



An Examination of Organization Learning and Data Driven Decision Making Within Two University Enrollment Management Programs

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ABSTRACT

This paper investigated the declining number of students in higher education institutions, and the effective strategies universities can use to recruit students who will graduate. From this research, it appeared that data-driven decision-making can be an effective means to create a successful enrollment management office. Through a practice of data-driven decision-making, organizational learning can happen, which will allow an organization to maintain success and build a culture that sustains that success. Three key themes emerged from the research that will help to inform best practices for other colleges and universities to implement ideas from this research. The three themes are: *an organization must have good, usable data; an organization should strive to create a culture of teamwork to sustain success, and an organization needs a successful enrollment leader.*

Keywords: higher education, enrollment management, organizational learning, and data driven decision making

INTRODUCTION

Statement of the Problem

Within the review of the literature, the identified problem was that there is little to no research on how higher education organizations learn and adapt to use data-driven decision-making. The current research on the use of data-driven decision-making is in the K-12 environment (Greene & Forster, 2003). However, the research is lacking when it comes to higher education, as most of the literature discusses the need for using data (Mandinach, 2012), how to collect and disseminate data (Price & Kirkwood, 2014), and how to use it to inform practice from an institutional level (Sailesh, Lu, & Al Aali, 2016), not within enrollment management (Hora, Bouwma-Gearhart, & Park, 2017). While research exists on successful EM strategies and initiatives (DesJardins, Ahlburg, & McCall, 2006), there remains a gap in researching ways for those programs to occur organically and without special funding (Miller & Bell, 2016).

This study attempted to examine how peer institutions handle these challenges and effectively reach students (Ford, 2011). Research is needed that focuses on the best practices that are replicable across various types of institutions and is cost-effective (Francis, 2014). Data

utilization is the most effective and efficient way to display that something works, at least in the current environment of higher education (Hossler & Kalsbeek, 2013). Therefore, examining how a higher education EM office, specifically an undergraduate admissions office, can learn to use data to create and integrate a predictive model successfully was the focus of this inquiry.

Significance of the Problem

The number of students who are attending college is declining, and to remain solvent, institutions of higher education must adapt and learn (Hossler & Kalsbeek, 2013). This research focused on helping institutions, with the end goal of creating a predictive model that will allow them to recruit more effectively and efficiently students who will successfully retain and graduate. This is important because if schools can reach students more effectively, the likelihood of successful completion increases (Kuh, Kinzie, Schuh, & Whitt, 2011). If students do not select the *right* college, the school where they have the best chance of being successful, these students are less likely to graduate (Mattern, Shaw, & Kobrin, 2010). This leads to fewer people with college degrees, more loan debt for students, and wasted time for all involved (DesJardins et al., 2006). For those wanting to attend an institution, all parties are best served by a model that gets students to the right place in the most efficient manner (Tucker & McKnight, 2017). The institutions benefit because they can grow enrollment, increase retention and graduation, and utilize resources elsewhere to help the institution (Poole, Levin, & Elam, 2017). Students benefit by not wasting time with an extended search process or spending time and money with transferring between institutions. It is important for students to find the right fit for themselves, which will help them graduate in a more efficient and cost-effective time frame (Witteveen & Attewell, 2017). Additionally, this research can lead to further inquiries into what makes for successful EM practices, but further, more direct research into organizational learning. Organizational learning is going to become vital to the sustainability of all businesses, not just higher education (Lozano, 2014). If organizations cannot learn to adjust internally, these institutions will not be able to survive, particularly as it applies to higher education.

Relevant Research

Estimates reveal the number of high school graduating students are declining in the United States in all but two states, Florida and Texas (Hussar & Bailey, 2016). This highlights that offices of Enrollment Management (EM) within institutions of higher education should learn how to be more effective and efficient when recruiting students. In reviewing the current research on this topic, trends begin to emerge quickly. There is a great deal of literature on national best practices within enrollment management, and how enrollment management is similar to marketing (Berry, 1995; Bontrager, 2004; Hossler & Kalsbeek, 2013; Payne & Frow, 2005). Similarly, how to integrate enrollment management to serve the university effectively has been investigated (Bowen, Bok, & Burkhart, 1998; DesJardins et al., 2006; DesJardins et al., 1999; Hossler & Kalsbeek, 2013). This research all focuses on either the role of a successful EM office or the strategies that successful EM offices use for decision-making. Conversely, there is a lack of research on how an EM office becomes such an entity that can effectively use these strategies. It is from this gap in the literature review, whereby these researchers are seeking to examine how an EM office can become effective in utilizing all the strategies the existing research discusses.

