Technology and Advising
A quantitative analysis of the differences between advisor and student use of technology

Submitted by
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Abstract

Technology has complicated academic advising. Technology in advising has led to a prescriptive use of technology rather than developmental. Utilizing technology in advising is meant to increase collaboration between advisor and advisee, not diminish collaboration. Understanding how technology is used by advisors and students can lead to effective campus initiatives that embrace the collaborative functions of technology. The purpose of this study is to observe any differences in perspectives, usage, and needs between students and advisors concerning technology in advising at the University of Washington Bothell. This quantitative study uses an online, self-administered, cross-sectional survey. Results from Chi-square and Spearman's r correlations show that students (n=19) and advisors (n=22) differed in how they use technology and online resources in an advising appointment. Results suggest that the university could consider conducting an annual assessment of technology needs for students on campus, partner with educational institutions focused on technology in advising, and collaborate with students, and standardize technology platforms for advisors.

Chapter 1

CHAPTER 1 – PURPOSE OF STUDY

Introduction

The purpose of this study is to observe the differences in perspectives, utilization, and needs of students and advisors regarding technology in advising at the University of Washington Bothell. An increase of students pursing higher education has led to a climate focused on student retention and degree-completion (Millichap and Dobbin, 2017). Focusing on student retention and degree-completion has led to a declining emphasis on holistic student development. Students spend a limited amount of time thinking about their academic career. In some cases this can lead to students delaying their graduation, or dropping out because students feel their needs are not being met. In an attempt to promote student success, educational institutions across the country created campus initiatives focusing on technology-enabled academic advising.

In 2017, the EDUCAUSE Learning Initiative sponsored an online event where higher education institutions took an in-depth look on how to promote student retention, and degree-completion through the lens of technology-enabled academic advising. There were seven key messages from the event: 1) Pay attention to the tools, 2) Do not fixate on the tools, 3) Simplify complex systems, 4) Centralize support, 5) Incorporate complementary efforts, 6) Cultivate new partnerships, and 7) Commit to investment (Millichap and Dobbin, 2017). Of the seven key messages from the EDUCAUSE event, this study focuses on paying attention to the tools, centralizing support, and cultivating new partnerships.

The focus of this study is on how students and advisors perceive technology in advising, how advisors and students use technology in a typical advising appointment, and what students and advisors want for the future of technology in advising at the University of Washington Bothell. The University of Washington Bothell was founded in 1990 as a means to provide

Washingtonians with a quality university education. The university has seen a shift in their demographics as the years progressed. Originally, the students who enrolled were primarily non-traditional students, usually described as students older than 25. As years passed the demographic makeup of the institution moved towards a younger crowd with traditional students (usually age 18) increasing. Just as the students were changing the University of Washington Bothell had to adapt to the changes, meeting new student needs. As with other educational institutions there was the consideration of how technology might help to resolve some of the issues students were facing. The University of Washington Bothell has participated in its own research regarding technology, with its own technology task force to examine how instructors could effectively use technology in the classroom. However, concerning technology in advising research at the University of Washington Bothell is limited.

This study will include the views of professional advisors and students. The technologies in this study are online resources and physical forms of technologies that students and advisors have access to. This study will not examine the technologies exclusive to professional advisors. Rather than conducting separate analyses of student and advisors, this study bridges that gap by examining the differences between advisors and students regarding their views, perspectives, and needs from technology-based advising. Identifying existing differences or similarities between the two groups provides insight for educational institutions how students and advisors align themselves to obtain academic success.

Background

In their comprehensive book on academic advising, Hagen and Jordan (2008) state that academic advising is a "diverse field whose practitioners, whether faculty or staff, come from a wide array of academic backgrounds" (47). The prominent theory in academic advising for the

past several years has been developmental advising, which focuses on student development and growth. Crookston, an early supporter of developmental advising, viewed the student-advisor relationship as "a crucial element contributing to student growth" (47). Developmental advising views advising as an opportunity to teach. Advisors agree that they are teaching students how to process their experiences in higher education, how to handle their psycho-social development, and teach students how to prepare for life after university. In contrast to developmental advising, there is the approach of prescriptive advising. Prescriptive advising views the advising appointment as a set of transactions between the advisor and advisee. Typically, prescriptive advising is common since students tend to visit their advisors to help with administrative related tasks. Technology too, just as advising, has a prescriptive and developmental approach. In an online article by Underwood and Underwood (2015), they suggest that certain types of technology can be used in ways that promote prescriptive or developmental advising. When advisors respond to student questions using e-mail, the university website, or other forms of technology that dispenses prescriptive information they are treating the appointment as a transaction between advisor and advisee. In contrast, using sites such as LinkedIn, blog posts on social media, career interest assessments or open-ended communication in emails, advisors are engaging with technology from a developmental view. Underwood and Underwood do point out that student needs are unique, with some students requiring a prescriptive approach, whereas another student may require a developmental approach.

The Integrated Planning and Advising for Student Success initiative was created as a way to integrate technology into academic advising services (iPASS). The main goal of iPASS is to use technology to identify at-risk students, offer students personalized advising, and to provide academic, career and financial support. On the surface iPASS appears to combine the use of

technology with the perspectives of academic advising. However, when taking a deeper look the initiative does not include the viewpoint of advising as teaching. Rather, iPASS focuses on the prescriptive model of advising, treating interactions between student and advisor as transactional (Steele, 2016). As a result, educational institutions focus on gathering technology that performs prescriptive functions. This leads to increased use of platforms that emphasize degree planning, email, grade calculators, degree audits, etc. Being able to identify the differences between prescriptive and developmental technology will allow educational institutions to plan out policy decisions on their campuses that are effective in achieving goals related to student success.

