theme 4: Touchpoints that Improve Practice for Advising of Students.....	78
4.4.3 Theme 5: Challenges and Responsibilities with Advising.....	80
4.5 Summary of Findings.....	82
Discussion.....	87
5.1 Discussion and Interpretation of Findings.....	88
5.2 Connections between Findings and Prior Research.....	91
5.2.1 Technology in Advising.....	92
5.2.2 Student Engagement, Involvement, Persistence and Retention.....	93
5.3 Contributions of Findings to Research and Theory	95
5.4 Implications for Practice and Policy	98
5.5 Recommendations for Future Research.....	103
5.6 Conclusion and Final Reflections	104
References.....	107

LIST OF TABLES

<u>Table</u>	<u>Page</u>
4.1. Participant Demographics.....	59
4.2. Linkage of Category Codes with Themes.....	67
4.2. Theme 1: First Impressions of College through Face-to-Face Advising.....	74
4.3. Theme 2: Comfort Level for Advising Process.....	76
4.4. Theme 3: Power of Functionality of the Tool.....	78
4.5. Theme 4: Touchpoints that Improve Practice for Advising of Students	80
4.6. Theme 5: Challenges and Responsibilities with Advising.....	82

LIST OF APPENDICES

<u>Appendix</u>	<u>Page</u>
A. Recruitment Email to Study Participants.....	125
B. Interview Protocol.....	126
C. Participants Demographic Survey.....	127
D. IRB Approval Letter.....	128

Chapter I: Introduction

The purpose of this chapter is to explain the research problem presented, which is the lack of a description of the experiences community college students have when using an online degree audit technology tool as part of available academic advising services towards achieving their educational goals. Inadequate advising hurts community college students progress towards their goals. The National Academic Advising Association: the global community for academic advising, exists to promote and support the concept that academic advising is a key factor in the college experience. The first section will fully illustrate the problem statement. The second section will offer historical evidence of the importance of this topic to the U.S. higher education leadership community. The last section will characterize the gaps in research of this area and the implications that exist towards student success and completion rates.

Quality advising support has been empirically shown to contribute to the success of students who have not yet selected a major (Ellis, 2014). As students make the important decision of what area of study they want to explore, academic advising serves as a navigation and mapping service. In an attempt to keep up with new changes and developments in student academic services, technology is often used to augment the advising process. The increased use of technology has necessitated multiple revisions to historical advising practices (Kramer & Childs, 1996). More than 30 years ago, Spencer, Peterson, and Kramer (1982) raised concerns about the methods used to provide students with accurate and up-to-date academic information. As a result, college and university administrators began intensifying efforts to make computer-assisted advising a higher priority (Peterson & Kramer, 1984). More in-depth research on the topic of computer-assisted advising found that

the integration of technology into academic advising has the potential to optimize the following: (a) student-centered advising; (b) convenient and timely access to critical academic planning information; (c) students' control over their academic information, as well as immediate feedback; (d) student development; (e) networking in the academic community to enhance coordination of resources; (f) cost effective resource management; and (g) advising beyond routine, which saves on clerical data entry dependence (Leonard, 1996). Many colleges are providing enhanced advising programs, which studies suggest result in positive impacts on student performance and retention (Bettinger & Baker, 2014; Scrivener et al., 2015; Weiss, Brock, Sommo, Rudd, & Turner, 2011).

Degree audit computer software is not new. Degree audit is the term employed throughout higher education to describe the process of applying a student's academic history to the set of degree requirements of the program the student is pursuing. This type of computer application is referred to as the advisement and graduation information system (AGIS) (O'Banion, 1989). Academic advisors have used various versions of this application for over 20 years, but recent technology has been applied that makes the tool available to students in the online environment. One degree audit system, Degree Works™, allows students and academic advisors to (a) track progress towards completing degree requirements and plan future coursework, (b) complete "what if" scenarios for different degrees and certificates, (c) reduce paperwork and manual degree checklists by using the online environment, and (d) calculate grade point averages (Ellucian, 2017). The strongest benefit promoted for this technology is that these features are available to students through an internet interface available 24 hours, seven days a week that connects them to their actual student records and provides accurate, and consistent transcript data. This removes the often-

considered time consuming and inconvenient visit to a campus advising office to receive in-person guidance which could be deemed unsatisfactory and a waste of the student's time.

Two higher education organizations – NACADA: The Global Community for Academic Advising (NACADA) and the Council for the Advancement of Standards (CAS), both highlight the intersection of the use of technology and data for academic advising through critical analyzation of current practices (Steele, 2018). The question posed The NACADA model, referred to as the Concept of Advising (2006), is composed of three ideas: curriculum, pedagogy, and learning outcomes. The CAS standards (2014) expand on those by identifying 12 critical categories which are areas which by the study of learning analytics data can be used for a better understanding of student success.

The Steele Model (2015), looks deeper into the impact technology has on academic advising as a learning activity and how it may advance three general tasks and goals: service, engagement, and learning (Steele, 2014, 2015, 2016a and b). Contained in the service circle are Student Information Systems and Degree Audits. This inclusion of technology usage moves to support the importance of providing accurate information and how students use information in the creation of their academic and career plans (Steele, 2018).

Problem Statement

The significance of student success has been a focus of the U.S Department of Education and for many national organizations who report on both enrollment data and student outcomes. The National Commission on Community Colleges reported that emerging job market requirements continue to make postsecondary certificates and degrees the minimum required for productive entry in the nation's economic life (Fogg & Harrington, 2009). For most of the post-World War II era, the United States had one of the highest

percentages of college graduates in the world. However, according to a report by the Indianapolis-based Lumina Foundation for Education, those rates had become stagnant, if not decreasing (Dowd, 2005). This Lumina report also estimated that those college-graduation rates could result in a shortage of 16 million college-educated adults in the American workforce by 2025. This prediction became questionable when beginning in 2007 the U.S. experienced an economic recession, which brought a significant college enrollment peak by 2011. Since the end of that recession higher education has had overall continuous declines in enrollment through 2018 (Juszkiewicz, 2019). As reported by the National Student Clearinghouse, completion rates are not predicted to improve and continue to be a major focus of higher education support organizations, including the American Association of Community Colleges (AACC). The importance of degree completion in today's and tomorrow's economy is linked to the ability of that citizen to secure productive employment (Juszkiewicz, 2020). Currently the U.S. Congress is working on a reauthorization of the Higher Education Act (HEA) which provides an opportunity to strengthen support for students' access, boost success, increase transparency in the process that would improve access to information and student's decision-making ability, and accountability for the protection of their investments (APLU, 2020). George E. Steele, as the preeminent academic researcher into the process of academic advising for institutions of higher education, holds extensive experience in investigating the use of technology in advising to improve student services. In recently published studies Steele focused on the intersection of the use of technology and data which are thought to shape the delivery and expectations for academic advising in higher education (Steele, 2018). Among the many AACC broad Higher Education Act reauthorization agenda items, establishment of a postsecondary unit record

data system (URDS) anchored with strong privacy protections, as in the College Transparency Act. This system is meant to provide comprehensive information on the performance of higher education institutions that is currently unavailable and specifically it would report the completion rate of community college students (AACC, 2020).

Community colleges play a critical role in educating the current and future workforce in the United States, with their share of undergraduate enrollment increasing by a significant amount partially due to ongoing open-enrollment policies (Mullin, 2012). Community colleges are also inherently more local in mission and impact than most four-year colleges. They respond to local labor market needs, and their graduates tend to stay close by, contributing to their region as workers, civic leaders, and parents raising the next generation.

Global economic challenges are still evident, and the US economy remains dependent on an educated workforce. College and university student success continues to be measured by graduation rates and graduation rates are critical to the nation's competitiveness and stability into the future (Tinto, 2016). National conversations continue about what can be done to increase graduation rates, particularly in community colleges. Much of the extant research focused on understanding how students make or fail to make progress toward completion has been inadequate (Collett, 2013; Donaldson, McKinney, Lee & Pino, 2016). Despite endeavors to increase rates of degree completion, finding solutions to attrition factors remain. College completion initiatives are driving colleges to use big data to understand how students make or fail to make progress towards completion and to use data to implement data-driven innovations that change existing institutional practices (Moore & Shulock, 2010). This is true in today's environment, as many community colleges are now thinking retention not only as the right thing to do, but also as a financial imperative. In 2019, two bills, one

from the U.S. House of Representatives and one from the U.S. Senate were introduced and both bills addressed issues relating to community college students completion.

Student success is contingent upon achieving educational goals, whether the goals are to complete a certificate or degree program or select and access specific courses (Packard & Jeffers, 2013). College and university administrators have consistently identified improvements in academic advising as a major strategy for increasing student retention (Habley, Bloom & Gore, 2012; Habley, Valiga, McClanahan & Burkum, 2010). The academic advising process provides students with critical support as well as access to degree requirements and academic planning information. Students need access to current and accurate information regarding the courses needed to meet their educational goals (Steele, 2014).

The use of technology in support of academic advising programs at community colleges is one way to address student persistence, retention, and potentially increase success rates. Technology can be used to scaffold academic advising practices in higher education (Pasquini & Steele, 2016); one such technology is the degree audit tool (Steele, 2014). The intentional use of technology for academic advising is a model created by Steele (2014). This model emerged from a study he conducted that examined 25 years (1988-2012) of technology presentations at NACADA's annual conferences. Three main patterns emerged from his research including communication tools, web-based tools, and enterprise level systems (Steele, 2014). Degree audit technology crosses over two of the three areas, web-based and enterprise level systems, falling into the service area provided through personalized student account information. Explaining the nature of technologies as tools designed for specific functions, Steele stated, "the best use of technologies is when their

capabilities align with our advising goals” (Steele, 2015, p.11). Smith and Allen’s (2006) academic advising framework is helpful for determining which advising functions can contribute to the attainment of the goals of student retention and completion with the use of technologies. This framework will be discussed in the forthcoming theoretical framework section.

Gaps in the Research

Due to the importance that educational and political administrations are placing on student success, colleges are investigating many possible courses of action to increase completion rates, including graduation rates (Steele, 2015). One identified area of concern related to poor retention rates is in student services. The concern is that some of the ineffectual student transcript data management processes already used in academic advising may not be effective (Herndon, Kaiser, & Creamer, 1996; Lowenstein, 2005; Nelson Laird & Kuh, 2005). The role degree audit technology has is the ability to provide accurate and consistent course requirement information needed to achieve degree or certificate completion. Degree audit technology is becoming more popular due to advisors discussing the importance of accessible and effective advising-related information on the college website. A combination of student-based technology deficiencies and institution-based technology inefficiencies were perceived as barriers to successful student participation in advising (Donaldson, McKinney, Miyoung, Horn, Burr ridge, & Pino, 2020).

Smith and Allen (2006), identified 12 essential functions of academic advising from data collected during surveying college students. The goal was to determine what those students felt was important in advising and if they were receiving those services. One advising function, information, was related to the variables ‘how things work’ and ‘accurate

information'. Their findings showed that the advising function of providing accurate information was ranked first by those students in both importance and satisfaction (Smith & Allen, 2006). This directly speaks to recognizing the impact that technology provides in support of academic advising through the availability of consistent information, including information reflecting degree requirements.

Many studies have been published describing efforts by community colleges to improve student advising services by relying on new advising modes that include the use of technology (Doherty & Rice, 2007; Pasquini & Steele, 2016; Sloan, Jefferson, Search & Cox, 2005). These studies have specifically identified student records data system deficiencies that result in both students' and advisors' inability to assess a student's progress toward degree or certificate completion in an effective manner. Students may struggle to know about their progress or status due to lack of access to an efficient online system to provide completed course credit data (Jaggars & Karp, 2016). Student success indicators show that when students belatedly find out that they have inadvertently strayed from their degree plan and do not graduate on time, the costs are equally levied on both the student and the institution (Sloan, Jefferson, Search & Cox, 2005).

Navigating college can be complicated. Incoming community college students must make many choices. These choices include which courses to select and enroll or register, which degree or certificate program to pursue, (if they are in fact pursuing a degree or certificate), whether to attend full-time or part-time, and whether or not to transfer to a four-year college. Qualitative evidence from community colleges suggests that the complexity of academic decision-making results in student mistakes, such as graduating with more credits than necessary, taking unnecessary courses, taking courses not related to a specific technical

certificate or AA degree, or taking courses that will not transfer to their next college. These costly mistakes result in the student paying in both monetary as well as time resources (Bailey, Jaggars, & Jenkins, 2015). To guide students through these challenges, community colleges provide academic advising services. Academic advising services are provided through in-person planning sessions and on-line course-selection, and program requirement information. Although the research literature indicates the positive outcomes of including technology in the academic advising process (Doherty & Rice, 2007; Pasquini & Steele, 2016; Sloan et al., 2005), there is a gap in the literature specific to students' perceptions about the impact of technology, specifically the use of online degree audit programs, on the academic advising program in terms of course selection and degree completion. Steele (2014) stated that a degree audit system is the fundamental building block for comprehensive advising systems, it is incumbent to elicit support from the primary areas, such as advising staff associated with user experiences, to continue the development of the technology's use in the advising program. It is important to elicit documentation and feedback from the end users, both academic advisors as well as students, who can be considered the consumers of the product, to regularly and systematically evaluate the product and provide data related to their actual perspectives (Steele, 2014). This present study was designed to address this deficiency in the literature.

Purpose Statement

The purpose of this qualitative phenomenological study was to explore the lived experiences of students enrolled in a large metropolitan multi-campus community college district specific to their use of online degree audit technology. Specifically, I was interested in understanding students' perceptions about how the technology impacted the quality of

their academic advising experience in terms of course selection and degree completion. This qualitative phenomenological study utilized in-depth semi-structured interviews of students enrolled in a large community college district with multiple campuses that had implemented online degree audit technology into the academic advising process. The community college selected for this phenomenological study was chosen through a systematic evaluation of community colleges within a state in the Northwest region of the United States. The selected college was chosen because it utilizes robust academic advising online degree audit technology as part of the students' advising experience. This study examined the students' perceptions about the use of this technology as part of their advising processes and the impact on their course selection and progress toward degree completion. It was felt vital to achieve a successful study to involve purposefully selected individuals at the appropriate time to ensure capturing real utilization of the degree audit technology.

Research Questions

The overarching research question for this study was: What are the lived experiences of community college students specific to the use of online degree audit technology and its impact on the quality of the academic advising experience? When conducting phenomenological research, secondary questions (SQ) are helpful for further guiding the study (Smith, Flowers, & Larkin, 2009). My secondary questions included:

SQ1: How do community college students describe their lived experiences of using online degree audit technology as part of the academic advising process?

SQ2: How does online degree audit technology impact the quality of community college students' academic advising experience in terms of course selection and degree completion?

Significance of the Study

There are practical implications of this study. First, over three decades ago, the U.S. Congress enacted the Student Right-To-Know Act, requiring all institutions of higher education who received federal student financial aid to provide data on graduation rates (Astin, 2005). Second, community colleges, as members of America's higher education system, have an obligation to improve their graduation rates. Third, community colleges must balance the requirements to improve their graduation rates with their mission statements that include the ideals of providing quality educational programs and services that are both affordable and accessible to all who desire. Additional overall goals address a pledge to ensure that college programs are accessible to all through effective use of technology and strategic location of facilities. These goals emphasize the utilization of all available tools to assist colleges towards meeting their commitment to increase student completion rates.

Findings from this qualitative phenomenological study showed common themes that emerged from community college student interviews that may further inform the state of knowledge in the field of academic advising, and the impact of the use of online degree audit technology for an urban community college. Gaining knowledge based on students lived experiences collected from this study may provide insights into areas of advising process deficiencies as well as reinforce successful practices that are improving student success. Specific focus of this study was on the use of technology in the academic planning process, where access to consistent, reliable, and accurate information regarding course requirements towards degree or certificate completion can have a significant impact on a students' success.

Research relating academic advising to student success has been included in assessment data gathered to measure student engagement, such as the annual National Survey

for Student Engagement (NSSE) and the Community College Survey for Student Engagement (CCSSE). In addition, research showing a relationship between academic advising and student success has been the primary research focus of the NACADA. The NACADA (2019) research agenda states: “NACADA supports research to advance knowledge about academic advising, rigorous inquiry that investigates academic advising’s impact, context, or theoretical basis is particularly needed” (para. 1). This present research was driven by the importance of academic advising to student success and study results may contribute to the research linking academic advising and student retention. This study’s focus on the use of technology in academic advising is important because such technology may introduce greater accountability and provide better services to students. For instance, an automated degree audit system, delivered online, 24/7, may help students plan the proper courses to take, provide accurate and consistent data, and provide an alternative to the dependency of referring to an advisor for guidance.

The need for broader and more robust online student support services is particularly crucial in response to the 2020 COVID-19 pandemic environment the world is currently experiencing. Online student services are more relevantly needed than ever to meet the Center for Disease Controls social distancing and non-contact recommendations. Many colleges and universities have switched to delivering all online learning courses and student support services which rely primarily on technology (Hu, 2020). Particularly in community colleges, where the student to advisor ratio is extremely high, the in-person individual advising appointment which has been considered the most effective, has presented the most challenging to accomplish. As stated in the 2011 NACADA Clearinghouse survey report, the ratio of student-to-advisor for community colleges was 441:1 (Robbins, 2013). Obviously,

this ratio is greatly affected by the health of the US economy and the percentage of jobs available to students who choose employment over education. More recent studies done by CCSSE have pegged the ratio at closer to 1000:1 with the additional case of community college students being unaware of existing advising services (CCSSE, 2018) . Add in the COVID-19 pandemic impact, technology has been the only answer to the ability to continue to provide necessary student services. Pasquini and Steele (2016) stated that “it will be critical for colleges and universities to be proactive with technological solutions to offer seamless support, effectively manage student progress, and optimize resources for success and retention”. (Pasquini & Steele, p.3)

Justification

Students arriving at a college face the daunting task of selecting what courses they need to meet the requirements of their educational goal, be it a certificate, degree, or merely self-improvement. Advising methods have been identified as a critical link between the student, their education expectations, and the institution’s published and recognized course program requirements. Higher educational institutions often have policies in place that suggest a commitment to advising, but many times what is delivered to the students is uneven in quality and in effectiveness (Sheldon, Garton, Orr & Smith, 2015). The need for improved advising is continually investigated as part of NACADA’s research into meeting quality academic advising goals. A significant argument linked to bettering advising is based on the observation that students are not always completely aware of their progress or status due to a lack of access to or focus on their transcript data during their course selection (Strayhorn, 2015; Steele & Thurmond, 2009). An analysis of the effect of technology’s intervention on student success will provide beneficial data towards the outcomes from this technology

support tool as it is placed in the hands of the students who need it the most. Placing the power and access of course selection into the hands of the students via online degree audit technology may improve both accessibility to the needed information of requirements information and reduce unnecessary course registrations. To meet the issue of inadequate advising services, community colleges have made the choice to provide online advising information provisions and student success courses (Jaggars & Karp, 2016). Academic advisors acknowledge that technology tools can enhance the advising role, and some even feel that their professional survival depends on it (Steele & Thurmond, 2009; Steele, Leonard, Haberle, & Lipschultz, 1999).

Based on the findings of this study, it is possible that college leadership may be able to determine that the addition of the technology into the advising process, as perceived by students using the online advising tool, is achieving the outcome desired. If so, leadership may be able to build on previously developed assumptions about the integration of technology into advising through a process of analytical or naturalistic generalization about the benefits of this approach as it relates to student success. The intent of this phenomenological study is to discover the experience and opinion on the use of information technology as part of academic advising process for community college students at a large metropolitan community college with multiple campus locations. The rationale for the selection of a large metropolitan community college with multiple campuses is twofold. First, there has not been a qualitative study on these institutions, and it is an informative study because of the challenges inherent in this complex environment. Second, in a large metropolitan community college with multiple campuses, students “swirl” among the campuses. That is, they can encounter multiple advisors and faculty, they select from

thousands of course options, they may or may not transfer, and in many cases, they co-enroll between the community college and a four-year college. Factors that create the swirling effect for community college students, which often result in the highly disruptive stopping in and out of enrollment, include lack of proper and effective support in the form of academic advising (Mullin, 2012). This study will strive for resulting data that are richly descriptive and faithful to the students' perspectives in this environment.

Terms and Concepts

Community College Survey for Student Engagement (CCSSE). The CCSSE instrument specific for community colleges is similar to the National Survey for Student Engagement (NSSE), but there are important distinctions between the two initiatives (Gordon, Ludlum & Hoey, 2008). Established in 2001 as part of the Community College Leadership Program at The University of Texas at Austin, the CCSSE shares the same empirical basis in the research on effective practice in undergraduate education as the NSSE. The difference is in the recognition of the unique mission, student population and resources of community colleges in contrast to those of four-year schools. There are also different sampling and survey administration procedures for each survey (www.ccsse.org).

Developmental advising. Developmental advising is focused on specific personal or vocational decisions, and also with facilitating a student's rational processes, environmental and interpersonal interactions, behavior awareness, and problem-solving, decision-making, and evaluation skills (Gordon, 2019).