Conceptual Framework

Ultimately, this review of the relevant literature led the researchers to organizational learning theory (OLT) and data-driven decision-making (DDDM) as the two conceptual frameworks in which to review this investigation. The critical element of OLT that leads to its use as the conceptual framework is that the data will be focused on organic, internal change. For these new methods of EM to be successful and sustainable, they must come from within the university. It is vital that organizations learn how they can make this change happen themselves, and for that to happen, individuals must understand how organizations learn (Hoppes & Holley, 2014). Additionally, regarding DDDM, institutions are being required to collect and present statistical evidence to justify funding more now than ever before (Hussar & Bailey, 2016), particularly with the increase in performance-based funding models (Rutherford & Rabovsky, 2014).

Organizational learning has been studied in the business world for many years, beginning when Cyert and March (1963) outlined its critical role in the 1960s. The relationship between learning and change has often been examined at a strategic management level (Dodgson, 1991), with insight given into how managers or leaders can use organizational learning to affect organizational change (Noruzy, Dalfard, Azhdari, Nazari-Shirkouhi, & Rezazadeh, 2013). Additionally, organizational learning is a valuable framework because it is widely recognized that learning organizations are more competitive than those that do not embrace the idea (Chiva, 2017). Since change happens rapidly in the world, organizations should be willing and able to learn through experience. Otherwise, they will cease to exist.

Upon reviewing the literature, three key themes arose that will inform the basis of how organizational learning will be used in this research. First, learning generally has positive consequences, even if the outcomes of learning may be negative (Guinot, Chiva, & Mallén, 2016; Louis, Louis, Murphy, & Murphy, 2017). For example, an EM office might employ a specific communication piece to prospective students, and they receive overwhelmingly negative feedback about the marketing of a program. The outcome was adverse, but the consequence was a positive learning experience for the organization (Mahr, Lievens, & Blazevic, 2014). Second, although learning is based on individuals, organizations can learn (Reese & Hunter, 2016). This means that while most of the specific learning that happens in an organization occurs at the individual level, if enough individual learning happens, the culture of the organization can change, causing organization-wide learning to occur (Cook & Yanow, 1993). Third, learning occurs throughout all activities of an organization, and it happens at different speeds and levels (Schilling & Fang, 2014). For example, in an EM office, the “on the ground” recruiters may recognize a change in how prospective students prefer their marketing very early on; however, the marketing department that is on campus may take longer to learn this lesson. The takeaway is for organizational learning to be successful; individual learning must happen and then be shared with others in the organization (Langley, Smallman, Tsoukas, & Van de Ven, 2013).

Furthermore, Argote and Miron-Spektor (2011) provided a framework to assess an organization, as well as details how leaders can ensure OL is happening. That theoretical framework revealed organizational learning is a process that occurs over time, and thus, aims to show an ongoing life cycle wherein experience is transformed into knowledge that can change an organization. This knowledge is then incorporated into the environment of the

organization, changing future behavior, and possible experience and expertise. It is important to note that organizational learning happens within a specific context that includes the organization and the environment in which the organization exists (Drazin, Glynn, & Kazanjian, 1999). It is through this lens that the organizations studied here will be evaluated.

More recent research on organizational learning focuses on how leaders can create an environment in which organizational learning can grow and flourish as well as the impact on marketing (Mena & Chabowski, 2015) and global strategy (Hotho, Lyles, & Easterby-Smith, 2015). This is especially relevant to this research as marketing, and the global expansion of one's brand is essential in the world of strategic enrollment management (VanderSchee, 2009). Of particular interest and relevance to the world of admissions and strategic enrollment management is stakeholder marketing. Stakeholder marketing refers to the way that an organization creates value for itself through strengthening relationships with stakeholders (Hult, Mena, Ferrell, & Ferrell, 2011), in this case, prospective students.

This research also focused on using organizational learning theory (Cangelosi & Dill, 1965; Chapman et al., 1959) in conjunction with the idea of strategic renewal (Agarwal & Helfat, 2009; Baden-Fuller & Volberda, 1997; Crossan & Berdrow, 2003), implemented within a higher education setting, specifically EM and more specifically, undergraduate admissions. Strategic renewal and organizational learning theory were first linked by March (1991) when he delved into the idea of using organizational learning to examine the relationship between exploring new ideas compared with exploiting old ideas within an organization. While March (1991) never uses the words "strategic renewal," his conclusion that there needs to be a balance between new and old ideas, with each having pros and cons, leads directly to the concept of strategic renewal.

