9-2019

An Evaluation of Undergraduate Advisors Experience Using Learning Analytics to Support First-year Students

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Recommended Citation

AN EVALUATION OF UNDERGRADUATE ADVISORS EXPERIENCE USING

LEARNING ANALYTICS TO SUPPORT FIRST-YEAR STUDENTS

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Submitted to the faculty of the School of Education
in partial fulfillment of the requirements
for the degree
Doctor of Education
in the School of Education
Indiana University
September 2019

Accepted by the School of Education Faculty, Indiana University, in partial fulfillment of the requirements for the degree of Doctor of Education

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August 16, 2019

Acknowledgements

My quest to become Dr. Darcy would not have been possible without the significant love and support of my family and friends. There are not enough words to address eveyone who has played a part in my accomplishment. I must acknowledge a few.

To Grif, anything is possible with hard work and the fortitude to keep moving forward despite setbacks, distractions, and indecision. Thank you for being such a caring and easy going human. You make me proud to be your mom every day.

Mom, there has never been a moment in my life when you have not stood by my side to encourage me and support me in my lofty adventures. Thanks for the love, walks, and text messages offering me dinner! Dad, I am sad that you are not physically here to see me finish my doctorate but know you are with me everyday. You have been and always will be my biggest supporter.

Colleen "are you done yet?" Carmean. I am done! You inspired my decision to jump into this journey. There is no way I could have pulled off the three courses a semester load without your understanding, flexibility, and support. You kept me grounded, calmed me with Buddist wisdom, and kept me laughing with crazy stories from your travels and life.

Last but not least, Forrest. I think you misunderstood when I said I was going to be a doctor. Over the last three years you have had wrist surgery, heart valve replacement, three falls, injured ribs, bad reactions to medications, cataract surgery, pneumonia, ER visits, and your fair share of symptoms, tests and recovery steps to go along with it all. Thank you, for reinforcing and proving that the research I collected on the effects of scarcity mindset is real.

To all of the faculty and support staff of the Instructional Systems Technology program. Thank you for always being enthusiastic, understanding, and dedicated to our

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AN EVALUATION OF UNDERGRADUATE ADVISORS EXPERIENCE USING

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Higher education institutions are now serving post-traditional students. With the ever-increasing diversity and complex needs of these post-traditionals, institutions are striving to design policies, programs, and institutional supports to best support their diverse needs. Many are venturing into the world of learning analytics to gain deeper insights into the student academic experience and leveraging data to improve student success and retention. Previous research has centered on the institutional level impact of learning analytics on student success and rarely gives representation to the experience of specific individual sub-groups of organizational stakeholders. This summative evaluation sought to capture the experiences of 5 undergraduate advisors who participated in a three-year pilot of Civitas Inspire, a learning analytics system, to support first-year students. The Comprehensive Mixed Methods Participatory Evaluation model served as a conceptual framework allowing for an in-depth exploration of advisors' perspectives on six evaluation components: acceptability, social validity, program integrity, program outcomes, implementer competence, sustainability, and institutionalization. An examination of previous research identified capacity building, data integrity, messaging, and privacy/ethics as common challenges faced by institutions who have adopted learning analytics systems. Evaluation results found advisors encountered similar challenges. Prominent throughout the advisors narrative was the effects of shadow-culture on technology adoption efforts. Advisors expressed the need for greater stakeholder inclusivity; for institutions to acknowledge and understand stakeholder workflow, and the necessity for a connect the dots approach towards institutionalization efforts.

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Changing Landscape of Higher Education

Higher education institutions are now serving *non-traditional* students. These non-traditional students are the majority at some institutions and are defined as having at least one of the following characteristics: at least 24 years old, has delayed enrollment in post-secondary education beyond the first year of high school graduation, married, works full-time (more than 35 hours a week) while enrolled, a veteran, a member of the armed forces, someone with legal dependents other than a spouse, an emancipated minor or someone who is homeless or at risk of becoming homeless, single parent or has no high school diploma or obtained a General Education Diploma (Choy, 2002; US Department of Education, Federal Student Aid Glossary, n.d).

The numbers of non-traditional students are continuing to increase as is the breadth of characteristics that define them. Additional factors such as food insecurity, the financial burdens of paying for college and work schedules can add additional factors potentially leading to a scarcity *mindset*. Mullainathan and Shafir (2013) describe scarcity mindset as a phenomenon in which the very thing we have the least of in our lives, the thing that is scarce, whether it be time, love, money, or food, can potentially change the way we think by consuming our thoughts and diverting our focus (Mullainathan & Shafir, 2013). It is the *feeling* of scarcity that has been found to reduce our mental capacity and at times can sub-consciously move us to redirect our attention to what we feel is essential. What can scarcity mean for first-year college students? According to Zhao and Tomm (2018) scarcity can shift our attention resulting in high mental efforts being redirected to urgent unmet needs. This shift can become a distraction for students

who trade-off focusing on academic decision-making to address issues of scarcity they are experiencing.

Scarcity mindset can lead to impulsivity and the inability to make rational choices. This can create a cycle of postponing and losing focus on school work with the notion that there will be time or less urgent needs to be met in the future allowing for refocusing and completion of academic responsibilities. Ultimately, this can lead a student to engage in counter-productive behaviors, due to a decrease in self-regulation regarding task persistence and performance. As the student becomes further behind or overwhelmed with postponed academic tasks, they may avoid taking action to get back on track.

The term non-traditional has seen a shift towards a more forward-thinking and positive framing, the post-traditional. Post-traditional students are unique and bring far more breadth of experience, needs and challenges to higher education institutions than the traditional 18 year-olds, straight out of high school. Post-traditional students are less likely to persist to graduation and do not tend to seek support services, even if there are institutional supports in place to help, and they are the most vulnerable to experiencing a scarcity mindset due to increasing responsibilities outside of their academics (Metzner & Bean, 1987; Mullainathan & Shafir, 2013).

With the ever-increasing diversity and complex needs of these post-traditional students, institutions are striving to design policies, programs, and institutional supports to improve post-traditional student retention and success. Many are turning to institutional data to gain a deeper understanding of their students. Data have always been collected at various points in a student's academic journey. Census day reports, admissions data, demographics, and past academic standing provide a historical snapshot. For example, at the University of Washington Tacoma,

data show that 58.5% of students are first-generation (University of Washington Tacoma Census Day Profile, 2018). These students often come into the university at a disadvantage because they do not have family members with experience on how to navigate or succeed in a college environment. In addition, they face daily non-academic challenges that can lead to implications stemming from scarcity mindset. Institutions must provide a web of support for these students. Including not only understanding past historical academic performance and demographic information but continuous monitoring and outreach to ensure those students will persist. One of the key stakeholders in this effort is undergraduate advisors.

Role of advisors. Academic advisors play a crucial role in supporting students as they transition to college. Post-traditional student diverse needs require advisors to not only track academic performance but also be apprised of their student's non-academic challenges like financial burdens, family obligations, and food/shelter insecurities. (Anft, 2018; Bigger, 2005, Fox & Martin, 2017). Fergueson (2017) states that one of the prominent challenges for an advisor is having to reactively take action on data in quarterly reports, periodic student advising appointments and faculty notifications that inform them of when an academic intervention may be required. Technology has afforded new and seamless ways to desegregate and *see* the data through visualization.

Systems allow for filtering of the data, making it easy to manipulate variables to focus in on distinct student populations. These advancements allow advisors to be integrated into the real-time academic lives of their advisees. Opportunities for early intervention can potentially increase student persistence. Institutions can personalize the educational experience by providing advisors, faculty, and the administration a window into behaviors and trends of their student populations from broad to a more granular individual level. Advances in utilizing data,

specifically learning analytics, has the potential to provide real-time actionable information that can inform faculty and advisor of the need for interventions proactively to increase student success (Arnold, 2010). Learning analytics enables advisors to monitor student academic progress by giving them snapshots of their academic progression within a current course but also the ability to see other student's performance in future courses within their degree paths. Learning analytics:

> Has the potential to create actionable intelligence on student performance, based on data captured from a variety of systems. The goal is simple--improve student success; however, it might be defined, at the institutional level (Elias, 2011, p. 3).

As a result, institutions can identify possible red flags within a student's academic journey and be proactive in reaching out and designing interventions for identified challenges. Learning analytics systems produce actionable information prompting advisors to intervene when data indicates a student has moved into a pre-defined at-risk status for non-persistence.

While there has been an increasing urgency in higher education to leverage learning analytics in support of institutional effectiveness and student success, challenges exist. There is still much to learn about working with student data inside of systems like Civitas Inspire (Civitas Learning, 2016). Civitas is an analytics software platform that uses data from established university systems to track trends and forecast persistence among student populations. Inspire is a Civitas product, designed specifically for advisors, that indicates the probability of a student's persistence based on factors like LMS engagement, fluctuations in GPA, enrollment status, and credits attempted. Among the issues at hand is *sensemaking*, not only visually seeing data trends but interpreting their meaning and the causation behind them. The interpretation and analysis of data, despite improving visualization aids, still requires some level of expertise in understanding the meaning of prediction factors, and is subjective, and appraisals are unavoidable (Bichsel,

2012; Dziuban, Moskal, Cavanagh, & Watts, 2012; Ellis, 2013; Norris & Baer, 2013; US Department of Education, 2012).

More effort needs to be made to help personnel understand connections that can be among people, places, and events to interpret and effectively act on findings. Doing so will help university staff obtain empirically supported insights as to why given trends are occurring and what types of interventions, resources and decisions should be made that will have a positive impact on students. Systems like Civitas Inspire can help advisors be proactive rather than reactive and make a data-informed decision to intervene when a student is flagged as at-risk for failing or ultimately leaving the institution. To promote successful adoption, institutions must be informed of and strategically prepare to mitigate barriers and issues identified by institutions who have shared their experiences with learning analytics implementation.

Context

This summative evaluation was conducted at the University of Washington Tacoma, a small, urban-serving university in the Pacific Northwest. The campus was founded in 1990 as one of three campuses that make up the University of Washington. Initially serving only transfer and graduate students, the campus became a four-year institution in 2006, opening its doors to its first class of 190 freshmen. The addition of undergraduate students on campus necessitated the structuring of the Undergraduate Academic Advising Center. This center has recently been renamed to University Academic Advising (UAA) that continues to serve freshman and pre-major students. Currently, there are five full-time undergraduate advising staff (one of which is also the acting Director of the UAA) that are committed to the academic success of 612 first-year students enrolled (University of Washington Tacoma Census Day Data, 2018).

Problem Statement

In 2015, the University of Washington invested in Civitas Learning. Its platform, Inspire, is intended to provide real-time identification of students who are at risk of non-persistence. Access to real-time predictive data addresses one of the aforementioned prominent challenges Fergueson (2017) identified as critical for advisors, the ability for real-time identification of students who are at-risk for non-persistence who may need intervention. In 2016, University of Washington Tacoma launched a pilot of Civitas Inspire with undergraduate advisors with the goal of identifying at-risk students earlier, allowing for proactive interventions to identify issues and provide additional supports students may need to persist academically from year one to year two.

Civitas provided insights into student behavior that was never possible before its implementation. Civitas Inspire was the only system at UW Tacoma that could identify a student whose LMS participation levels dropped in real-time or see a student's grade in Canvas at any moment in time. This type of information would allow advisors to immediately message students from within Inspire and investigate why persistence had dropped. Despite ongoing efforts by the University of Washington Civitas pilot group to promote the value of the tool, undergraduate advisor's utilization of Civitas Inspire was extremely low and in some cases nonexistent. As a result, the Civitas contract was not renewed, and the University of Washington shut down the program in December 2018. Thus, University of Washington Tacoma is faced with not knowing how or if to proceed with investing in another learning analytics system.

The experiences of undergraduate advisors that resulted in low utilization and system termination remained unexplored. Despite small successes with Civitas in collecting rich and insightful data on student populations, there is no longer a real-time analytics tool to help

identify students at-risk for non-persistence. Understanding the undergraduate advisor's experience promised to aid in planning for and evaluating future learning analytics system implementations.

Research Purpose and Question

At the University of Washington Tacoma, leveraging learning analytics within undergraduate academic advising to support first-year students has proven difficult. Universities across the country have seen success in learning analytics implementation but have reported concerns surrounding organizational capacity building, data validity, becoming over-reliant on data-driven mass messaging of identified at-risk students and student privacy. Advisor relationships with first-year students are an ongoing process of trust-building. They build trust by providing reliable information, consistency in sharing knowledge, and effectively advocating for and guiding advisees. University of Washington Tacoma's goal was to implement a tool, which would provide real-time data on students, flagging those moving into high or moderate risk for non-persistence. Advisors could use the tool to track student progress and proactively reach out to find out why there was a decline in performance and what possible actions or supports could be provided to get them back on track towards degree completion. This data would be in real-time, providing actionable insights much earlier than quarterly advisee appointments or faculty-driven early-alert notifications.

In this context, the purpose of this study was to evaluate the undergraduate advisor experience within the Civitas Inspire pilot project utilizing the Comprehensive Mixed Methods Participatory Evaluation Model (CMMPE) presented by Nastasi and Hitchcock (2016) as a summative evaluation framework. Specifically, the focus was to explore each of the CMMPE components through the lens of the advisor to pinpoint what system benefits emerged and what

barriers led to minimal system utilization. Since the identified problem focused on undergraduate advisor's minimal utilization of Civitas Inspire, this study was guided by the following question: What were undergraduate advisors experience with Civitas Inspire as a tool for supporting first-year students?

Research Contributions

The impact of this study on the existing research in the field of learning analytics utilization in higher education is two-fold. First, findings will contribute to University of Washington Tacoma's future decision-making process by gathering data on the undergraduate advisor's experience with Civitas Inspire. Gaining a better understanding of undergraduate advisors' experiences with Civitas Inspire, as an advising tool, will help evaluate what is needed when assessing other analytics systems and aide in organizational process improvement. It will also explore and expand upon what other institutions have identified as areas critical to implementation success: organizational capacity, data integrity, shifts in institutional culture, intervention messaging, and student privacy/ethics. Second, the advising culture is one of personal relationship and trust-building, traditionally through one-on-one encounters with students (Habley, 1994). As student demographics and needs change, the advisor role must adapt to better support them. Exploring how learning analytics systems, which produces machine driven insights into a student's academic journey, aligns with traditional advising culture, will contribute to growing research in the area of learning analytics in higher education.

Definitions

Many key terms used in this study have varied definitions that have been revised as technology and research evolves. The following definitions are reflected in this study:

Actionable Analytics – using insights and knowledge gained from data, both historic and predictive, to take meaningful action or make data-informed decisions.

Canvas – the learning management system used by the University of Washington.

Civitas – Civitas is an analytics tool that integrates with existing institutional data to forecast which student populations may be at risk for non-persistence. The Civitas Inspire platform for Advisors brings learning analytics to the advisor at the individual student level so more personalized interventions can be deployed in a just-in-time fashion.

Data-Driven Mindset – the propensity to collect, analyze, and take action based on data.

Electronic Academic Records System (EARS) – the web interface used by academic advisors to access student data regarding demographics, academics, directory information, and transcripts.

Learning Analytics – collecting and analyzing data on students learning within a specific educational context to better support their progress, behavior, and activities.

Learning Management System (LMS) – a web interface used for the administration and delivery of courses. Allows for student engagement, assessment and tracking.

Non-traditional/Post-traditional student – a student who is identified as having at least one of the following characteristics: over 24 years old, has delayed enrollment in post-secondary education beyond the first year of high school graduation, married, a veteran, a member of the armed forces, an orphan, a ward of the court, or someone with legal dependents other than a spouse, an emancipated minor or someone who is homeless or at risk of becoming homeless, single parent or has no high school diploma or GED.

Persistence – the probability that a student will stay enrolled for the academic year.

Predictive Analytics – Using educational data to reveal relationships and patterns that can be used to predict student behavior and outcomes.

Sensemaking – the ability to accurately interpret findings and give meaning to data in order to act in an effective and confident manner.

Student Database (SDB) – the UW student database that provides access to registration, time schedule and course information, student grades, admission process, and administrative tasks.

Student Information Database (SIS) – the UW management information system that stores registration, admission, student records, and financial aid data.

Chapter 2 Literature Review

This literature review begins by providing an overview of recent research on the breadth of non-academic challenges college students must traverse on their journey towards degree completion. Many post-traditional students face housing, food, and financial insecurities, work more hours, have families or are caregivers and may struggle to fit in culturally and socially, all while trying to achieve their academic goals. Then, a synopsis is given on how colleges and universities are leveraging student data to more quickly identify and better support the increasingly complex challenges that post-traditional students encounter while pursuing their degree. Many institutions are turning to analytics systems that can aggregate large amounts of student data, predict behaviors and provide real-time insights into fluctuations in student performance and engagement. Further, challenges and issues that institutions, who have implemented these systems, are identified along with best practices and barriers regarding organizational capacity, data integrity, shifts in institutional culture, intervention messaging, and student privacy/ethics. These areas must not be overlooked, when implementing systems, to gain actionable insights from data to improve student performance and increase retention.

In a recent study conducted by Dubick, Mathews, and Cady (2016), 48% of students ($n =$ 3,765) from eight community colleges and 26 universities across 12 states who participated reported experiencing food insecurity - the lack of affordable, nutritious food within the previous 30 days. Additionally, of those students who reported food insecurity, 64% reported housing insecurity while 15% were homeless. Participants indicated that these types of insecurities (hunger, housing and financial) negatively impacted their ability to perform well academically, join extracurricular activities, attend class, buy textbooks or stay enrolled in their courses. Wood, Harris, and Delgado (2016) conducted a similar study involving a subset of 3,647 students from

California colleges who used the Stressful Life Events Scale. The study participants identified themselves as 31% Caucasian, 6.5% Asian, 2.3% Southeast Asian, 3.5% Filipino, 13.8% African American, 37.9% Latino, and 5.7% Multiethnic. The Stressful Life Events Scale was a tool developed by the Community College Equity Assessment Lab (CEAL) to assess food and housing insecurities. Results from this study showed 48.9% of students reporting food insecurities, and one third (32.8%) experiencing housing insecurity. The study concluded that students who experience these types of insecurities tend to lose self-esteem regarding academic performance, lose motivation, feel out of control, are less focused, and take other characteristics of a scarcity mindset.

The aforementioned insecurities and those outlined as being characteristics of post-traditional students align with factors Tinto (1996) identified as impacting first-year student retention. Academic challenges, the inability for students to socially adjust and feel as if they belong, poorly constructed or the absence of goals, external commitments and general feelings of isolation are all insecurities that can lead to non-persistence. How can institutions meet the needs of these *post-traditional* students? Many are leveraging student data.

Learning Analytics in Higher Education

Many institutions across the country have made a move towards utilizing learning analytics because it allows for more targeted data-driven decisions about student success and retention (Dietz-Uhler & Hurn, 2013; Picciano, 2012). In the past, institutions have dealt with antiquated silos of student data, often presented in unfriendly formats, making interpretation unreliable and inefficient. Higher education institutions have "traditionally been inefficient in its data use, often operating with substantial delays in analyzing readily evident data and feedback" (Siemans & Long, 2011, p. 32). Technology has afforded new and seamless ways to *see* the data,

manipulate variables, be proactive in the academic lives of our students, enhance student persistence and rethink the way we design learning environments.