Information technology. For the purposes of this study, information technology refers to the use of an electronic device or system to perform various tasks relating to data

storage, management and processing, communication, information retrieval, and improvements to literacy through the availability of data on demand (Green & Gilbert, 2010).

National Survey for Student Engagement (NSSE). The NSSE was established in 1998 by a grant from the Pew Charitable Trusts and is co-sponsored by The Carnegie Foundation for the Advancement of Teaching and the Pew Forum on Undergraduate Learning. The survey instrument provides data for *The College Student Report*, which is administered each spring to random samples of first-year students and seniors at public and private four-year colleges and universities. It emerged in response to concerns about the lack of emphasis on student learning in the major (and highly visible) college rankings in the United States (nsse.indiana.edu).

Prescriptive advising. This form of academic advising is based on authority, including diagnosis, prescription or action. It uses judgment on past records as well as interpreting test scores, provides information on degree programs and interprets prerequisites as well as apply some form of control and issue incentives to encourage active participation in the course of action (Habley, 2000).

Student engagement. The more students study a subject, the more they know about it, and the more students practice and receive feedback from faculty and staff members on collaborative problem solving, the deeper they come to understand what they are learning. Through such engagement, students become more adept at managing complexity, tolerating ambiguity, and working with people from different backgrounds or differing views (Quaye & Harper, 2014).

Student involvement. Student involvement refers to the amount of physical and psychological energy that the student devotes to the academic experience (Tinto, 2016).

Summary

As the global business environment becomes increasingly competitive, national conversations are turned toward producing a better educated workforce, which emphasizes the importance of student success as indicated by graduation rates (McClenney, 2013). In 2015, the Department of Education published a fact sheet contained the following message: “In today’s economy, higher education is no longer a luxury for the privileged few, but a necessity for individual economic opportunity and America’s competitiveness in the global economy” (DOE, 2015, “A Post-Secondary Credential” para. 3). National forums held by NACADA and the AACCC have focused on improvements needed to meet academic advising and counseling needs of students, which can contribute to student success. One outcome from these forums is the recommendation that community colleges invest in technology to improve the quality and accessibility of advising and counseling (Ryan, 2003).

The research literature has identified positive outcomes of including technology in the academic advising process (Doherty & Rice, 2007; Pasquini & Steele, 2013; Sloan et al., 2005). However, there is a gap in the literature specific to students’ perceptions about the impact of technology, specifically the use of online degree audit programs, and on the academic advising program in terms of course selection and degree completion. This study was focused on addressing this gap in the research literature.

Chapter II: Literature Review

The following section will provide an overview of background research performed as a critical component to this study. It is important to discover what has already been thought or researched to provide a foundation for contributions to the knowledge base (Merriam, 2009). The use of technology in the academic advising process is felt to be very beneficial to improving student success.

Literature Search Approach

This research project was started nine years ago and has been continually edited to reflect more recent research studies up to the fall of 2020. Both the Oregon State University library databases and the Portland Community College library databases were used to identify and access peer-reviewed journal articles and other sources relevant to the research topic. Numerous searches were executed on various databases, especially those that dealt with higher education, such as ERIC, FirstSearch, ArticleFirst, Sage, EBSCOhost, Academic Search Premier, Education Research Complete, Professional Development Collection, TOPICsearch, MLA Director of Periodicals, E-Journals, and Google Scholar.

Key words utilized during the search of the literature included: *advising, counseling, technology, graduation statistics, academic progress, effective advising, student participation, student involvement, student development, attrition, retention, student success, faculty advising, degree audit, expert systems, higher education computer-assisted instruction, intrusive advising, persistence, risk identification, resource and service utilization, student satisfaction with advising, student satisfaction with services, advising approaches, developmental advising, and prescriptive advising*. The focus used was primarily on the topic of academic advising and the relationship between a technological intervention and the effects on student outcomes and ultimately graduation statistics.

Through keyword searches, the initial review of the literature found evidence of authors who have repeatedly written about improving academic advising or the use of technology to improve student outcomes; these authors were frequently cited in the literature. Therefore, the subsequent literature searches focused on these authors: Janine Allen, Alexander Astin, John Braxton, Arthur Chickering, Virginia Gordon, Wesley Habley, George Kuh, Thomas Nelson Laird, Cathleen Smith and Vincent Tinto.

Inclusion and exclusion criteria. To ensure relevancy and remain focused on the research topic, the researcher excluded material and studies that focused on academic advising methods used prior to the introduction of technology in the higher education industry, specifically computers and computer software. Prior to 1960, manual record management of student records was primarily utilized and has been steadily replaced by more progressive computer information systems and automated programming (Gaines, 2014). Degree audit management is now the standard method used by all institutions of higher education. In addition, only English literature was included, as the focus was on American community colleges and technology that is used by American community college academic advising programs. This was a value judgment by the researcher about the relevance and weight of the literature that would support the topic of advising programs.

Related Theory

Three related theories undergird this study. First, student involvement theory, related to student development theory for higher education (Astin, 1999), is concerned with “the amount of physical and psychological energy that the student devotes to the academic experience” (p. 518). Second, student engagement theory involves the possible relationship between the use of technology and personal development outcomes, including higher student

engagement with learning opportunities (Kuh & Hu, 2001). To complement the value of the use of technology in academic advising, the third theoretical framework entails the essential functions of academic advising (Smith & Allen, 2006).

Smith and Allen (2006) explained that quality academic advising can directly impact students' persistence and graduation probability as well as indirectly impact their grades, intentions, and satisfaction. When considering the types of skills and knowledge required to provide the type of advising that is important to students and contributes to their development, Smith and Allen (2006) identified five separate domains: (a) integration, (b) referral, (c) information, (d), individuation, and (e) shared responsibility. The integration advising domain includes five connections that students make (overall, major, general education, degree, and out of class). The overall connection involves advising that helps students connect their academic, career, and life goals. The major connection is concerned with advising that helps students select courses in their chosen major that is related to their academic, career, and life goals. General education connection entails advising that helps students select among various general education options that relate to their academic, career, and life goals. Advising related to the degree connection is concerned with student decisions about the type of degree to pursue that connects their academic, career, and life goals. Lastly, the out-of-class connection is concerned with advising that helps students select out-of-class activities that connect their academic, career, and life goals (Smith & Allen, 2006).

The second advising domain involves referrals related to both academic and nonacademic activities. The academic referral function involves advising focused on referring students to campus resources that can help them with academic problems, including math, science, or writing tutoring, disability accommodations, and services aimed at

addressing testing anxiety. Nonacademic functions include referrals to campus resources addressing nonacademic problems such as childcare, financial assistance, and physical and mental health (Smith & Allen, 2006).

The third academic advising domain is concerned with accessing and understanding information. The how-things-work advising information function involves helping students understand how things work at the college/university, such as timelines, policies, and procedures related to registration, financial aid, grading, graduation, petitions, and appeals. The accurate information advising information function deals with providing students accurate information about certificate/degree requirements (Smith & Allen, 2006).

The fourth advising domain of individuation is comprised of two functions. The first function involves taking into consideration students' skills, abilities, and interests when helping them select courses. The second function stresses the importance of knowing the student as an individual when providing academic advising services (Smith & Allen, 2006).

The fifth advising domain is concerned with the shared responsibility function. The focus of this advising function is to encourage students to become responsible for their education. Both academic advisors and advising technology tools can help students develop the skills critical to planning, problem solving, and decision-making (Smith & Allen, 2006). Smith and Allen's (2006) five academic advising domains and functions are discussed in further detail in the chapter two review of the literature.

Review of Empirical Literature

The overall topic of academic advising and student success yields research literature on several themes related to the community college environment and student services advising processes. This review of relevant literature focused on four core themes: student

engagement/involvement and academic advising, benefits or outcomes of academic advising, technology and academic advising, and academic advising's influence on student persistence and retention. Additionally, the essential advising functions, as identified in Smith and Allen's (2006) theoretical framework, are discussed in this literature review.

Student engagement/involvement and academic advising. Student engagement and involvement are frequently discussed in the research literature as being related to institutional activities focused on increasing student success (Astin, 1999; Kuh, 2008; Kuh, 2009; Tuttle, 2000; Wirth & Padilla, 2008). One re-occurring theme in these discussions is how student engagement and involvement relate to the academic advising process and student outcomes. Studies have been conducted with student participants in various stages of their college careers specific to their perceptions of the effectiveness in delivery of student services in the form of academic advising (Habley, 2000; Kirker, 2008; Tuttle, 2000). Findings indicate that academic advising practices involve facets of effort from various stakeholders, including the students themselves. Student perspectives about barriers to their success are reported in student responses to the CCSSE, which provides critical data concerning areas of engagement and different conceptions of collegiate quality. Five benchmarks are the basis of the survey: (a) level of academic challenge, (b) active and collaborative learning, (c) student-faculty interaction, (d) enriching educational experiences, and (e) supportive campus environment. The CCSSE was designed to measure student engagement and the degree to which institutions provide students with positive learning environments. Validation comes from a well-developed set of items directed at various student behaviors and experiences that all relate to engagement (Kuh, 2009).

Hatch and Garcia (2017) studied the persistent intentions of community college students as impacted by several factors, including academic advising. One purpose of their study was to understand how different kinds of advising activities can influence community college students' engagement during the first three weeks of their college experience. The researchers conceptualized academic advising as one of numerous ways that students engage with and are engaged by the institution (Hatch & Garcia, 2017). Included in the results was a noteworthy finding that students identified having a clear academic plan and pathway as making a difference to their levels of persistence. Two-year community college students, early on, may lack clear intentions and plans; however, supportive advising helps them get started on the right educational path and impacts their engagement and persistence (Hatch & Garcia, 2017).

Other research literature stressed the importance of providing accurate and timely information as a significant factor to student satisfaction with academic advising (Allen & Smith, 2008). Allen and Smith (2014) further found that students who used advising tools were less likely than other students to indicate that a personal contact with an advisor was more important than access to consistent degree and program requirements. Integration of technology, specifically online degree audit as a tool to enhance the accuracy in data for both academic advisors and students, provides the ability to research and monitor the progress of the student toward the completion process (Smith & Allen, 2014).

In another example of student engagement research, Ashburn, Bartlett, and Wolverston (2006) described a two-year college in Virginia's reaction to results from the CCSSE survey that showed their students were not participating in academic advising. Study findings showed that the students at J. Sergeant Reynolds Community College only

occasionally sought academic advising. This finding prompted the college to change their entire academic advising process. Changes that were made to student programs included mandatory orientation appointments and regular follow-up meetings with advisors. The steps taken at Reynolds Community College document the importance of the concept of increasing student engagement through student services support processes in order to increase student outcomes (Ashburn et al., 2006).

Additional research identified new and proven methods for improving student success and strengthening institutions' completion performance. Kuh, Kinzie, Schuh, and Whitt (2005) assessed the specific conditions at institutions of higher education that lead to greater student success. The researchers defined student involvement as the amount of effort or energy that students devote to their academic experience. The study involved 20 colleges and universities that were identified as strong-performing institutions. The focus was on utilization of specific practices that were valued as having a positive effect on student success. Student involvement theory was proposed as being equally important as subject matter, resource, and eclectic theory to learning and development outcomes desired by students and the educational organization (Astin, 1999). Astin defined student involvement theory as measurable physical and psychological energy that students devote to their academic experience. The investment of energy has significant implications in the areas studied by learning theorists, specifically both in vigilance or time-on-task studies. Involvement implies a behavioral component, which is becoming more and more popular in design of educational programs and experiences for college students (Astin, 1999). Administrative decisions that impact student services were found to significantly affect how students focus their energies towards involvement in their educational success. By designing

more effective learning environments and support structures, students tend to benefit and become more involved (Astin, 1999).

The theories of student involvement and student engagement have gained recognition and support from many respected authors; however, they direct attention away from subject matter and technique in educational practices and toward motivation and behaviors of students (Astin, 1999; Kuh, 2009; Tuttle, 2000). This redirected attention challenges institutions to make obvious adjustments in their campus cultures to place more importance on strengthening relationships between students and the institution's staff, including faculty and advisors. Results from the CCSSE show the importance of the institutional environment and its effect on student outcomes. Kuh, Kinzie, Schuh, Whitt, and Associates (2005) stated that the report generated from the survey can be used as a diagnostic tool to identify areas in which a school can enhance students' educational experiences and learning. More research is warranted specific to community college institutions' efforts to adopt and adjust student services to improve engagement and development activities.

In summary, research indicates that student engagement/involvement and academic advising are critical components to the student learning experience. Results from the CCSSE can support community colleges' efforts to improve student engagement in the academic advising process. Academic advising efforts will ultimately benefit from increased student engagement and involvement. The college environment provides a variety of resources, and the amount of student learning and personal development associated with any educational program is directly proportional to the quality and quantity of student involvement.

Benefits or outcomes of academic advising. Tinto (2004) maintained that college campuses support the development of resilient students and thus enhance retention and

graduation when they provide effective academic advising. Tinto envisioned academic advising as a major component of the academic, social, and personal support programs critical to helping students achieve their learning goals. Advising was first recognized as authentic academic systems beginning in the late 1800s at John Hopkins University and Harvard University (Goetz, 1996). From a historical context, academic advising began in response to the increasingly complex higher education curriculum that evolved at the end of the 19th century. Historically, faculty members were the primary vehicles of the advising process, with the initial intent of connecting students with their faculty. Habley (1994) stated that "academic advising is the *only* structured activity on the campus in which *all* students have the opportunity for *on-going*, one-to-one interaction with a concerned representative of the institution" (p. 10). As such, McGillin (2000) claimed that advisors lay the groundwork for the success of academically underprepared students and play a pivotal role in promoting resilience.

To better understand students' perceptions of the support they receive toward achieving their educational goals, Packard and Jeffers (2013) examined ways in which community college students experienced advising interactions. Using purposive sampling techniques, Packard and Jeffers identified and recruited 82 students enrolled at three community colleges in Massachusetts to participate in a phenomenological study aimed at understanding the students' advising experiences while pursuing their academic goals in a STEM transfer pathway. Semi-structured interviews were conducted to elicit students' lived experiences and perspectives. One area of academic advising the students most emphasized was the importance of receiving accurate and correct information. They linked these benefits to their ability to stay on track with their transfer goals.

In a keynote address to the National Academic Advising Association's 2000 conference, Wesley Habley stressed the importance of research on the topic of academic advising. He emphasized the importance of this research so that improvements can be made in areas of understanding, planning, and more effective decision making (Habley, 2000). The scholarly significance of academic advising is now a well-researched topic, and national studies of student satisfaction support increased focus and review of advising experiences as part of student success. In summary, institutions of higher education must not underestimate the need for accurate and consistent academic advising. Students must receive the support necessary from the student services functional units in an efficient, effective, and timely manner.

Technology and academic advising. Information technology, in the form of student data access and use in academic advising, has dramatically changed over the past 30 years. The NACADA Technology in Advising Commission conducted a study to understand how staff, faculty, and administrators are impacted by technology in their post-secondary education institutions. The results of the study showed that the continued implementation of technology into academic advising processes has improved the quality of their work of staff, faculty, and administrators (Pasquini & Steele, 2016). It was found that the strategic deployment of advising technologies, in support of communication and student information management, benefits both students and advisors by providing increased access to data.

Literature on student perceptions of support services has consistently shown a negative to less-than-adequate ranking by students (Jaggars & Fletcher, 2014). The sheer complexity of academic decision making, combined with complex program requirements for community college students, has resulted in several unfortunate consequences. These

consequences include earning multiple credits that do not apply to a particular degree or program requirement, accumulating excess credits above what is required for completion, and enrolling in courses for transfer and discovering that one or more courses will not transfer (Jaggars & Fletcher, 2014). It is possible that further research into identifying necessary actions needs to be taken to improve student involvement in this process and the ability of advisors to access relevant and timely information on course requirements and the transferability of courses.

The specific role of technology in advising services is a popular area of investigation, particularly from the student perspective in the context of course requirement management. The possession of key information about community college specific certificate and degree requirements has traditionally been the responsibility of the advising staff. Control over this resource has traditionally been administered in a very manual fashion. Limited availability and accessibility to students of those resources presented major challenges and barriers to meeting their educational goals. Limited advising staff, sheer size of the student population needing services, and scheduling logistics are but a few of the issues that have made it difficult for community colleges to meet their students' needs. As an answer to the persistent resource constraints, several college administrators, policymakers, and education foundations are strongly advocating for the increased use of technology (Yanosky, 2014).

As an example of an actual technology intervention, Tallahassee Community College (TCC) integrated an online academic planning and resource system as an enhancement to their student advising program, which resulted in better communication, increased access to information, and more effective student record data management (Sloan, Jefferson, Search, & Cox, 2005). Implementation of an online academic planning and resource system came as a

result of a student success initiative that identified the existing academic advising as inadequate and creating a performance gap between what students need to know about their academic progress and their actual course enrollment. The answer for TCC was to introduce a new advising system that allowed faculty and students to communicate more frequently and easily, provided access to needed information in one place, and allowed college personnel to access information about students and their goals. Ultimately, the outcome included an integrated system that provided better access to information and resources and increased student satisfaction of academic and support services, leading to more students graduating on time with appropriate courses for degree and transfer (Sloan et al.).

A recent higher education initiative focused on reforming advising services is the Integrated Planning and Advising for Student Success (iPASS) supported by the Bill and Melinda Gates Foundation. iPass was developed to transform how colleges and universities approach student advising and the use of advising technologies to strengthen the experience (Klempin, Kalamkarian, Pellegrino & Barnett, 2019). The Gates Foundation, in 2012 and 2015, awarded grants to support the launch and use of advising technologies in 45 colleges. In addition, in 2015 the initiative engaged technical assistance partners to provide coaching and information technologies support as they were needed. The intentional use of technology to advance academic advising as a learning activity is thought to be critical (Steele, 2018).

In summary, research shows that technology provides better access to many resources, its use by students is more truly academically focused effort, such as more successful learning, communication and research may be achieved. In support of student services, several authors addressed the need for increased efficiency and effectiveness in all services provided to students (Kiker, 2008; Mottarella, Fritzsche, & Cerabino, 2004; Nelson

Laird & Kuh, 2005). Within the higher educational industry, academic advising has been identified as a weak link in student satisfaction of their educational experience, especially when the student population increases and resources for support do not respond equally (Kiker, 2008). This area has received national attention, with many educational organizations investing in critical research into technology's role in advising. The goal is finding and using a solution to the fundamental advising problem of distributing accurate, comprehensive academic information in a consistent, accurate, and user-friendly manner.

Academic advising's influence on student persistence. Persistence has significant effects for the student and the institution. Such persistence was found to be rationalized in terms of the involvement concept (Astin, 1999; Kuh, 2009). How academic advising methods address retention, which is correlated with persistence, is related to Tinto's student departure theory (Metz, 2004).

Tinto (1975), one of the respected authorities on the subject of student persistence research, has provided arguments in support of continued research on persistence and goal attainment. Persistence, student services, and academic advising are logically related to the process of student goal achievement and completion. A student's ability to acclimate and eventually succeed in the higher education environment is related to Tinto's extension of the idea of persistence and student departure. The recognized variables that influence student persistence, which include financial aid, can obviously include access to student record data and realistic paths to completion (Braxton, 2000). Tinto, in collaboration with Cullen, produced a theoretical model of causes of attrition and persistence that included components focusing on areas ranging from aspirations to social interactions. Tinto provided researchers with a new viewpoint to study student change and development of models on investigation of

student persistence in a process of challenging the existing theoretical foundation (Metz, 2004).

A relationship can be suggested between Tinto's (1975) persistence theory and Astin's (1999) involvement theory, which offer a combination of factors, such as accountability and determining institutional effectiveness, as contributions for students' success. If motivating influences can increase student persistence and involvement, the outcomes contributing to academic completion could have higher success. Tinto's original 1975 model of student/college interaction provided a theoretical foundation for others to base their research on student persistence and retention. It addressed the aspect of persistence behaviors as a result of academic and social integration, including all the dynamics that college life can bring, to challenge the student (Metz, 2004). Today's community college students have additional responsibilities to family and other obligations that can impact their ability to persist and succeed.

Tierney (1992) challenged the singular focus of Tinto's theory and suggested revisions to the generalizability of findings that were applied to traditional students. Students must operate under the conditions that are set for them by the college environment, some of which they may have additional influence or control. Academic advising interactions have traditionally been at the discretion of the student. Some institutions have requirements for completion of a program of study dependent upon receiving some sort of approval or administrative sign-off. If there are any recognizable barriers to this process, either for the student or the advisor, this adds additional challenges that need to be overcome. Inclusion of persistence theory, as it is applied to advising, helps researchers interpret the results of increased efforts towards student successful completion.

Braxton (2000) stated that the linkages between student involvement, learning, and persistence are not easily defined nor are the relationships symmetrical. In fact, involvement must have meaning and value as it relates to the classroom learning experience. Learning is generally linked to persistence, but this linkage is not a guaranteed relationship, nor is failure an automatic result due to lack of persistence.