In 2008, part of "the Strategic Master Plan," the state Higher Education Coordinating Board identified two goals that reflected what Washington State residents wanted from their public higher education: 1) a high quality higher education system with opportunities for Washingtonians, and 2) a higher education system that drives economic prosperity, innovation, and opportunity" (21st Century Campus Initiative, 2008). The University of Washington Bothell (UWB) responded by devising the *21st Century Campus Initiative: UWB Priorities Plan for 2008-2020*, to address the state's public higher education needs. The plan identifies seven goals, one of which is student-centeredness, placing an emphasis on enhancing academic and career advising services, and providing comprehensive academic support services (21st Century Campus Initiative, 2008). The University of Washington Bothell has worked to change their advising services. There are programs aimed at partnering first-generation students with faculty mentors, encouraging quarterly advising appointments to monitor student progress, and connects students with introductory classes in research. There is a student success center that houses peer advisors to help students with resumes, interview tips, and navigating university life in general.

Workshops and presentations are also available to provide students with information about classes to how to find a job after graduation.

While there are a growing number of physical on-campus resources, technology tends to lag behind, but this is not necessarily a bad thing. Considering that new technology is rapidly created administrators can become overwhelmed trying to identify the best technology for their educational institution. In her presentation, Audrey Watters (2016) claimed "the best way to predict the future is to issue a press release," citing past predictions about educational technology made by inventors and businessmen. Watters states that society responds well to storytelling, that fantastical imagery is easily retained in comparison to reality. Watters' claims are not unfounded when looking at the field of policy studies. Narrative policy framework (NPF) works precisely in this manner. When NPF is in action the process is akin to issuing a press release. Public opinions are shaped through the story society shares about issues, people, states, professions, and all manner of topics. Over time these stories become accepted as part of a greater story. Finally, the newly accepted stories are used to shape the policies society votes on (Smith and Larimer, 2017). When administrators within educational institutions quickly embrace new educational technology they are participating the cycle that Watters urges to avoid. Rather than continuing the narrative that technology is the solution to problems in education, administrators could consider critically examining the impacts of technology based advising. In the field of academic advising the integration of technology has led to advisors claiming that technology will improve the way advising is delivered, that students will be able to engage with advisors on a deeper intellectual level, and that advisors will be able to achieve their goal of holistic advising. Presently, advisors attempt to repeat the narrative that technology-based advising will benefit students. However, there are advisors who are looking to change the narrative towards viewing

technology as a supplement to advising. Their research attempts to change the story of how advisors conduct research and critically examine technology in advising. The research taking an impartial view of technology in advising argues for technology to be used as a means to connect advisors, faculty, administrators, and students; not the primary solution to problems in higher education.

Chapter 2

CHAPTER 2 –REVIEW OF LITERATURE

Literature Review

The purpose of this study is to observe if there is a significant difference between how advisors and students use technology in advising at the University of Washington Bothell. The literature that will be reviewed in this section will focus on studies that have examined how students and advisors use technology, why students visit with advisors, and limitations of these studies. The settings of these studies were conducted within community colleges, online schools, and universities. Methods include surveys, focus groups, and interviews.

For institutions with over five thousand students, advising students requires strategic thinking to be effective "without sacrificing student focus or our ability to assist students in utilizing campus resources to obtain the best possible college experience" (Applegate and Hartleroad, 2011). Over a decade ago, studies in the field of academic advising initially focused on technology attempting to ease caseloads, improve degree-completion times, and increase retention rates as university enrollment increased (Chiteng, 2014). Results from these studies reported advisors being more productive, able to respond to students faster, and get through administrative tasks faster (Pasquini, 2016). On the other hand, advisors are using technology to complete administrative tasks, and organizing student information; thus, limiting time spent working with students on their educational goals (Kalamkarin and Karp, 2017). The result is that students feel ignored by advisors, become less likely to make future appointments, and attempt to navigate university life on their own. The path to finding effective technology, and approaches to integrating technology in advising is a difficult task. However, research examining technology in academic advising has grown in recent years.

At the University of West Florida's School of Education, Gaines (2016) found that among surveys completed by 162 undergraduate students enrolled in teacher education programs,

there was a strong preference for receiving important deadlines through e-mail (90%), roughly two-thirds of students felt the use of technology was "just right", with 18.5% reporting technology was used "too little." The study concluded that technology is not an answer to challenges, but the "knowledge of when, how and why students utilize technology… can generate efficient and effective outcomes for the advisor and advisee" (Gaines, 2016). Results from similar research analyzing student preference of advising state that students enjoy a personal relationship with their advisor, are satisfied when they feel their concerns are being heard, want centralized information, and are eager to improve advising services (Kalamkarin and Karp, 2017; Motarella, 2004; Suvedi, 2015; Crowley, 2016).

In 2009, Steele and Thurmond argued that the future of technology would open a world of virtual advising, a world where students could "have access to better quantity and quality of information." Using the foundation of Bloom's Taxonomy, Steele argued that the objective of using technology in advising is to produce "higher-order" advisor-student interactions. To successfully attain this goal, advisors require training on how to effectively use the technology available at their institution. Additionally, advisors would require familiarity with their institution's policies, and gather support across the institution to ensure lasting changes within advising units. In 2014, Steele explains the creation of the "Model for Intentional Use of Technology". The model provided three major findings about using technology in academic advising. First, the model confirms that "technology is a tool designed to perform specific functions" best used when their functions are closely aligned with specific goals of advising. Second, the technology model "reinforces that advising is a multi-faceted endeavor", emphasizing the need for balance between providing services for students, and enforcing rules regarding access to services, and finally, identifying "best practices" in the field of advising.