This idea was expanded by Crossan, Lane, and White (1999), who developed a framework based directly on organizational learning and strategic renewal. Their context stems from the idea that organizational learning is the driving force for strategic renewal of an organization. Renewal, by definition, requires that organizations examine themselves and learn new ways to improve, while simultaneously building on successes (Hurst, 1995). Crossan et al. (1999) noted renewal and organizational learning are connected if done correctly, which to them means encompassing the entire organization to make lasting change. The result of their research was the "4I framework of organizational learning; intuiting, interpreting, integrating, and institutionalizing" (Crossan et al., 1999, p. 525), which they use to assist companies with change and renewal. The "four I's" are relevant here for how they describe the process of going from individual learning to organizational learning, a key premise in this research. Intuiting in this model describes how an individual worker can unconsciously perceive patterns and opportunities for improvement in his or her daily work life (Dutta & Crossan, 2005). Once that individual interacts or shares those ideas with another, they enter the interpreting phase. This phase is about the final formalization of the idea to the individual and the explanation of the idea to others in the organization. Once multiple people in the organization begin changing their behavior to coincide with the new idea, integrating happens. In this phase, conversations and joint action are vital to making lasting change. The process will initially be informal, similar to a shared behavior, until institutionalizing happens. This final phase is the formal adoption and codification of the new process within the organization (Lawrence, Mauws, Dyck, & Kleysen, 2005). Specific tasks and duties are assigned out and organizational changes are made to ensure

the continuation of the new idea (Crossan et al., 1999). Consequently, if a leader can make change through individual action and throughout the entire organization, the 4I's are key.

Finally, this leads to the concept of Data Driven Decision Making. Marsh, Pane, and Hamilton (2006) made the connection between DDDM and Organizational Learning Theory. They discussed how DDDM within education is modeled on practices from industry, such as "total quality management, organizational learning, and continuous improvement (Marsh et al., 2006, p. 12)."

The concept of data-driven decision-making (DDDM) within education stems from research by Popham et al. (1985). This research focused on the K-12 environment and how states began requiring the use of outcome data in school improvement planning and strategic planning (Popham, 1987; Popham et al., 1985). DDDM has been explored mostly within the business or private enterprise world, as education has been slower to adopt the use of statistics and data than the business world (Bontrager, 2004).

Recent years have seen an explosion of research (Webber, 2016; Williams, 2016) into how data can be used within offices of enrollment management to become more successful. Resources are becoming more and more limited within higher education, therefore requiring strategic enrollment managers to be precise in their efforts of data analyzation, which is an important tool (Cox et al., 2017; Picciano, 2012). This change in perspective and focus in the research to the use of data in enrollment management naturally led to an additional focus on technology and how it can be used. The research emphasizes that technology is key for offices of enrollment management that are attempting to become data driven, as the sheer volume of data both available and needed to be successful, requires the use of advanced technology such as robust Customer Relationship Management (CRM) systems, Student Information Systems (SIS), and data analytics tools (Attaran, Stark, & Stotler, 2018; Hubbard, Datnow, & Pruyne, 2014).

Furthermore, the previously mentioned changes in the higher education landscape, particularly when it comes to funding, makes the need for a shift toward data-driven decision making more necessary. This is especially true for public schools, as the sharpest decline in funding has been from state governments (Sav, 2016). As previously mentioned, the larger public schools have had to change their recruitment and strategic enrollment management efforts to mirror those of smaller private schools, namely focusing on recruiting on an individual basis (Bontrager, 2004). For small private schools, this did not require a large leap in technology, as the volume of students being recruited was small. For the average small to mid-size private school, there are a few hundred applications to manage, easily done with simple technology. However, for a mid-size to large public school there are thousands of applications with hundreds of thousands of "leads" to manage (IPEDS), requiring robust technology, which costs money (Sav, 2016).

Consequently, this need for a more efficient means in which to store and analyze data led to the most recent revolution regarding data-driven decision-making in higher education. The emergence and reliance on high-end customer relationship management systems or CRMs (Sutin, 2018). CRMs are databases that allow a user to store large amounts of data and create efficiencies in workflows. For example, the modern CRM allows offices of enrollment management to create communication plans, track student behavior, plan admission counselor travel schedules and communicate directly with students (Hwang & Choi, 2019). The outcome

of the system utilization is that large schools, recruiting to large volumes of students, can recruit students more individually without the tedious effort of historic individual recruiting. In the past, this individual recruitment would have required days of effort by an admissions counselor. Now, in minutes, a record can be created, and the transition to recruitment is seamless. This all leads to more efficiency in time and money, built on the framework of data-driven decision-making. The principles of DDDM are important at the initial stage of the CRM implementation. Offices of enrollment management use their available data in several ways. First, they use the data to know which students to focus on by utilizing predictive modeling. Second, data is used to know how to best communicate with students and the best times to implement those communications. Additionally, the data can be utilized to know how to best engage students in the recruitment process and how to help the student complete all the necessary paperwork to become a student. As a result, data are essential for enrollment managers to know how to best yield the student or close the deal (Levin, 2015).