McArthur (2005) further investigated persistence in a study correlating faculty-based advising and retention at Atlantic Cape Community College. In addition, he made a case for a stronger research effort into the two-year community college environment, academic advising, and student retention. Faculty who actively engaged and managed their role in advising students through persistent methods tended to provide a more positive impact on retention. This of course recognized the primary role of faculty which is to teach, but are instrumental in fulfilling other roles, such as “facilitator of communication, coordinator of a students’ educational experience, front-line interpreter of the value and benefits of higher education, caring and concerned individual and referral agent” (p.4).

President Obama’s American Graduate Initiative focused on conquering challenges to persistence for community college students. The influence of institutional variables, such as faculty-student interaction, peer group interactions, and extracurricular involvement, help students shape their progression through the higher education experience (Metz, 2004). Unfortunately, the initiative was not approved by Congress, but this bill provided incentive for the 2010 Whitehouse Summit on Community Colleges, led by Dr. Jill Biden at the President’s request. This event highlighted the critical role that community colleges play in developing America’s workforce and reaching America’s goals.

In summary, persistence theory should be integrated into academic advising methods. Persistence theory is related to how, through faculty-to-student interactions, significant contributions are made to student success (McArthur, 2005). Of concern is that Tinto's (1975) persistence research was focused on four-year college students; he did not originally address the persistence of two-year college students. The focus of this present study is primarily on community college students. Care was taken using Tinto's theory to see if community college organizations can identify and effectively respond to the obstacles the students face as the college works to increase student retention.

Smith and Allen's essential advising functions. According to Smith and Allen (2006), quality academic advising can directly impact students' persistence and graduation probability. Based on their review of the academic advising literature and findings from their study to understand academic advising at an urban university, Smith and Allen found that persistence also indirectly impacts students' grades, intentions, and satisfaction. The researchers administered a web-based survey to 2,193 undergraduates at a doctoral-intensive urban university. The survey instrument inquired about the students' perceptions about the importance of and their satisfaction with 12 academic advising functions identified in the advising literature dating back to 1972. Smith and Allen operationalized the 12 academic advising functions according to five domains consistently identified in the literature as being essential to the advising role: (a) integration, (b) referral, (c) information, (d), individuation, and (e) shared responsibility. The integration advising domain is comprised of five connections that students make: overall, major, general education, degree, and out of class. The information advising domain is concerned with accessing accurate information and understanding how things work at the college/university, including timelines, policies, and

procedures related to registration, financial aid, grading, graduation, petitions, and appeals.

The individuation advising domain of individuation is comprised of two functions: (a) taking into consideration students' skills, abilities, and interests when helping them select courses and (b) the importance of knowing the student as an individual when providing academic advising services. The shared responsibility advising domain is concerned with encouraging students to become responsible for their education (Smith & Allen, 2006).

Of the five advising domains, students who participated in Smith and Allen's (2006) study rated the two information functions most highly in terms of importance: (a) advising that provides accurate information about degree requirements and (b) advising that helps students understand university policies and procedures. The second advising domain of greatest importance to the student participants was that of integration, specifically the advising functions of (a) choosing majors and (b) helping students connect their overall academic, career, and life goals (Smith & Allen, 2006). Moreover, Allen and Smith (2008) reported that 171 instructional faculty members who participated in the 2006 study shared the students' perceptions about the significance of providing accurate information about degree requirements, ranking it as more important than the other advising functions. Like the student study participants, the faculty participants ranked the second information advising function, assisting students with understanding how things work at the university, as the second most significant advising function. Faculty participants also agreed with students on the relative importance of the integration functions. Based on the convergence in student and faculty members' perceptions about the importance of the information and integration functions, Allen and Smith (2008) concluded that all students should receive academic advising services that include these functions.

Summary

The review of related literature revealed that further research is needed in the area of student success in terms of student persistence as influenced by academic advising. Specific focus is warranted of the impact technology plays on the process of academic advising for community college students. Several themes emerged including student engagement and involvement, which described student interactions with the community college environment and with student services. Findings from studies using the CCSSE instrument showed that community college students' academic performance can be affected and even improved through active efforts to increase engagement/involvement with campus services and academic advising activities.

In terms of the benefits or outcomes of academic advising, those colleges and universities that provide effective academic advising positively influenced student retention and graduation rates (Tinto, 2004). Academic advising was established in higher education in the late 1900s due to increasingly complex curriculum (Goetz, 1996). The one-on-one interaction with a concerned representative of the college/university provides ongoing benefits for all students (Hably, 1994). Furthermore, McGillin (2000) described the benefits of academic advisors who impact the success of academically underprepared students and play a pivotal role in promoting resilience.

Another theme which emerged in the research literature was specific to the role of technology in the academic advising process. Technology tools continue to provide new delivery methods for academic advising, and these new tools and methods have the potential to positively impact student success as well as improve the quality of work of staff, faculty, and administrators (Pasquini & Steele, 2016). Given the current pandemic crisis the world is

facing, it would be beneficial to study the significant advances in technology and its application to many facets of student interaction and learning. It is logical to study the impact of the online degree audit technology as part of the advising process to support the social distancing recommendations which all of higher education must follow. Leadership is essential from those in the field of academic advising by supporting and embracing technologies that promote learning (Steele, 2018).

Most of the literature on the use of degree audit technology in advising processes was mainly focused on data collected from four-year colleges. In addition, some of the existing research is only on the use of computers/information technology in educational delivery processes, with statistical analysis results focusing primarily on inefficiencies in the student services areas. Limited research on two-year community colleges and the use of the degree audit advising process provides opportunity for further investigation. A study on the availability of an accessible online comprehensive advising tool and community college students' perceptions on using the tool and its impact on their course selection and degree completion is warranted.

Student persistence was identified as another theme in the research literature that has direct relation to engagement and retention. Persistence is defined as students' continuation towards their identified goal attainment (Tinto, 2016). The impact of student usage of technology has significant implications to academic advising and the causes of failure to achieve academic progress. Tinto (1975) was an early and strong advocate for further study on student persistence and factors that influence retention. The literature review revealed several studies documenting key student services, including academic advising, that contribute to a student's overall college experience. Additionally, research by Hatch and

Garcia (2017) indicates that student services that provide learning activities and college navigation support can increase student involvement in ways that lead to enhanced signs of persistence.

An overview of Smith and Allen's (2006) theoretical framework of the essential functions of academic advising provided key areas where students and faculty ranked the importance of 12 advising functions. The researchers contend that quality academic advising can directly impact students' persistence and graduation probability as well as indirectly impact their grades, intentions, and satisfaction. The 12 advising functions operationalized into five domains of academic advising which were deemed essential to advising. The significance of this study on academic advising is viable for both 4-year colleges as well as community colleges.

Allen and Smith's (2008) study of student dissatisfaction with advising concluded that quality academic advising, a key student service, can directly impact students' persistence and graduation probability as well as indirectly impact their grades, intentions, and satisfaction. Therefore, further research is warranted relative to any improvements to academic advising through the introduction of new technologies in order to explore whether these technologies can influence student academic completion. There is ample room for scholarly inquiry into the effectiveness and outcomes of academic advising efforts.

Chapter III: Design of Study

The purpose of this chapter is to provide a detailed overview of how this study was conducted and analyzed using a qualitative research design. Each section will provide an outline of the study including reiterating the problem statement, research question, philosophical approach and qualitative methodology of interpretative phenomenological analysis.

Problem Statement

Academic advising is seen as an integral role in fulfilling the mission of higher education, and in today's pandemic environment creating a dependence on distance communication for all facets of the process, this has all but eliminated the ability to hold face-to-face advising sessions. The use of technology in advising is becoming increasingly more utilized, but how is it being measured for its impact to a student's success? National organizations such as NACADA actively research and publish reports on institutional use and attitudes towards the advising-technology landscape today (Steele, 2016). Survey and perspective data are gathered providing feedback from faculty, advisors and students, yet little data is available that speaks to the direct experience student users of degree audit technology have and how it impacts academic advising's ability to support student course selection towards degree or certificate completion.

The present research was to investigate the impact information technology has on the student academic advising experience. Specific focus was on the use of online degree audit technology during course selection and determine, based on the student's expressed opinion, if the technology provided any influence on the quality of advising support towards course registration, enrolling in courses related to degree requirements, and/or enrolling in

appropriate courses related to transfer. Based on student perceptions, did the degree audit system contribute toward their persistence, the quality of advising services, their engagement as students and ultimately their time toward degree completion? Because the focus was on lived experiences for this group of students, an interpretive phenomenological approach to the research questions was applied. According to Merriman (2009) “From the philosophy of phenomenology comes a focus on the experience itself and how experiencing something is transformed into consciousness” (p. 24). Phenomenology allows a researcher to capture the essence of a phenomenon so that deeper understanding can be gained (Moustakas, 1994). By uncovering this lived experience, both the researcher and the participants make meaning of the phenomenon together.

Research Questions

The overarching research question was: What are the lived experiences of community college students specific to the use of online degree audit technology and its impact on the quality of the academic advising experience? When conducting phenomenological research, secondary questions (SQ) are helpful for further guiding the study (Smith, Flowers, & Larkin, 2009). As such, the following sub-questions were used:

SQ1: How do community college students describe their lived experiences of using online degree audit technology as part of the academic advising process?

SQ2: How does online degree audit technology impact the quality of community college students’ academic advising experience in terms of course selection and degree completion?

Positionality Statement

My own professional background is working with information technology services at a community college and interacting as an instructor at the same college. The struggle students have with finding their pathway through the course selection process has framed my interest in this study. Values, assumptions, and biases should be considered throughout the research process, including an in-depth examination of ethical issues, researcher bias, methodological choices, context for study, and underlying theories being examined (Denzin & Lincoln, 2003; Neuman, 2003; Stage & Manning, 2016). As a researcher, I did my best to be honest to the study and to recognize my own biases. Regarding the overall topic, I acknowledge that my experiences have led me to believe that institutions of higher education have a commitment to provide appropriate tools to help students succeed. I also believe that the implementation of technology to promote student persistence, engagement or involvement which leads to improved retention and completion is an appropriate use of resources.

The researcher recognizes the following assumptions as they pertain to the theories of persistence, involvement and engagement for each student involved for this study:

- Some students attend an institution of higher education with a goal to graduate with a degree or complete a certificate program without encountering any unforeseen barriers. Other outcomes may in fact be the result of those barriers, in the form of students not achieving either the degree or the certificate but transferring to another institution and furthering their academic progress there.
- Colleges want to support student progress, including introduction of new technologies to enhance student services advising methods.

- Data taken from the surveyed institutions' established systems (i.e., Student Records held in official administrative system, e.g. Banner) will be reliable and valid as to the students' interaction with the online degree audit technology.

Philosophical Approach: Social Constructivism

Interpretive social science has historical roots in hermeneutics, which emphasizes discovering means from the careful examination of text and the ability to study things in their natural settings. As an example, a researcher can submerge themselves within this larger picture to then make a connection to how various themes and parts relate back to the larger picture (Neuman, 2003). This study is interested in understanding the experiences of the advisee while in the course of the academic advising process and hermeneutic theory is engaged with the question of what it means to understand (Champlin-Scharff, 2010).

Researchers are interested in the truth, the truth of the data they collect (as measured by validity and reliability), with the process they take, and the overall nature of research within the framework or worldview (Creswell, 2013). Epistemology is a branch of philosophy that studies the nature of knowledge, its presuppositions and foundations, and its extent and validity. A research epistemology can be identified on a spectrum. At one end is Positivism, that which is grounded in absolute truth that can be revealed through rigorous, objective, and standardized scientific inquiry or research. At the other end is Postmodernism, which states knowledge claims must be set within the conditions of the world today in the multiple perspectives that define group affiliations (Creswell, 2008). The context of this study involves the impact of technology in an interactive environment with the study participants which may recognize that any effect is a phenomenon that may or may not occur. Those who engage in qualitative studies believe in taking an objective approach to research.

Constructivism, developed by the late Kathy Charmaz, begins with an assertion that reality is socially constructed, and events or phenomena do not have true independence or objective existence. Constructivism holds that all knowledge is constructed by the individual.

Researchers do not find knowledge, rather they are constructing it and reporting on the lived experiences which the research participants use to create their reality (Merriam, 2009).

Creswell (2013) identified several characteristics of studies with a social constructivist perspective: the questions are general, allowing the participants to construct the meaning of a situation or experience; the focus of the research is on the specific context in which participants exist; and researchers know that their own background will shape their interpretations. The intent of constructivist theory is to understand and make sense of the process of how a person comes to know (Musser, 2012).

In related literature constructivism is tied to learning theory as an accepted approach for the study of technology usage. Specifically in higher education, research studies of the use of learning management systems effectiveness focused on participants' lived experiences and understanding their shared assumptions (Washington, 2019). Many published scholars argue that constructivism is accepted as the root epistemology of academic advising. The process of academic planning as central to academic advising involves the act of interpreting the degree or program requirements and constructing an education plan of course selections. Understanding the information in specific terms comes from learning those requirement as they relate to the educational goals desired. Ernst von Glaserfeld (1995) suggested that constructivism is a way of knowing and learning as the subject experiences the world. Specifically, he has claimed that a student's academic plan can be managed and improved using tools of rationality (von Glaserfeld, 1995). This requires that both the student and the

advisor to construct and evaluate the requirements and learn through logic to maximize the efficiency of the academic plan.

After personal introspection, and consideration of the research questions, this topic truly resonates with the interpretation that constructivism lays the foundation for academic advising, both current and historical theories and practices. The study is therefore grounded in social constructivist (Creswell, 2008). The interpretative phenomenological approach looks for detailed descriptions to describe the structures, the internal meaning of structures of lived experiences to obtain comprehensive descriptions that will provide the basis for a reflective structural analysis that portrays the essences of the experience (Moustakas, 1994).

Interpretative Phenomenology

This qualitative study utilized a phenomenological study research method using real time contact, open-ended interviewing and dialogue approach for data collection to provide participants the opportunity to give a rich description of their experience with the online degree audit tool available to them. The phenomenological tradition of interpretive research is based on continually returning to the essence of the experience to derive the structure or meaning in and of itself (Merriam, 2009). Phenomenology is a way to collect a holistic breadth and depth of description of a phenomenon with its natural context. It aims to develop rich and robust descriptions about an experience (Merriam, 2009; Yin, 2009).

Interpretative phenomenological analysis (IPA) assumes the data will tell something about the participants involvement in and orientation towards the world and how they make sense of their experiences. Smith, Flowers and Larkin (2009) stated “In terms of devising a data collection method, IPA is best suited to one which will invite participants to offer a rich, detailed, first person account of their experiences” (p. 56). IPA allows the researcher to

address concerns with where ordinary everyday experience becomes ‘an experience’ of importance. It shows the significance of the event/phenomena and engages in considerable ‘hot cognition’ to try and make sense of it (Smith, Flowers & Larkin, 2009).

The strategy of analysis for these data was done in a systematic manner, following the process of identification of categories, creating threads between the categories in order to create themes, and reporting data through excerpts based on the theme. This qualitative method will support both identifying and analyzing patterns in the data and is theoretically flexible because searching and examining the data for patterns does not require adherence to any particular theory of language or explanatory meaning framework for participants’ experiences (Braun & Clarke, 2013). Thematic analysis follows six phases for identifying and analyzing patterns in qualitative data: (a) familiarization with the data, (b) coding, (c) searching for themes, (d) reviewing the themes, (e) defining and naming the themes, and (f) writing up the results. Thematic analysis is allowable for several research interests and theoretical perspectives when investigating experiences or understandings of distinct phenomena in a particular context (Braun & Clarke, 2013).

This research was designed to produce a collection of student experiences and perceptions specifically focused on the use of the online degree audit tool as part of the academic advising process. By utilizing the phenomenological study method, the researcher was able to take a close look at each participant’s experience during their interaction with the technology. In addition, it was hoped that the lived student experience would provide a rich understanding of the potential shortfalls of the technology and how those shortfalls could be rectified through additional support and guidance from the academic advising team.

Research Study Site

The community college chosen for this interpretative phenomenological study was selected through knowledge of its historical use of the online degree audit tool in the academic advising services which is available to all students. To maintain the confidentiality of this college, I have assigned it the pseudonym of Powerful Community College, or PCC.

PCC is comprised of four comprehensive campuses, and eight centers. The comprehensive campuses offer a full range of career technical and transfer programs, degrees, and certificates in one location. The centers offer workforce development, community education, and other academic programs. PCC provides a large selection of distance learning courses and for some degrees, students are able to complete most of the requirements without attending an in-person class. In the academic year of June 2017 to June 2018, the reported headcount was 71,108 and the Full Time Equivalent (FTE) was 26,711 enrolled. Full Time Equivalent is calculated enrollment based on hours of classroom instruction. One FTE is equal to 510 instructional hours. This method combines full-time and part-time students into one metric. It is important to note that PCC has a large population of students who are actively seeking an Associates of Arts Transfer Degree to one of the other public state universities, referred to as a local 4-year school (L4YS).

Academic advising is offered through each individual campus advising office, and some discipline specific departments also offer faculty facilitated degree program advising for students interested or actively pursuing a degree or certificate in that discipline. The colleges' use of the online advising tool began in 2010 and has been continuously upgraded and modified per the software vendors recommendations and requirements. The official name of this tool is Degree Works™ (DW) and is accessed via the single sign on to an online web portal system. The target community college has re-named the degree audit tool “Grad

Plan”, and this is what the interviewed students will use as the reference name. The web portal system also delivers a myriad of college and student services including registration, tuition payments, account balances, checking financial aid status, access email, learn about events and services, access online and in-person class webpages and get important announcements. In 2009 PCC undertook a standard five year program review which included a section on the student records system, which is held in the enterprise resource planning Banner system, to determine any efficiencies that could be implemented. A portion of the report specifically focusing on the area of degree audit gave the following finding:

As a result of benchmarking other schools best practices, PCC has purchased degree audit software, called Degree Works™, which will enable students to track their progress toward earning a degree. This is an enormous achievement and will facilitate an effort toward improved advising of students and encourage student efficacy. Additionally, degree audit will improve faculty members’ ability to provide substantive program advising for each student’s unique situation. These improvements will not only increase student retention, but will allow for better collaboration between Student Records and the college community. In the long term, faculty will benefit from better course planning and program completion. Expected implementation should occur in Fall 2010. (PCC Program Review Assessment, 2009. p. 16)

Identifying and Selecting Participants

This researcher selected to use a phenomenological design, which is considered more helpful in examining human relationships to the world. Because of the emphasis of phenomenological study, it was important for all participants to experience the same

phenomenon, in this case the use of the online degree audit tool referred to as Degree Works™. The purposful sampling technique was intentionally used due to the identification of the phenomena and the “information rich” research study site. Participants were purposefully selected using the following criteria: (a) current community college student who has completed at least three prior terms of course work, (b) student enrolled and registered for courses for current or previous term and (c) had a record of activity in the online degree audit tool by virtue of having created at least one academic plan to provide course selection information towards completion of a certificate or degree.

The entire population of community college students was the sample, and the researcher enlisted assistance from the student academic records department to identify the participants to perform the subgroup selection extract. The rationale for this containment is to study students within one overarching system of community college environments who all share exposure to the phenomena of online degree audit technology as part of their academic advising experiences.

Phenomenological study research is dependent upon the data collected that will provide the researcher a way to gain understanding from the participants (Smith, Flowers & Larkin, 2009). Because of the emphasis of phenomenological study, it was important for all participants to experience the same thing, in this case the use of online degree audit technology. The data needed for this purposful sample consisted of student records information and was guided by the following criteria:

- Had the student previously attending the targeted community college, i.e., registered for courses during the specific academic year – Fall 2017 to Spring 2018

- Was the student enrolled and registered for Fall term 2017?
- Had the student used and interacted with the online degree audit tool during the past academic year Fall 2016 to Spring 2017

Extraction of student data to identify the sample was drawn from de-identified college student records (i.e., Banner Administrative Systems). Through analysis of the Degree Works™ tool records, the confirmation of the use of the tool by the subset of these students who have interacted with the DW tool by data analysis represents the target group for analysis. College policy dictates that official communication be done through online email and therefore students were contacted through the college email system by the college Registrar's office and invited (see Appendix A for the invitation email) to participate in this study.

The study included current students at the targeted community college identified from data from the student records system. The institution contacted all students via email messages and based on participation willingness, conducted one actual in-person interview and six teleconference recorded interviews using the WebEx conference software. Creswell (2008) recommends four to five participants when using phenomenological methods, and the researcher believes the size of seven total interviews will meet saturation requirements (Merriam, 2009). This plan was modified to conduct the interviews by recorded teleconference conversations due to the permanent relocation of the researcher to another state in the Pacific Northwest.

Interview Protocol

In phenomenological study research, data can be collected by interviews, document review or observations of the participants (Creswell, 2008, 2015; Merriam, 2009; Yin, 2009).