In 2016, the University of Washington Information Technologies department distributed a survey to students and faculty asking about their perceptions of the Integrated Planning and Advising for Student Success (IPASS) initiative. The study was conducted to examine differences in viewpoints of iPASS between faculty and students. Results showed that faculty and students generally viewed early alert and personalized notification systems as favorable. Overall, faculty members were hesitant to support the integration of technology into academic services for students (Coffin, Lyle, Shinohara, & Evans, 2016). These results support previous concerns about the implementation of iPASS as advisors also shared the sentiment that technology does not facilitate learning for students. However, advisors are open to reconfiguring the iPASS imitative to reflect how technology can be used to encourage developmental growth in students (Steele, 2016; Underwood and Underwood, 2015).

A national survey of advisors conducted by Laura Pasquini and George Steele (2016) studied how academic advisors and support staff used technology, and what their perceptions of technology were. The survey was circulated to all members of the National Academic Advising Association (NACADA). Results of the survey revealed that advisors primarily used their desktop computer provided by their institution to deliver advising services. Advisors were encouraged by their institution to use learning management systems, and e-portfolios, but advisors did not utilize these forms of technology. Technology was mainly used by advisors to communicate with each other, and their students. Within the field of academic advising there are recurring findings from studies that claim, for technology-based advising to progress there needs to be support across all levels of their educational institution. Aligning faculty, staff, students, and leadership of the institution is necessary to ensure success (Pasquini, 2011; Mueller, 2017; Maldonado, 2015).

In a mixed-method study advisors at a community college were interviewed and surveyed to obtain their views on the impact that Degree Works would have at their institution. Questions centered on asking staff if they had support to implement the new platform successfully, what they believe the impact on students would be, and if the university shares goals with staff (Maldonado, 2015). Results from the study demonstrated positive views of the Degree Works platform from advisors and administrators in the community college. Maldonado concluded that leadership at all levels of the university should be aligned when transitioning to technology-based advising services. Having support at every level within a university or college ensures accountability, an open channel of communication, and consistency.

Studies examining technology in advising run into the issue of creating surveys that are comprehensive but are not time-consuming for participants. Gaines (2014) notes that she could have expanded her survey, but to do so would have discouraged students from participating. Low response rates are another common obstacle in these studies. Quantitative analysis on survey responses in these studies do not clearly outline how rigorous their statistical analysis was. A number of studies report only the descriptive data of responses. Additionally, there is the issue of statistical power associated with findings from these studies, due to the populations of advisors being small at a single institution results in weak statistical findings.

Previous studies observed the technology preferences of advisors and students separately. At the time of this study no research has been conducted examining students and advisors as part of a single project. This study aims to bridge the literature by examining where advisors and students differ on issues of technology in advising to provide effective strategies for future university initiatives. Results from this study can be used to plan future initiatives at the University of Washington Bothell that support improvements centered on effectively utilizing

the existing technology that students and advisors use, choosing language that aligns closer to the mission of the university's goals with that of advising goals, and promoting careful planning concerning technology in advising.

Chapter 3

CHAPTER 3 – METHODOLOGY

Participants

The two groups in this study are (n=22) advisors and (n= 19) students. Participants assigned to the advisor group included: academic advisors, career advisors, peer advisors, academic leads, and academic administrators working at UW Bothell. Participants assigned to the student group included: undergraduate and graduate students currently enrolled in UW Bothell.

Design and Materials

For this study an online, self-administered, cross-sectional survey design was used to provide a quantitative analysis of differences between how advisors and students use technology in advising. The survey questions measure three areas: perspectives on technology-in-advising, frequency and use of technology, and future needs regarding technology-in-advising.

Questions for the surveys drew from six studies focused on the usage of technology in advising (EDUCAUSE ECAR Survey, 2015; Gaines, 2014; Kalamkarian and Karp, 2017; Maldonado, Poling, Britton, and Liu, 2015; Pasquini & Steele, 2016; Coffin, Lyle, Shinohara & Evans, 2016). Surveys were created and distributed online using the Survey Monkey website. To simplify the survey for each group of participants, there were two surveys created, one for advisors, and one for students. The survey for advisors contains 18 questions. The survey for students contains 19 questions. Both surveys had questions divided across three sections, requiring 5-10 minutes to complete. Advisors were sent a survey link via an advisor listserv. Two reminders were sent out to advisors. An email with the survey link was circulated to students via their class mailing list. Two undergraduate classes in the department of

Interdisciplinary Arts and Sciences participated. The survey was kept open for three months. No sensitive or personal data were collected. Surveys are located in Appendix A.

Measures

Dependent variables in this study are perspectives towards technology in advising, how frequently technology was used in advising, how useful technology is in advising, and future needs of technology in advising. Dependent variables were measured on nominal and ordinal scales. An open-ended question at the end of the survey was used to collect additional comments.

Table 1 summarizes the dependent variables of participants. Tables 2-4 summarize the dependent variables of perspectives of technology in advising. Tables 5 and 6 summarize the dependent variables of usefulness of technology in advising. These questions were presented on a matrix with a prompt asking respondents, "How useful are the following technologies/online resources in a typical advising appointment?" Tables 7 and 8 summarize the dependent variables of frequency of technology in advising. These questions were presented on a matrix with a prompt asking respondents, "How frequently do you use the following technologies/online resources in a typical advising appointment?" Tables 9-11 summarize the dependent variables on future needs in technology in advising at UW Bothell. Tables will be reviewed in the results section of this paper. Tables are located in Appendix D.