Overview. Learning analytics is personalizing the educational experience by providing advisors, faculty and the administration a window into behaviors and trends of their student populations from broad to more granular individual levels. Learning analytics systems are a powerful tool, providing real-time actionable information, but the real power lies with those faculty and advisors who access the data, and take action with interventions to increase student success (Arnold, 2010; Ballinger, 2018). Learning analytics enables students to take control of their learning by giving them visuals of their academic progression within a current course but also the ability to see how other student's performance in future courses within their degree paths. Rather than relying on conversations with students via email or periodic advising appointments, advisors are afforded a real-time snapshot of each student they support with the immediate ability to reach out and inquire as to how they are doing and what resources may help them succeed.

Further advancements in the development and use of technology tools have moved higher education forward into the world of predictive analytics. Predictive analytics can help institutions forecast student success. Systems like Civitas Illume can now pull individualized student data from a wide range of institutional systems, focusing in on massive amounts of student *breadcrumbs* to predict potential behaviors. Other systems allow advisors and faculty to drill down to an individual student's performance to inform decisions about instruction, interventions, and learning environment design. Immersing institutional data within these emerging technologies means advisors, faculty, and administrators can rethink their roles and effectively leverage tools now available to personalize the learning experience for students.

Successful implementation of learning analytics systems requires a shift to a data-driven culture, data-driven mindset and sensemaking skills by all involved.

Leveraging data. Data Analytics in its purest form examines large amounts of data to uncover hidden patterns, correlations and other insights (Big Data Analytics, 2017). To be data-driven or to have a data-driven mindset means that decision-making or intervention is based on data analysis, trend interpretation and evidence rather than just human intuition or interaction. Applying these methods to an educational context yields the emerging world of learning analytics. According to Siemens and Long (2011), learning analytics suffers from term sprawl, primarily because of the ubiquity of the term analytics. Therefore, it is essential to define the construct of learning analytics before exploring the impact it is having on the success and retention of first-year students in higher education. First, it is about collecting historical and current data, measuring student performance, analyzing changes or patterns in the data and making predictions about learners and their contexts. Second, it is taking action. Through analytics systems that produce data visualizations in real-time, allow for customization of data feeds, and rely on machine algorithms to generate reports, end-users can pinpoint areas or populations of concern and seek solutions towards improving student performance. Taking action on learning analytics data is sometimes referred to as *Action Analytics* (Norris, Baer, & Offerman, 2009) because the institution provides large data sets to feed into learning analytics tools, which in turn use statistical algorithms to predict which students might be at risk for non-persistence. The goal is to produce "actionable intelligence" (Arnold, 2010, p.4) for which institutions can act on proactively.

Student success and retention. Early research on retention of first-year undergraduate students (Tinto, 1999) suggests that four institutional conditions support first-year student

retention: information/advice, support, involvement, and learning. Learning analytics has great potential to assist institutions in meeting all four of these conditions. By implementing systems, like Civitas Inspire, advisors can drill down to an individual student's academic performance by seeing changes in student behavior. A student is tracked through several data points, including LMS activities. When advisors see that a student has been identified as having a very low or low persistence status, (see Figure 1) they can take immediate action with real-time data in hand.
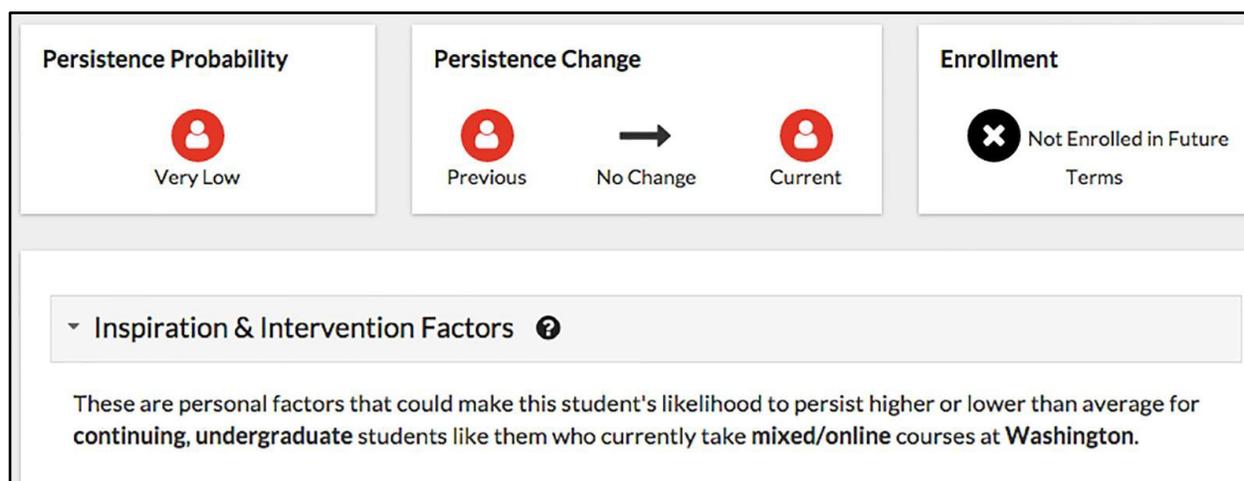
Figure 1. Example of applied filter for students with very low and low persistence probability for summer 2018. Data retrieved from University of Washington Civitas Inspire, July 2018.

By selecting a single student, advisors can see individual details about a student's attempted credits, current course information, academic background and outreach history (see Figure 2). The system shows both inspirational (positive factors) and intervention factors indicating changes in a student's behavior. This can assist advisors in personalizing their outreach, giving target advice and resources to connect and be more intimately involved in the student's situational behavior. They can also inform other campus constituents like faculty, teaching and learning centers, and student support services to expand the support surrounding whatever the student need may be.
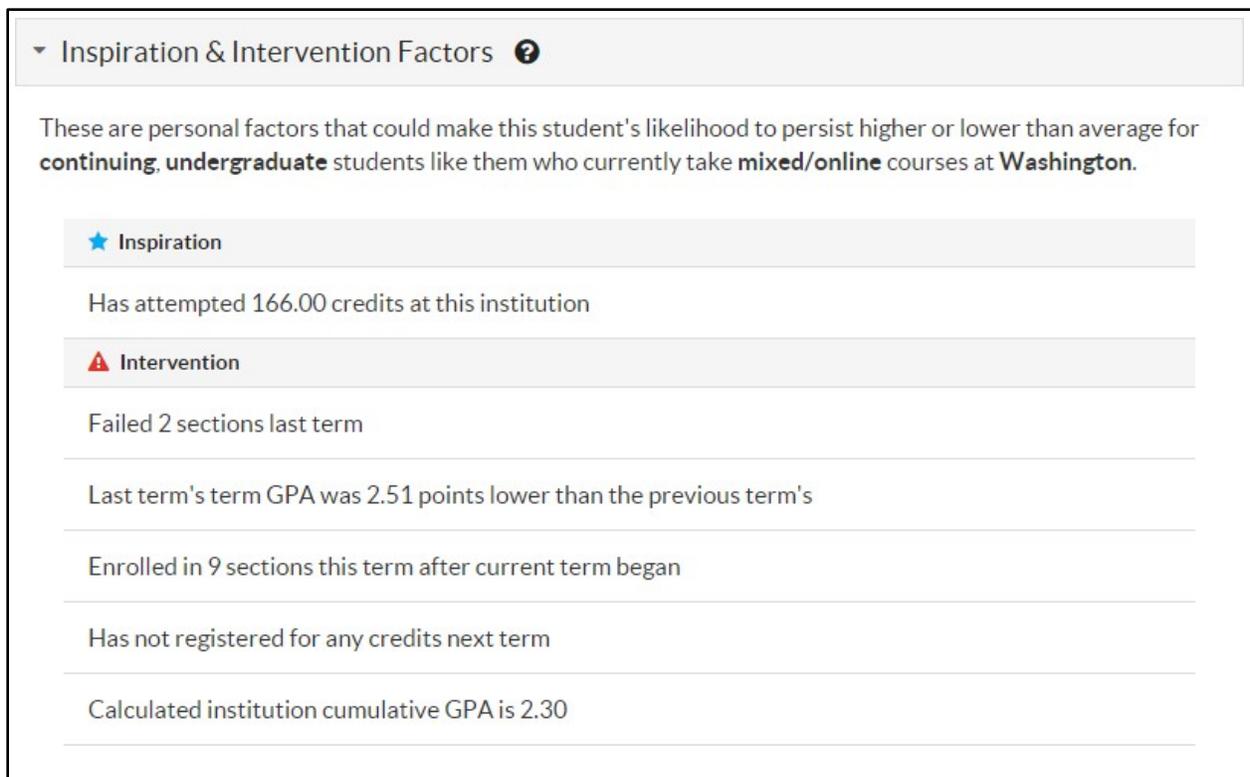
Figure 2. Example of individual student dashboard with very low persistence probability. Data retrieved from University of Washington Civitas Inspire, July 2018.

There is widespread evidence that universities who leverage analytics see improvements in student success and retention. First launched in 2007, Purdue's Course Signals (CS) was one of the earliest implementations of learning analytics integration embedded within a Learning Management System. According to Tanes, King, and Remnet (2011) on the back-end, "*Signals* is an educational data-mining technology that utilizes a course-level predictive algorithm, including multiple data points, to calculate and categorize student that may be at-risk" (p. 2415). For the students, advisors, and faculty, it is a visual traffic light indicating how likely a student is to succeed in the course. Traffic light indicators are categorized as red (high likelihood of being unsuccessful in the class); yellow (moderate likelihood of being unsuccessful in the class); or

green (high likelihood of being successful in the class). Course Signals predicts student course performance based on grades, past academic history, and effort (interactions within the LMS). Research conducted by Arnold and Pistilli (2012) revealed that student performance in courses that integrated Course Signals improved significantly. Scores in the A and B ranged increased between 2.23 to 13.84 percentage points; while C and D students saw 1.84 to 9.38 and .059 to 9.40 percentage point increase respectively. When comparing courses utilizing Course Signals to those that did not, A's and B's were awarded at a 10% increase over courses without CS in previous semesters. Surveys conducted at Purdue showed that 89% of students reported Course Signals as a positive experience. Additionally, Norris and Baer (2013) indicate that Purdue University estimates that it has improved retention in Signals courses by 20% and four-year degree completion rates by 4%. While students may have seen Signals in a positive light, researchers have brought into question the true impact of Signals on retention. Straumsheim (2013) explains that both Michael Caulfield, Director of Director of Blended and Networked Learning at Washington State University Vancouver and Alfred Essa, Vice President of Research and Development for McGraw-Hill contribute higher reported retention rates to simply an increase in the number of courses students completed and not the influence of Signals on student persistence. They suggested further research of the data and stronger testing and validity of claims.

Jordaan and van der Merwe (2015) reminds us that learning analytics does is not just about institutions using data to intervene, but that learning analytics can equally be about students taking control of their learning. Georgia State University (GSU) is an excellent example of how learning analytics evidence-based strategies can result in timely, data-driven interventions for at-risk undergraduate students. In 2012, GSU launched a program called the

Graduation Progression System (GPS). The system utilizes ten years of student data, grades, and graduation rates, to create predictive analytics to target 800 risk factors for 50,000+ individual students. Whether it be a first-year student performing poorly on an introductory math course or a second-year student trying to enroll into an upper-level accounting course who performed very poorly in the required prerequisite course, advisors are alerted in real-time via daily email notifications. According to Dimeo, (2017), prior to 2012, GSU advisors averaged about 1000 meetings per academic year with students. Post-implementation of predictive analytics systems, the number of student meetings and thus early interventions to at-risk students increased substantially. Dr. Timothy Renick, Vice President for Enrollment Management and Student Success, reports that academic alerts sent to advisors through the GPS system have resulted in over 200,000 intervention meetings with at-risk students during the past five years, including 52,000 in a single academic year. (Association of Governing Boards of Universities and Colleges, 2017; Dimeo, 2017).

In addition, GSU implemented a system called the Panther Retention Grants Program to address the approximately 1000 students who were dropping out each semester due to a low balance of funds (less than $1500.00) to cover the cost of tuition (Association of Governing Boards of Universities and Colleges, 2017). Using predictive analytics, GSU was able to cover modest financial shortfalls by automatically distributing micro-grants up to $1500.00 into the accounts of students who were flagged as having low funds. As a condition of receiving the grants, student recipients must agree to meet with a financial counselor to formulate a plan to fund their remaining education. GSU has seen a 67% increase in degree over the past six years since these two analytics initiatives were implemented. The outcomes have been impressive. Gaps that existed between low-income, first-generation and underrepresented minorities have

been reduced. There has been an estimated 111% increase in the number of black male students graduating from STEM majors, and a 226% increase in degrees conferred to Hispanic students in STEM fields.

Learning Analytics: Challenges and Issues

While institutions and their students are reaping the benefits of increased learning analytics system adoption, these implementations do not occur without some resistance and institutional cost. The rapid advancements in using data to track and predict student behavior and outcomes in more advanced ways have meant that institutions must retroactively respond to emerging concerns of organizational capacity, shifts in institutional culture, data integrity, intervention messaging, and student privacy/ethics.

Organizational capacity building. As more institutions move towards utilizing learning analytics to drive targeted data-informed decisions about student success and retention (Dietz-Uhler & Hurn, 2013), there is a growing movement towards developing shared best practices and increasing awareness of barriers to effective learning analytics adoption and utilization. For example, organizational capacity building has been found to be a key success factor in learning analytics implementation. Siemens, Dawson and Lynch's (2013) examination of learning analytics deployment across multiple institutions found that a lack of informed leadership and skills deficits of those using the systems impeded success. Skill deficits included stakeholder understanding of how data is integrated within systems, how data should be interpreted, strategies on how to act on analytics outputs, and linking pedagogy with system predictions.

Norris and Baer (2013) highlight five best practices of institutional capacity building for institutions to consider. In order to facilitate adoption, data should be readily available, easy to capture and the tools and applications interface should meet end-users needs. Policies, processes,

and practices at the institutional level should be developed with a data-driven mindset. System support should align with skill levels of faculty, staff, students and other stakeholders utilizing the systems. Institutional culture and behaviors must align with a data-driven mindset and leadership at the institutional level must possess and promote the value and purpose of a data-driven mindset. Norris and Baer go on to write that institutions must not just provide the tools and technology, they must be purposeful in the implementation and ensure that the organization's organizational capacity and culture supports and promotes stakeholder behaviors needed to optimize student success.

Georgia State University hired 42 new advisors to support its data initiative all with the skills to analyze and employ the data, to become experts in sensemaking. Mike Abbiatti, the Executive Director of WCET and WICHE Vice President for Educational Technologies, said that the big takeaway from the GSU initiative is that you cannot just invest in the hardware and software. You have to have staff that can analyze and employ the data (Dimeo, 2017). Similarly, Ewan McIntyre, research director, Gartner for Marketing Leaders, referenced concern about deployment when writing: "the first step toward a data-driven culture is to spot the obstacles that stand in the way" (Pemberton, 2016, p. 2). Wagner (2019) says dissatisfaction exists surrounding the impact of analytics on practice effectiveness. The reason, she explains, is the back-end work, how data models are developed, tested and trained, are not transparent to stakeholders. Not only do institutions need to establish the infrastructure to support analytics systems; more importantly, the systems chosen must allow for effective workflow stakeholders can understand, stand behind and utilize efficiently.

For institutions new to learning analytics adoption, campus leaders must effectively promote and plan for an institutional-wide cultural change. Addressing cultural issues will

prevent fragmented implementation and ambiguity surrounding who is responsible for student success analytics and create a unified "connect the dots" strategy across all dimensions of the institution (Baer & Norris, 2016). However, planning and promoting utilization can become a larger challenge when subcultures exist within the larger institutional culture. Rex Miller (2019) refers to this as the "shadow culture" (p. 51). According to Sherriton and Stern (1997) it is a mistake for institutions to assume that change will be readily accepted based solely on the merit or reason for the change. The environment within which stakeholders work, the team norms, values, philosophies and ideologies they share may be antithetical to the change being imposed (Williams van Rooij, 2011). Equally impactful on a sub-culture's willingness to adopt new technologies is historical changes endured over the years by the stakeholder group or team. Efforts to maintain a high level of service amidst a changing student demographic, professional expectations, institutional strategic goals and technology tools that have not kept up with needs creates an apprehensiveness surrounding the arrival of the latest technology. (Moon & Bretschneiber, 2002). Ultimately, sub-cultures assess the impact of a new innovation on established norms already driving their success and what the return will be, the value added, by adopting the new technology.

An attempt to shift organizational culture calls for shared governance and sometimes drastic organizational change. GSU contributes its success with learning analytics to taking a problem-solving approach. It tracked the impact of a dozen or more programs, focusing in on identified issues to improve upon within each. It was the culminating success of each that moved the institution towards campus-wide change (Kurzweil & Wu, 2015). It changed its organizational structure, combining critical functions of financial aid, academic support and advising and the university senate under one provost.

Mark Milliron (2019), co-founder and Chief Learning Officer of Civitas Learning suggests it is time for institutions to move away from static reporting and embrace the relational, deep data that can be aggregated and algorithmically to bring data to life. Part of this process, he says is honoring your past as you move towards the future. Moving too quickly can stall progress by what he refers to as "analysis paralysis" (p. vi). GSU had the right idea by beginning with small manageable and impactful issues, the small successes that led to larger wide-spread buy-in and adoption.

Learning analytics may afford advisors a dashboard revealing at-risk student status but how is the system reaching that conclusion and is it deemed an honest and accurate depiction of what is going on in that student's academic journey? Stakeholders utilizing the systems must have confidence in system outputs. Data stemming from learning analytics systems cannot account for social, personal or lacking LMS factors. Additionally, it is an organizational-wide effort where faculty must utilize LMS features, experts in institutional data must share how data is collected, aggregated and presented to stakeholders, and based on visualization outcomes, stakeholders must be aware about inferences that can be reasonably drawn from them (Arnold, Lynch, Huston, Wong, & Olsen, 2014).

Data integrity and validation. Institutions continue to work with vast silos of student data that reside in systems that are many times disconnected and address different types of student records. Now, systems aggregate data into more visually appealing formats and develop predictive and proactive capabilities in a way that supports students. Ifenthaler and Tracey (2016) state that "more educational data does not always make better educational data" (p. 877). With the overabundance of readily viewable trends, historical snapshots, and predictions on student persistence and performance, skills in making meaning of the data are at the core of

learning analytics adoption success. Siemens and Long (2011) suggests that we must move beyond the technical activity of learning analytics and move into sensemaking. According to George and Rodger (2010), sensemaking is the process of creating situational awareness and understanding in situations of high complexity or uncertainty in order to make decisions. It is "a motivated, continuous effort to understand connections (which can be among people, places, and events) in order to anticipate their trajectories and act effectively" (Klein, Moon, & Hoffman, 2006 p. 71).

Viewing data inside of systems like Civitas Illume, which look at past trends on a student population as a whole, creates more questions than answers. The effort needs to be made to understand connections (which can be among people, places, and events) to interpret and meaningfully act on findings. It becomes guesswork as to why trends are occurring and what types of interventions, resources or decision should be made to reach desired outcomes. Knowing that learning analytics systems are pulling data sets from multiple systems across multiple environments interjects the issue of data integrity and validity. Erroneous or incomplete information fed into the system can negatively impact dashboard results and stakeholder buy-in. It is imperative, in the early design stages, to heighten the awareness of stakeholders by having frequent communication between software vendors, data teams, end-users to bridge the gaps between the technical and practical application of the tools (Reyes, 2015).