Yin (2009) suggested that there are two jobs to accomplish throughout the interview process: “(a) to follow your own line of inquiry, as reflected by your study protocol, and (b) to ask your actual (conversational) questions in an unbiased manner that also serves the needs of your line of inquiry” (p. 106). The same interview protocol was used for all of the participants to ensure consistency in data gathering from each participant (Creswell, 2009). The interview protocol consisted of a standard format guide to contain the interviewers name, a pseudonym for the participant, semi-structured questions, space to write in answers, and details about the interview. Semi-structured questions are preferred over predominately open-ended or closed or strictly formatted style because the goal of interpretative phenomenological analysis is to gather as much rich data as possible. It is common to use a semi-structured question format in order to gather as much rich data as possible. Rich data is described as collecting participant comments providing them the opportunity to tell their story, to speak freely and reflectively and be allowed to develop their ideas and express their concerns in a safe space (Smith, Flowers, & Larkin, 2009).

The semi-structured interview questions asked focused on the advising information students received, where it originated, and if it was relevant, complete and useful. Additional questions asked if any information provided during the advising interaction was not expected and provided more insight than was already known. More questions were asked directly relating to the use of the online degree audit technology as in, how and why they were using it, their confidence level in the information provided, and if they had any comments or recommendations towards improvements that would benefit other students. An important protocol followed during the collection of participant data was to ensure the safe and secure manner in which the interview data was to be held. In addition, both the recruitment message

and the consent stated that there would be no risk of any retribution or consequences to the student generated by their comments regarding the research site. The complete interview protocol is provided in Appendix B.

Interview Procedures

The researcher requested and was provided access to the sample student records database and the purposeful sampling was performed by a professional data analyst who ran a query of that database based on the criteria previously outlined. The student records database resides within the Ellucian BANNER EMS and the Degree Works™ degree audit software program which contains data elements which provided verification of the student's academic history, current registration status, and use of the online degree audit tool over the targeted academic year. The purposeful sampling group was emailed via the community college email system with the college registrars office as the sender. The email text contained a brief explanation and purpose of the study, the reason why the individual was selected, the process of the interview, and the anticipated time commitment for the interview. When a willing participant responded, an appointment day and time were established, and meeting arrangements for the in-person interview set. The participants who were to be interviewed via the WEB EX conference site were provided the web link and the telephone number to use to connect with the researcher.

Prior to the in-person or telephone interviews the researcher fully informed the participant students as to the purpose of the study and the voluntary nature of the study. In addition, the researcher requested each willing participant to complete and sign a consent form, as required and prescribed by the Institutional Review Board of Oregon State University (IRB). The consent form was administered to the first participant in paper form

and with the subsequent participants via a password protected Qualtrics survey form and are securely stored in an institutional controlled data site. The interview sessions were expected to last up to one hour.

The first recorded interview was conducted in-person in a private office located on a community college campus. Due to the relocation of the research to another state mid study, the remaining six participants were contacted via email to secure their consent and schedule the WEB EX teleconference recorded interview appointments. The interview recordings are held in the research institutions WEB EX cloud data storage site.

As explained to the participants a second password protected Qualtrics survey was administered post interview to collect basic demographic information of each participant to supplement the interview data. The demographic questions asked included their gender, age range, veteran status, transfer student status, and first year at a college. The full content of the demographic survey is located in Appendix C and the IRB approval is included in Appendix D.

Data Analysis

As stated above, this qualitative study used interpretative phenomenological analysis to examine the student experience of using the online degree audit technology as part of the academic advising course registration process. The overall intent was to gain a deeper understanding of a phenomenon within its real-life context by focusing on multiple aspects of an identified, bounded system or “case”. The end goal of phenomenological inquiry concludes with the reader being able to better understand the essence of the shared phenomenon and the way in which the group studied was to make meaning of that (Creswell, 2013).

Creswell and Creswell (2019) stated that data analysis is the process of organizing the data, performing a preliminary read through, categorizing the identified codes, grouping the codes to form themes, ultimately resulting in an ability to interpret the data. All seven interviews were audiotaped, transcribed verbatim, and held in a secure manner. After the interview process was complete the transcriptions were compared to the original audio recordings for accuracy before analysis. The researcher used thematic qualitative analysis, pattern recognition, qualitative data reduction and sense-making efforts as the methods to analyze the data (Yin, 2009). The goal was to attempt to identify core consistencies and meanings from the interview data via content analysis. Thematic qualitative analysis is an iterative and continuous process that can utilize either a method of (a) data management, or (b) abstraction and interpretation, or both. Interpreting the data involves abstracting out a process that begins with the development of codes, formulating themes from the codes, and organizing those themes into larger groups of abstraction to understand and make sense of the data collected (Creswell, 2013).

Moustakas (1994) offered up several methods specifically designed for phenomenological data analysis, but for this study, the researcher used the Stevick-Colaizzi-Keen method as it was expected to provide the most practical and useful approach (Creswell, 2013). The recommended six steps for data analysis are as follows:

- (a) Describe researcher's own personal experiences with the phenomenon under study.
- (b) Careful review of the interview text is done to develop a list of significant statements.
- (c) Take significant statements and group into larger units of themes or "meaning units" and then provide descriptions or examples of what those meanings are.

- (d) The researcher self-reflects the descriptions and constructs how the participants in the study experienced the phenomenon.
- (e) An essence of the overall experience is created.
- (f) Repeat same steps for each individual account of the experience.

The strategy of analysis for these data was done in a systematic manner, starting with the development of codes or categories that, when linked or examined for frequency, may turn into themes. The specific process of constructing the initial thematic framework involved applying well-accepted qualitative approach to coding and categorizing text-based data (Braun & Clarke, 2006; Creswell & Creswell, 2019; Merriam, 2009). The researcher loaded the transcription data into the Atlas.ti qualitative data analysis and research software system, where the open coding and thematic identification process was conducted. Atlas.ti qualitative data analysis is a data management and analytic tool developed by Thomas Muhr at Technical University in Berlin and released in 1993 by the company “Scientific Software Development” later renamed ATLAS.ti. This software package was developed as an interdisciplinary research project by scholars in psychology, educational science, and computer science. The tool, designed to organize, manage, and analyze textual, visual, and audio/video data, is used in research across many disciplines and to support research that has been published in top journals, such as American Sociological Review, American Journal of Sociology, and American Journal of Public Health. Qualitative computer programs have been available since the late 1980s, becoming more refined in supporting the process of analyzing text (Creswell, 2013). Following the previously stated purpose of this qualitative study, the researcher used Atlas.ti software to perform a thematic analysis of the interview transcript data. Thematic analysis (TA) is a respected analytic method which pares will with

interpretative phenomenological analysis (Braun & Clarke, 2013). Using TA provides a method for identifying and analyzing patterns in qualitative data and is considered theoretically flexible and can be applied under the constructionist framework (Braun & Clarke, 2013).

The researcher listened to the recorded interviews containing the raw data numerous times to become familiar with the participants' responses and any verbal queues they may have given. There was a total accumulation of 135.45 minutes of interview time amassed for the seven participants involved which was then transcribed verbatim to ensure the integrity of the data. The researcher next loaded the transcribed interviews into the Atlas.ti software program in order to assign category codes to the content that was relevant to answering the research questions. Because of the evolving complexity of the open-coding scheme, definitions of each category code were created. Specific steps in the development of coding and subsequent identification of themes were done repeatedly to ensure the same patterns emerged each time. The lens through which coding and themes were developed was based on the research questions for this study and subsequently five themes emerged from analysis of the data sources and linked back to the research questions that framed this study.

Upon completion of assigning the category codes, the researcher identified the themes which emerged from the transcription data as well as integrating the five academic advising functions presented by Allen and Smith (2006). The purpose statement was to explore the lived experiences of students enrolled in a large metropolitan multi-campus community college district specific to their use of online degree audit technology and their perceptions about how the technology impacts the quality of their academic advising experience in terms of course selection and degree completion. The overarching research question is: What are

the lived experiences of community college students specific to the use of online degree audit technology and its impact on the quality of the academic advising experience?

Ethical Considerations

The researcher gave careful consideration to the protection of human participants throughout this study. The initial population selection and purposeful sampling was performed on extant data from de-identified student record systems. The researcher had approval from the Oregon State University Human Subjects Review Board and Institutional Review Board before contacting subjects and all participants signed consent documents outlining the purpose of the research in advance of the interviews. The researcher also received permission from the subject colleges Vice President of Student Services, the Dean of Student Records, and the Student Records System Manager who is responsible for all the student academic data for the college. Participants' names and the name of the institution has been altered in order to provide anonymity. All data collected were kept in an electronically secure location and regard for participants' privacy was of utmost importance to the researcher.

Specific to the research project, the researcher offered the following information. The subject colleges online degree audit software renamed GRAD PLAN, but officially known as the Degree Works™, system was placed into operation in October of 2010. Data were available to the researcher from the college's student records system, which provided historical registration data, indicators of use of the degree audit tool, and the creation of academic degree or certificate plans in the system.

Efforts to Promote Study Credibility

Within a research study, the expectation is for the researcher to take steps to gather, analyze, and report accurate data. Central to this process is for the researcher to consider the reliability and validity of the data collected (Creswell, 2008, 2013; Russ-Eft & Preskill, 2001). Reliability is a type of internal validity that considers the ability to replicate the data gathered, analyzed and interpreted if the exact study were repeated. Reliability is traditionally a difficult aspect within qualitative research, as the individuals involved are dynamic and every-changing, as is typical within human behavior (Merriam, 2009). Thus, dependability for this study was achieved by the use of an audit trail to document each aspect of the phenomenological study. The audit trail began with the development of the method section of this report, which dictated how data were gathered, analyzed, and interpreted. The researcher further refined this process by submitting an Institutional Review Board (IRB) report that included the recruitment procedures for the study participants, an interview protocol (Creswell, 2013) that was used with each study participant, and the process for analyzing and interpreting the data. The criterion stated above was used as a confirmatory measure to ensure soundness of data collection, analysis, and overall research design. In the case of a phenomenological study, such as this, researcher Max van Manen (2017) states the term “lived experience is meant to demonstrate a critical role and significance for understanding phenomenological reflection, meaning, analysis, and insights” (p. 810). In this study, the phenomenological research design contributed toward truth. I, as the researcher, bracketed myself consciously in order to understand, in terms of the perspectives of the participants interviewed the phenomenon that I was studying.

Study Limitations

The study had several limitations that should be noted including time constraints, participants' perception of the researcher or outcome from the study due to the narrow focus of the topic. The definition of time constraints includes acknowledgement of a students' enrollment fluidity, whereas community college students often stop out and start again during their academic journey and therefore may not have continuous enrollment. Also taken into account was the researcher significant employment history and had held several roles, including as an adjunct faculty, with the target institution. The participants could assume potential researcher bias in the process due to the insider knowledge the researcher held of the institution. These were not anticipated but are addressed during the analysis and reporting of the findings. Moreover, the results of this study may suggest themes related to the use of academic advising technology that other researchers wish to use to examine the impact of technology on advising in small community colleges, large single campus community colleges and in multi-campus college districts.

Chapter IV: Findings

This chapter is dedicated to present findings from the analysis of this research study. The purpose of this qualitative phenomenological study was to explore the lived experiences of students enrolled in a large metropolitan multi-campus community college district specific to their use of online degree audit technology and their perceptions about how the technology impacts the quality of their academic advising experience in terms of course selection and degree completion. The intent of this chapter is to discuss the major findings of this study as they are situated within the guiding theoretical perspective for advising services goal to engage in process improvement leading to reducing attrition and increasing student success.

Guided by interpretive theory and the mandate for process improvement of academic affairs advising, the study sought to address the overarching research question: What are the lived experiences of community college students specific to the use of online degree audit technology and its impact on the quality of the academic advising experience? Additionally, two sub-questions were addressed:

SQ1: How do community college students describe their lived experiences of using online degree audit technology as part of the academic advising process?

SQ2: How does online degree audit technology impact the quality of community college students' academic advising experience in terms of course selection and degree completion?

The interview questions used focused on the lived experiences of the community college students while engaged with several facets of academic advising, both in-person and on-line using the degree audit technology. It was important to collect both aspects of advising

delivery because the descriptions could help to explain the phenomenology, the lived experiences of the degree audit technology.

This chapter consists of three sections. Section one provides a characteristic profile for each study participants. Section two discusses the data analysis method and the themes which emerged that address the research questions. Section three provides a summary of the findings and of the salient points from each theme.

Description of Participants

This section describes the seven study participants who were interviewed for this research project. Following the purposeful sampling method, the PCC Registrar's office performed a data extraction and analysis of the student records system to sub select a group of students who showed active usage of the DW system. Students who showed active usage of the DW system between June 2017 and June 2018 totaled 840. During Fall 2018 and Winter 2019 terms the PCC Registrar's office sent three separate solicitation emails to all those identified students. Nineteen students replied to the request email and of these, seven students agreed to participate and complete an interview with the researcher. The first interview was conducted in person at the project commnity college site in a private faculty office. This student was presented with the IRB required consent form and allowed to ask any questions he may have regarding the study. The in person interview lasted 20 minutes and when completed, he was given the IRB approved demographic survey by a paper form to complete. Due to the relocation of the researcher to another state, the six remaining interviews were conducted via a recorded telephone WEB Ex conference call. Each participant who agreed to the interview completed their consent via a password protected Qualtrics survey form. After the on-line Web Ex interview, each participant was sent a link

to a password protected brief Qualtrics demographic survey and asked five demographic questions: (a) gender, (b) age, (c) veteran status, (d) transfer status, and (e) first college experience. The seven participants (pseudonyms used below) include five women and two men. One male participant reported having veteran’s status, one female participant reported to be a transfer student, and three participants reported that this was their first college experience. A summary of the participants’ characteristics is provided in Table 4.1.

Table 4.1.
Summary of Student Interview Participants Demographic Survey

Category	Joe	Claire	Bonnie	Monica	Wendy	Sandy	Barney
Age Range	22 – 30	22 – 30	31 – 49	31 – 49	50 yrs +	31 – 49	31 – 49
Gender	M	F	F	F	F	F	M
Veteran Status	Yes	No	No	No	No	No	No
Transfer Student	No	No	No	Yes	No	No	No
First College Exp	Yes	n/a	No	No	Yes	No	Yes

Joe. The first participant, Joe was between 22 – 30 years-old, and a veteran of the US Navy. He was originally from Southern California and after having some challenges with the community college system there decided to move to the area which PCC serves. The frustration Joe expressed with the California colleges was that they did not recognize the needs for first time college students and the lack of registration and course scheduling support. After performing his research of west coast colleges, PCC gave him the impression that the academic advising program was more robust in the services he felt were important and it worth the effort to relocate to Oregon to pursue his education goals. He had attended classes at three of the four PCC campuses and used several academic advising services, including meeting with a specific faculty advisor who was knowledgeable with the

journalism degree program Joe was interested in pursuing. His overall impression of the in-person advising services was positive, especially helping him find courses at times he was available to attend. A faculty member introduced the online degree audit tool to Joe and he became a regular user finding it very convenient and beneficial in managing his educational journey. The positive encouragement he initially received from the personnel in the advising offices had a strong impact on his motivation which was reinforced by the specific faculty he interacted with during his course sessions. Overall, Joe recognized the value of in-person advising, but still applauded the availability of the online degree audit tool, and how it provided the ability to explore different degree tracks. This led him to change his major towards an associate in applied science. A significant observation Joe made was regarding his fellow older female students and their expressed fear of the online degree audit tool. His comments regarding the degree audit tool included praise for the amount of accurate information available, but also some hesitation with the navigation aspect and perceived difficulty other non-computer literate students would have in using the tool. He also was disheartened with the lack of promotion and recommendation of the tool by the faculty. Joe also noted that, when making changes in the degree audit tool, it did not provide any insights to the additional course fees or other unique course components.

Claire. The second participant, Claire, was also between 22 and 30 years old. She was living with her parents and was primarily enrolled in online courses. She had already earned an associate of arts degree and was working towards an Associate of Arts Transfer degree with a goal of attending a four-year university. She appreciated the affordability of PCC and the ability to complete as much of her degree online from home. Her goal was to transfer to a local four-year college and earn a bachelor's degree. During her first years at

PCC, she rarely utilized the in-person academic advising services but did so only for assistance with course scheduling and identifying the general requirement courses she needed. After being shown the online degree audit tool by her sister, who also was a PCC student, she became a strong user and utilized the campus in-person academic advising services periodically to validate her results she was provided from the degree audit tool. Her opinion of the online degree audit technology was positive, yet she pointed out she felt the system lacked some additional crucial information. Specifically, she shared that it did not provide any information on the differences of laboratory course fees for textbooks and necessary lab supplies, which could be avoided if the course used open-source materials. The in-person advice she also received on the transfer process to a four-year college was very much appreciated and saved her from paying for unnecessary courses that would not transfer. She felt that the online degree audit tool was very useful to track her grade point average as well as her progress towards completion of her education goals. So much so that after she became a full-time employee of PCC, she would promote the online degree audit tool's ability to assist with course selection and monitoring progress to other new PCC students. Her constructive observations focused on how helpful it was to have another student user show her the system and not struggle alone when navigating through the first-time user experience.

Bonnie. Bonnie was the third participant. She was a self-identified non-traditional student, who was between 31 and 49 years old. She took advantage of the dual enrollment option with a local four-year institution to pursue both a Geographic Information Systems certificate and a degree in environmental science. She appreciated the affordability of PCC as well as the availability of online courses and the convenient location of the campuses. The

advisors who were specific to the certificate program she was pursuing were the most helpful, but she did use the online degree audit tool as well. Her first impressions of the in-person general advising services was not favorable, and after one specific incident, she was left feeling very discouraged and questioned the decision to attend PCC. She attributed this experience to the fact that the high volume of students serviced by the general advising prohibited providing any sort of individualized treatment. The observations she made regarding her first unfavorable experience included recognizing the diverse backgrounds of the PCC students and the challenges the advisors face in meeting with that volume. Her subsequent advising sessions with the program specific faculty advisor were a great improvement and she received course scheduling information that was exactly what she needed. She worked through the disappointing general advising experience and once becoming connected with the right faculty advisor was extremely satisfied with the degree track program information that was provided. It was that particular faculty advisor who introduced the online degree audit tool to her, and she discovered that the four-year university in which she was dual enrolled was using the same advising tool. This was a significant discovery, and she was able to create her education plan that spanned between both colleges towards earning the degree she was pursuing. One suggestion she made towards improving the tool was to indicate when additional faculty approval was necessary to register for a specific class.

Monica. Monica, the fourth participant, was also between 31 and 49 years old. She was pursuing a degree in Biology and planned on transferring to a local four-year school. Initially she received general in person advising services and had been accepted into a specific student support services program for individuals from disadvantaged backgrounds. This federal program, TRIO, is only available to a limited number of students and provides

eight programs for low-income, or students with disabilities. She was extremely grateful for this opportunity and expressed her appreciation for the individualized support she received. Her take away of the general in person advising services included feeling pressured to complete an Associates degree as compared to only completing the transfer courses she needed to take. She used the online degree audit technology tool to track her progress towards transferring, but it surprisingly informed her that she had completed the sufficient credits and had already earned a general studies degree.

Wendy. The fifth participant, Wendy, was over 50 years old, a single parent, and the first in her family to attend college. It was important to her that she enroll in a college to better her life and she chose PCC due to its affordability and at the time of the interview was pursuing an Associate of Arts Transfer degree. In the beginning the academic advising services she received provided her with some degree choice advice and information regarding placement testing and registration but was not entirely comfortable with the interactions. Therefore, she acted on her own instincts but eventually became overwhelmed with the process of identifying the courses she needed. The advising services only became important to her when a registration hold had been placed on her records which stopped her from continuing on with her education. She viewed a message on the student portal that she was being placed on academic probation, and to correct this issue she was forced to attend an in-person advising appointment. Having no idea why this occurred, she met with the academic advisor briefly and without much explanation or counseling the hold was removed. This was a turning point of recognizing that she was not making adequate progress toward the degree or certificate that she was interested in completing after having attended PCC for over three years. This created much frustration. If it had not been for a non-academic

advising faculty member noticing her situation and assisting her to realize her current educational journey was unrealistic, she might never have been successful in making the adjustment and recalibrating towards a more successful path to obtaining her educational goals. It is important to note that although this research project centered on the use of the online degree audit technology, she claimed that she was not introduced to the technology or the benefit it could provide. The use of the online degree audit tool would have been a very valuable asset. She stated that, had she been aware and used it much earlier in her education journey, she may not have been placed on academic probation due to poor grades. This appears to be a clear situation where the college and specifically the advising process did not provide information to all of the services available to her in support of success towards completing her education goals.