Organizational learning theory and data-driven decision-making emerged as the obvious frameworks in which to undertake this inquiry. As the focus of this research is on how EM offices adapt, learn, and grow into organizations that strategically use data, OLT provides a clear and accurate lens through which to examine the growth and change of an EM office. Specifically, viewing change as a type of renewal, provides a strong foundation, as evident in the literature, this type of learning process tends to be tumultuous and challenging (Crossan & Berdrow, 2003). Furthermore, as the desired result of the learning process is an organization that embraces and strategically utilizes data, DDDM (Popham, 1987; Popham et al., 1985) is a well-established model through which to approach this inquiry. The key factor being investigated is how an organization uses data strategically.

Research Design and Research Questions

To investigate how EM offices within two universities of varying demographics utilized OLT and DDDM to inform their practices, a parallel case study approach was selected for the design of the study. A parallel case study provides a broader detailed investigation of programs or processes and is also bound by time (Creswell, 2014). This multiple case study design was selected for this inquiry allowing the researchers to “delimit the object of the study, the case” (Merriam & Tisdill, 2016, p. 27) and “study it to achieve as full an understanding of the phenomenon as possible” (p. 28). Specifically, the descriptive nature of a case study can help “illustrate the complexities of a situation” and “include vivid material” thus creating a thick, rich description of the phenomenon under study (Merriam & Tisdell, 2016, pp. 30-31). Moreover, data gathered through interviews, focus groups and document analysis permitted the analysis of concepts that enhances the development of a theory of fundamental social processes (Merriam & Tisdell, 2016). Thus, the focus of organizational learning and data driven decision-making informed the investigation into how organizational learning informed data driven decision-making in recruitment and retention of students in higher education. The following research questions guided this research: How does the use of enrollment data for data-driven decision-making affect the organizational learning of the University, and what type of learning is derived? How can an EM office create a data-driven recruitment model through organizational learning and implement it successfully, and does it perform equally amongst different student populations?

METHOD

Purposeful sampling for both the settings and the participants occurred to provide the best evidence to guide the study (Creswell, 2014). Both of the University settings were selected due to each of them having an established and successful enrollment management department. Interviews with crucial administrators (n=16), including eight participants at each institution and comprised the Director of Admission, the Vice President/Provost for EM, a mid-level assistant director, and an admissions representative. Each participant was purposefully selected as they reflect the average person represented in an enrollment management office (Merriam & Tisdell, 2016) and to gain information on specific research questions. The director of admission was chosen to provide overall guidance on the change process, as she was the direct change agent. Additionally, this person was chosen to provide insight into the large-scale workings of the office and how leadership directly affects organizational learning. The vice president/provost for EM was included to provide additional insight into overall effects on the office, as well as how the learning done by the admissions office has affected the university on a larger scale. The assistant director and admissions representative were chosen to provide extra insight into the leadership aspects of organizational learning, as well as the day-to-day ramifications of the change.

Furthermore, according to the triangulation of the data gathered from interviews (n=16), two focus groups at each site (n=18) was used, along with document analysis. Using the voices of those working directly with the enrollment management department, along with student who have experienced the recruitment process, alongside the documents aided the researchers in creating a narrative to answer the research questions and identify best enrollment management processes (Creswell, 2014).

Interviews

The interviews consisted of 10 questions, each focused on a specific element of the research questions. Questions guided the subjects on explaining how their institution used organizational learning to improve their ability to recruit and retain students. Questions also focused on the data-driven decision-making model and how that affects enrollment (Creswell, 2014).

As noted by Merriam and Tisdell (2016), the interview was semi-structured, whereby the questions were worded flexibly, leading to a more organic conversation. Specific information was targeted, but rather than asking more direct and structured questions; this approach allowed the researchers to respond to the situation and to any new ideas or relevant topics that emerge naturally from the situation. Furthermore, as Merriam and Tisdell (2016) discussed, the interview questions were established based on the research questions and determining the best way to organically gain answers to those questions. Since one of the researchers is an enrollment management professional, questions were piloted amongst internal EM personnel and adjusted accordingly. After piloting the questions were modified to allow more answers that were open-ended as well as ensuring all research questions were addressed in the interviews. These interviews were audio-recorded.

Focus Group

For the focus groups, two were conducted at each institution for a total of four focus groups. One included enrollment management staff not included in the interviews, and one consisted of current students. This allowed full perspective of the enrollment cycle, from both the institution side as well as the student being recruited side. Focus groups were between four to five participants, allowing all participants to share their viewpoints and feel equally included (Krueger & Casey, 2015).

To ensure validity (Creswell, 2014), questions for the focus group were created using the researchers' own background as an enrollment management professional and tested for validity. Questions were pilot-tested internally within an enrollment management office, both with professional staff and current student workers, to ensure they were understandable and provided answers to the relevant research questions and topics (Krueger & Casey, 2015). Similarly to the interview questions, focus group questions were semi-structured, as outlined by Merriam and Tisdell (2016).