Data Collections Procedure

Contacts were provided a recruitment email to send to participants informing them about the study and with a link to the survey (Appendix B). First, the Co-chair of the Advisor's Council was contacted to circulate the survey to advisors in all university departments. Second, a peer advisor was contacted to distribute the survey to the other peer advisors on campus. Third, faculty members of Interdisciplinary Arts and Sciences undergraduate courses were contacted to

ask permission if their students can participate in the study. Finally, a graduate advisor was contacted to circulate an email to graduate students in the department of Interdisciplinary Arts and Sciences.

Ethical Considerations

IRB approval was sought for this project. After review the IRB determined that this study was exempted, posing minimal risk or harm to participants (Appendix C). There were three ethical issues raised in this study. First, participants could have felt a violation of privacy when they received an email inviting them to the study. To address this concern I reached out to advisors and faculty members in the university to help me circulate the survey to eligible participants. For the advisor group I contacted the co-chair of the Advising Council to distribute the survey through the advisor listserv. For the student group I reached out to faculty members, asking if they would be willing to circulate the survey to their classes. Second, participants could have felt moderate discomfort about levels of confidentiality regarding their responses and identities. This issue was resolved by ensuring that no direct identifiers, personal information, or contact information was collected in the survey. Finally, participants could have felt moderate discomfort about the security of their responses. To remedy this, all survey responses are stored on a password-protected computer.

Chapter 4

CHAPTER 4 – RESULTS AND DISCUSSION

Analysis Strategy

Data analysis was conducted using SPSS (IBM Corp., 2017). This analysis observes the self-reported views of advisors and students regarding technology-in-advising. This study will be focusing on identifying differences between how advisors and students utilize technology in the context of a typical advising appointment. First, descriptive statistics were run on independent and dependent variables. Second, crosstabs with Chi-square were run on dependent and independent variables to identify any differences between groups. The crosstabs with Chi-square will observe any differences between advisors and students prefer to use technology, the types of technology they routinely use, and their thoughts on future plans that the UW Bothell should take to improving technology in advising. Finally, Spearman's r correlations were run to observe any relationships between independent and dependent variables. The Spearman's r correlations are run to identify areas where students and advisors meet on preference of technology, perspectives, and future thoughts on technology in advising.

Demographics

There were 41 responses to the survey, made up of 22 advisors (53.7%), and 19 students (46.3%). The prevalent groups were females (75.6%) and respondents who identified as White (61%). The prevalent age groups were 18-24 year olds (31.7%) and 25-34 year olds (31.7%). Among 41 respondents 56.1% did not identify as a first-generation student. Among the 22 advisors that responded, 50% are academic advisors, 18.2% are career advisors, 13.6% identified as academic administrators, 13.6% identified as other, and 4.5% identified as peer advisors. Of the 19 students that responded 52.6% are graduate students, 21.1% are sophomores, 10.5% are

juniors, 10.5% are seniors, and 5.3% are freshman. Table 6 provides an overview of the participants' characteristics.

Table 1: Demographics of respondents

Total sample N=41		
Gender	**n**	**Valid %**
Male	9	22
Female	31	75.6
Other	1	2.4
Race	**n**	**Valid %**
White	25	61
Black	3	7.3
Hispanic	3	7.3
Asian	7	17.1
Two or more races	3	7.3
Age	**n**	**Valid %**
18-24	13	31.7
25-34	13	31.7
35-44	9	22
45-54	2	4.9
55-64	4	9.8
First-generation	**n**	**Valid %**
Yes	18	43.9
No	23	56.1
Advisor Roles	**n**	**Valid %**
Academic	11	50
Career	4	18.2
Academic Administrator	3	13.6
Peer Advisor	1	4.5
Other	3	13.6
Student Class Standing	**n**	**Valid %**
Freshman	1	5.3
Sophomore	4	21.1
Junior	2	10.5
Senior	2	10.5
Graduate	10	52.6

Research Question 1 – Perspectives

Cross-tabs with Chi-square reveal an extremely slight difference between advisors and students believing that technology helps with school administrative tasks, X^2 (2, n=38) = 5.932, p < .052. There was a significant difference in preferred interaction when advisors were stratified by roles, X^2 (4, n=22) = 13.933, p < .008.

Spearman's r shows a significant correlation between advisors and students who answered that technology simplifies administrative tasks and allows time for educational goals (r = .477, n = 38, p = .002); and ability to locate resources easily (r = .677, n = 37, p = .000). A significant relationship was revealed between respondents who answered that technology improves quality of advising and allows time to discuss educational goals (r = .519, n = 40, p = .001); and respondents who felt technology makes it easier to locate resources (r = .336, n = 40, p = .034). There was a significant relationship between the role of advisor and preferred interaction with student (r = .509, p = .016). Furthermore, there are significant results between those who believe technology improves student advisor relationships and allows time to discuss educational goals (r = .497, n = 39, p = .001). Finally, there are significant results between participants who answered that technology allows more time to discuss educational goals and easier to locate resources (r = .491, n = 39, p = .002).

Table 2: What is your preferred method of interaction?