Sandy. The sixth participant, Sandy, was between 31 and 49 years-old, and a stay-at-home parent of older school age children. Sandy's goal was to return to work but felt her chances of employment would be improved by completing some college courses first. Sandy chose to return to school part-time over employment in order to still be available to her family. She was mainly interested in taking courses online towards a two-year vocational technical certificate, the Health Information Management degree, but if she was not accepted, she had a backup plan towards pursuing an Associated of Arts Transfer degree. She utilized both general and program specific advising services as well as the online degree audit tool. She was very active in her course and degree planning, meeting with in-person academic and career advisors, and performing independent research in her alternatives to achieve her education and career goals. The degree audit technology proved to be very useful to identify the on-line courses she needed, and she became very proficient in her navigation and use of

the planning tool. It was especially helpful when she was forced to switch from pursuing a Medical Laboratory Technician degree when her family situation changed her ability to attend the required lab courses. The degree audit tool allowed her to run multiple scenarios to show the degree requirements she would be able to complete with the credits she had already earned.

Barney. The final participant, Barney, was between 31 and 49 years old. He self-identified as a non-traditional student who had a long career in the hospitality industry. Barney was looking for a career change that would reduce the amount of physical labor required by the hospitality field and was pursuing a computer science and math degree with plans on transferring to a local four-year university. He was told that PCC offered a program of study that linked up with the four-year school and the transfer process was very easy to move through to completion. He received services from the general in person advising office and had been meeting regularly with the program specific advisors in the computer science and math departments. He felt the advising he received was extremely helpful to him to avoid committing resources to courses which would not apply to his degree programs. Barney was very proactive in his career research efforts and felt that he was receiving very specific course advising and career choice information, both of which were enabling him to be successful towards his new career path goals. The online degree audit tool was also extremely useful after his advisor introduced it to him, and with the tool being so available, he felt comfortable with the information access and validity that it provided.

Analysis Findings

The intent of the study was to illuminate the community college students' perceptions of the use of technology as part of their academic advising process. Additional focus was on

if/how the use of on-line degree audit technology added value to the educational experience and if there was a shared connection to changes in student persistence, engagement, and involvement. All interview data were transcribed and then loaded into the Atlas.ti code and retrieve software package which was originally designed for grounded theory analysis but was deemed to be appropriate for interpretative phenomenological analysis. Atlas.ti is specifically programmed for qualitative research, as it provides computer-aided thematic content analysis.

The process of interpretative phenomenological analysis, category coding and clustering of the data gathered from the interviews resulted in identifying emerging themes developed from threads between the categories which related back to the research questions and theoretical framework topics. The 21 category codes were identified from the interview data using Atlas.ti and included: (a) student used in-person academic advising, (b) student used in-person general advising, (c) student used program specific advising, (d) student used under-represented group advising, (e) fear of face-to-face advising, (f) preference of advising resource, (g) online degree audit tool usability structure, (h) engagement with online degree audit tool, (i) fear of online degree audit tool, (j) gender/age usability issues, (k) colleges promotion of online degree audit tool, (l) online degree audit tool was difficult to use, (m) student referred or was referred to using online degree audit tool, (n) student knew about online degree audit tool, (o) teacher/faculty promotion of online degree audit tool, (p) student used the online degree audit tool, (q) information provided accurate, (r) integration of degree information, (s) integration of major information, (t) individualization of skills, abilities and interests information, and (u) referral of non-academic information. I organized the 21 codes into five themes, which serve to describe participants' experiences specific to

academic advising in general and the use of online degree audit technology's impact on their course selection and degree completion.

The five themes which emerged from intentionally grouping the category codes assigned to the participants' comments were:

- (1) first impressions of college through face to face advising,
- (2) comfort level for advising process,
- (3) power of functionality of the tool,
- (4) touchpoints that improve practice for advising of students, and
- (5) challenges and responsibilities with advising.

Table 4.2

Linkage of Category Codes with Themes

Theme Name	Category Codes
#1 First impressions of college through face-to-face advising	<ul style="list-style-type: none"> • Student has used in-person academic advising • Student has used in-person general advising • Student has used program specific advising • Student has used under-represented group advising • Fear of face-to-face advising
#2 Comfort level for advising process	<ul style="list-style-type: none"> • Preference of advising services
#3 Power of functionality of the tool	<ul style="list-style-type: none"> • Student Knew of the Online Audit Tool • Student Referred or Was Referred to Use of the Online Audit Tool • Student Used the Online Audit Tool • Faculty Promotion of Online Audit Tool • College Staff Promotion of Online Audit Tool • Online Audit Tool Difficult to Use • Gender/Age Usability Issues with the Online Audit Tool
#4 Touchpoints that improve practice for advising of students	<ul style="list-style-type: none"> • Information was Accurate • Integration of Degree Connection • Integration of Major Connection • Individuation of Skills, Abilities and Interests • Referral to Non-Academic Services

#5 Challenges and responsibilities with advising	<ul style="list-style-type: none"> • Online Audit Tool Usability Structure • Engagement with Online Audit Tool • Fear of Online Audit Tool
--	---

The data analysis step is critical as it directs the researcher to read and scrutinize the information to reveal their structure, meaning configuration, coherence, and the circumstances of their occurrence to discover the meaning it has for the participants (Moustakas, 1994). Following a thematic analysis approach, each theme will be identified, reviewed and then described in detail. Finally, these themes or findings are related back to the purpose and research questions of the study. The overarching research questions focus is to discover the lived experiences the students had with using online degree audit technology as part of the academic advising process. Interpretative phenomenological analysis allows for the use of second-tier questions in order to explore theory-driven questions and can only be answered at a more interpretive stage (Smith, Flowers & Larkin, 2009). Thus, the incorporation of two secondary questions was used to focus more closely on the academic advising services, especially the use of the online degree audit technology offered at the participants' community college. The aim is to focus upon the participants' experience with an understanding of the phenomena, that being the academic advising process including the use of the online degree audit technology.

First Secondary Question

The first secondary question was: How do community college students describe their lived experiences of using online degree audit technology as part of the academic advising process? As described in the following paragraphs, two themes (i.e., face-to-face advising and comfort level for general advising process) addressed the first sub-question. The first theme came from the responses to interview questions regarding participants' advising

interactions and were designed to understand their whole advising experience and how the use of the technology had any impact on participants' perception of successful course selection and subsequent degree or certificate completion. A focus on the types of advising services offered was the basis for the interview questions asked and the responses contained considerable descriptions of personal interactions the students experienced with several of the advising services. The online degree audit tool has the ability to inform students of the required courses for certificates and degrees, but if students participated in face-to-face advising repeatedly instead of the tool, the reason could provide valuable information for advising community.

Theme 1: First Impressions of College through Face-to-Face Advising. This theme refers to the students' own references to their experience using any of the college in-person advising services. A total of 31 comments were associated with the codes which contributed to this theme. Based on the rich experiences participants shared with their face-to-face advising sessions, the connection to engagement, involvement, and persistence theory was very evident. Some of the participants also expressed appreciation for the personal touch they received, and the encouragement for their assuming shared responsibility for their education. Allen and Smith's (2008) research on academic advising functions included the definition of share responsibility as encouraging students to assume responsibility for their education by helping them plan, problem solve, and improve decision making. In order to get a full picture of the students' experiences with academic advising, it was important to recognize that almost all students will have at least one advising session with a member of the colleges advising staff. That session could last only a few minutes or could be much longer. It could be a single occurrence or be the beginning of a series of multiple sessions,

but the success of the advising would mostly be dependent on how the student felt about their experience. Allen and Smith found that faculty (advisors) felt the least amount of responsibility for providing degree connection, information on how things work, and supporting shared responsibility functions. This may provide some explanation for some of the negative comments the interviewed participants from this study made in regards to their face-to-face advising sessions.

There were five category codes and 31 participant responses that contributed to this theme, which were organized into two code sub-clusters. The first code sub-cluster identified the participants who shared their experience with a specific advising service including academic focus, general entry processing, program specific advising, and under-represented group advising. The second sub-cluster group identified participants who shared their concerns and/or fear of face-to-face advising services (see Table 4.3). The interactions of college staff and students outside the learning sessions has consistently been shown to contribute to student outcomes, including persistence and educational goals (Allen & Smith, 2008). I felt it was important to include and highlight this group of experiences based on the emotional content of the participants' comments. Research findings from Allen and Smith's project concluded that advisors rated the individuation function, seeing and treating students as individuals, among the least important. For students, having one's individuality recognized and appreciated is a prerequisite for what Schlossberg, Lynch, and Chickering (1989) referred to as "mattering," or the belief that one is noticed, appreciated, and cared about. On the other hand, faculty (advisors) on a large urban campus may realize that knowing each student as an individual is not a realistic expectation (Allen & Smith, 2008, p. 621).

The first sub code, student's use of-person academic advising, refers to the ability of the community colleges academic advising departments to communicate and deliver services which are available and designed to meet the needs of those students. Advising has been found to support student development and colleges have been consistently researching and gathering student perceptions of those services (Steele, 2018). Academic advising has often been linked to student success, but satisfaction with advising services has come under constant review (Allen & Smith, 2008). Face-to-face advising, at one time, was the only means for students to receive any academic course scheduling support towards completing a certificate or degree. All of the students interviewed reported having participated in in-person advising. Three participants made comments with mixed feelings who had very different outcomes. Monica had a positive outcome when she was introduced to the special advising program, TRIO, which was very beneficial for her success.

The other two participants, Bonnie and Sandy, had a very powerful negative experiences which left them devastated and doubting their future as college students. Bonnie moved forward with a program specific advisor which resulted in a much more supportive and positive advising experience which she was very grateful to receive. Sandy on the other hand, embraced the online degree audit tool and became much more self-reliant in her course selections. This was the case for several other participants and the comments they made were very similar in the appreciation they felt for the personalized attention they received. When asked if students had used any advising services and how the services were perceived and received, Joe replied, "I actually used the advisors or counselors like three or four times, so I've visited plenty of times. But honestly probably don't know all of what they offer. I went there mainly for schedule and degree advice."

Similarly, Bonnie shared,

The advising office I feel like a lot of times especially at the community college level when they have people coming in all the time just to do placement tests, they kind of lose a lot of that empathy and lose that sight that...I just think that they need a little bit more insight and maybe people skills to be able to talk to people and not treat them like a transaction.

Additionally, Wendy went to an academic advisor to help her decide her major. She shared that the advisor was very informative and gave her several options based on what interested her and what Wendy's ultimate educational goals were. However, then during some later point, she ran into some problems and did not realize that she needed additional advising until it was too late.

Participants also shared their experiences with use in-person general advising, which refers to the ability of the community colleges general advising departments to communicate what services are available in support of general entry and registration advising. Participants shared that they received necessary assistance regarding required placement testing as well as with follow-up discussions related to their test scores. Bonnie shared,

You go in and take, you know your basic test, the English, Math to be, not the equivalency test, like the standard tests, the placement test and then an advisor will kind of sit with you and talk to you about what your plans are and where you want to go and then I also talked to an advisor for the GIS program and she helped me nail down exactly what I needed to take for classes.

Other participants shared about using program specific advising which involved referral process that connected students with specific academic or technical program advisors. Overall, participants had positive experiences with the referral they were given to engage with the academic departments program specific advisors. Programs provided specific course selection information to assist students on a path towards successful completion of a particular degree or certificate. For example, Sandy indicated that she was referred to a medical lab tech program faculty advisor. Similarly, Barney shared,

I am studying computer science and math, so we have our own academic advisors separate from the regular academic advisors for the school. The computer science department has separate advisors as well as career advisors, both of whom I am in contact with on maybe not a weekly basis but probably on a regular basis for sure. I take advantage of that, I probably take too much advantage of that. They are probably sick of me but they are extraordinarily helpful and I did not know any kind of major or path to take when I started so when I started I had a regular academic advisor and got me started on just like here's some stuff you're going to have to take regardless of anything and then when I chose computer science....The advising, I find the advisors helpful, extraordinarily helpful so they've been monumental definitely.

The interviewed revealed that PCC also offers additional advising opportunities for students who qualify based on economic, first generation, or protected/recognized racial group status. These advising sessions are offered on a limited space basis and the selection is done through the student providing evidence of eligibility. The services provided are very individualized and tailored to those needed by each student. Monica talked about her advising experiences with the TRIO program advisors she met with after having met with the general advising staff. She shared,

I've had my own advisors through TRIO that I've met with at least a few times a term for the last year or so. Since I've been in TRIO that advisor knows me really well and knows everything I'm doing. She's been a great help and there's definitely been classes that I thought I needed to take... she really pushed me to go down and meet with an advisor in the Biology department at a L4YS and that's helped a ton to know just like even more what I need to do, so I've been in contact with them a lot over the last nine months. So, that's been a huge help.

Although participants shared positive experiences with face to face advising, some students had specific experiences that may have been considered not positive or helpful in meeting their expectations or needs. Joe felt that there are students who are afraid to get face-to-face interaction with advisors. The significance of this stems from the impact that one negative experience with the advising department can influence the students' overall impression and attitude regarding any other student services they have access to at the college. Academic advising is a significant mode of contact between college staff and students, yet in national surveys it is one area identified which students are least satisfied

(Allen & Smith, 2008). Students rely on receiving accurate information to help them navigate the registration and course selection process.

Five participants shared at least one negative experience with face-to-face advising sessions. For instance, Bonnie shared this experience with an advisor,

She came across as why are you asking me stupid questions and you should already know this stuff. Basically treated me like I was kind of an inconvenience to her, to her day and slowed down her process and I actually left there and cried. I remember walking out going she didn't answer any of my questions and I feel like I'm an idiot right now. She didn't ask me about what else I wanted to do or what my schedule was like. I just remember walking out going I have got no clue what I'm doing.

Although not as hurtful, Monica shared that her advisor would forget her and would go over the same thing with her over and over again each session. Moreover, Wendy expressed frustration that there was no discussion with her advisor when she fell behind about what she could do to reach her goals. She described her interactions with her advisor in these words, "Okay, you're here. You did what you needed to do. Then kind of pushed me out the door."

Table 4.3

Theme 1: First Impressions of College Through Face-to-Face Advising

Category code	# Codes
Student has used in-person academic advising	9
Student has used in-person general advising	8
Student has used program specific advising	7
Student has used under-represented group advising	1
Fear of face-to-face advising	6

Theme 2: Comfort Level for Advising Process. The second theme focused on the comfort level of the advising process. This theme centers the participants' lived experiences with the advising services in which they participated. The interview questions focused on the extent to which students had knowledge of the different types of advisors, general and subject/program specific faculty advisors. Additionally, I asked students about their

preference between in person advising versus using the online degree audit tool. Only one category code contributed to the emergence of this theme: preference of advising service. The significance for this theme is a result of the pattern and quantity of coding data which emerged from the interview data (See Table 4.4). A total of 18 interview comments were associated with preference for advising services, and there was full representation by all of the participants. This theme also contributes to my research question by providing insights into the students' reactions to the presentation and delivery of advising services. It was important to uncover the motivations the students felt when they engaged in the advising processes. One of the advising functions Allen and Smith (2008) found that was most important for students was how things work and it was apparent that the participants were very interested in this aspect of advising to help them navigate the college system.

The participants talked in depth about different experiences with various advising delivery methods and their reactions to those experiences. According to Joe,

PCC is pretty good at giving you a step one through four, five, however many steps it takes to get you wherever you need to go. And I think actually that's probably the one thing the grad plan is, it's very open...My opinion, I prefer the face to face, seeing an advisor, counselor and then using the grad plan second. But I think they're both good. They're both resourceful, both have information. I think it's a personal preference, yeah definitely.

Clarire commented that she wished she had spent more time with advisors in person as she "did a lot of the heavy lifting of planning." She shared that an advisor had been helpful in connecting her with open resource classes and told her there was a lab science course as well as about no-cost textbooks. Similarly, Bonnie explained about her experiences with both her TRIO advisor and with an advisor in L4YS. She felt it was helpful to talk with both advisors. Moreover, Barney noted that

"I would definitely be lost and kind of wandering around aimlessly if I did not have the help of the advisors.... I wouldn't have done it (grad plan) if I had started when I

started when I was 39 things might be different as opposed to 40 so I think getting, making it easier to be interactive or more obvious that it's there instead of just something that's off to the right.”

Participants also spoke about their experiences with transfer advisors. For example, Monica shared,

“I feel that has saved me a lot of time and money, going and talking to an advisor because the people at PCC don't know how things go at the school you're going to transfer to, and there's gigantic ways that it has saved me from taking class that were a waste of time and enabled me to take classes that I wouldn't have even thought to take because I didn't know that they would go towards my degree.

Similarly, Sandy commented, “I didn't really know anything about the college system when I was entering PCC because none of my immediate family had successfully finished a college degree that wasn't technical.” She was grateful for the opportunity for to talk with an in-person transfer advisor as well as Grad Plan.

Table 4.4
Theme 2: Comfort Level for Advising Process.

Category code	# Codes
Preference of advising service	18

Secondary Research Question Two

The specific focus of the interviews was to gather descriptions of the quality level for students using the online degree audit tool as part of advising services. The secondary question two asked: How does online degree audit technology impact the quality of community college students' academic advising experience in terms of course selection and degree completion?

Three themes were found to address this question including (a) online degree audit tool, (b) academic advising functions, and (c) quality level for online degree audit tool. Participants were asked questions specifically focused on the ease of use of the tool, if they understood

the information presented, what level of confidence they had with the information, and the degree to which students shared their experience with other students.

Theme 3: Power of Functionality of the Tool. Participants shared about their experiences using the online degree audit tool. This is considered the most important theme as it directly focuses on the experiences of the students when interacting with the online degree audit technology. Participants shared both positive and negative experiences. There were seven category codes that contributed to this larger theme including: (a) student knew of the online audit tool, (b) student referred or was referred to use of the online audit tool, (c) student used the online audit tool, (d) faculty promotion of online audit tool, (e) college staff promotion of online audit tool, (f) online audit tool difficult to use, and (g) gender/age usability issues with the online audit tool. (See Table 4.5). The coding process for this theme resulted in identifying the largest number of related comments made by the participants. All forty-eight category code responses are grouped together as it was deemed that simultaneous or multiple coding was appropriate and the data belonged in more than one code group. The application of this method is used when two or more different codes apply to a singular qualitative datum (Saldana, 2013). The intent was to bring together all of the comments the participants made that were specific to the online advising audit tool. It was expected that every student interviewed would confirm their knowledge and use of the online audit tool. But surprisingly one student, Wendy, commented that she had no knowledge of the online degree audit tool even though the purpose of the research study had been explained to her prior to the interview. The other participants however were able to speak about their experiences.

According to Joe, the online audit tool was a little difficult. He shared that

A lot of people I think are afraid of getting online and using the grad plan. And then vice versa too, I think there's some people who are afraid to get face to face interaction with advisors. So for me I could definitely see how some people would have a bit of a struggle. I know my wife hasn't been able to use it very well. So for me I could definitely see how some people would have a bit of a struggle.

Claire added, “it’s helpful to have someone who is familiar with it, you know, whether that is an advisor or, you know, another student who has used it, kind of just show you what it is and kind of looking at it with you at the first time and then after that it was pretty easy to use.”

Other participants had an easier time with the online audit tool. For instance, Bonnie shared that she appreciated that both PCC and LAYS have the grad plan. She and her advisor use it to help her identify courses to take when she transfers. Similarly, Sandy commented that she relied heavily on the online audit tool later in her program. She said,

I didn’t really know anything about the college system. I just continued my path to get the associate of arts so then I switched to starting to use grad plan to see what classes do I need to take to get a degree. By using grad plan, I chose what classes I would take at that point. My husband has also been a PCC student since 2005, I don’t think he was using it (grad plan), I was using it and I was telling him recently I showed him how I used it and I kind of said, ‘You know, for all the time that you’ve been taking classes, you have a degree in something now even if it’s to transfer. You know you get these general education out of the way.’ So I showed him how I use it.

Barney also used the online audit tool. He explained that his advisor showed him how to use it. He added,

I can look at it and be like, oh, yes, okay, here’s what’s already been accomplished, here’s what’s in the works, and here are some things coming up. Um, I can look at my GPA, uh, I think it’s helpful for me. I don’t, it’s helpful, I don’t know if it’s more helpful or beneficial. It’s beneficial for me because it kind of gives me some kind of peace of mind of just looking to see where I’m at. I don’t know that it is, like, helps me make decisions for next term or anything like that, you know.

Table 4.5
Theme 3: Power of Functionality of the Tool

Category code	# Codes
Student Knew of the Online Audit Tool	7

Student Referred or Was Referred to Use of the Online Audit Tool	6
Student Used the Online Audit Tool	7
Faculty Promotion of Online Audit Tool	7
College Staff Promotion of Online Audit Tool	7
Online Audit Tool Difficult to Use	7
Gender/Age Usability Issues with the Online Audit Tool	7
Total	48

Theme 4: Toughpoints That Improve Practice for Advising of Students. The fourth theme that arose from the interview data was centered on the functions of advising that had potential to improve the practice. This theme refers to the value of essential quality functions of academic advising based on extensive literature review by Smith and Allen (2006). The 12 advising functions are operationalized in five separate domains: (a) integration, (b) referral, (c) information, (d) individuation and (e) shared responsibility. Within each domain are functional definitions to explain how advising helps or assists students through specific activities (Smith & Allen, 2008). The connection this theme has to answering secondary question two appears from the comments that refer to the success the students felt from the different types of advising services provided. The research focused on the importance of quality academic advising functions and the impact those functions have on student success (Allen & Smith). Technology plays a unique role in the delivery of advising services, particularly when presenting degree course requirements towards meeting an educational goal. The specific advising domains and functions that emerged as category codes for this data were integration, referral, information, and shared responsibility (see

Table 4.6). The purpose of the online degree audit system was said to provide the students with access to their own records, which they then could verify the degree requirements for the degree they are pursuing.