The focus group questions with the employees pertained to the perceived changes and successes, as discussed by those using the new models created by the senior administration. The employees were selected purposefully (Krueger & Casey, 2015), as discussed previously. The focus group with the students discussed how this universities' recruitment differed from others that the students interacted with, and what about this model made them choose that school (Creswell, 2014). Students were selected via organizational recruiting (Krueger & Casey, 2015) meaning that volunteers from the current student body were accepted. In addition to the random student volunteers, current student workers within the admissions office also volunteered and were randomly selected from the pool of volunteers to join the focus groups as well. These focus group sessions were audio-recorded.

Document Analysis

An important category of documents used in this study was records and statistical databases. In the field of education, public documents such as statistics and data are vital to telling the whole story, and specifically, things not observed (Merriam & Tisdell, 2016). For this study, the researcher used data collected by the *National Student Clearinghouse* (NSC) as well as the *Integrated Postsecondary Education Data System* (IPEDS). This data set included specific information on the number of students who persist and graduate at both institutions and comparative data on a national level. Specific documents were not included as much as data from the sources mentioned above. The purpose of adding this national data was to validate enrollment data as presented by the university. Since the overriding theme of this research was how an enrollment office can be successful based on student growth. Data triangulation with internal, institutional data along with the national data assisted with validity (Creswell, 2014).

Setting

The multi-case study consisted of two universities of different types to gain a broader perspective (Hancock & Algozzine, 2015). The Universities included a large, Division 1, Research 1 public university, and a mid-size private university. The sizes and descriptions come from the Carnegie Classification System (Research, 2017).

The first university was a large, public, high research/research one university in the southern United States. The size definition of a *large university* and the *high research* definition come from the Carnegie Classification System (Research, 2017), with large being 10,000 or more students. Current enrollment at the large institution included in this research is 37,010 (Facts, 2018). High Research/Research 1 University comes from the Carnegie Classification System, with 1 being a university with the *Highest Research Activity*. There are less than 120 of these in the country (Research, 2017).

The university enrolls 37,010 students per year through a combination of undergraduate, graduate, law school, medical school, and nursing school (Facts, 2018). The university is diverse, with Hispanic students representing 27.8% of the undergraduate class, which qualifies the institution as a Hispanic Serving Institution (Facts, 2018; HACU, 2017). The undergraduate population accounts for 30,737, and the undergraduate enrollment office will be the focus of this research. The undergraduate enrollment office employs 55 full-time staff in recruiting, processing, and through the visitors center (Facts2, 2018). The researcher identified the institution, through professional networking, as a university that has created their predictive model and has undergone significant change within the office of EM within the last ten years. This university will be an appropriate setting to investigate how the practices examined in this investigation progress from ideas to implementation since their senior leadership has been in place for roughly ten years. The current leadership was instrumental in the creation of their predictive model, and they fully subscribe to the ideas within organizational learning. However, a limitation to this setting is the institution resides in a state (one of only two states) that is currently growing in high school, graduating students (Hussar & Bailey, 2016) and one where money is less of an issue. Therefore, some of the processes they have implemented may not be replicable at smaller institutions. However, the knowledge gained from their experiences made the inquiry valuable.

The second institution was a mid-size, private university in the upper mid-west, in a large urban center. Mid-size, or medium university, is defined by the Carnegie Classification System (Research, 2017), with the medium being 3,000 – 9,999. Current enrollment at the medium university is 7,266 through a combination of undergraduate, graduate, and law students (Anonymous, 2018). Undergraduate students make up 2,724 of the total population, and the undergraduate admissions office will be the focus of this inquiry. This campus is also diverse, specifically when it comes to international students. International students make up 21% of the undergraduate population, within 100 different countries represented. This institution is a high achieving technical school, with a heavy focus on engineering, science, and architecture, with an average incoming ACT of nearly 29 (Anonymous, 2018). The undergraduate admissions office employs 22 full-time staff members through a combination of recruiting and processing. Similar to the other case study, through professional networking, the researcher identified the institution as one that has created a predictive model and has undergone change within the last five years. This university will be an appropriate setting to investigate how the practices examined in this investigation progress from ideas to implementation, as the senior leadership has been in place for roughly five years. The current leadership was instrumental in the creation of the predictive model and fully subscribed to the ideas within organizational learning.

Private schools have a history of being early adopters when it comes to strategic EM practices (Bontrager, 2004), making the perspective gained from this institution valuable. These types of

schools are usually enrolling classes of less than five hundred, sometimes less than one hundred. To be successful, they should know as much as possible about their students and their likelihood to enroll. This type of institution and the knowledge gained from it is valuable, as large schools have to adapt to using this *private school model* of recruitment, on a larger scale. As such, the private schools have an advantage over public schools, as these universities have been utilizing these strategies for most of their existence (Han, 2014). Conversely, in general, these universities lack the scalability quantity gained from investigating larger schools; however, with this being a larger private school, scalability issues were minimal.