N = 41	Valid %
Face-to-face	82.9
Email exchange	17.1

Table 3: I think the amount of technology to deliver advising services is…

N = 41	Valid %
Too little	29.3
Just right	70.7

Table 4: Using technology during an advising appointment…

N = 41	Valid %				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Provides a higher quality of advising	31.7	48.8	17.1	2.4	0
Allows to quickly locate resources	57.5	37.5	5.0	0	0
Allows for more time to discuss educational goals	32.5	27.5	30.0	7.5	2.5
Improves student-advisor relationship	17.9	20.5	46.2	12.8	2.6
Simplifies school-related administrative tasks	68.4	23.7	7.9	0	0

Research Question 2 – Frequency and use of technology in advising

The cross-tabs with Chi-square results reveal a significant difference between how often students and advisors use desktop computers X^2 (3, n = 33) = 19.388, p < .000; smart-phones X^2 (3, n = 35) = 16.419, p < .001; learning management systems X^2 (3, n = 36) = 19.786, p < .000; an online appointment scheduler X^2 (3, n = 37) = 10.600, p < .014; and the UW Bothell website X^2 (2, n = 37) = 8.460, p < .015. Chi-square shows significant difference between advisor role in frequency of using job sites X^2 (12, n = 18) = 24.900, p < .015. The cross-tabs with Chi-square results reveal a significant difference between how useful students and advisors find desktop computers X^2 (1, n = 33) = 8.362, p < .004; online appointment schedulers X^2 (1, n = 36) = 5.195, p < .023; social media X^2 (2, n = 29) = 10.216, p < .006; the UW Bothell website X^2 (2, n = 36) = 11.308, p < .004. There were significant differences based on the role of advisor finding the usefulness of email X^2 (8, n = 18) = 20.943, p < .007; job search sites X^2 (8, n = 17) = 17.598, p < .024; laptop X^2 (4, n = 18) = 11.250, p < .024; learning management systems X^2 (6, n = 14) =

12.775, $p < .047$; and social media X^2 (8, n = 14) = 15.867, $p < .044$. Students stratified by class standing found Rate My Professor useful, X^2 (8, n = 17) = 16.119, $p < .041$.

Table 5: Frequency of technology during an advising appointment

N=41	n	Valid %			
		Never	Not frequently	Somewhat frequently	Frequently
Desktop PC	33	12.1	30.3	3	54.5
Laptop	36	2.8	11.1	16.7	69.4
Smartphone	35	25.7	25.7	17.1	31.4
Tablet	29	62.1	24.1	6.9	6.9

Table 6: Frequency of online resources during an advising appointment

N=41	n	Valid %			
		Never	Not frequently	Somewhat frequently	Frequently
Email	37	2.7	8.1	21.6	67.6
Learning management systems	36	13.9	22.2	19.4	44.4
MyPlan	34	17.6	17.6	32.4	32.4
Online appointment scheduler	37	8.1	24.3	18.9	48.6
Rate My Professor	33	48.5	21.2	15.2	15.2
Social media	35	48.6	17.1	17.1	17.1
UWB website	37	0	18.9	21.6	59.5
Job search sites	37	24.3	32.4	24.3	18.9

Table 7: Usefulness of technology during an advising appointment

N=41	n	Valid %		
		Not useful	Somewhat useful	Useful
Desktop PC	33	0	21.2	78.8
Laptop	37	2.7	8.1	89.2
Smartphone	36	25	30.6	44.4
Tablet	26	38.5	34.6	26.9

Table 8: Usefulness of online resources during an advising appointment

N=41	n	Valid %		
		Not useful	Somewhat useful	Useful
Email	37	5.4	21.6	73
Learning management systems	33	6.1	24.2	69.7
MyPlan	30	6.7	36.7	56.7
Online appointment	36	0	13.9	86.1

scheduler				
Rate My Professor	29	51.7	34.5	13.8
Social media	29	48.3	41.4	10.3
UWB website	36	2.8	25	72.2
Job search sites	36	19.4	50	30.6

Research Question 3 – Future needs

Chi-square shows no significant difference between advisor and students regarding their future needs of technology in advising. Furthermore, there were no differences in future needs when advisors were stratified by role, or students stratified by class standing. Spearman's r correlation shows a significant correlation between advisors and students who would support initiatives to improve technology in advising and surveys that assess students' technology needs ($r = .393$, $n = 35$, $p = .019$).

Table 9: The technology at UW Bothell meets your needs

n=36	Valid %
Strongly agree	11.1
Agree	63.9
Neutral	8.3
Disagree	16.7
Strongly Disagree	0

Table 10: I would support surveys that assess the technology needs of students

n=36	Valid %
Strongly agree	55.6
Agree	41.7
Neutral	2.8
Disagree	0
Strongly Disagree	0

Table 11: I would support initiatives improving technology in advising

n=35	Valid %
Strongly agree	60.0

Agree	28.6
Neutral	11.4
Disagree	0
Strongly Disagree	0

Additional Results

Crosstabs with Chi-square were run to identify any differences between dependent variables by demographic variables of both groups. Results showed that participants differed on whether they thought technology improves advisor-student relationships based on race X^2 (16, n=39) = 33.590, p < .006. Chi-square results showed a difference between race and how frequently participants used job search sites X^2 (12, n=37) = 23.665, p < .023. There was also a difference between race and participants who found laptops to be useful X^2 (8, n=37) = 18.944, p < .015. Results showed differences based on gender and frequency of using online appointment schedulers X^2 (6, n=37) = 15.835, p < .015. There was also a difference between gender and usefulness of using online appointment schedulers X^2 (2, n=36) = 11.238, p < .004.

Spearman's r correlations were run to uncover potential relationships between types of technology used in an advising appointment. From the results there are over a dozen combinations of technologies and online resources that indicate a significant relationship. For example, respondents who reported frequently used laptops also reported frequently using their smart-phones (r=.393, n=34, p=.021). Respondents who reported using their desktop computer reported finding their smart-phone to not be useful (r= -.380, n=31, p=.035), found MyPlan to not be useful (r= -.415, n=26, p=.035), but found the UWB website to be useful (r=.399, n=32, p=.024).

Discussion

The results reveal that students prefer face-to-face interactions with their advisors (Gaines, 2014), are receptive to technology when it is aiding with completion of administrative tasks, and do not favor technology if it diminishes personal attention from the advisor (Kalmakarian and Karp, 2017). Students and advisors responded that they are neutral when asked if technology allows for time to discuss educational goals, and if technology improves student-advisor relationships. As previous literature revealed, students hold negative views on technology if technology takes away from quality time with their advisor, but the results of this survey show that at best students and advisors are neutral. This could indicate that technology is helpful to improving advisor-student relationships under specific circumstances.