Impact of the messaging. Learning analytics dashboards allow advisors and faculty to do immediate interventions whenever a student is flagged at-risk. How that intervention should be constructed is one of the challenges that institutions must face. The tone and wording of the messages sent to students can have both positive and negative consequences. San Diego State University found that "simply stating the rule could be demotivating ("You're in the bottom five

percent of your class in LMS activity"), but creating the *right* message was harder and something our data science team was poorly-suited to create" (Fritz & Whitmer, 2017, p. 22). They created a team to design vocabulary for messaging and untimely a repository of colloquial messages designed to motivate and address the behavior that triggered the alert.

Advising first-year students relies primarily on positive verbal and non-verbal communications but also involves reflective and attentive listening, typically in a face-to-face advisor-advisee meeting (Damminger & Rakes, 2017). According to Habley (1994), advisors play a significant role in student resilience in times of academic difficulty. Improper messaging or messages sent based on incomplete data, contextual biases or erroneous assumptions can be detrimental to student persistence and a setback to the trusted relationship between an advisor and advisee. Continual system outputs that prove to be incomplete or inclusive of students who should not be, undermine stakeholder confidence and decrease the likelihood of prolonged system use.

Privacy/ethics issues. There are emerging issues surrounding the ethical use of learning analytics. Historical data has always been collected on student academic performance. Learning analytics takes this process to another level by tracking students in real-time. Overreaching questions are emerging as to whether students should have an active voice in determining what data is collected about themselves, how it is used and stored, who will have access to the data and how student identities will be protected (Slade & Prinsloo, 2013). Institutions should promote a "privacy by design" approach proactively, not as an afterthought (Hoel & Chen, 2016). Another area of concern is the profiling of students based on a narrow set of parameters which can result in limiting students' potential and damaging self-efficacy (Drachsler &

Greller, 2012). Institutions are faced with a moral and ethical issue, whether they are obligated to act on the actionable intelligence that results from learning analytics systems.

Most importantly, higher education institutions should make the process of learning analytics transparent regarding its purpose, usage, and data security (Slade & Prinsloo, 2013). It is evident that learning analytics has shown significant promise for improving first-year student success and retention. Gašević, Dawson, and Siemans (2015) claim that although many institutions have developed dashboards and intervention techniques to help students stay on track, institutional culture and policy is still catching up.

Student success and retention of post-traditional students has become an increasingly urgent focus for many higher education institutions because of the breadth of challenges that they encounter when seeking a degree. In order to provide support and resources for an at-risk student, they must first be identified as such. Predictive and learning analytics systems are bridging large amounts of historical and current student data with support staff so that real-time visualizations can help identify these students, making proactive interventions possible. Institutions must engage stakeholders early to ensure systems are designed for effective utilization with existing systems and that users feel confident in interpreting what the data is revealing about a student population. Stakeholders must be confident that system outcomes are valid. Training users in what data is being aggregated and the intricacies of how the system is producing outcomes will foster action. Additionally, there is much debate as to how transparent institutions should be with students in terms of what data is collected, how it is being used and for what purpose.

Chapter 3 Methodology

The purpose of this research was to conduct a summative evaluation of undergraduate advisor's experience in the adoption Civitas Inspire, at the University of Washington Tacoma to support first-year students. There is a growing body of research documenting the success of institutions that have implemented learning analytics systems to support at-risk students. The University of Washington Tacoma has been unsuccessful in incorporating advising practices with learning analytics utilization. It was critical to explore whether there is something unique about University of Washington Tacoma's advising culture that has shaped the experiences of University of Washington Tacoma's undergraduate advisors, who are the target users of Civitas Inspire. According to Nastasi and Hitchcock (2016), the purpose of conducting an evaluation is to determine the merit, worth, or value of things. A qualitative research approach was the primary method used for this evaluation because it focused on the interpretation of events within a particular phenomenon with less focus placed on the measurement of data collection (Eisner & Peshkin, 1990; Guba & Lincoln, 1982). This summative evaluation focused on a single case; undergraduate advisors experience using Civitas Inspire at the University of Washington Tacoma.

This chapter begins with an overview of the conceptual framework that was used to evaluate the advisors' experiences, followed by an explanation of the rationale for participant selection. Next, a description of all instruments used to collect data is provided with data collection procedures outlined in detail. Finally, a description of the data analysis process and coding techniques in relation to the CMMPE conceptual framework and research questions are presented.

Conceptual Framework

The intent behind choosing to conduct a summative evaluation was to understand the undergraduate advisor's experience using Civitas Inspire more deeply, and not to build theory. Research questions were broad and were intended to focus on advisor's experience as it evolved throughout the pilot process beginning with initial involvement and ending with the system shut-down. For a program to be successful, consideration must be taken to address multiple stakeholder perspectives in conjunction with the integration of multiple program components. Based on this notion, it must be recognized that the advisor's experience using Civitas Inspire transpired within a cultural-specific context. Nastasi and Hitchcock (2016) define culture as the norms relevant to a particular context or group, in this case, the University Washington Tacoma and more specifically, University Academic Advising. Context is then defined as the setting or set circumstances in which participants directly interact. The context, in this case, can be considered the advisor's involvement in the adoption of Civitas Inspire.

Nastasi and Hitchcock (2016) stress that the researcher must understand different viewpoints of how stakeholder's experienced program effects in order to achieve a strong qualitative understanding of context and how it was influenced by the culture. Therefore, when seeking insights into the advisor's experiences that transpired during the process of adopting Civitas Inspire components of the Comprehensive Mixed Methods Participatory Evaluation Model (CMMPE) outlined in Nastasi and Hitchcock (2016) were integrated to guide me in critically examining the research question: what do undergraduate advisors experience with Civitas Inspire as a tool for supporting first-year students? Table 1 shows how this model guided my inquiry into the undergraduate advisor's experience with Civitas Inspire as a tool for

supporting first-year students and how their experiences shaped their perceptions of using

learning analytics to support University of Washington Tacoma first-year students.

Table 1

Application of Comprehensive Mixed-Methods Participatory Framework

Component/Dimensions	Definition
Acceptability	The extent to which undergraduate advisors view learning analytics systems like Civitas Inspire as feasible (e.g., in terms of time and given resources), important (e.g., meeting the needs of advisors) and if they value the system enough to facilitate its implementation and sustainability.
Social Validity	The extent to which learning analytics systems like Civitas Inspire are consistent with the established cultural norms of University academic advising.
Program Integrity	The extent to which the Civitas Inspire system's core program components are implemented as designed, the adaptability of the system to meet outcomes and whether requested or obtained program adaptations met individual and contextual needs.
Outcomes	The extent to which program goals and objectives are known by the advisors and whether Civitas Inspire produced intended (consistent with goals and objectives) or unintended (unanticipated) consequences (positive and/or negative) as a result of the learning analytics interventions initiated.
Sustainability	The extent to which Civitas Inspire will continue to be utilized in the future by the advisor. What are the facilitators and barriers to continued utilization? What needs to be done to promote sustainability?
Institutionalization	The extent to which Civitas Inspire could be expanded beyond just undergraduate advisors. What policies, staffing, expertise, admin support or other resources do advisors perceived as needed for institutionalization across other stakeholder groups (e.g., faculty)?
Implementer Competence	The extent to which undergraduate advisors feel they possess the necessary competencies for successful Civitas Inspire implementation. What skills do advisors see as necessary? What training and support were provided?

Note: Nastasi and Hitchcock (2008). Copyright 2008 National Association of School

Psychologists. Adapted with permission (Appendix B).

While the CMMPE Model (Nastasi and Hitchcock, 2016) is a formative evaluation tool that can be used during program implementation and to guide data-based decision-making about program adaptions, it can also be implemented as a summative evaluation tool at the end of a program to document and explain program outcomes. As a summative evaluation tool, the model does not rely on just outcomes but also looks at multiple dimensions (see figure 3) and stakeholder views to determine program success and value.
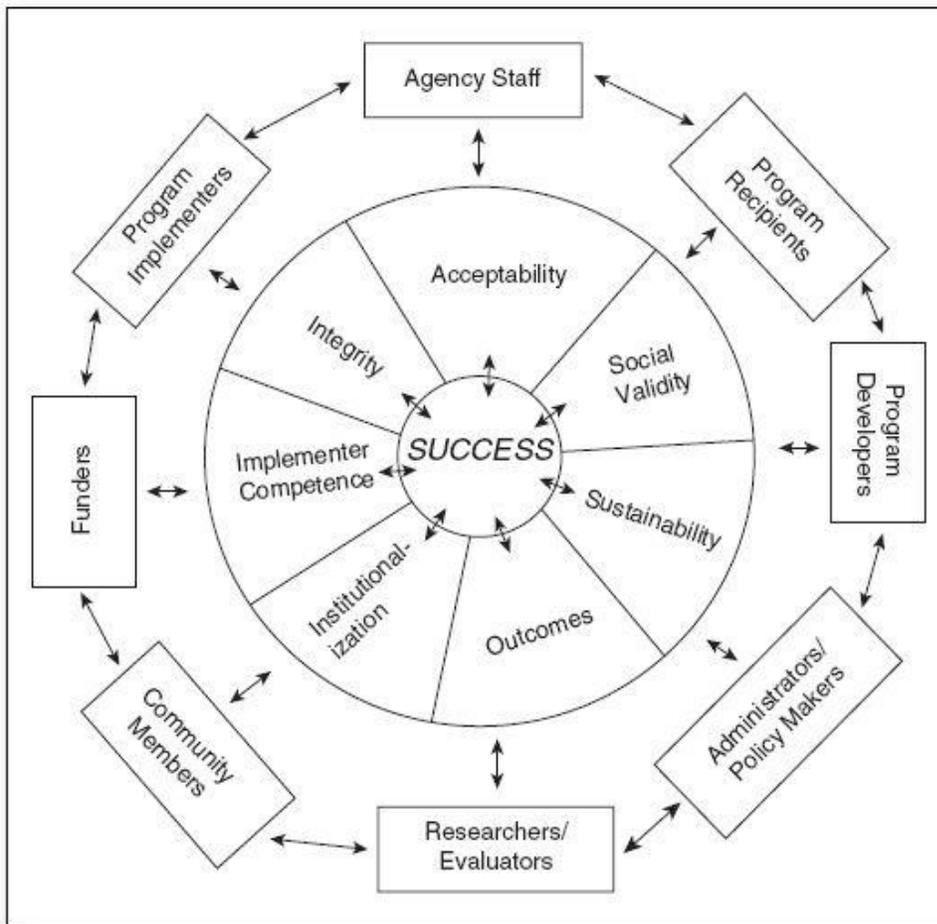
Figure 3. Comprehensive Mixed Methods Participatory Model. From "Mixed methods research and culture-specific interventions: Program design and evaluation" Nastasi and Hitchcock, 2016, p. 83. Copyright 2004 National Association of School Psychologists. Reprinted with permission.

In this case, the Civitas Inspire pilot was not successful in integrating the system into University Academic Advising but knowing which dimensions may have played a role in shaping the advisor's experience can provide guidance for future pilots. This evaluation will explore a single stakeholder dimension within the model. Including the CMMPE model components allowed for deeper inquiry into the role the Civitas Inspire system and the pilot program played in shaping the advisor's experience within the advising culture.

Participants

This study employed a purposeful sampling strategy. The Undergraduate Academic Advising Team was chosen specifically for this case study because they 1) participated in the Civitas Inspire Pilot 2) have been trained in the use of the Civitas Inspire learning analytics system as well as other data tools available to our campus 3) are the established unit at the forefront of identifying and addressing issues and concerns students encounter as they progress towards graduation. The Undergraduate Academic Advising Team was solicited to participate in this study by the researcher individually through personal in-person conversation. Appendix C provides a copy of the invitation each participant received. All had first-hand experience with Civitas Inspire and were willing to participate in this study when asked by the researcher.

Additionally, it was critical to have the representative from Institutional Research/Student Success Group at the University of Washington Tacoma and the one individual from University of Washington Seattle Information Technology Group who led the implementation efforts of learning analytics on campus. Both agreed to participate and were approached in the same manner as the advisors. Both had first-hand knowledge with regard to pilot development, system functionality, adaptations, training, policy, project goals, and outcomes to corroborate what advisors shared of their experience. Table 2 shows participant demographics, including current

position within the university and how their participation in the Civitas pilot transpired. The

specific focus of this research is on the advisor's experience with learning analytics

implementation; therefore, students were not included in this initial study.

Table 2

Participant Demographics

Position	How did their involvement in the Civitas pilot transpire?
Participant 1: Senior Advisor	No prior experience with Civitas They recall Civitas being introduced to the advisors as "just another tool we could use" and that "there are many tools you can use in advising and that Civitas is one of them."
Participant 2: Senior Advisor	They were told to attend mandatory half-day training. "Basically, it was just something we heard was going to be piloted, and we needed to go to the training for it. We didn't hear a whole lot before that."
Participant 3: Senior Advisor	They arrived as a new advisor in the last year of the pilot. As part of the new hiring process, "I was shown Civitas and how to use it, but it was a pretty brief part of that training. So, that is how I was introduced to it."
Participant 4: Senior Advisor	They said, "Obviously, it came about because it was just one of those things the University wanted us to do. We were basically told this is what we're going to do."
Participant 5: Director of University Academic Advising	They were approached by Institutional Research about taking part in the pilot. "I was the main point of contact for the pilot and communicated any changes needed or issue that needed to be reported to the Civitas rep or Seattle."
Participant 6: Associate Vice Chancellor for Academic Innovation	For the first year of the pilot, they were also the responsible for Institutional Research. They described their roles as being the person to champion the use of Civitas software. "I have been the strategic lead on the on the UWT implementation and use of Civitas and all of its software."

Participant 7: Business Analyst in UW Seattle Information Technology	They were brought into the project upon its launch and were responsible for working directly with the UW Tacoma Pilot participants to communicate system issues or data validity issues to Civitas. "So, I did most of the vendor and user communication. I was the liaison with the vendor."

Data Collection

In this study, both primary and secondary sources of data were gathered to inform findings. The idea of researcher as a key instrument (Cresswell & Poth, 2017) was achieved by gathering evidence through conducting semi-structured interviews and analysis of system usage data, training materials, policy and procedure documentation and evaluating online resources. The primary source of data collection in this study was semi-structured interviews. Secondary sources included the analysis of institutional learning analytics policies and procedures, training resources, and Civitas Usage data. Collection and examination of secondary sources (system usage data, physical artifacts/documentation) promoted the triangulation of data between sources. Table 3 outlines the strengths and weaknesses of each type of evidence collected (Yin, 2003).

Table 3

Sources of Evidence: Strengths and Weaknesses

Source of Evidence	Strengths	Weaknesses
Semi-Structured Interviews	Focused directly on case study topic and first-hand experience of participants and support staff	Potential response bias Bias due to poorly constructed questions
Archival Records of Usage Data	Precise and quantitative	Need to understand how data was collected to

Physical Artifacts/Documentation		assess validity and data integrity
	Insightful into technical operations/process	Selectivity/Availability
	Insightful into the cultural landscape	Accessibility due to privacy/confidentiality

Semi-structured interviews. A 3 phased interview protocol was used by the researcher. Phase 1 consist of in-person, semi-structured interviews with each of the 5 advisors to allow for more of a conversational setting. This is often the suggested approach for qualitative research. Initial interview questions were developed prior to the phase 1 interviews and were used to prompt discussion, but my role as the researcher was one of listener and facilitator and to probe more deeply to ensure clarity in data collection.

It was important that the interview questions be neutral with commonly understood language and not leading. These acted as a script and were purposefully very broad and loosely structured in order to allow participants to direct the conversation freely. Probing questions, in alignment with the CMMPE components, were initiated in an unbiased manner by the researcher to explore evaluation components in more detail, clarify facts and expand upon shared experiences. The validity of the interview guide was established through a field test given to two members of the University community who are well versed in both quantitative and qualitative research design. Appendix D provides the interview protocol and guide that was used in phase 1 data collection.

In phase 2, the remaining two participants from Institutional Research/Student Success Group and the University of Washington Information Technology were interviewed. Phase 2 interviews took place after the initial examination of phase 1 transcripts and preliminary document analysis. Interview questions were adapted and refined to conduct an in-depth inquiry

into the participant's area of expertise regarding pilot program components, processes, and themes that emerge as part of the advisors shared experiences in phase 1. Additionally, interviews included questions specifically targeted to gain clarification of document analysis findings. Phase 2 interview questions were developed after a preliminary analysis of phase 1 data. Appendix D provides the interview protocol and guide for phase 2.

In phase 3, informal follow-up interviews were conducted with participants as needed to confirm findings (member checking) and to further strengthen triangulation between primary and secondary data sources, interview data, and research questions. Data triangulation was achieved by cross-validating interview findings of advisors with institutional research/student success and information technology staff interviews. Additionally, usage data, archival documents, and training resources further established and solidified reported findings. Appendix D provides interview protocol for phase 3 follow-up interviews which were used to verify and triangulate results from phase 1 and 2.

Document review. Civitas user data in the form Excel files were examined. They spanned from 2016-2018, the entire length of the Civitas Inspire Pilot. Data contained the names of Civitas Inspire users, the frequency of logins, number and type of outreach, outreach messaging, the reason for outreach, and end-user notes.

University policies drafted to support the adoption of learning analytics at the University of Washington Tacoma were collected and analyzed. This included both the University of Washington Tacoma and the University of Washington Seattle campus documentation. This was important because communication of policies surrounding systems housed with the University of Washington Seattle is at times not articulated or shared with the Tacoma Campus. It was important to determine if policies aligned, contradicted or if learning analytics end-users were

aware of their existence. The Academic Advising Training Manual used in University Academic Advising that advisors follow when training new advisors and refer to for reference on established norms, policies, and professional behavior when working and when interacting with students was also reviewed. This provided insight into the mission, vision, and values of University Academic Advising and if there was an alignment of advisors' practices with Civitas Inspire utilization.

Civitas training provided to the undergraduate advisors was explored to gain an understanding of what learning objectives were established. Additionally, analysis of findings sought to determine if the objectives set in the training aligned with advisors needs. These resources were analyzed to corroborate data gathered from the participants during the interview process.

Data Analysis Process

The major source of data was participants' narratives based off transcripts of interview audio recordings. Secondary sources and phase 2 interview participants served to substantiate phase 1 interview findings and triangulate results. As suggested by Bazeley (2013) in order to gain meaningful results supported by data, an iterative approach to analysis must be developed - a *read, reflect, play and explore, code and connect* strategy. Table 4 outlines the data analysis process that was used in this study.

Table 4

Data Analysis Process

Process Phases	Description
Read and Reflect Phase 1	Transcribe phase 1 audio data verbatim into Word, read, re-read while validating audio. Read each transcription in totality to gain a full understanding of what is being said.