Data Analysis

The researchers conducted continuous data analysis throughout the study to triangulate the data collected. After the transcription of the interviews and focus groups, in which the researchers used member-checking (Creswell, 2014) taking the final report and themes gathered from the research to the participants to see if they feel it accurately represented what they were trying to express) to determine the accuracy of the findings, the researchers read the transcripts in their entirety to obtain a broad perspective of the participants' perception and code for themes (Merriam & Tisdell, 2016). Coding here meant organizing the data into segments that correlate to themes as they related to the research questions (Creswell, 2014). Practices include but are not limited to segmenting sections of text from interviews and focus groups, highlighting, creating theme categories, and creating theme terms that correspond to research questions (Creswell, 2014). The researchers specifically examined topics that are based on past literature, as well as topics that were not anticipated at the outset of the research. Once initial codes were created for topics, codes were grouped in a process known as axial coding (Merriam & Tisdell, 2016). This coding was useful in that it went beyond simple topic grouping and included grouping based on meaning and thematic consistency.

RESULTS

Below are the findings from the data analysis of the two research questions. Analyzed were the interview and focus group data, along with documents.

Q1. How does the use of enrollment data for data-driven decision-making affect the organizational learning of the University, and what type of learning is derived?

At both institutions, it was clear that data was behind almost every decision made in the enrollment management offices. As one Vice President/Provost stated, "data is the backbone of all decision making in our department." A Director supported this idea, "we use data to make every single strategic decision as a management team as well as empower our admissions counselors to use data to determine what high schools they are going to visit." This theme of using data in both strategic planning and day-to-day operations was repeated at all levels at both institutions, in every interview. A direct example of this comes from admissions counselor, who outlined her planning process for fall recruitment season. She noted how she starts with lists of her current class of students she is going to be focusing on, reports on the territory itself, the various high schools, relationships with counselors, what types of visits each high school offers, and internally created profiles using predictive modeling that allows her to strategically plan and organize her travel.

Research question one focuses on how the use of data-driven decision-making affects the organizations ability to learn. As one evaluates this through the lens of process assessment, the relationship becomes clear. Argote and Minon-Spektor (2011) argued initially, and experience is transformed to sharable knowledge. The recruitment profiles mentioned previously are one example of this idea. Using previous experience from the admissions and enrollment management team, the EM office has created a predictive model. This model is based on using experience with students and understanding how their behavior in the recruitment process will transform into enrollment behavior. For example, Director 2 explained, through experience, they know that if a student engages in certain recruitment events or with certain marketing pieces or if they engage in certain ways with an admissions counselor, their likelihood to enroll goes up. This past information then informs future behavior, and the organization has learned what works and what does not work.

The next phase of the process assessment involves taking that learned knowledge of the individual and sharing it organization wide. An example of this was illustrated by an enrollment management staff member who noted through communication with the admissions team; they were recently able to re-evaluate their awarding process and be more efficient in the awarding of aid. In the middle of their awarding cycle for the previous enrollment year, the enrollment goals were changed. This led to many necessary conversations between admissions and financial aid so that they could meet those goals, which had changed not only in overall quantity of students desired but a change in the quality of the incoming class. Basically the goal had been to maintain or grow slightly with a keen eye toward quality or the credentials of the incoming class. In February the goal was changed to increase quantity dramatically and increase quality. Only through their collaborations and use of data on what types of awarding would most likely result in certain behaviors, were they able to achieve those goals. As another staff member reported, “we created a model that allowed us to offer three thousand more scholarships than previously but at the same cost or even slightly less the previous years.” By using the data and determining that smaller awards to more students would allow them grow as desired, they were able to increase the class without spending more money.

This led to the final aspect of the process assessment cycle, wherein the environment of sharing and learning becomes the culture. Nearly every interview and focus group discussed culture and the importance of it. As one Director stated it clearly, “Culture eats strategy for breakfast.” When asked to explain, she explained “that you can have all the data in the world and create perfect strategy, but if you don’t have a team to execute it, you won’t be successful.” This theme was repeated in the enrollment management focus group who talked about the impact of their new leader and how the culture of open communication has been key to their success. As one participant noted that “Previously, we had been siloed and didn’t understand how our work impacted enrollment management as a whole. By taking down those walls and allowing us all to see how everything works together, we all moved forward together.” Another example of how the use of data can help build culture comes from an Assistant Director. She talked about how when she first started; she was amazed at how much data was used in the decision-making and strategic planning processes. She said “More so than anywhere else I have worked, we used data for everything and I couldn’t imagine how we could use data more.” Now, after being there for almost three years, she reports, “We continue to make more and more decisions using data, and just when I think we can’t find any more data points to use, we do and use them to successfully guide our strategic planning.” It has now become so engrained in the culture, that

the possibility of success without using data is hardly considered. What was once a place that a Vice president/Provost described as a place that “wasn’t using data at all in my opinion, and was relying more on anecdotal evidence or doing what had always been done” is now so data-driven, employees cannot imagine a world without it.