Results revealed that advisors frequently use their desktop computers during an advising appointment which makes sense since they are provided a computer at work. Furthermore, students reported using their laptops frequently during an advising appointment, which could mean that students are following along as their advisor guides them to resources they could use. In terms of online resources, both groups found the UWB website to be useful. The use of the school website matches with what the literature suggests when it comes to using technology effectively. Utilizing the website as a central point of information makes navigation easier for the student. Although, advisors are not using learning management systems frequently in their appointments, signaling that students are probably accessing their Canvas account to report information about their classes to their advisor.

In contrast, students found learning management systems to be useful, and frequently used them in their advising appointments. The utilization of Canvas as part of an advising appointment should be explored further to ensure that advisors are tapping into its potential for student development. Canvas can be used to create e-portfolios which chronicle the

achievements of the student throughout their academic career. Moreover, having a store of past assignments, achievements, and other information would help the student easily reflect on their time in university. Finally, working with advisors to create an e-portfolio encourages the advisor to partake an active role in the students' journey. Advisors would be able to offer advice tailored to the students' interests.

There were also differences in how useful advisors and students found the online appointment scheduler. Scheduling an appointment online with advisors can be simple, granted that the student is communicating with advisors within their class standing or department. Online appointment schedulers can become complicated if a student wishes to communicate with advisors outside of their departments or class standing; the result is the student relying on email communication and the advisor setting up the appointment manually. While manually setting an appointment appears to alleviate the issue there are cases where students can lose appointments because they are not given the same priority in the scheduling program as students who used the online scheduler normally. Although, when used within an advising appointment, online schedulers are useful because students and advisors can quickly set up a follow-up appointment if necessary.

The results revealed relationships between combinations of certain types of online resources and technology used in an advising appointment. This indicates that advisors and students are typically using two or more resources during an appointment. An example is using the UWB website, and LinkedIn. However, the use of certain online resources depends on the type of advisor using them. Academic advisors have a higher chance of interacting with Canvas, whereas, career advisors are likely to interact with LinkedIn, or social media. Students depict similar combinations, but have an increased likelihood to use social media in conjunction with

LinkedIn. This may occur when students are learning how to create a professional persona online. Students show a declining use of Rate my Professor as they progress in their studies. Younger students typically use the site to see if a professor would be good, or if an advisor is unsure about the professor in question.

Responses to the open-ended question at the end of the survey identify a need to provide advisors with an up-to-date platform to organize student data. The out-of-date technology at the University of Washington Bothell presents an additional obstacle for advisors when interacting with students, rather than simplifying interactions. Students echo this sentiment by asking for advisors to be provided sufficient training to use certain technologies. Additionally, advisors require technology that will aid them in organizing the vast amounts of student data. By standardizing the platform that advisors use to organize student data allows for advisors to spend time focusing on the needs of the student, while providing them with a clear image of the entire student's academic standing. The results show that advisors and students agree on supporting endeavors to strengthen technology in advising. A majority of respondents agreed that they would support initiatives, and additional studies that assessed the technology needs of students. The goal of a professional advisor is to teach holistic student development. Technology is not the primary solution, but a supplement to aid advisors in achieving their objective of educating students how to develop into a successful professional at the end of their academic career.

Chapter 5

CHAPTER 5 – CONCLUSION

Major Findings

Students and advisors differed in one or two areas of technology-based advising. Results revealed that the two groups share similar views regarding technology in advising. This is due to how students receive information depending on their academic year. Results revealed that advisors preferred using the UWB website and laptops. Regarding future needs, advisors and students indicated they would support additional studies to examine ways to improve technology in advising, and assessments of students technology needs on-campus.

Additional Findings

Results revealed limited significant differences when examining gender, age, and race by dependent variables. The findings support previous studies, that White females between the ages of 25-34 have higher chances of finding advising appointments useful. The lack of minority student participation can be attributed to students being underrepresented, or indicate an issue where students do not see any value to meeting with an advisor. Furthermore, minority students could also be receiving help from student organizations that are mindful of their unique academic needs.

The differences in gender could be due to females being the majority of the university's population. This would align with studies stating that there is an increase in women pursuing higher education, and are gaining employment. Finally, results show that students who would be considered non-traditional (25 or older) are likely to find help from advisors, possibly indicating that they need help to adjust to university life.

Recommendations

Based on the results, the recommendations for the University of Washington Bothell would center on future campus initiatives. First, language of initiatives related to academic advising services could reflect the integration of technology that emphasizes the developmental aspects of advising. At the moment technology being utilized is emphasizing the prescriptive aspects of advising by providing students with information that offers quick answers to their questions. Integrating developmental technology would work to engage students to critically think and reflect about their time in university. Additionally, initiatives could focus on standardizing the educational technology across departments. This would ensure students and advisors are able to locate information in a centralized form. Second, assessments of technology being used by advisors and students should be conducted by the Information Technologies department in partnership with Student Affairs to keep track of what technologies are useful. The University of Washington Seattle campus conducts similar assessments, so the University of Washington Bothell could work to apply those assessments on its campus to address their students' needs. Third, student organizations could consider working with advisors to ensure that an open channel of communication exists. Finally, advisors and faculty could consider working together to identify the key skills that students should be gaining while at university. Having faculty and advisors work together provides an opportunity for advisors to then relay to students exactly what their professors are expecting them to learn from their classes. Future campus initiatives could consider working to expand on the efforts being conducted at the other University of Washington campuses, or examine the practices of technology in advising at other educational institutions to craft initiatives that meet their unique needs.