Process Phases	Description
	Record initial impressions, key points, and note how each aligns or challenges the others as they emerge.
Play and Explore Phase 1	Create new Hermeneutic Unit in MAXQDA, upload data files (Phase 1 interviews, secondary source materials). Create initial categories that align with CMMPE framework and Start to map out codes, key points, in vivo codes found in the Read and Reflect phase 1 but also seek new insights and connections.
	Continue to explore the data. Conduct phase 2 interviews to gather evidence on emerging findings of phase 1 data.
Read and Reflect Phase 2	Transcribe phase 2 audio data verbatim into Word, read, re-read while validating audio. Read each transcription in totality to gain a full understanding of what is being said. Record initial impressions, key points, and note how each aligns or challenges the others as they emerge.
Play and Explore Phase 2	Upload data files (Phase 2 interviews, any secondary source materials). Start to map out key points, in vivo codes found in Read and Reflect stage but also seek new insights and connections. Begin to connect phase 1 findings to phase 2 data. Identify relationships and connect evidence between data (Phase 1 & Phase 2) Conduct phase 3 interviews if necessary.
Make connections	Comparing and contrasting data from all interviews and secondary sources. Examine coding for potential relationships. Gather related quotes and evidence to support the themes within each category that emerge. Begin to build a storyline. Continue to build relationships and patterns between codes, themes and the data set as a whole. Triangulate data with secondary sources.
Refine and Revise	Refine, define each category of results to ensure they are capturing a holistic view of the emerging story. Tie themes to in vivo quotes as supporting evidence. Seek validation (member checking) and feedback from participants.
Revision	Continue to revise and refine findings. Work to the point of data saturation.

Note. Read, reflect, play and explore data analysis strategies (Bazeley, 2013)

Phase 1 interviews. Phase 1 interviews took place on campus (Tacoma), and each participant chose to meet in their office within University Academic Advising. Arriving at each interview meeting, participants were greeted and provided with a copy of the interview protocol, which they were asked to read. Each participant was asked if they understood the protocol and if they agreed to proceed with the interview. All participants agreed to continue. It was reiterated that each session would be audio recorded and approval from each participant was obtained to begin the recording. Each interview was recorded using a Zoom H1n handheld recording device. A secondary recording using an Apple laptop with the internal voice recorder feature was used as a backup. Following the semi-structured format, each interview began with the question "How did your involvement in the Civitas Pilot come about?" As the conversation unfolded, additional questions aligning with CMMPE components were presented following the aforementioned phase 1 interview protocol. After each interview, participants were thanked for their time and reminded that they may be asked to participate in a second (phase 3) interview. All agreed.

Read and reflect phase 1. Recordings were downloaded to a secure server. To ensure confidentiality, audio recordings were generically named in a way to hide the identity of the participant. Each participant was given a pseudonym. A transcript was drafted verbatim into Microsoft Word. Each transcript was read in totality twice to gain a full understanding of participant responses and to ensure transcription accuracy. Initial memos were recorded in Word if questions arose or clarification was warranted during the initial review of the transcripts. The goal was to loosely record initial key points, thoughts and pinpoint areas within each transcript that aligned with CMMPE components. As a form of member checking, each participant received access to their transcript and were asked to review their responses to ensure the integrity of the transcription and allow for any changes deemed necessary. No changes were requested.

Play and explore phase 1. Following the read, reflect steps outlined by Bazeley (2013)

preliminary exploration of transcripts was completed by reading and re-reading the advisors'

experiences to gain in-depth understanding of what was being conveyed. Transcription files were

then uploaded into a new project using MAXQDA 2018. Evaluation categories were created that

aligned with each CMMPE component (acceptability, social validity, program integrity,

outcomes, sustainability, institutionalization, implementer competence). This approach was taken

to provide an organized means of access to evidence.

Analysis then moved into the play and explore phase. Secondary documents were

uploaded into MAXQDA, and first-level coding of the transcripts and secondary data was

completed. First-level coding refers to sifting through the text and locating passages and shared

experiences that related to each of the established evaluation categories. Initially, this was a very

linear process which included highlighting key points and in vivo codes that would provide

evidence to support evaluation categories. Analysis focused on participant views and experiences

within the pilot. Memos and notes were journaled to identify questions and provide an audit trail

of coding decisions. The process became much more iterative as it moved into second-level

coding. Second-level coding was created to align with the CMMPE component definitions

previously displayed in Table 1. For example, for the evaluation category of acceptability,

secondary coding included feasibility (time, resources), importance (meeting needs of advisors),

and value (sustained use). This process was continued for each defined component and resulted

in more granular examination of data and highlighted possible connections and contradictions

between participants and sources documents. As this process continued, subgroups within

second-level coding emerged, what Bazeley (2013) refers to as interrogating the data. For

example, secondary coding of value (sustained use) produces additional sub-codes of no new

knowledge produced; relied on other established systems; and provided access to never seen data. Creating a hierarchical coding system allowed for conceptual clarity for creating a storyline and beginning to structure evaluation results.

      Phase 2 interviews. Once analysis reached the point where no new information was being discovered within the Phase 1 data and the secondary sources, a phase 2 interview guide was drafted based off of notes and memos created during the phase 1 analysis. This guide was validated by University staff not affiliated with the study. Phase 2 interviews were held to provide evidence and triangulate what advisors had shared about their experience using Civitas Inspire. Phase 2 interview participants were contacted via email to arrange a time to meet. The UW Tacoma IR/Student Support participant interview took place on the UW Tacoma campus in an agreed upon conference room. The same protocol steps used in phase 1 were followed in phase 2 interviews. The interview lasted 41 minutes. At the end of the interview, the participant was thanked for their time and reminded that they would have an opportunity to review their comments for accuracy and validity. They were informed that a phase 3 interview may be requested to further validate findings. They agreed to a phase 3 interview.

      The interview with the UW Seattle Information Technology participant took place via video conferencing because of the distance between the Tacoma and Seattle campuses and scheduling difficulties. The interview was held using a secure, UW authenticated Information Technology Zoom account. Recording of the interview used the internal Zoom recording feature. Secondary (backup) audio recording was captured using the Zoom H1n handheld device. A Zoom link was sent to the participant the morning of the interview. The interview lasted 24 minutes. At the end of the interview, the participant was thanked for their time and reminded that they would have an opportunity to review their comments for accuracy and validity. They were

informed that a phase 3 interview may be requested to further validate findings. They agreed to a phase 3 interview.

Read and reflect phase 2. Recordings from the IR/Student Support participant and the UW Information Technology participant were downloaded to a secure server. To ensure confidentiality, the files were generically named in a way to hide the identity of the participant. Pseudonyms were assigned, and a transcript was drafted verbatim into Microsoft Word. The transcripts were read in totality twice to gain a full understanding of participant responses and to ensure accuracy. Initial memos were recorded in Word if questions arose or clarification was warranted during the initial review of the transcripts. As a form of member checking, the participants received access to their own transcript and were asked to review their responses to ensure the integrity of the transcription and allow for any changes deemed necessary. No changes were requested.

Play and explore phase 2. During phase 2 of play and explore, analysis focused on bridging relationships between phase 2 interviews and gaps that had been identified in the analysis of phase 1 interviews. Bazeley (2013) argues that building a full understanding of data cannot rely on coding alone. So, this process involved revisiting memos and notes that emerged in phase 1 and aligning phase 2 participant responses to add evidence to the emerging storyline of the advisors experience. This was a line by line transcript analysis using existing codes while being cognizant of connections between phase 2 data and established codes that emerged within phase 1. As data from phase 2 interviews was connected to phase 1 to fill in gaps in knowledge, a more robust storyline began to emerge that provided evidence and gave meaning the advisors story.

Phase 3 interviews. The intent of conducting phase 3 interviews was to eliminate any remaining gaps in the storyline. These were more informal in nature and were done over the phone to honor participant's schedules. Notes were taken during the phone interviews. The nature of questioning was more direct and fact gathering, therefore the data was not uploaded into MAXQDA for coding. Data was parsed and interwoven into the drafted storyline that resided within each CMMPE component.

Make connections. The process of comparing and contrasting data from all interviews and secondary sources continued. Notes were taken as in vivo codes were assigned to each CMMPE component to identify areas overlap between CMMPE evaluation areas and to conceptualize stakeholder's recollection of events. As evidence was used to build results within each component, codes were checked off to ensure representation in reporting of results. Appreciation was given to each source to ensure results were free of bias and were solely representative of each advisor's shared experience.

Refine and revise. The storyline illustrated within each CMMPE component was revisited until the researcher was satisfied that all data collected and analyzed was represented and had reached the point of saturation. To ensure participant responses and experiences were accurately represented by the researcher, a draft version of the results chapter was sent to each advisor for review. Feedback suggested that the word "center" be dropped from the University Academic Advising. Finally, once results were fully represented, one last review was completed to outline areas to be addressed in the Chapter 5 discussion.

Researcher Role and Positionality

My role with regard to learning analytics adoption on campus has been one of secondary support, but as a result, I have been exposed to campus conversations and presumptions that are

driving this research. Based on my observation, some undergraduate advisors do not trust learning analytics data, do not value data-driven machine interventions, lack understanding of learning analytics and are not confident in their own sense-making skills or their ability to use the technology. It will be imperative that I approach this study with an open mind, being cognizant of my position within the University and any pre-conceived biases so that I can fairly represent the interpretation of data collected and reporting of findings.

My overall epistemological and ontological orientations lean more towards constructivism/interpretivism. Ontologically, this falls within the realm of relativism. I believe that the construction of knowledge and meaning is a social process. Each person brings unique perspectives and interpretation of the world. My current interest in learning analytics and the *why* behind adoption challenges have me looking more closely at post-positivism, primarily because we have to make decisions and inference with incomplete data. I seek inquiry methods that allow for a better understanding of the lived experience. Why undergraduate advisors do what they do is what I am interested in, and I seek to understand the undergraduate advisors voice pertaining to the adoption of learning analytics for data-driven student success interventions.

Ontology is the driving force behind our epistemology and methodology. So, before I move forward, I need to be clearer on where I stand with my research context. Believing that there is not one reality and that each person creates their own reality means that I must interpret and represent the reality of my participants. Each is unique. In terms of epistemology, I can better understand through what I perceive relying on both theory and personal experience. "We cannot know the real without recognizing our own role as knowers" (Lincoln, Lynham, & Guba 2011, p. 104). My methodology choices will allow me to explore the what, why and how questions while appreciating the idea of people and society as co-constructors of their reality.

As I become what Lincoln, Lynman and Guba (2011) call a *passionate participant* in interpreting participants' perceptions and interactions with a social context, language will be important. Culturally, the role of undergraduate advisor can take on various meanings and therefore, I will need to understand the norms of my participants to interpret their perspectives and experiences justly. Similarly, I will need to acknowledge my own culturally imposed definition of roles and how it has impacted my assumptions. Generally, it is a learned skill to be able to offer the participant open-ended questions while remaining neutral (not leading) in facilitating the discussion. Lastly, it is equally challenging to decide what is relevant when observing the undergraduate advisors within their natural setting.

Creditability and Trustworthiness

Data were collected through semi-structured individual interviews with undergraduate advisors, IR/Student Support staff, and a University of Washington Seattle Information Technology representative. Additional analysis of institutional policy, goals, and outcomes pertaining to learning analytics was conducted. Several steps were taken to ensure the trustworthiness of the data I collected for this study. First, triangulation through interviews, conversations, and artifacts ensured the creditability of findings. Reviewing the data collected from phase 1 interviews concurrently with secondary sources allowed for the emergence and building of issues or questions needing clarification to gather additional evidence to support ultimate findings. Phase 2 interviews allowed for corroboration of participant's recollection of events that occurred during the pilot. They also served to develop further, the storyline that was materializing. Finally, phase 3 interviews sought to loosen up any remaining questions or areas of uncertainty within the CMMPE evaluation components.

According to Firestone (1993), "the burden of proof for transferability lies less with investigator than with the reader" (p. 18). As a researcher, I sought to provide sufficient descriptive data, the conditions under which I conducted my study and rich descriptions of the process I followed to increase the knowledge needed for transferability. Transferability was also supported by providing a background description of the past and the current state of our learning analytics systems at the University of Washington Tacoma. Additionally, by outlining the intent and objectives of the learning analytics implementation, readers will be able to gauge how similar learning analytics implementations may impact their campus and students if situational similarities exist. A rich description of the research process and findings should ensure readers will be able to apply information from this study when considering the implementation of other learning analytics systems besides Civitas.

Regarding credibility and construct validity, data collection instruments, interview protocol, and methods, techniques suggested by Brantlinger, Jimenez, Klingner, Pugach, and Richardson, (2005) were followed. For example, the interpretation of data was peer-reviewed by "experts" in the field of qualitative research. Interview questions were pilot tested on sample participants (University staff knowledgeable in qualitative research design and methods) before conducting the actual interviews to ensure question integrity and clarity. All data collected was confirmed by the participants and findings were based on logical interpretations of the data and artifacts used as sources in the study. Findings were aligned with the study's purpose, and results of this evaluation are validated as consistent with the lived experiences of participants involved and the impacts of the Civitas learning analytics system on their lives. Data findings addressed the initial research questions for the study, are tied into research revealed through the extensive

literature review and are presented within the chosen CMMPE framework. Table 5 describes in detail the types of credibility techniques employed for this study.

Table 5

Credibility Techniques

Technique	Description	Application within Study
Data Triangulation	Varied data sources were used in the study	Participant interviews, policy documents, training resources, and learning analytics system usage data were collected and analyzed
Stakeholder Representation	Relevant stakeholders were represented within the research participant sample	Collected data from all UW Tacoma undergraduate advisors, IR staff, Student Support staff and one UW Seattle Campus IT learning analytics lead
Member Checks (Level 2)	Participants reviewed and confirmed the accuracy and interpretation of results prior to publication	Ensured interpretation of results occurred with participants at the data analysis stage and pre-publication stage
External Auditors	Outside (to the research) examined and confirmed that the researcher's inferences were logical and grounded in findings	Advisory committee members acted as external auditors for findings.
Audit Trail	Researcher kept track of interviews conducted in order to confirm results	Interview protocols were developed and followed. Recorded data was backed up and kept in a secure location.
Negative Case Analysis	Refined conclusions until they accounted for all known cases.	Multi-level review of data collected ensured the accuracy of findings and conclusions..

Note. Creditability Measures for Qualitative Research (Brantlinger et al., 2005)

Chapter 4 Results

As stated in chapter 1, the purpose of this summative evaluation was to explore undergraduate advisors experience using Civitas Inspire to support first-year students. Participants were purposefully selected. They included five members of the undergraduate advising team who participated in the Civitas Inspire pilot program, one member of the Institutional Research/Student Success Group at the University of Washington Tacoma and one individual from University of Washington Seattle Information Technology Group. The two participants from Institutional Research and Information Technology led the implementation efforts of learning analytics on campus, provided information regarding pilot development, system functionality, adaptations, training, policy, project goals, and outcomes to corroborate what advisors share of their experience. A three-phase interview process using open-ended interview questions and probing questions aligning with component of the Comprehensive Mixed Methods Participatory Evaluation Model (CMMPE) outlined in Nastasi and Hitchcock (2016) guided me in critically exploring the following research question:

- What were undergraduate advisors experience with Civitas Inspire as a tool for supporting first-year students?

This chapter begins with the results of the interviews, presented within each components of the CMMPE summative evaluation framework, along with supporting narratives from transcribed audio recordings. Sub-categories that emerged as well as challenges identified in the review of literature (capacity building, data integrity, messaging, and privacy/ethics) are also presented as they related to the advisors shared experiences. Analysis of secondary sources are explained as they related to each evaluation component throughout this chapter. Results or evidence presented within each CMMPE component will reveal overlap with other component

areas. The chapter concludes with the key findings as they relate to the research questions, conceptual framework, and existing literature. Chapter 5 will address the impact these findings have on future learning analytics adoption at the University of Washington Tacoma, implications of findings and suggestions for further research.

CMMPE Evaluation Components

Components of the Comprehensive Mixed Methods Participatory evaluation were explored to answer the research question: What was undergraduate advisors experience with Civitas Inspire as a tool for supporting first-year students? It should be noted that the CCMMPE model is multi-dimensional and overall program success is gauged by the perspective of multiple stakeholders. This study focuses on only one stakeholder group but does encompass each of the evaluation components represented in the model. The decision to focus on just one stakeholder group was the result of the contract not being renewed with the vendor. Results from this study can contribute to future evaluations of additional stakeholder groups who were involved in the pilot, namely, students, campus leadership, and Civitas to gain a full representation of overall program success. A conscience effort was made to include comprehensive narrative excerpts from interview data in order to bring attention to recurring themes within more than one of the CMMPE evaluation components.

Acceptability. Acceptability within the CMMPE framework refers to the extent to which undergraduate advisors viewed learning analytics systems like Civitas Inspire as feasible in terms of time and given resources, important (e.g., meeting the needs of advisors) and if they supported the system enough to facilitate its implementation and sustainability.

Analysis of advisor responses indicated that no centralized advising system exists and that Civitas was just "one more tool" that they had to access. Additional systems utilized by the

advisors included Student Information System (SIS), Electronic Academic Records System

(EARS), Student Database System (SDB) and Academic Alerts. None of the available advising

tools are integrated, meaning each contains unique data and features that the advisors access to

meet specific needs. Thus, the need to access multiple tools on different platforms, including the

addition of Civitas Inspire, was not a time-efficient practice. One participant shared:

> I mean selfishly I'm excited that I have one less tool I have to use. As an advisor, there's
> no centralized tool on campus. So we piecemeal lots of different systems already, and it
> [Civitas Inspire] is one less thing I have to continuously check, which is going to save me
> time.

They went on to say, "At [my former institution] we only had one system, so it was like, whoa,

I'm going to get a fourth one here?"

The overall perceived value that drove the implementation of the system was the

system's ability to use algorithms to thin slice student demographic information from multiple

UW data sources and see specific variables on individual or groups of students. A participant

explained:

> The idea of taking all first-year students, who at midterm, based on what's being entered
> in Canvas, are 2.5 or less grade point average and being able to target them as a group, as
> well as the advisors being able to look at their individual students and say "you say you're
> doing great, but I don't think that's the case - why do we have a difference of
> understanding" - that would be very new for us.

Despite having to access to other advising systems, there was a shared belief that Civitas

Inspire offered value in terms of providing access to LMS tracking that was not previously

possible. As expressed by this participant:

> I really will miss the feature to see a student's Canvas more than anything, just because
> that was so helpful. Especially for students that I was concerned about. That was the only
> advising tool we had that could see that system.

Particularly useful was the ability to see a student's grade within a Canvas course in real-

time. Additionally, intervention factors like current GPA and enrollment status was a benefit in

that it let advisors know of changes in student behavior before the student disclosed the information to the advisor. As one participant said, "it also allowed me to share and see what students withdrew from courses if they hadn't connected with me ahead of time." While one said "I saw the value and the benefit of being able to see the data predictions."

This idea was not valued as highly by all advisors. Existing data reports (midterm grade reports) and processes (early alert email notification) advisors utilized prior to the pilot remained the norm, and despite Civitas's ability to provide real-time data, they chose already established means of gathering information on student academic performance. A participant explained this further, "We have other ways. Every quarter we get a list of students on low scholarship, and we do interventions that way." Another advisor added: "I never did because what we had already, our communication plan and our communication messaging, was more effective than the Civitas."

Advisors expressed frustration that the data pulled from Canvas was only as good as what was put into the system at the faculty level. A participant gave further detail on their frustration:

> The other problem, it relies so heavily on Canvas and not grades and if you have a professor who does not use Canvas or is behind on grades, it's not accurate. That's happened in a lot of cases. There would be someone who would say "I'm doing great" and then all these grades come in the next week and they are not doing great. Or someone who says "I'm doing terrible, I'm failing" and then talk later on and they say "No, I think I am doing better than I thought." So it [Inspire] wasn't really reflective of reality a lot of times.