The theme touchpoints that improve practice for advising students was comprised of the responses from the participants which directly addressed the five functional elements of academic advising Smith and Allen (2006) described. Participants overwhelmingly confirmed that the online degree audit technology met the critical element of accuracy in information. The degree audit tool also received positive comments regarding integration of degree and major connections, but the system was not considered successful in providing much individuation supporting students skills, abilities, and interests, and referral to non-academic services. As outlined in the literature review, Smith and Allen researched the concept of student wants and needs from the academic advising process. Understanding how students feel regarding the various services that are available that are meant to support their success while pursuing their educational goals would give opportunity for improvement to those services.

Bonnie shared, “So it (grad plan) 100% helped me figure out what I was doing and get things set down but then also to be able to plan for my future classes as well, so it was very helpful and really easy to use.” Similarly, Joe commented the online tool,

Is just really cool because you can get on there and if you are uncomfortable asking the counselor and advisor questions, you can personally go on there and finagle with it and change up your degree or what your studying. And that’s probably just in general, that tool alone is just really useful and helpful.

In the same way, Claire commented that she used grad plan a lot to see what classes she needed to take. Barney also liked the online audit tool. He shared, “it kind of lets me know

that I don't know how, that's helpful for me because it just tells me where I'm at and just kind of keeps me focused."

Table 4.6

Theme 4: Touchpoints That Improve Practices for Advising of Students

Category code	# Codes
Information was Accurate	11
Integration of Degree Connection	10
Integration of Major Connection	7
Individuation of Skills, Abilities and Interests	3
Referral to Non-Academic Services	2

Theme 5: Challenges and Responsibilities with Advising. The final theme, challenges and responsibilities with advising focused on participants' perception with using the tool and its impact on the quality of the experience in course selection and degree completion. Three category codes emerged from the interview data specific to this theme: online audit tool usability structure, engagement with online audit tool, and fear of online audit tool. (See Table 4.7) There were 24 comments made by the interviewees that spoke to this theme and some referred to the students' fear of or discomfort with using the grad plan advising tool. For example, a student commented that they felt that by using the tool they may make a mistake or "break something" in such a way as to negatively impact their academic records.

The experiences the participants had during their advising sessions was shown to have an influence on their willingness and interest in using the online degree audit tool. The benefit of consistent information available from the degree audit tool contributed to the appeal for use over the inconsistent data the participants may have received from in-person

advising. When the student acted independently during course selection, the online degree audit tool provided the best information which they found very reliable and extremely convenient. This technology has the ability to support student success and institutions should recognize the value in its ability to scaffold academic advising (Pasquini & Steele, 2013).

According to Joe,

A lot of people I think are afraid of getting online and using the grad plan. But, at the same time I feel like it's (grad plan) so open that you can get lost too. So, if you don't know exactly what you're looking for, you're just going to kind of look at all the links and be like, I'm not sure where to go. If you're not used to that tool. You put in as much as you get out of it if you use that tool.

Claire also noted that the tool could be challenging to use at first. In her case, it was important to have someone who can answer questions about grad plan. She commented that

It's helpful to have someone who is familiar with it, you know, whether that is an advisor or, you know, another student who has used it, um, kind of just show you what it is and kind of looking at it with you at the first time and then after that it was pretty easy to use.

Similarly, Sandy shared,

I actually felt that the tool that once I did learn to use it, it was kind of this thing that I had always been looking for and just didn't know, so what I would do is the prerequisite classes I had taken and passed were already considered in grad plan and then I would run what if scenarios using grad plan.

Table 4.7

Theme 5: Challenges and Responsibilities with Advising

Category code	# Codes
Online Audit Tool Usability Structure	13
Engagement with Online Audit Tool	8
Fear of Online Audit Tool	3

Summary of Findings

This chapter focused on the presentation of the findings from this qualitative phenomenological study and is organized in several sections beginning with background

description of the institution where the study occurred and profiles on the student participants. The second section addressed coding and identification of the themes related back to answering the research questions. The third section presented a summary of the research findings. Data used for theme development came from interviews performed with current community college students who were enrolled at a metropolitan community college that has multiple campuses in a Pacific Northwest urban area. Findings align with the interpretative phenomenological analysis method used with the purpose of uncovering the lived experiences community college students had with the academic advising process and with using online degree audit technology. The descriptive comments captured from the interviews provided rich data that were analyzed and subjected to thematic analysis in order to understand things which matter to the participants and to provide answers to the research study questions.

The data provided the results of the study's research questions through the lens of each study participant, which resulted in identifying the following themes: (a) face-to-face advising, (b) online degree audit tool, (c) academic advising functions, (d) comfort level for advising process, and (e) quality level for online degree audit tool. The themes that emerged from the interview data provide insight into answering the overarching research question: What are the lived experiences of community college students specific to the use of online degree audit technology and its impact on the quality of the academic advising experience?

The first theme which emerged, first impressions of college through face-to-face advising, was a result of seeing the largest number of responses within the category codes that were identified. The second theme, comfort level for advising process highlighted the opinions and experiences the students had with the advising services they received. Some,

but not all of the student responses were positive. Observations the participants made included having a fear of face-to-face advising, intimidation at the volume of students seeking similar advising services, and an absolute feeling of being an annoyance to the advising staff. Interview findings suggest that the in-person general advising process had both successful and unsuccessful interactions with the students interviewed. Participant comments included that general advising provided necessary testing and career counseling but appeared to be inadequate when it came to communicating the additional student support services available and did not provide a sense of individuation for the student.

All but one of the students interviewed had participated in non-general advising sessions with either an academic area or program specific advisor, and all gave very favorable statements. The advising services provided by the academic programs and specific student group support services were portrayed in a much more positive aspect. Referrals for students to these purposeful advisors were from various sources, but these were described to have occurred after the student had already been enrolled for several terms. Once the student had committed to a specific area of degree concentration, recommendations came from their faculty, the general advisors, or other students in that same program. Several participants commented that they regretted not seeking out these alternative advising resources sooner in their educational journey. A unique conversation between one student and an advisor resulted in a referral to contact an advisor in the same academic area at the four-year college into which the student was preparing to transfer. This referral resulted in access to valuable registration and credit transfer information the student received.

Theme three, power of functionality of the tool, focused on the experiences the students had specifically with the introduction, usage, and support received from the college

for the online degree audit technology as part of the academic advising process. It has been found that higher education is recognizing the importance of integrating technology into academic advising and analyzing its impact on student success (Steele, 2018). The experiences of the students during their advising sessions may have had an influence on their interest and willingness in using the degree audit technology. Some commented on the difficulty they had with navigation and understanding what the system was displaying. Others expressed frustration with the lack of prompts and details relating to specific prerequisites needed for certain degree courses. The positive experiences included receiving wanted information regarding degree and certificate course requirements, and scheduling navigation. There were repeated favorable comments regarding the ability of the system to show what alternative degrees or certificates were attainable based on the courses the student had already completed.

The fourth theme, touchpoints that improve practice for advising of students, was based on the five domains of quality advising that can contribute to student development as found in research studies done by Allen and Smith (2006) and deemed by both faculty and students to be essential functions of academic advising. The most important function identified by this research study's participants was accurate data, whether provided by the in-person advisors or by the online degree audit tool. The comments included appreciation for the consistency in the data, accessibility of the technology, and that the data provided by the degree audit tool matched the colleges catalog information. Specifically mentioned was the value of receiving course details and confirmation that the student was on track with completing the required classes needed for their degree and major. An area that the degree

audit technology did not seem to address was individuation, where advising addresses the students' skills, abilities, and interests.

Another essential advising function which the degree audit technology did not address was the function of referral for non-academic student services. The specific comment a participant made detailed the assistance they had received from in-person advising was regarding navigating the Free Application for Federal Student Aid (FAFSA) process. The student felt that if the advisor had not recommended they pursue this resource, they would never have known it existed. When asked what their overall comfort level with the tool was, most students expressed some level of comfort with using the tool, and some felt it provided information that was not exhibiting any influence towards a specific degree or major area of study.

Advising tool usability structure, engagement with advising tool, and fear of online advising tool were associated with the fifth theme, challenges and responsibilities with advising. The participants were invited to share their experiences in order to investigate the quality level felt and show the engagement levels students had with the technology. A few participants admitted to not using the degree audit tool regularly and therefore were not aware of the capabilities it had to help them track their progress towards attaining their goals. A few students hinted at their reluctance to engage with the technology which may have been attributed to a lack of support provided by the college advisors.

The benefit of consistent and accurate information available from the degree audit technology seemed to increase the appeal for use over the inconsistent information the students felt they received from general advising sessions. In the process of making crucial course selections to meet the requirements for their chosen degree or certificate, the degree

audit tool provided very beneficial information. Due to the convenient accessibility of the online system, the students were able to manage and monitor their progress through their own efforts without the reliance on in-person advising staff.

The objective of this research study was to investigate the experiences and capture the comments of community college students as they were engaged in the process of academic advising and the use of the online degree audit tool. The key findings from this study showed that the general advising process seems to be meeting most of the students' needs, but the most benefit was being realized when the students engaged in specific academic or program-based advising. The intervention of the online degree audit technology was only successful if the students were aware of it and had received navigation support from college staff or from other students who were users of the tool. Being an online system, it was of crucial importance to those students who were dedicated online learners or had other life challenges prohibiting them from attending in-person advising support. Further interpretation and discussion of the findings is provided in chapter five.

Chapter Five: Discussion

The purpose of this qualitative phenomenological study was to explore and understand the lived experiences of community college students' use of the online degree audit technology and their perceptions about how the technology impacts the quality of their academic advising experience in terms of course selection and degree completion. This study focused on both the student's interactions with in-person advising processes and with using the online degree audit technology which is available to all students via the college's secure portal web site. The delivery and practice of academic advising has been rapidly changing, and it has been recognized that two important issues facing the field of academic advising are the use of technology and data analytics (Steele, 2018).

Higher Education is consistently striving to provide a quality experience for its students, both in the value of the learning and meeting the needs of the community it serves. In order to measure the success of the colleges' efforts it is beneficial to gather data and feedback from the students who are receiving those services that new technologies in academic advising are providing. This is especially important with the recent world pandemic situation. Higher education has been faced with meeting social distancing requirements which impacts the ability to participate in face-to-face advising between students and advisors. Social distancing has required a larger reliance on technology, and academic advising being a critical component to student success has made the use of technology more relevant than ever before (Wicks, 2020). The theoretical framework for this study was based on a premise of an institutional commitment to provide tools to help students succeed in achieving their educational goals. Student success has always been a central focus for institutions of higher education. The role of academic advising is recognized

as a key support towards helping students formulate goals and develop well-grounded academic and career plans (Steele, 2018).

This researcher had to address her bias towards this study site as well as her close knowledge of the student services administration. Not only was I a part-time adjunct faculty for this college, but also a full-time manager within the financial services arm of the executive branch. Therefore, I have a strong passion for managing and utilizing the colleges resources in the best manner in all efforts towards supporting students. The investment made over 10 years ago by the college in the purchase and implementation of the degree audit technology was significant, but the acceptance of the tool during its introduction by the advising staff had the appearance of not being a smooth process. Numerous times I would query my own students on their knowledge of the “Grad Plan” degree audit tool only to receive a dishearteningly low knowledge response rate. This was, to me, a disservice to those tuition paying students and to the colleges’ investment as well as a tremendous opportunity loss which could have direct impact on their educational success at PCC. I therefore acknowledge any unintended errors in this research study or the interpretation of its results which could be attributed to my expectancies or preconceived beliefs.

This final chapter is divided into the following sections: (a) discussion and interpretation of findings, (b) connection between findings and previous studies, (c) ways findings contribute to prior research and/or theory, (d) implications of findings for practice, and policy, with suggestions and (e) implications and detailed recommendations for future research. I conclude with a few reflective thoughts about what I learned from the process of conducting this dissertation study.

Discussion and Interpretation of Findings

The findings from this study revealed several major take home points and ideas surrounding the process of academic advising. Evidence from the interview data speaks to the different experiences, both positive and negative, they lived during the in-person advising sessions and while utilizing the degree audit technology. Contributors to a positive experience may be explained by the level of engagement and investment the students were exhibiting during the in-person advising process as well as the use of the online degree audit tool. Four students made comments which indicated an early commitment to their career goals, and degree or major academic focus. Specifically, they spoke about their decision to attend this particular college and why.

Most participants identified the affordability and the online learning environment which worked for their lifestyle. Some had performed prior research into their degree or major choice and what the next needed steps if they were to transfer to a four-year university. It appears that student knowledge of the alternative and additional advising resources available is not broadly communicated. Students described struggling along on their own not following a degree or major curriculum path, and only after becoming aware of the online degree audit tool or the faculty program advisors, do they then grasp the true status of their progress. Advising that was delivered by the program department faculty or by the Trio advisors was felt to be of the greatest support and provided the students with an authentic sense of individuation. Those students described developing true relationships with those advisors and felt that the staff knew them as individuals and were interested in their skills, abilities, and interests.

I was not surprised when three participants indicated that, at the beginning of their college journey, they were feeling overwhelmed by the college system and not comfortable

with their in-person advising session. This may be attributed to their age or gender, or that they were first generation college students. Also apparent was that these non-traditional students did not let those negative instances during the advising sessions stop their educational journey. In fact, they acknowledged their shared responsibility when they actively sought alternative advising resources and the use of the online degree audit tool to receive more helpful advising and more accurate information. Online learning was the most desired delivery methods, which also meant online course selection support towards degree or certificate completion was highly sought. The availability of the online degree audit tool via access through the student portal meant that they had full control as to when they could log into the tool and perform any of the course selection or progress towards completions functions as necessary. This had the impact of reducing the volume of students using in-person advising and increasing student access to more accurate and consistent degree or certificate requirement information.

When discussing the actual usage of the online degree audit technology, the students who more easily gravitated to it were the ones pursuing science, or technically involved degrees or certificates. They displayed curiosity and lack of fear towards the online degree audit technology and those who were the most prolific users, felt that it reduced or even eliminated their registration for courses which were not necessary or not beneficial towards their educational goals. The main challenge issues reported on the tool were few but very specific. One participant shared that, because she had not changed her major track, the tool did not inform her that she had completed the necessary credits to have earned an associates degree. Once she changed her degree goal, the degree audit tool displayed her accomplishment. Another participant complained how the system did not inform her of the

need for a department chair approval to enroll in a substitution elective course, and almost lost her seat in the course. The system was seen as unintuitive, and confusing due to the lack of labeling or “pop-up” balloons which explain the navigation links. Overall, the continued usage of the tool by the students demonstrated engagement, involvement, and persistence in their degree or certificate pursuit. In my opinion the most significant interview response was made by participant Claire in support of using the online degree audit technology. She stated:

It’s been not so much as a student as an employee because I work there now full-time as a staff person, as well, but I was a student leader and worked in the orientation center with new students over the, um, year before, um, and I did talk to some students about that. Like that’s where you can go to see, you know, um, which classes you need to take and check the progress and so, um, I have talked to some students about using that.

The main obstacle to the success of the online degree audit technology I observed was the lack of promotion and usage support of the tool by the general advising staff, which should have been performed early in the students college journey. Online students have many reasons why they are reluctant or not able to attend in-person advising, which reinforces the benefit that using the degree audit technology would provide with proper support and training. Especially during the current pandemic situation where social distancing expectations are of greatest importance. My suggestions to address these areas would include proper promotion of the tool, the use of “how-to” videos, call-in help lines for navigation and system support, any of which would be logical actions which would address the concerns expressed by these users.

Connections between Findings and Prior Research

Three theoretical frameworks were the foundation of this study: student involvement and engagement, persistence, and retention. The literature reviewed for this study centered around four themes: (a) advising for student success and retention, (b) technology’s role in

advising, (c) student persistence in their involvement with advising, and (d) functional elements of academic advising. Engagement and involvement theory are basic tenets to analyze outcomes associated with academic advising (Habley, 2000; Kirker, 2008; Tuttle, 2000). Student success and retention for institutions of higher education are of undeniable importance, and academic advising plays a significant role (Allen & Smith, 2008). The advisor and the advisee engage in meaningful dialogues which contribute to the students' motivation towards achieving their educational goals (Kincanon, 2009). As was stated in the methods chapter my epistemology foundation is following social constructivism, the theory that knowledge is constructed by the individual, and that knowledge is made, not found (Xyst, 2016). This phenomenological study was meant to investigate the lived experiences of community college students while participating in advising sessions as well as in the use of an online degree audit technology. Gaining the actual perspectives and comments from the participants was the primary focus in order to learn what they felt was working and what was not working in the advising services process.

Technology in Advising

This study's findings are similar to research results by Kirker (2008), Mottarella, Fritzsche, Cerabino (2004), and Nelson Laird and Kuh (2005), where evidence of technology usage in academic advising provides better access to accurate transcript data and degree course requirements. NACADA has published many reports which show continuous improvement to the quality of work performed by advising staff when incorporating technology into the process (Pasquini & Steele, 2013). The research data supported the use of technology in advising and how it improved the students access to accurate information related to their degree requirements and progress. For one participant, the degree audit tool

confirmed their degree progress in such detail they were able to avoid enrolling and paying for any non-required courses, which saved them considerable time and money.

The importance held by participants in receiving accurate and correct information regarding their degree progress and course requirements was significant. A study performed by Packard and Jeffers (2013) presented their findings from interviewing students to learn the ways community college students experienced advising interactions. One area most emphasized by those student responses was the importance of receiving accurate and correct information. Those results are similar to this study by evidence in the answers given to the interview questions which asked if the students received information that was helpful. The students in this study confirmed that when using the degree audit tool, they would then verify the information shown by either consulting an advisor, a faculty member, or the college catalog. They also made positive comments regarding the advising received from the degree area or major subject faculty advisors with whom they had connected, but they did not receive such information from the general advising staff. This supports the success found from receiving the effect advising function of individuation.

Student Engagement, Involvement, Persistence and Retention

This study provides data which supported findings of increased student engagement and involvement when the students were receiving in-person academic advising that was specific to them and their situation. When reviewing the research on the essential academic advising functions as reported by Smith and Allen (2006) this study showed where students were engaged in the shared responsibility function when the advising support was engaged. Evidence from this study included participants' responses which spoke about the impact advising had on their college experience, how the online degree audit tool provided

beneficial support, and how they felt ownership for the data management of their course progress the tool provided. Unfortunately, not all students interviewed felt that the degree audit tool reduced their course load or their amount of time spent at PCC. Positive interview comments collected by this study focused on the value the students placed on the accuracy of the information they received, thus displaying their involvement and development in managing their transcript data. In addition, as they viewed their progress, their commitment to completion became more evident increasing their retention.

Research done by Hatch and Garcia (2017) showed that community college students' engagement with advising led to greater persistence when a clear academic plan was created. This is similar to this study's findings, where the students described how the connection with a faculty advisor within the field of their major provided clear course requirements and scheduling support. The availability of degree focused advising support towards the students' educational progress resulted in evidence of increased persistence towards achieving their educational goal. McArthur (2005) studied the correlation between faculty based advising and retention, which provided a more positive impact for the students. This corroborates the findings from this study based on the experiences the students shared regarding their successful interactions with faculty advisors.

A major difference found between this study and one by Smith and Allen (2014) was those surveyed students responded that they found personal contact with advisors was more important than access to consistent information provided by technology. The responses collected for this study found that the students who were engaged in personalized advising from faculty in their degree or major area were more satisfied with the services they received.

The CCSSE National Report “Show Me the Way” (2018) found that students who met with advisors were more engaged with many other facets of college activities that supported their educational journey. The interview comments collected in this study confirmed this behavior as many of them admitted to going beyond the PCC advising and connecting with advisors at the four-year universities designated as the next step in their path towards their goal.

Contribution of Findings to Research and Theory

The goal of this study was to provide supporting data which would confirm the existence of community college student perceptions of technology in advising and the impact it has on their success. Prior research studies which have focused on this subject have primarily contained survey data which included a mixture of both four-year college students with two-year college students. The results of those studies (Allen & Smith, 2008; Bettinger & Baker, 2014; Ellis, 2014) have provided relevant findings that have identified many advising features where technology has enhanced those services. Those features included communication, consistent information regarding degree requirements, and monitoring of progress towards an educational goal. The theoretical underpinning of those features of advising were student engagement and involvement, persistence, and retention. The focus of this study was primarily on community college students' attitude towards academic advising and the use of the degree audit tool. As such, the data showed how the students exercised their persistence in continuing their educational journey and did not let any adverse situation prevent them from continuing. Also, the students felt they benefited from the use of technology in advising which was a further display of engagement and involvement in progress towards their goals. The information they accessed in the degree audit tool that they

felt was important included monitoring their grade point average, which provided them motivation to continue their attendance, which is a display of successful retention.