Q2. How can an EM office create a data-driven recruitment model through organizational learning and implement it successfully, and does it perform equally amongst different student populations?

It is clear from the data that these two universities have set up their offices along the path of the process assessment life-cycle model. While no one at either university said they did so intentionally, but it became clear from discussion on the evaluation process, that has indeed happened. Both universities created an environment in which individual learning could become organizational knowledge and practice, which in turn creates a culture of collaboration and communication. The results of this research and the impressive success these two vastly different universities have achieved, make it clear that following this model can lead to success. However, it is not as simple as knowing one path to success. There are many paths to success, as well as other universities and organizations that have started down this path and not been successful. In answering this question, the researchers focused on specific practices and ideas that emerged from the research that can help other enrollment management offices achieve success.

One example of this comes from an Assistant Director. She explained a situation with an out of state recruiter, specifically focusing on California and the Phoenix area of Arizona. Initially, after reviewing the historic data, a new recruiter position was created to serve California and Arizona. Based on past engagement and enrollment, it was determined that the recruiter would spend the majority of their time in southern California and Phoenix, with little to no travel in Northern California. Marketing campaigns would go to all regions, but specific regional travel was focused as described. Over three years, enrollment grew significantly in southern California, grew slightly in northern California, and remained the same in Phoenix. It was then decided to stop traveling to Phoenix and travel more to northern California. After another three year time period, it was discovered that enrollment continued to grow significantly in southern California, was now growing significantly in northern California, and was remaining the same in Phoenix. The organization learned that on the ground, recruitment efforts were not as important in the Phoenix market, and they could re-allocate the same amount of resources (travel to northern California instead of Arizona) and achieve greater results. Only through the process of the recruiter sharing their experiences, which in turn became institutional knowledge was this change possible. This is a direct example of creating a data-driven recruitment plan through the organizational learning process.

Another example comes in the form of scholarship strategy. A Vice president/Provost discussed a situation with their scholarship strategy. They knew that their average SAT score was an 1169, and it is around that score that they yield the most students. As they worked to increase their academic quality of their incoming class, it would be easy to offer large awards to the students that score 1500+. However, from the use of data, they knew those students were not likely to enroll, no matter how much money is offered. Therefore, they decided to focus on students in the 1200-1300 range, and they revised their top scholarship program accordingly.

Instead of giving a larger amount to fewer very high scoring students, who yield at a low rate, they gave a lower amount to the 1200-1300 range students and doubled their yield by spending the same to a little less in scholarship dollars. This is another example of the organization learning through data and implementing a successful change.

Furthermore, when considering this question and how an organization can learn and adapt using data, the data revealed it was also important to look at different student populations. In this case, specifically comparing how the use of data can affect transfer students compared to first time first-year students. Historically, data on transfer students has been lacking compared to what is available for first-year students. This is due to several factors, the largest one being that there are repositories of data for freshman, such as the ACT or SAT, while there is nothing like that for transfer. However, in this research, it became clear that using data-driven decision-making is just as valuable for transfer students as it is for freshman; it is just harder to get that data. Nearly every person interviewed expressed a desire to have more data on transfer students. One Director mentioned that he would like to have more data on transfer students to nail down where they are currently located and when they are interested in transferring as well as opening better channels of communication so that customized recruitment plans could be created. In the focus group a participant talked about how personalized and customized messaging is for freshman as they have so much data on them. For transfer students, that is not the case, as once they fall out of the freshman funnel, unless they are actively engaging with the university, it is hard to keep track of them and their needs. Another Director also weighed in on transfer students, re-emphasizing the desire to use a data-driven approach, but noting the lack of data. She noted "there is a general lack of data on this side, and it is very messy as the data we do have is not under one place."

Furthermore, the lack of a concentrated area in which to perform *search*, meaning a platform in which a university can purchase transfer prospects, made recruiting transfer students difficult. A Director also mentioned the changing landscape of transfer students for her school specifically, talking about how they are getting more and more students transferring from 4 year schools, not just community colleges. This opens a whole new realm of issues, as you have to figure out what caused their prior poor experience and how you can avoid that upon transfer. In general, there is a definite desire to use a data-driven model for transfers, and, when available, it is successful. However, the overall lack of available transfer data makes this difficult and is a needed change in the industry.