Despite the "holes" or mistiming of the data, one advisor appreciated the ability to use Inspire to corroborate information that faculty members reported through the early alert system. A participant expressed their view:

> I think there's a lot that data can share, and there's a lot that's missing in data. It's only as accurate as faculty post. So, there's always limitations any time you use a system like

[Inspire], but for the most part, it was pretty accurate and had a good indicator at least. Especially when a faculty member was concerned about one class or one student in a class. It [Inspire] allowed me to go in and see how they were doing in their other classes to see if it was a one-off or if it was a pattern, but I wouldn't say it was accurate to the percentage.

Another participant talked about the reality of achieving perfection in data:

You know, one of the things that they're cautious of, obviously, is being given misinformation or having information come through that's not accurate. So, data validity in their eyes, you know, a hundred percent is obviously the goal - which is impossible.

The internal email feature which allowed for individual or batch emails to be sent out to students who showed changes in persistence was seen as valuable by some but not meeting the needs of other advisors. All advisors stressed that maintaining the personal connection they have with their advisees was paramount. For example, one participant appreciated the ability to send individual emails directly to an advisee through Civitas. "I did find it [Inspire] to be user-friendly. What I really liked the most out of Civitas is the individual email feature. But, I like personal, so I didn't want to do batch or blast emails at all." They also felt Civitas fell short of the level of personal attention advisors strive for with their advisees, stating, "I am very intimately involved with my students. So, there's sometimes things that I knew that the system may not have known and I was a little, no not a little, but quite frustrated."

One advisor did not spend a lot of time in the system because they felt Civitas did not afford any information that they did not already know. "Some of those intervention factors and inspiration factors and all of those things, I knew already. Civitas wasn't giving me information that I did not know." Another participant comment reinforced this:

The handful of times that I did check it or use it, the students, who were very low, were already on my radar from academic alerts or by just knowing that they were on academic probation last quarter. So, most of the ones who were in the red (least likely to persist), I already had some awareness that they were not doing great.

One advisor spoke about the level of student advising needs across the Tacoma

demographic and how Civitas was not meeting advisor needs in supporting the most vulnerable

students.

> There's always like 10% [students] who need you a lot and 10% don't need you at all. Then there's majority in between. But, the ones who need you a lot, those are the ones that I would follow, and I would not use Civitas. I would email or call. They have my direct number. When I ask what's going on, it could be homelessness, food insecurity all of this, which Civitas can't capture. We have a population here at UWT where that's the reality for them. A student says "I am l living in my car." You know, Civitas wasn't going to grab that.

> They also shared a student story to convey this point:

> I just talked to a father and his son on Monday. The son didn't say that he has special needs and he didn't do so well [academically]. Well, called the registrar and we got him set up [with disability support]. I don't need Civitas for this and even getting the predictions about that student not doing well would not have helped because he never reported his disability. So that's not going to be in there [Civitas].

> Others saw value in being able to see changes in factors that Civitas showed, but the

overall impact of the system on advising was minimal. A participant added:

> So, I appreciated that it had the predictor factors that changed from red to green so you could see the changes (for a particular student). So, that was helpful and prompted me to go in and look but day-to-day, it didn't have necessarily a huge impact because it was one other tool amongst several that we used.

Yet, another viewed the tool as just one of many and not promoted within the office and

therefore did not value its use. "I don't know how many different tools I was shown in a quick

two-week span. After I was shown it, it was never really emphasized again."

The analysis of Civitas system usage data spanning from 2016-2018 showed system

logins never exceeded more than 36 logins in one year by any one advisor (see Figure 4). Usage

was highest in year 2 of the pilot. Year 3 indicated drops in system usage by all but one advisor,

who had not entered into the pilot until year 3.
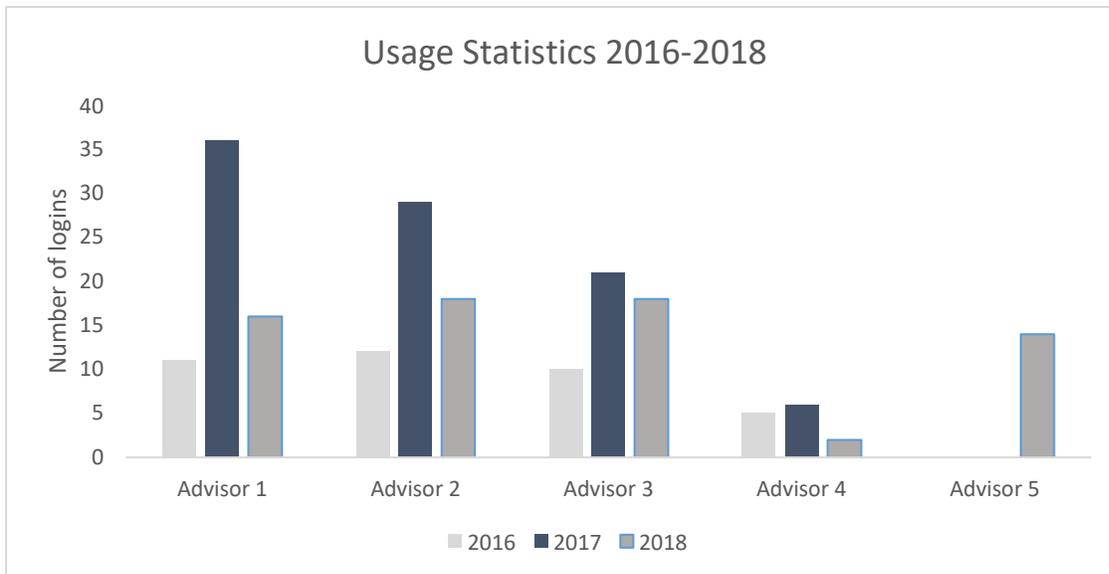
Figure 4. Undergraduate advisor login data for Civitas Inspire Pilot.

Intervention data shows only 13 messages sent out to students during the entire Inspire

pilot. Messages were informative in nature or nudged students to take action. For example,

students were reminded of upcoming Husky Success Series workshops, summer institute

information sessions and major fairs for specific programs on campus. Students who were

flagged as having not registered for an upcoming quarter were reminded that there was still time

to do so. For example:

> Dear [student first name],
> Did you know that students who register for courses 20+days before the quarter begins
> are more likely to get the courses they need, at the times they desire? I noticed you're not
> registered for autumn quarter. (If my data is old, apologies and congratulations for
> staying on track!)
>
> If you're still trying to resolve financial issues, remember you don't need to pay your
> tuition until after classes start. The Financial Aid Office is open every day between
> quarters.
>
> And if you haven't noticed, UW Tacoma is now offering a variety of hybrid courses (part
> in class, part online) for students with busy schedules. (See Location in the Time
> Schedule Search: http://www.tacoma.uw.edu/ts-quicksearch/)
>
> Classes are beginning to fill, but there are still courses available. Always contact your
> advisor if you're having trouble registering or need more information on your options.
> Stay on course! - UW Tacoma Husky Success Team

In terms of time and given resources, advisors expressed discontent with having to access a fourth system that was not integrated with existing advising tools. Inspire did not improve workflow nor did it save advisors time. Advisors valued the ability to see real-time grades and participation information inside of Canvas but that data was at times misleading due to timing of faculty grading. This led to advisees revealing the "true" story in advising appointments thus challenging the advisor's reliance on Inspire data to prompt interventions. Low system usage was a result of advisor's belief that they already had sufficient tools and processes in place to keep informed of their advisee's whole story, both academic and non-academic issues. They did not find Civitas acceptable enough to facilitate its implementation and sustainability.

Social validity. Within the CMMPE framework, social validity is closely related to acceptability. Social validity evaluates the extent to which learning analytics systems like Civitas Inspire are consistent with the cultural norms; values, beliefs and "language" (concepts, terminology) of University Academic Advising at University of Washington Tacoma. The relationship of social validity and acceptability stems from the idea that if a product does not align with an organization norm, it would not be readily adopted. Results of document analysis and interviews revealed an advising culture driven by a set mission, vision and values statement, established leadership expectations, National Academic Advising Association core values, and strengths-based and appreciative advising philosophies.

The University Academic Advising Training Manual was a secondary source in this study and is the primary operational resource for undergraduate advisors. The manual covers leadership expectations, foundational guidelines for advising practices, office policies, technology and the mission, vision, and values of the UAA. The stated mission, vision and values are:

Our Mission: Serving the campus community as educators, partners and consultants, University Academic Advising staff empower students to: Explore academic and career options; Build relevant skills and experience; Succeed academically, personally and professionally.

Our Vision: Standing at the intersection of the mission of the University and the goals of its students, University Academic Advising strives to be recognized regionally and nationally for innovation and excellence in academic advising.

Our Values: The core values of University Academic Advising — excellence, respect, integrity, innovation, and collaboration — shape the goals and methods the unit identifies to meet their commitment to students and the campus.

Leadership expectations. The manual also contained the following stated leadership expectations for University Academic Advising:

1. We chose our own path – each of our actions represent and defines who we are as the UAA.

2. We are what we repeatedly do. Excellence then is not an act, but a habit – Aristotle

3. Every individual deserves to be treated with dignity and respect, regardless of their circumstances or behavior.

4. Care about, commit to, and take pride in the work you do.

5. Take responsibility for your own professional development and share your knowledge/ideas to enhance the team.

6. Arrive on time work smart, have fun.

Core values. In addition, advisor's professional practice is guided by the Statement of Core Values of Academic Advising set forth by the National Academic Advising Association (2005). First, advisors are responsible to the individuals they advise and should make every effort to provide accurate and timely information to their advisees and communicate in useful and efficient ways. Second, advising requires a holistic approach, which involves building a

network of people and resources to involve, when appropriate, to support their advisees. Advisors main role is that of mediator and facilitator in helpings students achieve their goals and objectives. Third, advisors are responsible to their institutions, higher education, and their educational community. At an institutional level, this means not only upholding the values, policies, and expectations within their department but communicating openly with campus leaders who have the decision-making authority over advising at the institution. At the higher education level, advisors remain open to the idea that many theories and models can be used to support students with the ultimate goal of attaining the highest standards of advising support possible. In terms of the educational community, they must strive to be knowledgeable of community resources and educational opportunities that their students may benefit from in pursuit of their goals. Lastly, advisors are responsible for continued professional growth towards developing skills to create environments that promote physical, emotional and spiritual health.

Advising philosophy. University Academic Advising Training Manual outlined the primary advising approaches that University Advising have adopted. Contained in the manual were various pieces of literature explaining the philosophy and process for each approach. The Advisors utilize appreciative, strengths-based and proactive advising methods.

Appreciative advising is student-centered inquiry theory that utilizes positive and open-ended questioning during advising sessions. Bloom, Hutson and He (2013) describe the practice as being "focused on the cooperative search for the positive in every living system" (p. 83). At the core is the belief that focus should not be placed on a student's lack of preparation or perceived obstacles. The process encompasses six phases as outlined in Table 6.

Table 6

Appreciative Advising Phases

Phase	Advisor responsibility

Disarm	Visiting an advisor can be intimidating. Advisors create a safe, welcoming environment for students.
Discover	Advisors actively listen and use positive, open-ended questions to help students discover their strengths, skills, and abilities.
Dream	Advisors help students formulate a vision and develop life and career goals.
Design	Advisors work with students to co-create a concrete, incremental plan with achievable goals.
Deliver	Advisors provide needed supports to keep students on track to achieving stated goals.
Don't settle	Advisor challenges the student to proactively raise the student's internal bar of self-expectations.

Note. The Appreciative Advising Evolution Bloom, Hutson & He (2013)

Strengths-based advising emphasizes student strengths with a conscious effort to avoid focusing on student deficiencies. The goal of strengths-based advising is to build student confidence, motivation, sense of belonging, and resiliency (Schreiner & Anderson, 2005). There are six steps in strengths-based advising, 1) identify students' strengths, 2) affirm their strengths and increase their awareness of their strengths, 3) envision a future by discussing their aspirations and how their strengths can help them reach their goals, 4) plan specific steps that students can take to meet their goals, 5) apply their strengths to challenges they face and help students identify the skills and knowledge they need to add to their natural talents in order to develop strengths.

The undergraduate advisors consider themselves to be proactive in their practice. According to Earl (1988), proactive advising is "a deliberate, structured student intervention at

the first indication of academic difficulty in order to motivate the student to seek help" (p. 28). The main premise of proactive advising is to reach out to students before situations develop.

When asked how Civitas fit within the advising culture, it was revealed that analytics data is viewed as secondary to personal student interactions. Data from systems was seen as a way to inform or "fill in the gaps" of a student's story, but it never tells the whole story. Civitas data served to start or prompt conversations with advisees. Participants shared, "I think data is one part of the piece of the puzzle. For me, it fits into the culture of just using it as a baseline to open up conversation." Another added:

> Data can be very factual when a lot of other advising is personal and very feelings based. I think there's a really happy medium that can happen. So without the data, it just leaves conversation holes. The data can also inform how I start a conversation and things that I intend to bring up in our advising conversations. So, data analytics is a huge part of that. It's not the only part, but it can prompt conversation to really find out what's happening in a student's life. Things [an advisee] may not otherwise have disclosed.

Advisors felt that Inspire did not align with their strengths-based advising philosophy.

> That was the other thing - the predictors. We're such a strength-based culture, asset-based culture. I didn't want to say "oh, you know, your predictor says that you're not going to do great." I never did it. I just never used it.

Advisors expressed a dichotomy between Civitas data being factual and their strengths-based advising being founded in one-on-one personal relationships that focus on building self-efficacy and intrinsic motivation. Also shared was the feeling that Civitas projected a deficit model approach to student support and that compared to the other two campuses, it automatically labeled Tacoma students less than students at the Seattle or Bothell campus. This was expressed best by a participant who said:

> It's still concerning that I think it can be counterintuitive to our strengths-based approach. Knowing that we have very different student populations, and it's not a secret that our students have different admission standards compared to Bothell and Seattle, I'd like to see that the story, the narrative in our students be a strength rather than a predictive factor

- rather than automatically choosing it to be a deficit model. So, I think Civitas was just different than our approach in advising.

A second participant added:

Our advising is very student-centered, very developmental in nature, non-prescriptive. It's really focusing on the individual that's sitting in front of you and making sure that they get everything they need mentally physically and academically as well. It's a holistic approach, and a lot comes to fruition from learning the individual story. So, you know, there are tools to assist with that as well. But a lot of it has to do with hearing from the student themselves and their own story. That story wasn't in there [Civitas].

Advisors felt campus constituents erroneously perceive their work as being reactive rather than aligning with the proactive advising philosophy for which they attest. One participant shared their thoughts:

It's interesting to me because I know that to some, advisors look like they are reactive. Honestly, I've always been a proactive person and so by following my advisee stories, I found that I could be more proactive, actually, without using Civitas because I knew what was going on in their lives.

Overall, advisors felt Civitas Inspire was not consistent with the cultural norms; values, beliefs and "language" (concepts, terminology) of University Academic Advising. Advisors expressed that Civitas Inspire did not align with the strengths-based, appreciative advising philosophy at the center of their work and that the system promoted a deficit model approach to student support. Advisors value, first and foremost, the student story. They put priority on building personal relationships with each advisee and used Civitas data to supplement conversation. Advisors contend that they are already proactive in their advising practice and they were not willing to move from their student-centered, non-prescriptive advising strategy.

Program integrity. Program integrity within the CMMPE framework refers to the extent to which the Civitas Inspire system's core program components are implemented as designed, the adaptability of the system to meet outcomes and whether requested or obtained program adaptations met individual and contextual needs. Advisors were invited to demonstrations of

Civitas Inspire before the pilot launch. This was the first time seeing the system and exploring its capabilities. These sessions were intended to not only familiarize advisors with system utilization but also acted as a validation process to ensure the data was accurate. One participant explained:

> We were asked to review some drafts, some dummies that they wanted us to look at and give our feedback on. Say, will this work, will this not work and well, there were a lot of things that did not work when we first started.

Advisors who attended the preliminary training sessions indicated that they immediately noticed issues with the accuracy of the data being extrapolated from the Civitas system. Upper division students were included in undergraduate data reporting; students from other campuses were erroneously included within the Tacoma demographic, and student ID numbers where inaccurate. Advisors questioned the integrity of the data from the beginning and trust became an issue. One recalled:

> Well, when we were in the training, we did already notice some bugs that needed to be worked out. Like, there were master's students in our alpha split. We're on alpha split, and I am [letters], so, we had some master's students in there, and then some declared students just shuffled in. I believe that was all worked out but, at first, it was like, okay, this is - you know, this is user-friendly in general, but it's only as good as the information that's put into it.

Attempts to engage advisors early for preliminary testing and to identify program adaptations needed were riddled with delays, "we did have some conference calls that were set up, and it was clear, and even Civitas apologized, that they were not ready for us. So, the conference calls were not useful, and so we had to reschedule some things several times." As the pilot progressed, advisors continued to recognize that predictions in Civitas were dependent upon the accuracy, depth, and timeliness of data being entered into systems like Canvas. A participant shared their experience:

> Civitas just wasn't realistically truthful all the time. I thought okay, maybe in Civitas, I could see what was going on, but then I learned, it's only as good as instructors and professors using the Canvas system.

Advisors felt that the data being produced, the predictions, did not reflect Tacoma

students' academic information accurately.

> So, it wasn't giving me a clear picture and also, it was giving me the incorrect picture of some students. I can't remember the verbiage Civitas used, but [Inspire] said that they were progressing well, and they weren't. On the flip side, I had like my Dean's List students sometimes showing up as if they were in trouble and it was just not uniform at all. So, I have a real problem with non-uniformity technologically and otherwise. I like the truth in everything.

Some advisors were reluctant to rely on what Inspire was reporting. Accuracy in the

information that they convey to students is imperative, as is the strengths-based and positive

advising approach they model. This reluctance impacted system utilization.

> I don't want to pull a student in and say "I hear that you're not doing well or I see that you're not doing well," but then they tell me they have like an A+. Or that they are doing well, just to have them tell you they are not. I don't know how that is either relevant or right or correct.

As more inaccuracies and inconsistencies surfaced within the Civitas data, advisor

confidence in the system diminished. "It takes just one student that it (Inspire) gets wrong and

the trust is gone" explained a participant. Another shared how their lack of confidence in the

system led to low utilization:

> I questioned everything then, from that point, and then slowly I just started dropping off. Eventually, I didn't even have it up on my bookmark because I was like, this is hurting more than helping. So, again if it was valid and if it was usable data, I'm more than happy to continue to utilize [Inspire] as one of the many tools for my advising sessions. So that's has been my main sticky wicket with Civitas, to be honest with you. I like my data to be truthful and valid if I'm spending a good portion of my day entering another system when I'm already using three systems SIS, SDB and EARS.