Limitations

Creation and distribution of the survey was completed in two months. Ideally, additional time would have been spent with advisors to create a survey that asks in-depth questions about technology use and perspectives. There were just enough responses to grant statistical power; therefore, results are susceptible to Type Two error. Having the survey online meant that participants were self-selected, introducing bias. There was a low response rate to the surveys that were distributed. Results of this study can only be generalized to the students and advisors at the University of Washington Bothell.

Further Studies

Further studies should examine educational technologies based on whether they focus on prescriptive or developmental tasks. Advisors and students should be interviewed in focus groups in addition to taking surveys to provide additional insights. There should be input from all the departments in the university. Faculty advisors should be included in the study to examine if there are differences between professional advisors, faculty advisors and students. Future studies could consider building off of one another to expand findings, note patterns, or note any anomalies. Studies in the future should utilize a mixed methods approach to take advantage of qualitative and quantitative data.

Appendices

Appendix A: Survey

Demographic Information

Please tell us a little about yourself

1. How old are you?
    a. 18-24
    b. 25-34
    c. 35-44
    d. 45-54
    e. 55-64
    f. 65 or Older
2. Please select your gender.
    a. Male
    b. Female
    c. Other:_____
3. Please select your race.
    a. White
    b. Black
    c. Hispanic
    d. Asian
    e. Native American
    f. Pacific Islander
    g. Other:_____
4. Role (Advisor only)
    a. Academic advisor
    b. Career advisor
    c. Academic administrator
    d. Peer advisor
    e. Other:_____
5. What is your class standing? (Student only)
    a. Freshman
    b. Sophomore
    c. Junior
    d. Senior
    e. Graduate
6. Are you a first-generation student?
    a. Yes
    b. No

Section 1: Perspectives

Please indicate how much you agree or disagree with the following statements.

For this section, technology refers to physical tools used to deliver advising information. Online resources refer to web applications used to deliver advising information.

1. Increasing technological resources in academic and career advising will improve the quality of in-person advising services.
    a. Strongly agree
    b. Agree
    c. Neither agree or disagree
    d. Disagree
    e. Strongly disagree
2. UW Bothell should consider expanding online resources in the areas of academic and career services.
    a. Strongly agree
    b. Agree
    c. Neither agree or disagree
    d. Disagree
    e. Strongly disagree
3. Expanding technological resources in advising will provide better access to resources for students.
    a. Strongly agree
    b. Agree
    c. Neither agree or disagree
    d. Disagree
    e. Strongly disagree
4. Using technology in advising will encourage students to meet more often with their advisors.
    a. Strongly agree
    b. Agree
    c. Neither agree or disagree
    d. Disagree
    e. Strongly disagree
5. Do you think an increase in technological resources impact the relationship between advisor and student? Why or why not?
    a. Short answer

Section 2: Use

Please indicate your use of the following devices and online resources to find information.

For this section, technology refers to physical tools used to deliver advising information. Online resources refer to web applications used to deliver advising information.

How frequently do you use the following devices in a typical advising appointment?

	Frequently	Somewhat frequently	Not very frequently	Never	N/A
Desktop Computer					
Laptop					
Smart phone					
Tablet					

How useful are the following devices in a typical advising appointment?

	useful	Somewhat useful	Not very useful	N/A
Desktop Computer				
Laptop				
Smart phone				
Tablet				

How frequently do you use the following online resources in a typical advising appointment?

	Frequently	Somewhat frequently	Not very frequently	Never	Not applicable
Online appointment scheduling					
MyPlan					
UWB Website					
Learning management system (Canvas, catalyst)					
Emailing					

advisors					
Social media					
Job search sites (Handshake, LinkedIn)					
Rate My Professor					

How useful are the following online resources in a typical advising appointment?

	useful	Somewhat useful	Not very useful	Not applicable
Online appointment scheduling				
MyPlan				
UWB Website				
Learning management system (Canvas, catalyst)				
Emailing advisors				
Social media				
Job search sites (Handshake, LinkedIn)				
Rate My Professor				

Section 3: Needs

Please indicate how much you agree or disagree with the following statements.

For this section, technology refers to physical tools used to deliver advising information. Online resources refer to web applications used to deliver advising information.

1. UW Bothell meets my technology needs
    a. Strongly agree
    b. Agree
    c. Neither agree or disagree
    d. Disagree
    e. Strongly disagree
2. I would support surveys that assess students' technology needs.
    a. Strongly agree
    b. Agree
    c. Neither agree or disagree
    d. Disagree
    e. Strongly disagree
3. I would support initiatives improving technology in advising.
    a. Strongly agree
    b. Agree
    c. Neither agree or disagree
    d. Disagree
    e. Strongly disagree
4. Do you have any additional comments or thoughts regarding your use of technology in advising, your needs or experiences? Please share.
    a. Short answer

Appendix B: Recruitment Materials

Subject: UWB – Request to participate in a study about your use of technology in advising

Hello,

My name is Shakeera Vaikunthanathan; I am a policy researcher in the Master of Arts in Policy Studies at the University of Washington Bothell. As part of the program I am researching the differences between how advisors and students interact with technology in advising.

You are receiving this email to ask if you would like to complete an 18 question survey that will take approximately 5-10 minutes to complete.

Participation in this study is completely voluntary. Responses will be kept confidential. Confidentiality will be maintained in all works, publications, and presentations related to the study.

If you are interested, please click on the link for the survey:

If you have any questions or concerns about the research, please contact me at sv77@uw.edu.