DISCUSSION OF DATA THEMES

Three key themes emerged from the research that will assist with informing best practices for other colleges and universities to implement ideas from this research. These themes are: *organizations must have good data; a strong culture can emerge; and a need for a mix of art and science.*

Organizations must have good data

First, to have an office that utilizes data-driven decision-making, an organization must have good data. Before a leader attempts to implement the practices of data-driven decision-making, the data must be clean, replicable, and usable. This is especially important if a leader is attempting to create change and move an organization to a more data-driven approach. As a Vice President/Provost noted, when she first began, the campus community was skeptical of

data coming out of admissions, as it had been incorrect for years. She first began the process by cleaning all of their data and then working with others on campus to confirm their data, including bringing in institutional research, so admissions data matched data at a university level. This gave admissions credibility across campus when she began presenting ideas and changes to a more data-driven approach. Furthermore, a proper team must be in place to analyze the data and build successful strategy from it. Having clean data is a key first step; however an organization needs the data analytics to take full advantage and become data-driven decision makers.

A strong culture can emerge

The second key theme that arose from the data relates to culture. Through a process of organizational learning, a strong culture can emerge. If a leader sets the culture to be one that is data-driven, the leader must be willing to listen to and learn from the others on the team. This creates an environment of sharing and communication, which will lead to all members of the organization feeling comfortable sharing their experiences, which equals more data. This culture of openness and team first are key to success for any enrollment management office, as this translates to the student experience. If an office is plagued with negative culture, that will reflect in the recruitment process. As noted, students must feel comfortable and like they fit on a campus, and negative internal culture inevitably leads to a negative perception from the prospective students. The best strategy in the world will not work with negative culture. A great example of this goes back to the passion projects mentioned by a Director and an admissions counselor. They have set this culture in their office where data is vital but just as vital is finding things you are passionate about and working those as well. By allowing the counselors to engage in work related activities that are connected to groups or ideas they are passionate about, work seems less like work, they have grown in enrollment, counselors report greater job satisfaction, and culture is created and improved.

A need for a mix of art and science

The third and final theme that emerged from the research has to do with the idea of enrollment management being a mix of art and science. Historically, enrollment management was mostly art. There has not always been the large amounts of data available on students that there is today, and there was little to no formal training on how to be an enrollment manager. In 2018, the University of Southern California created the first Master's Degree in Enrollment Management. Since then there are more and more professional development opportunities available for enrollment managers. There is much more data available to use in the recruitment process. However, even with all of that being true, there is still an element of art to the job of enrollment manager. The "feel" of a campus and a visit experience still matters a great deal to students. By utilizing data on what matters to students, an enrollment manager can get some grasp of an idea on how to create an excellent student experience. However, every student is different, and what they want out of their recruitment experience is different. The successful enrollment manager must create a team that can respond to these difference in a consistent and genuine manner. The entire campus must be on board, as well. If the student has a positive experience with admissions, but then a different department on campus or an academic unit creates a negative experience that is what the student will remember. The successful enrollment manger is a bridge-builder across a university who can successfully communicate the idea that recruitment is a campus wide job, not just a job for admissions.

Conclusions

From this inquiry it is suggested that utilizing data to enable data-driven decision making can and does lead to organizational learning. It is also clear that the resulting shifts in culture are vital to success. All participants interviewed and involved in the non-student focus groups noted the importance of culture. By creating a culture where ideas can be shared openly and effectively, whereby leaders listen to ideas and respect the experience of the members of the organization, organizational change can and does happen. The interesting component of this research question is that data alone is not enough, nor is well intentioned leadership. If an organization possesses solid data but has no leadership willing to create culture of communication and mutual respect, very little success will come from the data. An organization could create excellent strategy in this situation, but the carrying out of that strategy would falter. Conversely, if an organization has amazing culture they may be great at the closing the deal portion of recruitment, but their strategy would not be putting them in the best situations to be successful. A merger of the two is essential to success.

It is also suggested from the data that quality, trustable data was key to creating an environment of data-driven decision-making. Nearly all participants discussed how one of the biggest barriers to relying on data is getting clean data and how that process can take years. One of the biggest problems is getting consistent data across a large organization like a college or university. However, it is also clear that once an enrollment management team has data they trust, the strategic benefits are enormous. Data-driven enrollment managers calculate return on investment on all of their recruitment efforts, which is vital in this climate of reduced budgets. There are numerous examples of how data allows a team to do more with less, which is a significant finding and a strong argument for the necessity of data-driven decision making in enrollment management.

IMPLICATIONS FOR PRACTICE

Based on the results of the study, Universities should shift recruitment efforts toward a model that includes personal attention, individualized recruitment efforts and personalized experience. In addition, higher education institutions should utilize data-driven decision-making models to effectively and efficiently recruit students. The use of data is essential to strategic planning and implementation of that strategic plan for all enrollment management. Specific strategies for Universities should include but not be limited to are territory management, distribution of recruitment team, and scholarship and financial aid modeling. Also it is essential that Universities create strategies that streamline the efficiency of transcription and credit transfer for transfer students.

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