Advisors found Civitas to be limited in its ability to convey the impact of changes in

persistence, they added:

> Sometimes they would give you, for example, their inspiration factor which may be that a person's GPA increased two points. Well, I knew that the person GPA was already at a .5. Just because it went up, they're still in trouble. So to me, that they would say they have a

high persistence to continue, it's like NO, they may have told me the week before "I'm leaving UWT. So the numbers didn't reflect the story and the story could not be told in just this intervention or inspiration factors, there was more to it, and that could not be captured numerically you really couldn't so I didn't spend much time there. I spent more time talking with my students than I did looking at the numbers. My initial thought was, you gave me a little bit of information, but it's not the whole story, but it's not enough to act on. I had more things that I needed to do with that person than just looking at their Civitas numbers.

Advisors were frustrated whenever changes were made to the Civitas system. They were left to identify inconsistencies and find bugs within the data and predictions. A participant explained the advisor's role:

So, it was really up to the advisors to point those out (problems with the data) and locate those. So it was really up to them to discover and report them. That was really the only safeguard. I mean, you know, whenever they (Civitas) would update the model, we would take a superficial look at the numbers. Then we would wait to hear if anything was found by them (the advisors).

In terms of program integrity, advisors questioned system outputs. Advisors were brought in before system launch and found errors and inconsistencies within the data. Most reported issues were corrected before the system went live. The experience of being presented with dirty data and the admission by the vendor that they were unprepared on several occasions lowered the advisor confidence in both the system and vendor capability. Advisors experience with program integrity also tied into CMMPE components of acceptability and social validity. It was not worth the advisor's time to take on the role of validating data and reporting errors after any changes to the model were made by the vendor. Additionally, being asked to rely on data that could be inaccurate and untimely is contrary to the core values of providing accurate and timely information to students.

Program impact/outcomes. Program impact within the CMMPE framework is interchangeable with the term outcomes. It addresses both intended (consistent with pilot goals

and objectives) and unintended (unanticipated) consequences (positive and/or negative) resulting from the learning analytics implementation and utilization.

Overall pilot goals/outcomes. According to participants UW Tacoma level pilot program outcomes focused on increasing the persistence of first-year student's transition from year 1 to year 2. The big picture goal was to increase retention, but at a more targeted level, it was to identify specific areas where interventions may be beneficial. One participant shared "there is clear evidence that if our students weren't registering 20 or more days before the beginning of the quarter they were much less likely to be back in the next year." Therefore, data from Civitas allowed for pinpointing specific areas where action could be taken to see if outcomes would be positively impacted. In this case, increase persistence and retention by getting students to register earlier. The goals for the Civitas project at the UW Seattle level were different than Tacoma's as explained by another participant, "for the UW Seattle campus, there was a shared sense of urgency to explore or "get their feet wet" with the growing utilization of learning analytics in higher education." The UW Seattle campus did not pilot the system. They provided access to data stores for Civitas data engineers. Only Tacoma participated in the pilot because they had previously conducted pilot programs that utilized nudging and targeted messaging to specific student populations. Tacoma was an ideal candidate for Inspire exploration due to the student population size and demographics of their first-year students.

Messaging. Central to Civitas was the ability to send bulk or individual emails to students who were identified as at-risk for non-persistence. One of the primary concerns for the advisors was that messages, intended for a specific group of students or an individual, would not be accurate, would be worded inappropriately or would misrepresent advisors. To combat this

issue, a small task force of advisors was created to draft approved messages. As one participant explained:

> The group messages were sent out by one person. That was a policy, and that was a cultural policy, not any other reason. The advisors have a culture of ownership regarding their own students, and they felt, that if a student got a message from an advisor not their own, that that that was crossing boundaries. So, even though all of us drafted a message, I had to be the one to send it out because I was not an advisor.

A participant added, "who has access and who can send emails on my behalf I think is concerning, and knowing that there's a lot more behind the scenes." Despite efforts to curtail messaging issues, emails were sent without advisor's knowledge. Advisors did not want erroneous emails sent out to students who did not even meet the criteria driving the intervention. Unintended outcomes included undo stress for students, extra work to mitigate issues for advisors and ultimately a poor interaction between the advisor and advisee. One advisor shared, "for a while we had some other messages going out from other entities in that wasn't helpful because the students got confused and we didn't know about it." It was discerning as another participant recalled:

> I know that some students have been contacted, not from our office, through Inspire and were told they had not yet registered. This included students who were registered to graduate, and it created panic in students. This is a pretty simple fix, but I wouldn't have wanted to be that student, thinking they were not graduating.

Another unintended consequence occurred when the Civitas system of having wrong data occurred when students, who did not even fall within an advisor's group of advisees, got mistakenly included in the data set and received messages from an advisor they did not even know. Part of the concern was that Civitas could not decipher the complexities that surround some student's academic paths and how they get to the point of meeting some specific demographic criteria. As explained by one participant:

We have students that have a variety of ways of declaring majors and several of the students that showed up on my list are ones I actually work with, that majors work with, but they're not formally declared. So, they can't yet show up on their declared lists, but they are in a gray area. So yeah, I don't have a relationship with that student. So, it wouldn't make sense for me to reach out to them, but I still see them on my Civitas list.

Other advisors were concerned that they did not know what the student received from the Civitas system and that poorly constructed messages were sent out. Especially since advisors adhere to strengths-based approaches when communicating with students, they want ownership over the tone and content of messages. One participant was concerned that improper messaging could impact student motivation:

The motivational impact of some of the messages, especially when we're sending out batch messages, is of concern. If you get wrong people in there and if we're not putting the correct message out to the students, that's a problem. So, I'll be honest and tell you; I didn't use it a lot. I used it maybe quarterly and not every quarter as time went on because I lost faith in the whole system. They (appointed task force person) were usually prompting them to just make an appointment with your advisor. It was very vanilla.

The advisors adhere to strict communication guidelines, and formatting of messages was of equal concern. As expressed by one participant, "I didn't know what it looked like on the student side to receive an email, and I've heard from students they've received other emails through Civitas that didn't come in so neatly and the formatting was off."

Issues of privacy. The issue of student privacy surfaced when participants were asked about unintended consequences to using the Civitas system. When discussing the messaging of students within Inspire participants had little faith that the communication channels would be private, as the system claimed to be designed. Advisors relied on University email for communication with their advisees. When asked if they used the messaging, they responded:

No, because I didn't use it to communicate and really, honestly, I didn't trust it. They (Civitas) were saying "oh, this is private and will only go to the student." I didn't know if that were true. And the reason why I didn't know if that was truly not was because there were so many issues at the beginning so many "Oops, we have to fix that" or "Oh, yeah. That's a bug." It's like I don't trust your system because I don't know if all the bugs are

gone. So, I never did it because what if it didn't work and somebody got someone else's information? It's like "oh no! Now I have to fix this." I just used my email if you're talking about an intervention or something this is to private and delicate of a matter to make mistakes on. So, I just did I didn't go there.

Besides their concerns about the privacy of the messaging feature, advisors felt that Civitas was no different from systems that advisors already used to pull student data and that as long as FERPA was being protected, no other types of safeguards needed to be in place. One participant shared:

I'm not too worried about privacy, specifically with Civitas. I mean. I feel like it has very similar information to a lot of other systems. We use our EARS system to pull off their grades and notes from previous advisors. So that's pretty personal sense of information. SIS, which is the admission system affects us too. I don't see Civitas being any more or any less of an issue for student privacy.

Advisors were cognizant, however, of the importance of protecting who else has access to the data. One advisor said, "I think we have to be careful about where we're selling that data and who were giving access to that data."

When asked about what student reactions they had encountered as a result of Inspire data being utilized to track student behavior, a few had students inquire. One disclosed:

I've had a couple of students question how much advisors can see, but I think once they understand that it's coming from a place of care and that as a university is trying to help them succeed and make sure they can graduate, students are very open to it, from the conversations I've had with students.

Other advisors did not disclose to the students that they had access to Civitas to gain insights on predictions and changes in academic behavior, "I would never let a student know that I had access to Civitas." One advisor shared they had not received any feedback from students primarily because they only relied on Civitas to cross-check what student thought to be true. They said:

I've never heard a student say anything about it. But then again, I never let them know that I had access to Civitas because that's just not my style. I would let them reveal to me what their grades were and sometimes I'd look on Civitas to see if that were true.

Another shared their views on transparency and the use of tools like Civitas Inspire.

I would want clear transparency with students as well as everybody working with students. I like transparency in everything. They [students] should be able to check a box and opt out, but it shouldn't be anything in small writing. It should be, potentially, on their registration screen every quarter - where we have the voter registration, U-PASS [bus pass], meningococcal immunization, and financial responsibility options. I believe that's where it should be every quarter and also on MyUW, where they can opt out any darn time they want. That's how I feel.

Advisors limited system usage resulted in little data surrounding the impact on first-year student retention. There were, however, experiences shared with regard to messaging and student privacy. Again, overlapping factors emerged from the acceptability, social validity and program integrity components and were found to be equally impactful on program outcomes. First, advisors insisted that they were involved in constructing and approving every message sent out to students and that one person needed to be designated to send the messages on behalf of the group. Advisors were reluctant to be associated with any message that could potentially be misinformed by data, impact student motivation or well-being or would jeopardize the trusted relationships they had with their advisees. The also wanted to ensure that the messages aligned with both strengths-based and appreciative advising language. Advisors recalled having to mitigate student issues that they considered unforeseen consequences of not being aware of some messages sent out to their advisees. Another expressed fear which could lead to unintended consequences was whether emails sent within the Civitas Inspire system would remain private to individual students, as the vendor claimed. Advisors were not willing to risk FERPA violations or breaking student trust and therefore did not use the intervention or email tools within Inspire. Overall, advisors did not feel learning analytics systems like Civitas Inspire required any more

privacy rules than any other advising tool already in use. They did feel that policy on who could access the data and how it was shared was needed. A majority of advisors did not tell students they had access to Inspire data but they did feel students should have the option to opt out of being tracked.

Implementer competence. Implementer competence evaluates the extent to which undergraduate advisors feel they possess the necessary skills and knowledge for successful Civitas Inspire implementation. Three advisors recalled several Civitas consultants being on campus to conduct mini-demonstrations on how to navigate the Inspire system at the beginning of the pilot. One shared:

> There were two hands-on sessions. So, there was explanation about the intervention factors, inspirational factors and where that data is pulled from. I felt I walked away with a good understanding of what each of those areas mean.

Phase 2 interviews confirmed that advisors had a two-day hands-on training that not only covered how to navigate within the system but also looked at manipulating variables with real UW data. Advisors were new to learning analytics and appreciated the opportunity to learn about what types of data were aggregated, how predictions were formulated and how to navigate system features. As one participant said:

> Civitas came out to train us. It was at that point that we were able to imagine what [Inspire] would look like because then we were able to see some of the data and click around. So, that was the first time any of us had a sense that we were pulling all this data together, and I don't think any of us had a sense of what that meant until we were able to see it.

Despite the initial system training sessions, advisors were still unclear about what various factors that influenced predictions actually meant. For example, one participant posed the question "does participation mean they just logged in to look at a grade or looked at something and then log out? Does it mean they completed their papers or quiz or did the discussion board?"

Several advisors indicated that they had an introductory understanding of the system and they learned additional skills by just poking around in the system on their own.

Advisors who did not attend the initial training relied on co-workers who attended to provide guidance, one recalled, "I had initial questions [about the predictions] that I asked my supervisor about in terms of predictors, but I felt very fortunate one of my colleagues actually sat in on a lot of the implementation and so they kind of helped me. One advisor, despite have been given training outside of the formal Civitas training, had limited knowledge on what exact LMS factors are taken into consideration when predictions are generated and where unsure about overall system capabilities. In explaining what factors Civitas included in predictions, they said:

> So, I'm guessing is taking grades and class attendance and I'm not quite sure what other factors that it takes into account, but I know it looks at who's most likely to not come back next quarter. I mean you can see their [student] grades like their percentage in classes, the number of credits completed, and then you contact them through the system or keep track of whom you've contacted.

This was further described by another participant who said, "So, one [factor] was, how much time are they spending in Canvas; How many times are they logging in as compared to their peers in that course; the other one was real-time look at grades."

Most advisors felt they possessed the necessary basic skills and knowledge to navigate the Civitas Inspire system and utilize its features. Advisors felt they possessed a solid understanding of both inspirational and intervention factors within the Civitas system but did express less confidence with regard to defining LMS factors that influenced predictions. One exception was an advisor who arrived in year three of the pilot. They were unclear about system capabilities and prediction factors.

Sustainability/institutionalization. Sustainability and institutionalization are combined into one section because both CMMPE components explore perceived factors, expressed by

advisors, needed for long-term Civitas Inspire utilization. All advisors expressed the need for a

centralized advising tool or at the very least, a set of tools that were integrated. Copying student

advising notes or other student data into every single system is not practical and will become a

larger issue as student numbers increase and advisors time with advisees is more limited. One

participant said:

> I think if we had one Central system that allow different tools to connect, that would be the most beneficial. It's hard because, as an advisor, we use EARS which just connects tri-campus and a lot of our systems are homegrown. So, they are all piecemealed together and having one that doesn't talk to something else can be really difficult to do. If Civitas had the ability to add notes that connected to EARS. It would have been utilized more.

> A second participant said:

> My biggest complaint against [our current system] EARS is it's not very interactive. EARS is the [system] we use on a daily basis. So, if other tools are more integrated with EARS I might be a little more likely to use them.

> For another, they had been told integration with other systems would not be feasible.

Advisors felt that systems with erroneous or misguided information are not an option and would

always require data comparisons with other trusted systems in order to validate what was being

shown. The advisors felt that if integration with EARS was not possible, then integration with

SIS or SDB would help. As one participant said:

> I am going to come up with a plan that is not going to be feasible here because I've been told it wasn't. Yes, it needs to be something user-friendly and not of a separate entity, something we could embed in EARS. We use EARS 24/7 and for me, embedding as much, and bringing together as much of the technology is essential to individuals using it more… So, if we have another system and it has bugs or even if it doesn't, it's still another system to pull up and I am still going to question - is this right? Then, I compare it to what is right in an established system and utilize the verbal data from students. So, I think we should embed it with ideally, EARS, but really, I would take it with any of our other systems [SIS and SDB].

> Advisors advised that in order for a tool like Civitas to be successful they should have

been approached early on in the product selection process.

I would say if they're going to do something like that [select a learning analytics tool], what I wish they'd done the first time is talk to us first. We were not consulted. I don't think any advisor was, whether it's the AAC or [other advisors on campus]. I think it just came. They need to have an understanding of how we function and then we've got to figure it out. After it's here is too late, like before it comes, talk to us. That didn't happen. It was more like "oh, we've got this thing; use it."

This was reiterated by another advisor who said, "I think would be helpful to have advisors in the planning stages to make sure systems talk to one another because it's for us, as an end-user."

They also felt that buy-in and commitment from other stakeholders, particularly faculty would need to be achieved. This was in part to mitigate the gaps found in Canvas student data, "I'm hopeful that we can create a new system that will allow for all the system [Civitas] perks but be actually usable and have people use it across campus." Another participant said: "I mean we can't just have advisers using it because it relies on faculty using it." Another participant agreed that faculty and staff should be involved but stressed the importance of transparency in the planning an implementation process, including students:

> Clear transparency, first with faculty and staff, and then if it's going forward, clear guidelines and transparency with students. I mean everyone's got to be on the same page, and it's got to be the right system. It just has to be the right system because this was not the right system for me personally. I just know on my end, as a user, what I'm looking for is the personal, and ease in helping retain my students, and making sure that they succeed. Trust [in the data], it's my biggest issue.

Conversely, there was also doubt by some advisors that a tool like Civitas would ever be utilized by the advisors, mainly because of the large post-traditional demographic and the inability of Civitas to capture the unique characteristics of each student when telling the story. One participant shared their perspective:

> I think that Civitas would work on another campus. I don't know if it will work at UWT. Our population [student] is dealing with so many issues that are not academic that affect academics…A person might be entered in with a low GPA, who is on our radar, but it [Civitas Inspire] doesn't capture that this is also a person who's a military vet, who is

determined, has grit, has family, a strong background, cultural wealth, all those things and they're at a high degree of persisting. We don't have to worry about them. Then there's a person on the flipside. A person who comes in from a great high school who came in with the 3.56 GPA but - we don't know that living with mom and dad is driving them crazy, that they have this high anxiety factor that's telling them "you better succeed or mom and dad are going to be disappointed." This student may have very low persistent. So, how do we capture them? UWT is so unique like that because we have all these stories. So, I don't know how Civitas can do that.

One participant questioned that, even if Civitas Inspire had integration with other advising systems, it would be enough to foster adoption. They explained:

I have a difficult time thinking that it will [be accepted]. Unless it can capture all those issues, unless there's a place in Civitas that can look at - Is this person undecided? Is this person first generation? Is this person having difficulty with food? Are they homeless? If we can capture that, if a student is willing to reveal or disclose that then okay, we can go there. Even with just EARS integration, I don't think it would necessarily work.

Advisors also spoke about return on investment for systems like Civitas and that the main UW Seattle campus has much different needs and retention issues than Tacoma. Participants said "it's a big financial investment for the University and right when we're in a budget crisis the way we are, I am guessing the return on investment wasn't as strong as some of the other programs" and "how much do we really want to invest if it's just for this particular subset of our employees?"

One advisor brought up the possible benefit of having all stakeholders become data fellows. Data fellows is an Institutional Research led community of practice meant to facilitate the acquisition of data knowledge and use of UW data tools while advancing the data culture on campus. The participant said:

I think being a data fellow would really help in the interpretation of results and things like that. I know that's something many of us are planning on doing in the future. So, I hope that's something we can use given that we need a lot more skill in being able to interpret data, read through the data in meaningful ways, and not just see data and interpret it how you want to see it. We need to be really smart consumers when it comes to data.

At an institutional level, advisors spoke about the data culture on campus as being

different than the culture within advising. One spoke about the difference between the

institutional and advising data culture:

> I think we have a culture on campus that uses data when it's an asset but doesn't
> necessarily look to data first, to make decisions. It's only when it's beneficial to use data
> that I find we do. Otherwise, as an institution, we put feelings first and foremost.
> Whereas, sometimes I think advising can see the data first and then use that to inform
> practice.

Advisors also acknowledged that the high-touch advising they value is not sustainable as

the population of students increases. In order to move forward with another system like Civitas

Inspire, UW Seattle campus would have to be involved for access to systems like SIS, SDB,

Canvas, and EARS. UW Seattle has less issues with retention than Tacoma and therefore has less

need for persistence tracking systems to retain students. Advisors expressed the need to have

retention be seen as an issue needing to be addressed by the Seattle campus but were not

confident that Seattle would invest in another system.

> Retention would have to be viewed as an issue worth solving. The word would need to be
> used often and just seeing the differences here, between us and the main campus, I don't
> see that. I would say Seattle would need to be on board. I mean, everything filters from
> them. So, if they want UW Tacoma to continue to be successful and to retain students,
> because we don't really have a big problem drawing them these days, but we do have a
> problem retaining them, they will need to see it as a problem that needs solving. The
> human power can only go so far, the practice of high-touch advising.

Overall, all participants were open to exploring new systems. As one participant

concluded, "I think we are definitely open to anything that's going to support the first years and

make our jobs easier."