Sincerely,

Shakeera Vaikunthanathan
Graduate Policy Researcher
Master of Arts in Policy Studies
University of Washington Bothell

Appendix C: IRB Letter of Exemption

UNIVERSITY of WASHINGTON
HUMAN SUBJECTS DIVISION

DETERMINATION OF EXEMPT STATUS

April 19, 2019

Dear Shakeera Vaikunthanathan:

On 4/19/2019, the University of Washington Human Subjects Division (HSD) reviewed the following application:

Type of Review:	Initial Study
Title of Study:	Differences between advisors and students in usage, perspectives, and needs of technology in advising
Investigator:	Shakeera Vaikunthanathan
IRB ID:	STUDY00007198
Funding:	None

Exempt Status

HSD determined that your proposed activity is human subjects research that qualifies for exempt status (Category 2).

- This determination is valid for the duration of your research.
- This means that your research is exempt from the federal human subjects regulations, including the requirement for IRB approval and continuing review.
- **Depending on the nature of your study, you may need to obtain other approvals or permissions to conduct your research. For example, you might need to apply for access to data or specimens (e.g., to obtain UW student data). Or, you might need to obtain permission from facilities managers to approach possible subjects or conduct research procedures in the facilities (e.g., Seattle School District; the Harborview Emergency Department).**

If you consider changes to the activities in the future and know that the changes will require IRB review (or you are not certain), you may request a review or new determination by submitting a Modification to this application. For information about what changes require a Modification, refer to the GUIDANCE: Exempt Research.

Thank you for your commitment to ethical and responsible research. We wish you great success!

Sincerely,

Lisa A. Chartier
IRB Administrator, Committee A
(206) 616-2345
chartla@uw.edu

Appendix D: Tables and Figures

Table 1: Demographics of respondents

Total sample N=41		
Gender	**n**	**Valid %**
Male	9	22
Female	31	75.6
Other	1	2.4
Race	**n**	**Valid %**
White	25	61
Black	3	7.3
Hispanic	3	7.3
Asian	7	17.1
Two or more races	3	7.3
Age	**n**	**Valid %**
18-24	13	31.7
25-34	13	31.7
35-44	9	22
45-54	2	4.9
55-64	4	9.8
First-generation	**n**	**Valid %**
Yes	18	43.9
No	23	56.1
Advisor Roles	**n**	**Valid %**
Academic	11	50
Career	4	18.2
Academic Administrator	3	13.6
Peer Advisor	1	4.5
Other	3	13.6
Student Class Standing	**n**	**Valid %**
Freshman	1	5.3
Sophomore	4	21.1
Junior	2	10.5
Senior	2	10.5
Graduate	10	52.6

Table 2: What is your preferred method of interaction?

N = 41	**Valid %**
Face-to-face	82.9
Email exchange	17.1

Table 3: I think the amount of technology to deliver advising services is…

N = 41	Valid %
Too little	29.3
Just right	70.7

Table 4: Using technology during an advising appointment…

N = 41	Valid %				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Provides a higher quality of advising	31.7	48.8	17.1	2.4	0
Allows to quickly locate resources	57.5	37.5	5.0	0	0
Allows for more time to discuss educational goals	32.5	27.5	30.0	7.5	2.5
Improves student-advisor relationship	17.9	20.5	46.2	12.8	2.6
Simplifies school-related administrative tasks	68.4	23.7	7.9	0	0

Table 5: Frequency of technology during an advising appointment

N=41	n	Valid %			
		Never	Not frequently	Somewhat frequently	Frequently
Desktop PC	33	12.1	30.3	3	54.5
Laptop	36	2.8	11.1	16.7	69.4
Smartphone	35	25.7	25.7	17.1	31.4
Tablet	29	62.1	24.1	6.9	6.9

Table 6: Frequency of online resources during an advising appointment

N=41	n	Valid %			
		Never	Not frequently	Somewhat frequently	Frequently
Email	37	2.7	8.1	21.6	67.6
Learning management systems	36	13.9	22.2	19.4	44.4
MyPlan	34	17.6	17.6	32.4	32.4
Online appointment scheduler	37	8.1	24.3	18.9	48.6
Rate My Professor	33	48.5	21.2	15.2	15.2
Social media	35	48.6	17.1	17.1	17.1
UWB website	37	0	18.9	21.6	59.5
Job search sites	37	24.3	32.4	24.3	18.9

Table 7: Usefulness of technology during an advising appointment

N=41	n	Valid %		
		Not useful	Somewhat useful	Useful
Desktop PC	33	0	21.2	78.8
Laptop	37	2.7	8.1	89.2
Smartphone	36	25	30.6	44.4
Tablet	26	38.5	34.6	26.9

Table 8: Usefulness of online resources during an advising appointment

N=41	n	Valid %		
		Not useful	Somewhat useful	Useful
Email	37	5.4	21.6	73
Learning management systems	33	6.1	24.2	69.7
MyPlan	30	6.7	36.7	56.7
Online appointment scheduler	36	0	13.9	86.1
Rate My Professor	29	51.7	34.5	13.8
Social media	29	48.3	41.4	10.3
UWB website	36	2.8	25	72.2
Job search sites	36	19.4	50	30.6

Table 9: The technology at UW Bothell meets your needs

n=36	Valid %
Strongly agree	11.1
Agree	63.9
Neutral	8.3
Disagree	16.7
Strongly Disagree	0

Table 10: I would support surveys that assess the technology needs of students

n=36	Valid %
Strongly agree	55.6
Agree	41.7
Neutral	2.8
Disagree	0
Strongly Disagree	0

Table 11: I would support initiatives improving technology in advising

n=35	Valid %
Strongly agree	60.0
Agree	28.6
Neutral	11.4
Disagree	0
Strongly Disagree	0

Appendix E: References

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