Previous research on the topic of the use of technology tools in academic advising has not addressed community college student's lived experiences and has not captured the impact of using degree audit technology as part of the academic advising process. As such, this study contributes by providing valid data from an investigation into the student experience and how they felt the advising assistive technology supported their educational journey. This data furnishes insights into actual student/advisor interactions where support for the use of the technology was and was not part of the support services received. In some cases, the introduction of the degree audit tool was from another student, or family member.

This study also addressed the lived experiences of students when supplementing their in-person advising support by using the degree audit technology and how satisfied they were with its performance. One main point which became evident was the lack of introduction and promotion performed by the college staff of the degree audit tool in the beginning of the students educational journey. Not only would providing this support in the form of access to accurate and consistent information improve the advising experience, but it would also have the ability to instill a sense of empowerment to the students. With access to transcript data, the students gain the ability to see course requirements to achieve their desired degree or certificate.

Through analysis of the interview data, it appears that students can and do take responsibility for their educational progress and be proactive in their research of career opportunities that are available for certain degrees achieved. This would be evidence of the student assuming shared responsibility, which is one of the effective academic advising

functions that Allen and Smith (2008) identified as important. The question would be, was this effort due to motivation from an advisor or other college staff person? Two of the participants did not mention having any suggestions from college staff but took the initiative themselves. It is also of note that several participants were more interested in transferring to a four-year university than ending their educational journey at the community college. They were very invested in this course of action and contacted advisors in their field of study at the college they planned on transferring to, including researching the degree audit technology being used at that college for compatibility with the PCC system. This is a strong display of those students' engagement, involvement, and persistence.

The design of this study is significantly different from other studies on the use of degree audit technology in the advising process. Other studies utilized data gathered through administered survey data collection performing quantified analysis, where this qualitative study was based on in-person semi-structured interviews and then applied interpretative phenomenological analysis to the data collected from a purposeful selected sample of the whole student population. This was the first research study performed at a community college located in the Pacific Northwest and especially one that has the student population size of this particular college. In addition, this study is unique in that it follows a qualitative phenomenological methodology using in-person student interviews where the participants were selected by the process of purposeful sampling from the entire population. I have searched, unsuccessfully, for any studies that were on this specific brand of degree audit software. Other studies I found have focused on other systems, such as iPass, Canvas, and DARS, but most used survey data collection, but none have focused on the collection of the lived student experienced with usage of those advising technology systems.

Smith and Allen (2006) posited that quality academic advising functions can have a considerable influence on student's persistence, and towards the successful completion of their educational goals. The researchers identified five separate domains which they consider to be the essential functions of advising: (a) integration, (b) referral, (c) information, (d) individuation, and (e) shared responsibility. Findings from the present study describe how the online degree audit technology in specific detail, providing both positive and negative aspects the students felt were significant. The participants acknowledged that, by being enrolled in college, they were making an investment through education into their futures and contributions to society.

Existing theories of engagement, persistence, involvement, and retention all are intertwined in the focus of this study and by analysis of the lived experiences the data revealed, students are most affected by the individual recognition they receive from advising staff. Advising systems have the responsibility to provide guidance and support for all students, yet in national surveys it is consistently among those services with which students are least satisfied (Allen & Smith, 2008). It is important to better understand the nature of students' dissatisfaction with advising and how it can impact outcomes such as retention and degree completion. This study showed how the students felt when the treatment received from advising staff was dismissive and curt, or when the staff acted annoyed or seemed irritated at the interruption. Student satisfaction with advising services can and does color the whole college life experience for incoming students. This treatment has the ability to cause the student to give second thoughts on their decision to attend college and question their entitlement to further their education. Additional research is warranted in this area of dissatisfaction through collection of more lived experiences from students as well as from

advising staff. What is contributing to these negative interactions between the students and the staff, and what solutions are being implemented?

When the students felt that they are being seen as unique individuals with their own education situation and goals, they responded equally by stepping up towards accepting the shared responsibility for their success.

Implications for Practice and Policy

The results of this study will add to the knowledge in the field of academic advising by providing the actual thoughts and feelings of the participants interviewed which will provide a perspective on the use of technology that has not been sought or investigated. Study participants described both positive and negative functionality of the degree audit tool, but most significant were the comments made expressing frustration with navigation and user help features. A major factor in the confidence level the students felt when using the tool came from when they were introduced to the tool and by whom. When a community college makes a significant investment of resources into such technology, capturing the users' feedback would be vital information for application development and process improvement. From the comments made by the participants who were actively using the online degree audit tool, their early introduction to the technology and continuous support from the college staff seemed to be of the most benefit. The use of built in statistical data and usage of metrics in the form of big data that are incorporated into general advising management could be warranted to assess current practices and propose new ways to improve student success (Steele, 2018). Focused feedback on the technology that is anonymously collected via quick and easy online surveys, administered within the first term of the students' journey, and then repeated on an annual basis would provide a semi-cohort picture of the awareness the

students have of the tools' availability and capabilities. The use of anonymous, written, or online surveys would provide the students with a convenient and non-threatening opportunity to respond. For new students, solicitation of their feedback should be at the end of their first term, and subsequent requests could be on an annual or semi-annual basis. In addition, a final survey should be administered at the conclusion of the students' journey to assess any difference in knowledge or attitude towards the advising services they received, including support for the degree audit tool. It would be beneficial to find out information regarding their introduction to the tool, who provided the introduction, how confident did they feel with the instructions, did they use any other resources for use of the tool, did they share their experiences with any other students, and what suggestions would make improvements to the system. The use of a formal training program on the use of the technology that would include YouTube videos embedded in the tool, or easy links to "How to Navigate" instructional videos would be beneficial and most likely eliminate the intimidation factor.

Evaluation of the user feedback data collected would be best performed by the leadership within the student services unit and dissemination of the responses on basic knowledge of the degree audit tool shared with the advising team as a part of improvements to make to the advising process. These data could then be compared with the data that already are continuously collected from the advising services staff. Previous studies (Hatch & Garcia, 2017; Kuh, Kinzie, Schuh, & Whitt, 2005), have focused on the advisors, but those only address the importance and effectiveness of the current practices. The student perspective on degree audit technology has been an area of little to no investigation.

Following the results of Smith and Allen's (2006) study of the essential functions of advising, the areas of deficiency in meeting students' expectations were identified, and

ranking highest in dissatisfaction were providing individuation, instruction on how things work for administrative processes, online support systems and technologies were considered most important. In addition, the functions students felt were most important were providing accurate and consistent information, and support in building navigation skills of the required forms and policies that colleges have in place. The implications for colleges to increase efforts in these areas is continuously being studied by many including researchers within the national academic advising associations.

Experiences of participants captured in this study provide an opportunity for leaders and practitioners in the community college setting to consider changes in the design, implementation, promotion, and support of online technology's integration into advising services. The lack of promotion of the online degree audit tool by the advising staff was evidenced by the participants' responses. Any sort of feedback system to collect students' comments and suggestions would provide insights to validate changes needed.

The lack of promotion and instruction regarding the tool was felt by students to be insufficient and left them feeling unsupported. College administration must be made aware of this situation and investigate how the academic advising system can improve the communication and delivery of this specific service. At the time of this study, it was evident that the degree audit system was not being marketed or that users were not fully supported appropriately at PCC. It is clear that the use of the degree audit tool contributes towards student success and should be promoted in a more robust manner. This effort could take place through already established student communication channels, using email, text messaging, promotion through the college web portal, and flyers and signage at the college registration and advising offices.

At the University of Minnesota – Twin Cities, staff embarked on a project to utilize functions in a student degree audit system to project (or confirm) graduation achievement automatically (Celotti et al., 2020). The project was called “Expected Graduation Term”, and not only did it have the capability to reduce unnecessary course enrollment and decrease the debt incurred by students, which has significant power on students’ futures, but could also increase completion rates. As of the publication of that study it was stated that current U.S. student loan debt was nearing \$1.4 trillion with an average for four-year graduates at \$28,650. As a result of implementing new foundational policies and procedures, they saw measurable increases to the graduation rates. Any effort made which could reduce the time and money costs incurred by community college students in achieving their educational goals would be well worth the investment.

I agree with the 2018 CCSSE National Report “Show Me the Way: The Power of Advising in Community Colleges” which brought out many areas where advising needs improvement. The report featured one proactive movement happening in many colleges across the nation called “Guided Pathways”. This is an integrated, institutional- wide approach to student success, which ”guides each student effectively and efficiently from her/his point of entry” and “continues through attainment of high-quality post-secondary credential and careers with value in the labor market” (p. 6). Academic advisors are being asked to perform more tasks, answer to more stringent accountability factors, and deliver their services in a more intrusive manner, yet the environment for advising does not seem to change. Student to advisor ratios are still at an all time high, and added to all the other challenges both college staff and students continue to face, higher education must seek new

ways to meet the growing needs. The report suggests that additional training for advisors is warranted, which would be integral with implementation of the new advising programs.

The use of technology in advising is not new, nor are tools available to assist both advisors and students in transcript management. I would not presume to recommend a college or university to specifically use the Banner ERP system or the add on Degree Works™ software package. Both are highly specialized systems with very large costs in all manners of implementation and investment. I would strongly urge institutions of higher education to research and select whatever technology that would be appropriate for that school and would have the proper support of all the stakeholders involved. But in the current pandemic reality the world is now facing and could face again by other possible contagions, having the ability to continue as much functionality as possible under extreme no personal contact restrictions has high priority. The importance and impact of academic advising towards increasing student success makes it clear that this area of student services should continue to receive administrations attention. Introducing and mandating advising for all new, or transfer students would be one strong recommendation I would make for all institutions of higher education.

Recommendations for Future Research

The findings from this study raise multiple questions and point to further research in the area of academic advising functions and the use of technology. A focus on the college advising staffs' knowledge of and support for this technology as a viable source of accurate information would provide insights into how it is incorporated into the advising process. I would recommend further research be performed that focuses more on the student experience

with all facets of advising, including their introduction and continued use of the degree audit tool.

I can note several unanswered questions regarding the college's administration of advising and the use of degree audit technology. The data collected failed to explain why the college did not promote the use of the degree audit technology in a more aggressive way. In addition, why is this college not using all of the features that are included with the degree audit tool? Would that be attributed to lack of staff training, reluctance by the staff to participate, or challenges associated with prioritizing efforts towards process improvement? What opportunities are available to students who feel dissatisfied with any of the student services provided? What are the feedback mechanisms available that would preserve the students anonymity and protect their reputations if the comments were not favorable?

It is important to note that the participants who experienced the most positive support from the advising they received, were initially motivated by their own career goals. As a result, they had taken the time to research the use of the advising tool, the degree audit technology, and had committed their involvement and investment into achieve their success. Perhaps a further study into outreach campaigns based on all of the possible career opportunities that pair up with different degrees and certificates the college offers would improve provide knowledge into students ability towards choosing their education path. This could be considered an augmented student services feature to any career fairs held on college campuses. If I had unlimited time, money, and resources, I would design qualitative research studies that would include student focus group feedback data collection from several of the colleges who are implementing new technologies into their delivery of academic advising. The areas I would want to explore involve investigation of students opinion of the

quality of information they have access to, both from inperson advising as well as from technology systems. Another area of research I would pursue is the level of individuation that students feel they are receiving from their academic advising services, with data gathered through in-person interviewing.

Conclusions and Final Reflections

This study provides a rich description and understanding of the lived experiences of community college students while receiving academic advising as well as during their use of the online degree audit technology for course selection. This study adds to knowledge in the field of academic advising and student services in general by providing a glimpse into several community college students lives and what they experienced while navigating the challenging waters of higher education.

A quote that adds some finishing touches on this project came from an article published in the Hechinger Report and written by Jon Marcus (2012) which stated “The research clearly shows that when a student is more engaged on a campus they are more likely to remain enrolled and persist to graduation,” says Charlie Nutt, executive director of the National Academic Advising Association, or NACADA. “Academic advising is the key mechanism, and on many campuses the only mechanism, through which students have a person they’re connected with.” (<https://hechingerreport.org/> np).

For me, as both a retired faculty member and as a former member of the administrative services division of a community college, I feel students deserve the best service the staff can provide, and those students should be supported in all ways towards reaching their educational goals without incurring unnecessary cost to them in time or money. Many community college students enter into financial debt obligations to support

their education and when they reach either their goal or their attention/interest limit are then faced with unavoidable payment responsibilities which may not be achievably met. To default on these student loans puts a permanent negative indicator on these students credit score which can and does follow them throughout the rest of their lives. This study is important in that it may provide insights into how students perceive the treatment they receive when coming to professional staff for support and assistance. It also is a reflection on the success of the administrations efforts to provide support for the additional advising technology to both the providing advising staff and the receiving students.

As I reflect on my extraordinary educational journey that I have been on in order to reach my terminal degree, I have learned much in the field of adult education, the workings of community colleges, and the importance of academic advising. The main motivation which worked best for me was to think of my Great Aunt Sue who earned her Bachelor degree at the age of 75. I also like to remember that I started my own higher education journey in 1976 and even with a few longer breaks in between degrees, I never stopped. I have learned so much in the study of adult education, many things were very useful during my adjunct faculty time. The process of writing this dissertation seemed and was a great challenge to tackle while life kept on happening. As I was aware, securing participants for interviewing for this study was both time consuming and frustrating. I also regret the amount of time that was lost in pursuing an entirely different research method which was deemed as not appropriate. I did enjoy working with all three of my major professors and meeting many of the cohort members which came after my group. My main take away from this entire project is that education will always be a very personal choice and the amount of dedication and effort you exert can be a great inspiration to others around you.

References

- Achieving the Dream (ATD). (2017). Retrieved from www.achievingthedream.org
- Allen, J.M. & Smith, C.L. (2008). Faculty and student perspectives on advising: Implications for student dissatisfaction. *Journal of College Student Development*, 49(6), 609-624. <https://doi.org/10.1353/csd.0.0042>
- American Association of Community Colleges, (2020) Higher Education Reauthorization Act. Retrieved from https://www.aacc.nche.edu/wp-content/uploads/2020/02/AACC_HEA_positions_brief_2020-1.pdf
- American Association of Community Colleges, (2016). *Seizing the moment: Community colleges collaborating with k-12 to improve student success*. Retrieved from <http://www.eric.ed.gov/contentdelivery/servlet/ERICServlet?accno=ED569348>
- American Graduation Initiative: Obama pledges new federal support to Community Colleges. (2009). *American Association of Community Colleges*. Retrieved from <http://www.aacc.nche.edu/Advocacy/aginitiative/Pages/default.aspx>
- Ashburn, E., Bartlett, T., & Wolverston, B. (2006, December 1). 2-year-college students rarely use advisers, survey shows. *Chronicle of Higher Education*, (53)15. Retrieved from <http://www.eric.ed.gov/ERICWebPortal/recordDetail?accno=EJ755330>
- Association of Public and Land-grant Universities (2020). Higher Education Act Reauthorization. Retrieved from: <https://www.aplu.org/policy-and-advocacy/higher-education-policy/HEA-Reauthorization.html>
- Astin, A. W. (1999). Student involvement: A developmental theory for higher education. *Journal of College Student Development*, 40(5), 518-529.

- Astin, A. W. (2005). Making sense out of degree completion rates. *Journal of College Student Retention*, 7(1-2), 5-17. <https://doi.org/10.2190/7PV9-KHR7-C2F6-UPK5>
- Atlas.ti Version 8 (2016-2019). Atlas.ti Scientific Software Development GmbH. Qualitative Data Analysis. Retrieved from <https://atlasti.com>
- Bailey, T., Jaggars, S. & Jenkins, D. (2015). *Redesigning America's community colleges: A clearer path to student success*. Cambridge, MA: Harvard University Press
- Bettinger, E.P., & Baker, R. (2014). The effects of student coaching: An evaluation of a randomized experiment in student advising. *Educational Evaluation and Policy Analysis*, 36(1), 3-19. <https://doi.org/10.3102/0162373713500523>
- Braun, V. & Clarke, V. (2013). Teaching thematic analysis: Over-coming challenges and developing strategies for effective learning. *The Psychologist*, 26(2). 120-123.
Retrieved from
https://www.researchgate.net/publication/269928387_Teaching_thematic_analysis_Overcoming_challenges_and_developing_strategies_for_effective_learning
- Braun, V. & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3:2, 77-101. Published online: 21 June 2008.
<https://doi.org/10.1191/1478088706qp063oa>
- Braxton, J. M. (2000). Reworking the student departure puzzle. In J.M. Braxton (Ed.), *Reworking the student departure puzzle*, (pp. 1-10), Nashville, TN: Vanderbilt University.
- Celotti, A., McKessock, R. & Bricker, A., (2020-05). Eliminating graduate applications: Leveraging degree audit data to promote student success. *College and University*, 95(2), 2-9.

- Champlin-Scharff, S. (2010). Advising with understanding: Considering hermeneutic theory in academic advising. *NACADA Journal*, 30(1), 59-65. Retrieved from <https://eric.ed.gov/?q=champlin-scharff&id=EJ886810>
- Chickering, A.W., & Associates. (1981). *The modern American college: Responding to the new realities of diverse students and a changing society*. San Francisco, CA: Jossey-Bass.
- Community College Survey for Student Engagement. (2010). Retrieved from <http://www.ccsse.org/aboutccsse/aboutccsse.cfm>
- Community College Survey for Student Engagement (2018). *Show me the way: The power of advising in community colleges*. 2018 CCSSE National Report Retrieved from https://www.ccsse.org/nr2018/Show_Me_The_Way.pdf
- Collett, S., (2013). The road to completion. *Community College Journal*, 83(5), 40-47.
- Creswell, J.W. (2008). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (3rd ed.). Upper Saddle River, NJ: Pearson.
- Creswell, J.W. (2013). *Qualitative inquiry & research design: Choosing among five approaches* (3rd ed.). Thousand Oaks, CA: Sage.
- Creswell, J. W., & Creswel, J. D., (2019) *Research Design: qualitative, quantitative and mixed method approaches*. (5th ed.). Thousand Oaks, CA: Sage
- Crotty, M. (1998). *The foundations of social research: Meaning and perspective in the research process*. Thousand Oaks, CA: Sage
- Denzin, N., & Lincoln, Y. (Eds.). (2000). *Handbook of qualitative research*. London, UK: Sage.

- Department of Education (DOE). (2015). *Fact Sheet: Focusing higher education on student success*. Retrieved from <https://www.ed.gov/news/press-releases/fact-sheet-focusing-higher-education-student-success>
- Donaldson, P., McKinney, L., Lee, M., & Pino, D. (2016). First-year community college students' perceptions of and attitudes towards intrusive academic advising. *NACADA Journal*, 36(1), 30-42.
- Donaldson, P., McKinney, L., Lee, M., Horn, C., Burrridge, A. & Pino, D. (2020). Insider Information: Advisors' Perspectives on the Effectiveness of Enhanced Advising Programs for Community College Students. *NACADA Journal* 40(2), 35-48. <https://doi.org/10.12930/NACACA-18-26>
- Dowd, A.C. (2005). *Data don't drive: Building a practitioner-driven culture of inquiry to assess community college performance*. Report for the Lumina Foundation for Education. Retrieved from <https://eric.ed.gov/?id=ED499777>
- Ellis, K.C. (2014). Academic advising experiences of first-year undecided students: A qualitative study. *NACADA Journal*, 34(2), 42-50. Retrieved from [https://eric.ed.gov/?q=Ellis%2c+K.C.+\(2014\).+Academic+advising+experiences+of+first-year+undecided+students%3a+A+qualitative+study.+&id=EJ1064095](https://eric.ed.gov/?q=Ellis%2c+K.C.+(2014).+Academic+advising+experiences+of+first-year+undecided+students%3a+A+qualitative+study.+&id=EJ1064095)
- Ellucian (2017). <http://www.ellucian.com/Software/Ellucian-Degree-Works/>
- Fogg, N.P., & Harrington, P.E. (2009, Fall). From paternalism to self-advocacy. *New England Board of Higher Education*, 24(2), 12-16. Retrieved from <http://www.nebhe.org/>
- Gaines, T. (2014). Technology and academic advising: Student usage and preferences. *NACADA Journal*, 34(1), 43-49. <https://doi.org/10.12930/NACADA-13-011>

- Goetz, J. J. (1996). Academic advising. In A. Rentz & Associates (Eds.), *Student Affairs Practice in Higher Education*. 88-107. Springfield, IL: Charles C Thomas.
- Gordon, J., Ludlum, J., & Hoey, J.J. (2008, Feb). Validating NSSE against student outcomes: Are they related? *Research in Higher Education*, 49(1), 19-39. <https://doi.org/10.1007/s11162-007-9601-8>
- Green, K. C., & Gilbert, S. W. (2010). Great expectations: Content, communications, productivity, and the role of information technology in higher education. *Change, the magazine for higher learning*, 27(2), 8-18.
<https://doi.org/10.1080/00091383.1995.9937733>
- Habley, W.R., Bloom, S.R., & Gore, P.A. (2012). *Increasing persistence: Research-based strategies for college student success*. Hoboken, NJ: Wiley & Sons.
- Habley, W.R., Valiga, M., McClenahan, R., & Burkum, K. (2010) *What works in student retention: Fourth national survey (report of all colleges and universities)*. Iowa City, IA: ACT. Retrieved from
<http://www.act.org/content/dam/act/unsecured/documents/Retention-AllInstitutions.pdf>
- Habley, W. R. (1994). Key concepts in academic advising. *Summer Institute on Academic Advising Session Guide* (p.10). National Academic Advising Association, Kansas State University, Manhattan, KS. Retrieved from
<http://www.nacada.ksu.edu/clearinghouse/advisingissues/retention.htm>
- Habley, W. R. (2000). Current practices in academic advising. In J. Gordon, W. R. Habley & Associates (Eds.), *Academic advising: A comprehensive handbook* (p. 35-43). San Francisco, CA: Jossey-Bass.