Key Findings

Importance of Effective Workflow. The circumstances that led to the underutilization

of the learning analytics system, Civitas Inspire, by undergraduate advisors aligned with research

presented in the chapter 2 literature review. UW Tacoma advisors, like others across the country, are seeking ways to meet the needs of a very complex and changing student demographic. Siemans and Long (2011) described institutional data being historically un-friendly and siloed which is consistent with the undergraduate advisor's description of their access to current advising systems. There is no centralized advising tool on campus and the piecemeal approach to acquiring data and keeping records on advisees is insufficient and time-consuming. Nonetheless, they have individually created their own process for managing available data and workflow for each advisee while collectively adhering to the policies, procedures, professional core values, the shared norms, of the advising center.

The introduction of a fourth system, Civitas Inspire, left little time or tolerance for learning another stand-alone tool. A tool that did integrate with new data sources like Canvas, but not existing advising systems like SIS, SDB or EARS. The pilot added more complexity to advisor's workflow, a factor in contrast what to Norris and Baer (2013) highlighted as being critical to facilitate adoption, the establishment of infrastructure to not only support analytics system adoption but; more importantly, meet or exceed the workflow needs of stakeholders utilizing the system.

Advisor as Data Scientist. Siemens, Dawson and Lynch's (2013) examination of learning analytics deployment across multiple institutions found that a lack of informed leadership and skills deficits of those using the systems impeded success. Advisors possessed the basic skills required to navigate and successfully utilize system features (viewing inspiration/intervention factors, messaging), but some confusion seemed to exist regarding interpretation of system defined outputs. Part of this issue stems from the fact that Civitas Inspire pulls data from systems unfamiliar to the academic advisor. Without knowing the interworking

components, capabilities and language of the LMS Canvas, for example, how can advisors understand what Civitas considers as participation? Additionally, because faculty were not involved in the Civitas pilot, advisors were unaware of the extent to which a student's faculty member was using the system and thus had no baseline for the level of participation expected across courses. Even though Civitas predictions were influenced by a student's participation in a course relative to what other students in the same class were doing, advisors felt lost in interpreting the impact of those results.

While trainings provided a much needed demonstration and first look at how Civitas Inspire could benefit advising, advisors were side tracked by also being asked to assess and validate the data. It could be argued that had advisors been involved earlier in the planning and design stages of the pilot, many of the validation issues could have been handled and advisors would have had a better understanding of the data science, algorithms and system architecture driving the predictions. This would have allowed for more targeted training sessions that could have revealed the sub-culture driven apprehensions felt by advisors. Instead, the training sessions increased advisor anxiety and decreased confidence in both the system and the vendor. Advisors recalled enthusiasm in the early stages of the pilot. The idea of being able to see real-time inspiration and intervention factors along with performance data within Canvas was new and welcome. Referring to Ifenthaler and Tracey (2016), who state that "more educational data does not always make better educational data" (p. 877). The LMS data Civitas was displaying was problematic for advisors. Data on grades within the system was only as up-to-date as the faculty were on grading. Data displayed in Civitas was at times incorrect and advisors, who value accuracy, could not accept relaying misinformation. Additionally, research (Arnold, Lynch, Huston, Wong, & Olsen, 2014) shows that stakeholders must be knowledgeable about

how system predictions are formulated. Advisors lacked a clear definition of Civitas terms. For example, they expressed uncertainty as to what was meant by the prediction factor of participation in Canvas. Lack of understanding perpetuated a lack of confidence in the system outcomes. Thus, advisors slowly reverted to their existing, tried and true methods to inform conversation and drive intervention with advisees.

Shadow-culture Perspectives. For some, Civitas was not providing any new information on the students they support. For all advisors, Civitas was not providing sufficient data. UW Tacoma students fall within the previously defined post-traditional demographic. They lead busy lives and face complex challenges. Being an institution with just over 600 first-year students, advisors are afforded the opportunity to build close relationships with their advisees. Siemens and Long (2010) talk about the need for sensemaking when dealing with data. The ability to make connections among people, places and events to promoting situational awareness of what is being predicted. While making sense out of the data provided is critical to effective intervention, advisors took issue with the system not providing a breadth of situational data about their advisees.

Advisors value and believe in their current methods of student-centered, personal story driven advising. The premise of learning analytics is to provide real-time visualizations of historical and current student data to inform action, what Arnold (2010) called actionable intelligence. Actionable intelligence from the perspective of the undergraduate advisors is using data to confirm or support the historical and current narrative that students self-disclose in personal interactions with advisors. For advisors, to have a data-driven mindset means that decision-making or intervention is based on evidence gathered from student voice and human interaction, rather than data analysis and trend interpretation. Even if advisors did rely more

heavily on analytics data, it would need to be holistic and Civitas failed to target non-academic complexities that tend to impact student academic performance, the issues that tend to result in a scarcity mindset, discussed by Mullainathan and Shafir (2013).

Advisors value keeping apprised of the academic and non-academic factors that make up the whole student story. That practice is at the core of their advising culture. They already have piecemealed systems that can provide partial understanding of the academic story. As indicated in the review of literature, learning analytics systems cannot account for social, personal or lacking LMS factors. Advisors indicated a system that could tap into the non-academic factors; issues of homelessness, food insecurity, financial burdens, mental health, would better align with their advising approach. Current data offerings in Civitas Inspire were not enough to foster adoption. Thus, this is one example of the advising sub-culture playing an integral role in diminishing utilization of Inspire among pilot participants.

Philosophically, the advising center adheres to a strengths-based, appreciative advising methods to support students. The established sub-culture is based on trust and accurate information exchange and leadership expectations that reflect a "we chose our own path" posture were antithetical to adopting an unannounced technology for which they had no voice in selecting or implementing. Research conducted by Moon and Bretschneiber (2002) supported the notion that stakeholders would be apprehensive in accepting new technology for which they were not consulted. Advisors feel they already use data to inform interventions and that their trusted relationships with advisees promote proactive outreach that takes into consideration the non-academic factors Civitas doesn't capture.

Human –vs- Machine Driven Alerts. Of surprise and not previously found in the literature, was the notion that advisors viewed Civitas Inspire as a deficit model system. This is a

curious. Advisors have an early alert notification system, where faculty send emails directly to advisors if a student is not performing well in a course, or if other concerns surface. Early alert messages from faculty could be considered a deficit model, in that they focus on negative aspects and weaknesses of student performance. So, why wouldn't the advisors be averse to the early alert system? The difference between Civitas showing low persistence factors and faculty reporting low persistence factors comes down to human –vs- machine driven reporting. The advising culture is one of personal interaction, with data secondary. It is also about providing accurate information. Advisors expressed more trust in data reported by people over machine. This deficit model view put Civitas Inspire in opposition with the strength-based, asset driven approach to advisor/advisee interactions. Advisor concern aligns with the review of the literature by Drachsler & Greller (2012) suggest profiling of students based on a narrow set of parameters can result in limiting students' potential and damaging self-efficacy. Advisors are unwilling to risk profiling their students based off of systems that provide fragments of data they did not trust.

Trust in Data Predictions. Findings from this study demonstrate overlap between the CMMPE components of acceptability, social validity and program integrity. As with any technology adoption plan, stakeholders should be involved in the early design stages of learning analytics implementation. Unfortunately, fidelity towards Civitas Inspire was negatively impacted at the advisors first experience with the system. Advisors found numerous issues with the test data used in the initial training sessions. Civitas and pilot leaders were very responsive to advisors needs and rapidly corrected errors. By launch, most inconsistencies in the data has been eliminated but advisor doubt was not. Advisors questioned the accuracy of Civitas Inspire data from that point on. For advisors, the main concern was taking action on bad data, potentially jeopardizing advisor/advisee trust. As revealed in the literature review, many scholars, who have

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contributed to learning analytics research, have shown that assigning meaning to predictions is subjective, and appraisals are unavoidable (Bichsel, 2012; Dziuban, Moskal, Cavanagh, & Watts, 2012; Ellis, 2013; Norris & Baer, 2013; US Department of Education, 2012).

As stated in the results, the first core value of University Academic Advising is to provide accurate information and central to advising culture is trust building. Advisors were not willing to put themselves or their advisees in the position of having to contradict what the data was saying to get to the truth. In the world of learning analytics, 100% data validity can never be achieved. The University of Washington drafted a policy document titled Goals and Principles of Learning Analytics at UW. In that policy document it states that "the accuracy of the models [data] will be closely scrutinized on a periodic basis to ensure their meeting an acceptable level of accuracy." For advisors, who want truth in everything, an acceptable level of accuracy would be realistically unachievable. It is also taxing on their time to have to be the ones to scrutinize the data. Especially, when issues with data are sometimes revealed and reported by students who were the receivers of misinformation. If program integrity falls short, as it did with Civitas Inspire, doubt surpasses trust, confidence in system outputs is questioned and system usage diminishes.

Vendor Preparedness. Study results shed light on another aspect of technology adoption related to program integrity, that is rarely documented, vendor preparedness. Civitas representatives admitted to not being fully prepared for conference call meetings with pilot participants. There were also reported changes in company representatives at numerous junctures of the pilot. Again, this negatively affected advisor buy-in and disrupted advisors time. Having to start over with a new representative meant catching that individual up on what had transpired in the pilot thus far. Literature review findings revealed Gašević, Dawson, and Siemans's (2015)

claim that institutional culture and policy has to catch up to the rapidly evolving technology driving learning analytics adoption. Findings from this study would suggest that vendors are scrambling to keep up with intuitional demand for these systems as well. As institutions chase the latest and greatest technologies or try to keep up with other institutions, one has to acknowledge that vendors face equal challenges in meeting institutional needs.

Vendors have to make it a priority to understand data architecture, processes and needs of stakeholder groups they serve and do so by connecting with stakeholder groups early. Institutions must also ensure the right stakeholders are at the table during initial decision-making and planning stages. Both the institution and vendor should listen to stakeholder needs and expectations, be cognizant about stakeholder expectations and let stakeholders be involved in system selection. Doing so, may mitigate sub-cultural barriers by framing system value and benefits in a way that peaks stakeholder interest and motivates utilization.

Misconstrued Messaging. The goal for the Civitas Inspire pilot was to implement an advising tool, which would provide real-time data on students, flagging those moving into high or moderate risk for non-persistence. The system did indeed display changes in predicted student persistence based on factors such as LMS participation, LMS grades, enrollment status, number of credits. What the system did not account for was unquantifiable circumstances. The personal and social aspects, beyond academics, influencing student behavior. The impact of Inspire on first-year student success was minimal. Primarily because of low system usage on the part of advisors but also due to concerns related to intervention messaging.

Similar to actions taken at San Diego State, UW Tacoma advisors insisted a team (comprised of a few advisors and the pilot lead) be established to determine what action/intervention should be taken based on Civitas data and what language should be in the

intervention messages sent to students. Advisors also wanted all messaging sent out by one designated individual (not an advisor). Reasoning for this internal organizational structure aligned with Fritz and Whitmer (2017) who found that messaging, if constructed poorly, could be de-motivating and harmful to students. Additionally, UW Tacoma advisors were reluctant to have their name associated with messages sent out to students outside of their designated advisee group. The discovery of dirty data early on in the pilot made advisors apprehensive when it came to employing various tools, like messaging, that were central to the systems purpose.

Policy, Privacy and Transparency. The rapid growth of learning analytics technology and adoption in higher education has caught institutions unprepared for developing policy to guide the use, protection and disclosure of student data tracking (Gašević, Dawson, & Siemans, 2015). This is in alignment with The University of Washington, who drafted policy specifically relating to learning analytics well after the Civitas pilot launched. It would be difficult to write institutional policy prior to acclimating to and discovering the impact and implications that learning analytics could have across the institution. Slade & Prinsloo (2013) would agree that higher education institutions should be transparent regarding learning analytics purpose, usage, and data security. Hoel & Chen, 2016, suggest institutions should not be retroactive in designing policy. The timing of policy creation was not an afterthought for the University, it simply needed to build understanding in order to create a policy that was inclusive. Inclusivity was only possible by collecting what was experienced and discovered in the "getting their feet wet" adoption of Civitas Inspire and by reaching out to other institutions, who had traveled the learning analytics implementation road before, for advice. In the end, universities need to define and share their policies and practices to ensure stakeholders feel confident that analytics work is ethical, valid and effective.

Interestingly, advisors implied that they do not typically disclose to students where they get their advising data and students were not informed of the newly implemented tracking abilities Civitas afforded the advisors or institution. The debate continues as to whether they are obligated to act on the actionable intelligence that results from learning analytics systems. Research suggests that there should be transparency in how data is collected and used but how much detail should be shared with students? Advisors agreed students should have the ability to opt-out of being tracked, but to what extent? If students were allowed to opt-out of analytics systems like Civitas, would they have the equal justification to want to opt-out of analytics in the LMS, and other data collection/tracking like campus resources usage and student life activities? Institutions implement systems like Civitas Inspire to support students. Full transparency and full disclosure in that effort may help ease the "big brother is watching" apprehensiveness and potentially build trust between students and institutional support personnel, like the academic undergraduate advisor.

Summary

This chapter revealed results from data collection as they related to the 7 component's (acceptability, social validity, program integrity, outcomes, implementer competence sustainability/institutionalization,) comprising the CMMPE framework. Challenges to learning analytics adoption identified in the review of literature (messaging, student privacy, data integrity, and organizational culture) were also represented within the reported results, along with key findings as they presented themselves in the analysis process.

The Civitas pilot experience left advisors feeling open to trying other systems that would assist them in providing more effective and efficient support to students in their academic journey towards obtaining a degree. Interpretation of findings suggest four things. For long-term

sustainability and institutionalization, advisors expressed the need for a centralized advising system, which would save time and consolidate advising resources in one place. Understanding the complexities of achieving such a system, at the very least, a learning analytics tool that integrated with EARS would help. Advisors would then be able to stop having to copy and paste advising session and intervention notes into multiple systems and workflow would be substantially improved. Second, data would have to be reliable and trusted. Third, while 100% data reliability is unrealistic, trust and confidence in the data can be increased by advisors being approached much earlier in the planning stages of selecting a vendor. Advisors felt that by being brought into the Civitas Pilot just before launch, their workflow, needs and advising practices were not valued or understood. As with any technology adoption, stakeholder needs, an understanding of institutional data language and what advisors call "gray areas" of a student academic footprint (various paths taken to get where they are in the university system) need to be understood and taken into account. Fourth, advisors want a system that accounts for both academic and non-academic factors. Advisors call their advising holistic, meaning, they make every effort to learn about and support students facing challenges like mental health, financial, homelessness, family, academic and social issues. For advisors, Civitas provided a small sliver of information on an advisee, not enough to facilitate taking action. Stakeholder involvement would need to expand to include faculty, and potentially other programs or departments that could contribute data in an effort to achieve a more holistic profile of a student. Lastly, advisors understand that UW Seattle must have involvement in any learning analytics system acquisition because they manage the data warehouses. In order for institutionalization of a system like Civitas, which has high cost, and requires significant resources to manage, advisors feel Seattle would have to see a return on their investment.

Chapter 5 Discussion

The majority of learning analytics research centers on institutional level impact of learning analytics on student success, and rarely gives representation to the experience of a specific individual sub-group of organizational stakeholders. This chapter will summarize the impact of the study and factors that will continue to effect long term learning analytics adoption by undergraduate advisors the University of Washington Tacoma. Implications for practice, suggestions for further research, and study limitations conclude this chapter.

The purpose of this study was to evaluate the undergraduate advisors experience using Civitas Inspire, a learning analytics system, to support first-year students in a higher education institution. The Comprehensive Mixed Methods Participatory Evaluation Model (Nastasi & Hitchcock (2016) served as a conceptual framework for the evaluation. Five academic advisors from University Academic Advising (UAA), who participated in a three-year pilot, were interviewed for this study. Two additional participants, who were responsible for supporting the advisors and vendor relations throughout the pilot, were interviewed to triangulate the advisor's recollection of events, provide institutional policy information, and discuss overall pilot planning and implementation. The following sections highlight impact and implications that emerged in the study.

Impact of the Study

Stemming from the undergraduate advisor's experience, there were three identified factors that impacted and will continue to effect long term learning analytics adoption by undergraduate advisors the University of Washington Tacoma. First, institutions should *assess stakeholder needs* prior to planning for a new technology adoption. Stakeholders should not feel like afterthought. Care should be taken and priority should be given to gaining a holistic picture

of processes, policies, and cultural norms that drive departmental mission, vision and values. Advisors (stakeholders) know best, how a system or process would blend into their pre-established practices and culture. Discussion should not only focus on technology system needs but should include exploration of the pedagogical and philosophical foundations influencing their work. They should have representation at the table in early-stages of vendor review and selection and their needs (any other stakeholder needs) should be sought and honored. This is not to say that all needs will be met, but involvement in the process brings with it a sense of ownership and responsibility towards the project and its success.

Second, the ***advisors have made do*** with the existing advising tools at their disposal. While not as efficient as they would like, each tool serves its purpose in providing insights that subsequently add value to advisee conversations. The dream would be, to have one centralized advising tool that combines all of the SIS, SDB, EARS, Civitas and early alert data. At the very least, integration with EARS would help. They also recognize that as the size of the campus continues to grow, they will have to adapt their current personalized approach to advising. For institutionalization to occur, campus leadership has to show their support and be willing to provide resources to facilitate success. GSU's approach to hiring 42 advisors to support its data initiative was a sign, to all campus constituents, that the leadership saw the importance and value of the project. More importantly, they understood that taking care of the human side of change is vital for buy-in.

Third, ***advisors felt system predictions stemming from the LMS were incomplete***. This was primarily because faculty were not involved in the Civitas pilot. Baer & Norris (2016) talk about the importance of establishing a "connect the dots" strategy across all dimensions of the institution to prevent fragmented implementation and ambiguity surrounding who is responsible,

for not only student success, but effective system utilization. Faculty "feed" the LMS and essentially, the old saying garbage in, garbage out, is a critical concept for data initiatives. The more effectively and strategically faculty utilize the LMS, the more accurate the data predictions. So, for sustainability and institutionalization to occur, advisors feel that faculty must participate and adapt their practices to ensure rich student engagement within the LMS. Advisors should also be apprised of the types of engagement opportunities being provided by faculty and understand how the LMS systems work. Doing so will contribute to good data for analytics systems to utilize and make advisors more confident in the consistency and truthfulness of predications.

Implications for Practice

Most learning analytics research centers on institutional level impact of learning analytics on student success. This study sought to give representation to the experience of a specific individual sub-group of organizational stakeholders, the academic advisor. Their experience sheds light on issues regarding stakeholder inclusivity; the need for institutions to acknowledge and understand how shadow-cultures impact stakeholder buy-in, and the necessity for a connect the dots approach towards institutionalization efforts.

Just as institutional data has been historically siloed, so too are many of the technology adoption decisions being made on campuses. UW Tacoma leadership as well as leaders across other institutions can benefit from the undergraduate advisor's story. Transparency is critical in the contemplation over technology selection. Those on the frontlines, who will be using the technology must have a voice in the process. Additionally, an assessment should be completed, to identify other stakeholders who will be directly or indirectly impacted by technology change. They should then be given the opportunity to provide input. Colleagues and administration have

a general idea about how a department functions. However, they may not understand the intricacies of how employees survive on a daily basis, amidst a forest of stand-alone tools, manual reporting processes, and past failed attempts to improve their existence with the latest and greatest technology.

There is a pronounced sub-culture of beliefs and norms that shape how advisors approach their work and build relationships with their advisees, but a shadow-culture is also lurking within. Study findings made it clear that despite a collective mission, vision and set of values, each stakeholder holds their own set of assumptions and beliefs. This should not be a new concept for institutions, yet, often, care is taken to understand the positionality of the larger organizational group, overlooking the individuals that comprise it. Those in leadership positions need to take the time to be more transparent about possibilities being discussed behind closed doors. A majority of the advisors who participated in this study found out about technology and the pilot when they were invited to the first of two training sessions. The lack of consideration on the part of the institution to involve them in the procurement and planning stages made them feel undervalued and thus the shadow-culture and the individuals unspoken words, created an instant barrier to accepting the change.

Implications for Research

Many of the challenges revealed in this study are well documented in existing research. Challenges like organizational capacity building, data integrity, messaging, and student privacy were all issues that surfaced as undergraduate advisors shared their experiences. However, institutions considering implementing learning analytics systems could benefit from a more comprehensive investigation on the following topics:

- The Comprehensive Mixed Methods Evaluation Model (CMMPE) suggests eight stakeholder groups that contribute to the ultimate success of a program implementation. This study focused on one of those groups, the program implementers. Focusing future studies on the experience of additional stakeholder groups (program recipients, developers, administrator/policy makers, researchers/evaluators, community members, funders, and agency staff) would allow for deeper understanding of the various perspectives and agendas that shaped the pilot program. Each operates within an established shadow-culture, as do many others (vendors) involved in the acquisition, design and implementation phases of adoption. Redirecting research from overall institutional experiences to more granular exploration of individual stakeholder groups could help all stakeholders understand the "why" behind how various aspects of culture and perspective impact program success.

- It was interesting to hear the undergraduate advisors view of Civitas Inspire as a deficit model and contrary to their advising philosophy. Future research should explore the impact of Civitas driven messaging, and data informed interventions on student motivation and self-efficacy.

- The advising shadow-culture that included the norms, and philosophical approach to advising was shown to impact advisor's perceptions of Civitas Inspire. Further research should explore advising centers at institutions who have successfully implemented learning analytics systems to better understand the role shadow-cultures played at their institution, if similar concerns were held, and how advisors adapted to the institutional change.

- Institutions collect vast amounts of data on students. Advisor's expressed the need to have an analytics system that would not only aggregate academic data but also non-academic types of data. This could include information on social involvement, mental health, financial need, homelessness, and food insecurity. Some of this data already exists at institutions. For example, sessions with mental health counselors are confidential and protected. The addition of this type of non-academic student data would expand the depth and breadth of current institutional data collection methods. Research should explore student perspective on the collection and use of this type of data by institutions.

- Research rarely documents the vendor experience. Vendors are having to rapidly meet institutional demand. Their voices are equally important in sharing insights into how institutions have managed change well and what institutions can do to make their relationship with the vendor as effective and mutually beneficial. Studies on the vendor experience could add to the research on what they feel foster successful technology adoption and what challenges they feel impede progress.

Limitations of the Study

The following limitations have been identified by the researcher.

- It was the intent of the researcher to include observation and part of the data collection process. Due to the University not renewing the Civitas contract, access to the Civitas system was lost in December 2018. It is the opinion of the researcher that this will not impact study findings. System usage was minimal.

The researcher and participants are familiar enough with the system to verbally describe system processes and functionality.

- All current undergraduate advisors participated in this study. It must be noted, however, that one was not employed at the University at the beginning of the pilot but took the place of an advisor who left the University mid-pilot. Therefore, one participant experience will not include their participation in the early stages of implementation.

- Representatives from the vendor were not involved in this study. Therefore, events pertaining to vendor relations and actions that took place during the pilot are provided from the participant's recollection.

- The researcher is employed at the University and participants in this study are colleagues. The researcher took great care in being aware of possible biases in the research and employed data analysis strategies to minimize bias. The researcher used member checking and verified findings against multiple data sources to maintain a neutral stance when interpreting findings.

- This summative evaluation occurred at the end of a two-year pilot. Ideally, participant experiences would have been collected throughout the process. Participants shared their experiences based off memories of events. The CMMPE model helped the researcher construct probing questions to facilitate recall of various factors found to be of relevance in the literature on learning analytics utilization in higher education.

Chapter 6 Conclusion

The results of this summative evaluation extend research on learning analytics adoption and utilization within higher education by focusing in on the experiences of a critical stakeholder group, the undergraduate advisor. Evaluation results revealed several areas of concern that negatively impacted advisors willingness to use Civitas Inspire as a tool to support UW Tacoma first-year undergraduate students. Advisors found the Civitas Inspire tool to be unacceptable and questioned its value do to a lack of workflow integration with existing advising systems. Lack of integration with existing systems proved to be time consuming and inefficient. Data that misrepresented the reality of a student's academic performance and the systems inability to include non-academic factors in student predications threatened the trust of the advisor-advisee relationship and resulted in advisors continually questioning the integrity of system outputs. Lastly, advisors perceived the system as a deficit model, which was misaligned with advising philosophy and ideology of a strengths-based approach to student support and success. Each of these findings contributed to the failure of Civitas Inspire adoption by the undergraduate advisors.

All of the aforementioned challenges revealed the literature review and those that surfaced through the advisor's shared experience should be recognized, considered and addressed. They are factors that may not only impact the future success of learning analytics use at the University of Washington Tacoma but other higher education institutions moving forward. Advisors play a critical role in the academic success of students. Acknowledging them as a primary stakeholder and involving them early on in strategic planning for learning analytics consideration and adoption is a must for any institution.

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Appendixes

Appendix A

IRB Approval Form

INDIANA UNIVERSITY
OFFICE OF THE VICE PRESIDENT FOR RESEARCH
Office of Research Compliance

To: Kyungbin Kwon
EDUCATION

Darcy Janzen
UNIVERSITY LEVEL

From:

Human Subjects Office
Office of Research Compliance – Indiana University

Date: November 27, 2018

RE: **NOTICE OF EXEMPTION - NEW PROTOCOL**

Protocol Title: An exploration of Undergraduate Advisors Experience Using Learning Analytics to Support First-Year Students

Study #:   1810980332

Funding Agency/Sponsor: None

Review Level: Exempt

Exemption Date: November 27, 2018

In accordance with 45 CFR 46.101(b) and/or IU HRPP Policy, the study is granted exemption under the following category: (2) Category 2: Surveys/Interviews/Standardized Educational Tests/Observation of Public BehaviorResearch involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior if: i) information obtained is recorded in such a manner that human subjects cannot be identified, directly or through identifiers linked to the subjects; or ii) any disclosure of the human subjects responses outside the research would not reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects financial standing, employability or reputation, with the following determinations:

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Appendix B

Permission to use CMMPE Framework

Appendix C

Invitation to Participate in Study

Dear Advisor,

My name is Darcy Janzen and I am seeking your participation in a study that I am conducting for my dissertation work in the Instructional Systems Technology program and Indiana University. My research is focusing on the University of Washington Tacoma Undergraduate Advisor's experience with Civitas Inspire. I would like to invite you to voluntarily participate in this study, which seeks to better understand your perceptions, views, concerns and success surrounding the implementation of Civitas Inspire to support our first-year students.

If you agree to participate, you will be asked to attend an initial one-hour semi-structured interview with me to explore your experience with Civitas Inspire. An additional one-hour follow-up interview may be required to clarify study findings. The interviews will be audio taped, and the tapes will be erased upon successful submission and acceptance of my dissertation. No identifying information will be used in any materials created from these interviews. Transcriptions and audio files will be securely protected in University of Washington OneDrive. The information obtained in this study may be published in professional journals and may be presented at professional meetings or conferences.

Participation will remain anonymous and every effort will be taken to ensure your confidentiality. It is likely that University of Washington Seattle Information Technology, the EVCAA at University of Washington Tacoma, University of Washington Tacoma Institutional Research and Civitas will be reviewing the data collected for future planning, program improvement and to better understand the advisor's first-hand account of their experience. The potential risks are considered to be minimal.

You may withdraw from the study at any time without consequence by contacting me directly at djanzen@iu.edu. If you have any questions about this study or would like more information, please contact me.

Thank you for your time.

Sincerely,
Darcy Janzen

Appendix D

Interview Protocol
Phase 1: Undergraduate Advisors

Interview #_____
Date_____/_____/_____

Interview Protocol Advisors

Script

　　　　Welcome and thank you for taking the time to meet with me today. As you know from the invitation letter that you received, I am a doctoral student in the Instructional Systems Technology program at Indiana University. I am working to complete my dissertation work and want to thank you for agreeing to participate in this study. This interview will not exceed 60 minutes and will include 6 questions regarding your experience throughout the Civitas Inspire pilot. I would like your permission to record this interview, so I may accurately document the information you share. Recordings will be deleted upon completion of the study. All of your responses are confidential. Your responses will remain confidential and will be used to develop a better understanding of your experience with Civitas Inspire. The purpose of this study is to increase understanding of the University Academic Advisors experience throughout the Civitas Inspire pilot program.

　　　　Your participation in this interview is completely voluntary. If at any time you need to stop, take a break, or wish to end the interview, please let me know. You may also withdraw your participation at any time without consequence. Do you have any questions or concerns before we begin? Then with your permission we will begin the interview.

Demographic Information

Participant's position within University Academic Advising (UAA) _____
Years worked in the UAAC? _____

Interview Questions / Probing Questions

1. How did your involvement in Civitas Inspire on campus come about?
2. Can you describe what your experience been using Civitas Inspire as a tool to support first-year students?
   - What was your experience in terms of system ease of use?
   - In terms of program adaptations to meet individual and contextual needs.
   - In terms of integration with current advising systems already in use.
   - What was your experience regarding the data predictions?
3. What were the goals and outcomes for Civitas Inspire as you understand them?
   - Could you talk to me about the values, beliefs and norms of University Academic Advising?
   - Can you talk about the impacts Civitas Inspire had on first-year students that you have supported?

- Have there been any intended (consistent with goals and objectives) or unintended (unanticipated) consequences (positive and/or negative) as a result of the learning analytics interventions initiated by the undergraduate advisor?
- Can you share what you know about policies or procedures that have been put in place to govern the use of Civitas Inspire?

4. Do you feel you possess the necessary competencies for successful Civitas Inspire utilization?
   - What skills do see as necessary?
   - What training and support did you receive?
   - How do you feel about your abilities to effectively utilize Civitas Inspire?

5. Talk about the impact Civitas Inspire has on your advising
   - Can you talk about how Civitas Inspire aligns with the needs of University of Washington Tacoma's first-year students?
   - Does the utilization of Civitas Inspire align with what you feel your role is at the University?
   - Can you share your ethical and moral stance towards Civitas and tracking students in general? Please share your views on student privacy with regard to persistence tracking.

6. What do you envision the future of learning analytics systems like Civitas Inspire will be for the AAC?
   - Can you please share your perspective on facilitators and barriers to continued utilization?
   - What needs to be done to promote sustainability?

Phase 2: Institutional Research and Information Technology Staff

Interview #_____
Date_____/_____/_____

Interview Protocol IR/IT

Script

      Welcome and thank you for taking the time to meet with me today. As you know from the invitation letter that you received, I am a doctoral student in the Instructional Systems Technology program at Indiana University. I am working to complete my dissertation work and want to thank you for agreeing to participate in this study. This interview will not exceed 60 minutes and will include 9 questions regarding your experience throughout the Civitas Inspire pilot. I would like your permission to record this interview, so I may accurately document the information you share. Recordings will be deleted upon completion of the study. All of your responses are confidential. Your responses will remain confidential and will be used to develop a better understanding of your experience with Civitas Inspire. The purpose of this study is to increase understanding of the University Academic Advisors experience throughout the Civitas Inspire pilot program.

      Your participation in this interview is completely voluntary. If at any time you need to stop, take a break, or wish to end the interview, please let me know. You may also withdraw your participation at any time without consequence. Do you have any questions or concerns before we begin? Then with your permission we will begin the interview.

Demographic Information

Participant's position within the University_____
Participant's position during the Civitas Inspire Pilot_____
Responsibilities during the Civitas Inspire Pilot_____
Years worked in the UW? _____

Interview Questions / Probing Questions

1. What were the goals of the Civitas Inspire pilot?
    a. What were the intended outcomes?
    b. Where those outcomes met? Explain.
2. How did you involve the UW Tacoma advisors in the pilot process?
3. How were faculty involved in this Civitas Inspire project?
4. What policies regarding LA use were in place at the start of the Civitas Inspire pilot?
    a. When did the Goals and Principles of LA at UW get drafted/approved?
        i. Where does that reside and how was it communicated to campuses?
    b. Regarding the Validity and Efficacy of data – "the accuracy of the models will be closely scrutinized on a periodic basis to ensure they are meeting an acceptable level of accuracy."
        i. What is an acceptable level of accuracy? Who determines that?
5. Were there any changes in leadership/positions at UW/UW Tacoma during the pilot?
6. Were there any changes in leadership/positions at Civitas during the pilot?

7. What kind of program adaptions were requested by the Advisors?
8. What types of data did Civitas Inspire pull?
    a. From what systems?
    b. Was there any integration with any other systems Advisors utilized?
9. Were there any data validity/accuracy issues encountered during the pilot?
    a. What were the communication channels for reporting issues?
    b. What were the communication channels for reporting fixes?

Interview #_____

Date_____/_____/_____

Interview Protocol

Script

Welcome and thank you for taking the time to speak with me. This interview will very brief. I just have a few clarifying questions to ask you regarding findings from the first interviews. This conversation will not be recorded but I will take notes to document your responses. Your responses will remain confidential and will be used to develop a better understanding of your experience with Civitas Inspire.

Your participation in this interview is completely voluntary. If at any time you need to stop, take a break, or wish to end the interview, please let me know. You may also withdraw your participation at any time without consequence. Do you have any questions or concerns before we begin? Then with your permission we will begin the interview.

1. Can you explain why you view Civitas as a deficit model?
2. How is the early alert system different? Do you classify that as a deficit model?
3. In the Advisor Training Manual, Leadership expectations state that "We chose our own path" what does that mean to you?
    a. How does this expectation influence how you lead the UAA?
    b. How did the Civitas pilot align with this expectation?

Curriculum Vitae
Darcy A. Janzen

EDUCATION

Indiana University (September, 2019)
Bloomington, IN
Doctoral of Education, Information Systems Technology

University of Washington Tacoma (2000-2002)   Tacoma, WA
Master of Education, EducationalTechnology

University of Washington Tacoma (1994-1995)   Tacoma, WA
Bachelor of Arts, Liberal Studies: Comparative International Studies

Tacoma Community College   Tacoma, WA
Certificate in Computerized Accounting Systems (1992-1994)
Certificate in Bookkeeping Systems (1992-1994)
Certificate in Computer System Design and Programming (1988-1990)

Certificates:

CITI Human Research IRB Certification, Indiana University, 2017
E-Learning Design and Development, Graduate Certificate UW Continuing Education, 2012
L E A N Process Improvement Certificate, 2011
Supervisory Skills Certificate, UW 2010
Educause Institute Learning Technology Leadership Program Certificate, 2009
HIPAA Compliance Certification
FERPA Compliance Certification
Comp TIA A+ Certification

AWARDS & RECOGNITION
Certificate of Appreciation, Educause IT Issues Panel, 2015-16
Distinguished Service Award, UW Tacoma 2014
Unsung Hero Award, UW Tacoma 2014
Diana Balestri Memorial Scholarship recipient, Educause, 2010, (Grant award $3250.00)
Certificate of Appreciation – Outstanding Contributions to Foundations of Excellence
Distinguished Service Award Nomination, 2003, 2008, 2011, 2013
"Thanks for Giving Thanks" Staff Association Award, UW Tacoma, 2003
Distinguished Staff Award Nomination, UW Tacoma, 2002

TEACHING / PROFESSIONAL DEVELOPMENT WORKSHOPS
iTech Fellows – Hybrid/Online Course Redesign UW Tacoma 2014 – present
UW COIL (Collaborative Online International Learning) Workshops, UW Tacoma 2016-17
Digital Engagement with UWT-Supported Collaboration Tools
UWT Teaching Tools for Anytime Learning, UW Tacoma 2017
Getting Started with OER, UW Tacoma 2017
Everyday Project Management, Hybrid Course UW Tacoma 2017
Civitas Illume, Predictive Analytics, 2016
TUNIV101: Digital Skills for the Independent Learner, Fully online, UW Tacoma 2015 - present
TUNIV 100: Skills for Digital Learning, Hybrid, UW Tacoma 2013-2014
Canvas I: Getting Started with Canvas
Canvas II: Files, Modules, and Pages
Canvas III: Assignments and Grades
Canvas IV: Discussions, Chat, Collaborations, and Conferences

Canvas V: Quizzes and Analytics
Activate your Google Power!
Google Sites e-Portfolio Development
Turnitin/Vericite Plagiarism Detection
Integrating Social Media Into Your Classroom (Twitter, Flickr, Google Vimeo...& Canvas)
Canvas (Learning Theory & the LMS)

CONFERENCE PRESENTATIONS / PUBLICATIONS

Empowering Learners. Inspiring Leaders Instructional Systems Technology Conference 2017
Creating Connection: Personalization of Outreach via Smart Machines, Pave the Way 2016
Nudging Students to the Finish Line. with Carmean, C. WCET 2014. Portland, OR
Nudging Students to Success with Canvas Analytics. With Carmean, C. NWMET 2014. Portland, OR
Nudging students to better performance with Canvas. With Carmean, C. WACUG 2014. Portland, OR
Creating an Innovation Culture with Canvas. With Carmean, C. WACUG 2013. Portland, OR
Carmean, C., & Janzen, D. "Looking Ahead: Five IT Trends for 2017. The EvoLLLution." January 2017.
Carmean, C., & Janzen, D. "JIT Technology: Meeting the Needs of the New Traditionals. The EvoLLLution." (Special Feature, Operational Efficiency in Higher Education, October 2014).

PROFESSIONAL EXPERIENCE

University of Washington, Tacoma (2016-Present)
Director of E-Learning Services, Academic Technologies
Affiliate Faculty, Education

University of Washington, Tacoma (2012-2016)
E-Learning Support Manager, Academic Technologies

University of Washington, Tacoma (2004-2012)
Instructional Technologist, Academic Technologies

University of Washington, Tacoma (1999-2004)
Computer Support Analyst 2, Information Technology, Computer Services

PROFESSIONAL SERVICE

Online Learning Community of Practice – Tri-Campus group, 2018
FYE Librarian/ID Librarian Search Committee - 2018
Strategic Plan Assessment Sub-committee, 2017-present
EAB Guide Project Lead, 2017
Student Success Council, 2017
Educause IT Issues Panel, Committee 2 Terms: 2014 – 2015, 2015 - 2016
UW Tri-Campus Canvas Template Design Group, 2015
UW Tacoma Center for Service and Leadership Steering Committee, 2015
UW Tacoma ITech Fellow - ongoing
UW Tri-Campus Canvas Users Group - campus representative/member since 2011
UW Tacoma Campus Technology Committee - member since 2006
UW IT Tri-Campus Technology Oversight Committee - campus representative/member since 2012
Educause, TLT Group, WCET, NWMET– Campus representative and member
New Student Orientation Advisory –ongoing member
Teaching and Learning Roundtable – ongoing member
Professional Staff Association – ongoing member
Spring Recognition Day Volunteer, Graduation Volunteer, Campus Recognition Day Volunteer
Foundations of Excellence – Dimension Committee Co-Chair 2009
Task Force for Undergraduate Advising and Registration