- Hall, K., Lawver, R. G., McMurray, K., & Hawley, J. L., (2017). Students' perceptions of using a course management system to supplement traditional advising. *North American Colleges and Teachers of Agriculture Journal*, 61(2), 97-101. Retrieved from <https://www.nactateachers.org/attachments/article/2545/5..%20Hall.pdf>
- Hatch, D. K., & Garcia, C. E., (2017). Academic advising and the persistence intentions of community college students in their first weeks in college. *The Review of Higher Education*, 40(3), 353–390. <https://doi.org/10.1353/rhe.2017.0012>
- Herndon, J. B., Kaiser, J., & Creamer, D. G. (1996, Nov-Dec). Student preferences for advising style in community college environments. *Journal of College Student Development*, 37(6), 637-648. <https://doi.org/10.1111/j.2150-109231997.tb00212.x>
- Hu, X. (2020). Building an equalized technology-mediated advising structure: Academic advising at community colleges in the post-COVID-19 era. *Community College Journal of Research and Practice*, 44(10-12), 914-920. <https://doi.org/10.1080/10668926.2020.1798304>
- Jaggars, S., & Fletcher, J. (2014). *Redesigning the student intake and information provision processes at a large comprehensive community college* (CCRC Working Paper No. 72). New York, NY: Columbia University, Teachers College, Community College Research Center. Retrieved from <https://ccrc.tc.columbia.edu/publications/redesigning-student-intake-information-provision-processes.html>
- Jaggars, S., & Karp, M. (2016). Transforming the community college experience through comprehensive, technology-mediated advising. *New Directions for Community Colleges*, 176, 53-62. Retrieved from

<https://eric.ed.gov/?q=Transforming+the+community+college+experience+through+comprehensive%2c+technology-mediated+advising.+&id=EJ1122072>

Klempin, S., Kalamkarian, H. S., Pellegrino, L. & Barnett, E. A., (2019, July). A framework for advising reform. CCRC Working Paper No. 111. Community College Research Center. Teachers College, Columbia University, New York, NY. 1-23. Retrieved from <https://files.eric.ed.gov/fulltext/ED597852.pdf>

Kiker, J. (2008, March). *Enhancing student advising and academic and life supports. Techniques: Connecting Education and Careers*, 83(3), 44-48. Retrieved from <http://www.avaonline.org/>

Kincanon, K. (2009). *Using the transformative: Applying transformational and self-authorship pedagogy to advising undecided/exploring students*. Retrieved from the NACADA Clearinghouse of Academic Advising Resources Web site <http://www.nacada.ksu.edu/tabid/3318/articleType/ArticleView/articleId/647/article.aspx>

Kramer, G. L. & Childs, M.W. (1996). Transforming academic advising through the use of information technology. *NACACA, Monograph Series No.4*, Salt Lake City, UT: Brigham Young University Press

Kuh, G. D. (2008, Dec). Diagnosing why some students don't succeed. *The Chronicle of Higher Education*, 55(16), A72-A72. Retrieved from <http://www.ibhe.state.il.us/newsdigest/NewsWeekly/121208.pdf>

Kuh, G. D. (2009). The national survey of student engagement: Conceptual and empirical foundations. *New Directions for Institutional Research*, 141, 5-20. <https://doi.org/10.1002/ir.283>

- Kuh, G.D., & Hu, S. (2001, May-June). The relationships between computer and information technology use, selected learning and personal development outcomes and other college experiences. *Journal of College Student Development*, 42(3), 217-232.
- Kuh, G. D., Kinzie, J., Schuh, J. H., Whitt, E. J., & Associates. (2005). *Student success in college: Creating conditions that matter*. San Francisco, CA: Jossey-Bass.
- Leonard, M.J. (1996). The next generation of computer-assisted advising and beyond. *NACADA Journal*, 16(1), 47-51.
- Lowenstein, M. (2005). If advising is teaching, what do advisors teach? *NACADA Journal*, 25(2), 65-73. Retrieved from <http://www.nacada.ksu.edu/journal/Volume-TwentyFive-Issues-1-2.htm>
- Lumina Foundation. Goal. (2017) Goal 2025 https://www.luminafoundation.org/goal_2025
- Marcus, J. (2012, Nov). Student advising plays key role in college success – just as it’s being cut. The Herchinger Report. Retrieved from <https://hechingerreport.org/student-advising-plays-key-role-in-college-success-just-as-its-being-cut/>
- McArthur, R. C. (2005). Faculty-based advising: An important factor in community college retention. *Community College Review*, 32(4). Retrieved from <http://www.nc-access.info/Faculty-based%20advising.pdf>
- McClenney, B.N. (2013). Leadership matters: Addressing the student success and completion agenda. *New Directions for Community Colleges*, 164. 7-16. <https://doi.org/10.1002/cc.20076>
- McGillin, V. A. (2000). Current issues in advising research. In J. Gordon, W. R. Habley & Associates (Eds.), *Academic advising: A comprehensive handbook*. (pp. 365-380). San Francisco, CA: Jossey-Bass.

- Merriam, S. (2009). *Qualitative Research: A guide to design and implementation*. San Francisco, CA: Jossey-Bass.
- Metz, G. W. (2004). Challenges and changes to Tinto's persistence theory: A historical review. *Journal of College Student Retention: Research, Theory and Practice*, 6(2), 191-207. <https://doi.org/10.2190/M2CC-R7Y1-WY2Q-UPK5>
- Moore, C. & Shulock, N. (2010, October). Divided we fail: Improving completion and closing racial gaps in California's community colleges. *California State University Sacramento Institute for Higher Education Leadership and Policy*. Retrieved from <http://www.csus.edu/ihelp/>
- Mottarella, E. E., Fritzsche, B. A., & Cerabino, K.C. (2004). What do students want in advising? A policy capturing study. *NACADA Journal*, 24(1&2), 48-61. Retrieved from <http://www.eric.ed.gov/ERICWebPortal/recordDetail?accno=EJ808089>
- Moustakas, C. (1994). *Phenomenological Research Methods*. Thousand Oaks, CA: Sage.
- Mullin, M. (2012, February). *Why access matters: The community college student body (Policy Brief 2012-01PBL)*. Washington, DC: American Association of Community Colleges. Retrieved from http://www.aacc.nche.edu/Publications/Briefs/Documents/PB_AccessMatters.pdf
- Musser, T. (2012) Theoretical Reflections: Constructivist Foundations for Academic Advising. *NACADA Advising Today*, 35(3). Retrieved from <https://nacada.ksu.edu/Resources/Academic-Advising-Today/View-Articles/Theoretical-Reflections-Constructivist-Foundations-for-Academic-Advising.aspx>

- National Academic Advising Association (NACADA) Kansas State University. 2019
National Agenda. Retrieved from: <https://nacada.ksu.edu/Resources/Research-Related/ResearchAgenda.aspx>
- National Alliance of Concurrent Enrollment (NACEP) (2011)
<http://www.nacep.org/nationalconference/conference-archives/nacep-conference-2011-archives/>
- Nelson Laird, T. F., & Kuh, G. D. (2005). Student experiences with information technology and their relationship to other aspects of student engagement. *Research in Higher Education*, 46(2), 211- 233. <https://doi.org/10.1007/s11162-004-1600-y>
- Neuman, W. L. (2003). *Social research methods: Qualitative and quantitative approaches* (5th ed.). Boston, MA: Allyn and Bacon.
- Obama, B. (2009). President's remarks on the American Graduation Initiative. Retrieved from http://www.whitehouse.gov/the_press_office/excerpts-of-the-presidents-remarks-in-warren-michigan-and-fact-sheet-on-the-american-graduation-initiative/
- O'Banion, T. U. (1989). *Innovation in the Community College*. New York, NY: American Council on Education & Macmillan.
- O'Banion, T. U. (1994). An Academic Advising Model. *NACADA Journal*, 14(2), 10-16.
- Packard, B.W., & Jeffers, K.C. (2013). Advising and progress in the community college STEM transfer pathway. *NACADA Journal*, 33(2), 65-75.
<http://dx.doi.org.ezproxy.proxy.library.oregonstate.edu/10.12930/NACADA-13-015>
- Pasquini L. & Steele, G. (2016). Technology in academic advising: Perceptions and practices in higher education. NACADA Technology in Advising Commission Sponsor Survey 2013. Retrieved from <https://dx.doi.org/10.6084/m9.figshare.3053569.v1>

- Patton, M.Q. (2002). *Qualitative evaluation and research methods* (3rd ed.). Thousand Oaks, CA: Sage.
- Peterson, E.D. & Kramer, G.L. (1984). Computer assisted advising: The next agenda item for computer development. *NACADA Journal*, 4(2), 33-39.
- Quaye, S. J., & Harper, S. R., (2014). *Student Engagement in Higher Education Theoretical Perspectives and Practical Approaches for Diverse Populations*. (2nd ed.) New York, NY: Routledge.
- Ryan, E. F. (2003). *Counseling Non-traditional Students at the Community College*. ERIC Digest Clearinghouse for Community Colleges, UCLA, ED477913. 1-6. Retrieved from www.ericdigests.org/2004-1/traditional.htm
- Russ-Eft, D., & Preskill, H. (2009). *Evaluation in organizations: A systematic approach to enhancing learning, performance, and change* (2nd ed.). New York, NY: Basic Books.
- Saldana, J. (2013). *The coding manual for qualitative researchers*. (2nd ed.) Los Angeles, CA: Sage.
- Salkind, N, J. (2000). *Exploring research* (4th ed.) Saddleback, NJ: Prentice Hall
- Schlossberg, N. K., Lynch, A. Q., & Chickering, A. W. (1989). *Improving higher education environments for adults*. San Francisco: Jossey-Bass.
- Scrivener, S., Weiss, M., Ratledge, A., Rudd, T., Sommo, C., & Fresques, H. (2015). *Doubling graduation rates: Three-year effects of CUNY's Accelerated Studies in Associate Programs (ASAP) for developmental education students*. New York, NY: MDRC.

- Sheldon, K.M, Garton, B., Orr, R., & Smith, A. (2015). The advisory quality survey: Good college advisors are available, knowledgeable, and autonomy supportive. *Journal of College Student Development*, 56(3), 261-273. <https://doi.org/10.1353/csd.2015.0027>
- Sloan, B., Jefferson, S., Search, S., & Cox, T. (2005). Tallahassee community college's progressive advising system: An outline academic planning and resource system for individualized student advising. *Community College Journal of Research and Practice*, 29, 659-660. <https://doi.org/10.1080/10668920591005675>
- Smith, C.L., & Allen, J.M. (2006). Essential functions of academic advising: What students want and get. *NACADA Journal*, 26(1), 56-66. <https://doi.org/10.12930/0271-9517-26.1.56>
- Smith, C.L., & Allen, J.M. (2014). Does contact with advisors predict judgements and attitudes consistent with student success? A multi-institutional study. *NACADA Journal*, 34(1), 50-63. <https://doi.org/10.12930?NACADA-13-019>
- Smith, J.A., Flowers, P., & Larkin, M. (2009). *Interpretative phenomenological analysis: Theory, methods and research*. Thousand Oak, CA: Sage.
- Spencer, R.W., Peterson, E.D. & Kramer, G.L. (1982). Utilizing college advising centers to facilitate and revitalize academic advising. *NACADA Journal*, 2(1), 13-23.
- Stage, F. K. & Manning, K. (2016). *Research in the college context: Approaches and methods*. (2nd ed.). London, UK: Routledge.
- Steele, G. E. (2014). Intentional use of technology for academic advising. NACADA Clearinghouse Resource Web Site:
<http://www.nacada.ksu.edu/Resources/Clearinghouse/View-Articles/Intentional-use-of-technology-for-academic-advising.aspx>

- Steele, G. E. (2015). Using technology for evaluation and assessment. NACADA Clearinghouse of Academic Advising Resources Retrieved from <http://www.nacada.ksu.edu/Resources/Clearinghouse/View-Articles/Using-technology-for-evaluation-and-assessment.aspx>
- Steele, G. E. (2018). Student success: Academic advising, student learning data, and technology. *New Directions for Higher Education*, 184, 59-68. <https://doi.org/10.1002/he.20303>
- Steele, G., & Thurmond, K. C. (2009). Academic advising in a virtual university. *New Directions for Higher Education*, 146, 85-95. <https://doi.org/10.1002/he.349>
- Steele, G., Leonard, M., Haberle, C., & Lipschultz, W., (1999). Technology and academic advising. *NACADA Academic Advising News*, 1(12).
- Strayhorn, T. L. (2015). Reframing Academic Advising for Student Success: From Advisor to Cultural Navigator. *NACADA Journal*, 35(1), 56-63.
- Tierney, W. G. (1992). An anthropological analysis of student participation in college. *Journal of Higher Education*, 63(6), 603-618.
- Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. *Review of Educational Research*, 45, 89-125.
- Tinto, V. (2004, July). Student retention and graduation: Facing the truth, living with the consequences. *The Pell Institute*. Retrieved from <http://www.pellinstitute.org/tinto/TintoOccasionalPaperRetention.pdf>
- Tinto, V. (2016). How to improve student persistence and completion. *Inside Higher Ed*, <https://www.insidehighered.com/views.2016/09/26/how-improve-student-persistence-and-completion-essay>

Tuttle, K. N. (2000). Academic advising. *New Directions for Higher Education*. 111, 15-24.

Retrieved from <http://www.wiley.com/WileyCDA/WileyTitle/productCd-HE.html>

Vainden, J. (2016). Ties that bind: Academic advisors as agents of student relationship management. *NACADA Journal*, 36(1), 19-29.

van Mannen, M. (2017). Phenomenology in its original sense. *Qualitative Health Research*. 27(6), 810-825. <https://doi.org/10.1177/1049732317699381>

von Glaserfeld, E. (1995). *Radical Constructivism: A way of knowing and learning*. Studies in mathematics education series: 6. Bristol, PA: Taylor & Francis

Washington, G. Y. (2019). The learning management system matters in face-to-face higher education courses. *Journal of Educational Technology Systems*.

<https://doi.org/10.1177/0047239519874037>

Weiss, M.J., Brock, T., Summo, C., Rudd, T., & Turner, M.C. (2001). *Serving community college students on probation: Four-year findings from Chaffey College's Opening Doors program*. New York, NY: MDRC.

Wicks, J. (2020, March). Academic advising amid social distancing. *Inside Higher Ed*.

<https://www.insidehighered.com/advice/2020/03/23/advisers-will-need-develop-new-means-working-students-given-covid-19-opinion>

Wirth, R. M., & Padilla, R. V. (2008). College student success: A qualitative modeling approach. *Community College Journal of Research and Practice*, 32, 688-711.

<https://doi.org/10.1080/10668920701380942>

Yanosky, R. (2014). *Integrated planning and advising services: A benchmarking study*.

Louisville, CO: EDUCAUSE Center for Analysis and Research.

Xyst, K. (2016). Constructivism, dewy, and academic advising. *NACADA Journal*, 36(2), 11-19.

Yin, R.K., (2009). *Case study research: Design and methods* (4th ed.). Thousand Oaks, CA: Sage.

Appendix A: Recruitment Email to Participants

Hello <Name>

My name is Samantha Hopf and I am a doctoral candidate at Oregon State University, College of Education, Community College Leadership Program (CCLP). As part of my doctoral studies, I am conducting research on understanding the experience community college students have with the academic advising process and specifically with the use of the online degree audit technology referred to at your college as GradPlan.

The study will involve personal interviews (WebEx Conference session) and study participants must be willing to be audio recorded. The interviews will not last more than an hour, and can take place at your convenience. The study is voluntary and the name of participants and the name of any institutions they are affiliated with will be de-identified and kept confidential.

I am in the process of selecting participants for this study and I am contacting you because you are a current community college student at PCC. I hope that you are willing to participate because I believe this study will provide insight into how the academic advising process could be changed to better meet your needs. I will share the findings of the study with all participants.

I appreciate your consideration of my request to participate in my study. Please contact me within 2 weeks of receiving this email at hopfsa@onid.orst.edu or 971-722-2804 or 503-621-8413 if you are interested in participating in this study. The interviews will be conducted via a WebEx conference session and audio recorded. If you are uncomfortable with being recorded for the interview I will not include you in my study. Your participation and contribution to this project has the potential to provide important feedback to motivate the leadership in making positive changes that you as a student would truly benefit from.

If you have any questions about this research project, please contact me at: hopfsa@onid.orst.edu or 971-722-2804 or 503-621-8413. You may also contact the principal investigator, Dr. Gloria Crisp at Gloria.crisp@oregonstate.edu or 541-737-9286. The title of the research study is “Investigating the Use of Online Degree Audit Technology and Understanding the Student Experience.”

Sincerely,

Samantha.Hopf
Doctoral Candidate
Oregon State University, Community College Leadership Program

Appendix B: Interview Protocol

Once the required informed consent form was completed and signed by the participants I approached each interview with a guiding set of open-ended questions and let the conversation happen naturally, in order to preserve the participant's conceptualization of their own experiences and opinions on the topic. Open-ended questions allow for variations among interviews to be minimized, allowing for easier analysis (Patton, 2002).

Interviews consisted of semi-structured and open-ended questions within a bounded system. The goal was to collect data from interviewing students who have had various advising experiences and compare the results for identification of themes or issues or specific situations (Creswell, 2013). Based on identified data needs, the following set of interview questions, or guided questions was used:

1. Describe your familiarity with the on-line degree audit tool system.
2. How did the on-line degree audit affect your course selection for registration towards earning your certificate or degree?
3. Describe your experience with the on-line degree audit program planning process or the "what-ifs" features.
4. Describe what has been easy or hard about using the Grad Plan system.
5. How do you think the on-line degree audit system could be improved?

Appdx D: Demographic Survey

Post interview I asked participants to complete a brief password protected Qualtrics survey to collect demographic and background information. This demographic survey was asked as part of the self-reporting data collection to provide me with the ability to query and compare the attributes of the participants.

Demographic survey questions (structured)

Gender	Response / Deny
Age (bracket)	Response / Deny
Veteran status	Response / Deny
Are you a transfer student with credits involved	Response / Deny
Is this your first experience as a college student	Response / Deny

Appendix D: IRB Approval



Oregon State University
Research Office

Human Research Protection Program
 & Institutional Review Board
 B308 Kerr Administration Bldg, Corvallis OR 97331
 (541) 737-8008
IRB@oregonstate.edu
<http://research.oregonstate.edu/irb>

Date of Notification	07/11/2018		
Notification Type	Approval Notice		
Submission Type	Project Revision	Study Number	8530
Principal Investigator	Gloria Crisp		
Study Team Members	Samantha Hopf		
Study Title	Investigating the Use of Online Degree Audit Technology and Understanding the Student Experience		
Review Level	FLEX		
Waiver(s)	None		
Risk Level for Adults	Minimal Risk		
Risk Level for Children	Study does not involve children		
Funding Source	None	Cayuse Number	N/A

APPROVAL DATE: 07/10/2018 **EXPIRATION DATE:** 06/13/2023

A new application will be required in order to extend the study beyond this expiration date.

Comments: This project revision involves a PI change from Earl Johnson to Gloria Crisp. Target enrolment extended to PCC Students enrolled through Fall 2018.

The above referenced study was reviewed and approved by the OSU Institutional Review Board (IRB). The IRB has determined that the protocol meets the minimum criteria for approval under the applicable regulations, state laws, and local policies.

This proposal has not been evaluated for scientific merit, except to weigh the risk to the human subjects in relation to potential benefits.

Adding any of the following elements will invalidate the FLEX determination and require the submission of a project revision:

- Increase in risk
- Federal funding or a plan for future federal sponsorship (e.g., proof of concept studies for federal RFPs, pilot studies intended to support a federal grant application, training and program project grants, no-cost extensions)
- Research funded or otherwise regulated by a [federal agency that has signed on to the Common Rule](#), including all agencies within the Department of Health and Human Services
- FDA-regulated research
- NIH-issued or pending Certificate of Confidentiality
- Prisoners or parolees as subjects
- Contractual obligations or restrictions that require the application of the Common Rule or which require annual review by an IRB