

Application of Case Management in Higher Education: A Student Success Strategy for Improving Retention and Graduation Metrics

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The new normal in higher education is performance-based funding. This requires universities to focus on gains in retention, graduation, and other performance metrics. The challenges created include providing student and fiscal resources for student interventions, sustaining gains in metrics, implementing scalable changes, and addressing the shifting population of students entering higher education. To address these challenges, it is critical to establish an organized approach to proactively identify and connect students in need with the appropriate resources in a timely and efficient manner in order to make incremental gains to reach desired outcomes. The expectation is that by providing high impact services to high-risk students through efficient and collaborative approaches the metrics will continue to improve.

The Education Advisory Board (EAB) supports higher education institutions adaption of the theory of population health management in support of improved efficiencies for student success support services (Straumsheim, 2016, April 19). By stratifying risk factors, higher education institutions can provide intentional communications and timely interventions based on the risk level. Additionally, creating a case management care team allows cross-functional departments to work together to efficiently assist the high-risk students.

The basis of the University of South Florida's claims to success in adapting the theory of population health management and integrating a case management approach have been supported by the indirect outcomes related to improved institutional metrics. However, the institution's work with the Gates' Foundation IPASS initiative (Integrated Planning and Advising for Student Success) encouraged further reflection and the use of self-assessment tools to uncover user's perspectives on the quality of adaption. This type of self-assessment can lead to improvements that would otherwise be overlooked with assessments based on descriptive data or with assessments based on indirect outcomes, such as performance metrics.

Self-assessment of the University of South Florida's development of their case management approach to student success based is on the criteria set out by EAB (2016):

1. Adopt a system of risk stratification to understand which students need which kind of care.
2. Define differentiated care pathways for each risk segment to target the most effective care.
3. Install scalable support processes and technologies to expand capacity for care.
4. Create ownership and accountability at all levels to ensure that the overall strategy is executed.

The self-assessment utilizes the rubric developed by the Community College Research Center (CCRC) for the purpose of assessing technology-mediated advising and student support (CCRC & Tyton Partners, 2017). The rubric assesses the implementation and adoption of SSIPP (sustained, strategic, integrated, proactive and personalized) reform on a 4-point rating:

1. Emerging: Efforts to promote a SSIPP approach to student support are minimal.
2. Developing: SSIPP strategies are used partially, inconsistently, or intermittently.
3. Accomplished: SSIPP strategies are actively used by most stakeholders across the institution.
4. Exemplary: SSIPP strategies are institutionalized as routine ways of operating and are actively used at scale across the institution.

The utilization of comparative focus groups to provide reflective self-assessment allows for a depth of consideration regarding the progress made towards the case management approach. The self-assessment reflections also reveal distinctions and disconnections between the three focus groups comprised of different stakeholder populations integral in implementing this institutional change. This allows greater insight to where the institution should focus its efforts in improving their student success efforts related to case management and technology development.

Overview of Student Success Efforts Utilizing Case Management Model

University of South Florida (USF), located in Tampa, is a public metropolitan research institution with a population of 30,000+ undergraduate students. USF is part of the Florida State University System (SUS), which has a Performance Based Funding (PBF) model. There are specific metrics that drive each Florida SUS institution and USF's goal for the first-year retention rate is 90%, which having met in 2016 is predicted to increase to 93% by 2020. The PBF goal for six-year graduation rate is 70%, which was met in 2017 (71%) and predicted to increase to 77% by 2020. USF's aspiration of achieving Florida SUS Preeminence classification created an additional performance metric of reaching a 60% four-year graduation rate by 2018.

The 2016 adaption of the theory of population health management and integration of student success case management at USF was aimed at supporting efforts to improve PBF metrics. Meeting the 2017 goals for PBF metrics indirectly supports the potential benefits of integrating USF's particular brand of student success case management. USF's case management approach includes creating institutional mechanisms for collaborative engagement in student success and utilizing predictive analytics. During this time there was also a restructuring of Undergraduate Studies, which was previously a unique unit of Academic Affairs, into a Student Affairs and Student Success (SASS) umbrella. This organizational shift was designed to create a broader sense of accountability around student success.

Creating institutional mechanisms for collaborative engagement in student success

One of the most integral components of USF's change in student success culture was the formation of a Persistence Committee. Initially called the "Retention Committee", it was formed in January 2016 by then Vice President of Student Affairs Dr. Tom Miller, Dean of Undergraduate Studies Dr. Bob Sullins, and Dr. Paul Dosal, the Vice Provost of Student Success. The Retention Committee's charge was to serve as a collaborative body of representatives across campus to discuss and resolve student success barriers. In the year following the continued growth within the newly consolidated SASS unit, representation on the renamed Persistence Committee expanded to include Academic Advising, Academic Advocacy, Career Services, Cashier's Office, Dean of Students, Financial Aid and Financial Education, Housing and Residential Education, New Student Connections, Office of Decision Support/Institutional Research, Student Well-being, and University Ombudsman. Recently membership continues to expand to be as representative as possible of the departments that directly support the student experience such as the Academic Success Center, Student Wellness, Registrar and Admissions.

The design and development of the Archivum Insights technology platform, by USF's in-house informational technology (IT) staff, added strategically designed infrastructure to support enhanced cooperation. The platform provided an early framework for case management; however, as more units developed their own unique vision of case management, there was growing confusion about how to prioritize divergent requests for new functionality in the platform and what roles each units played in the case management model. Despite the struggles, by Spring 2017 Archivum Insights (under a different name) went live to users, which included, Academic Advising, Academic Advocacy, Career Services, Financial Aid, Housing and Residential Education, Academic Foundations (first-year experience) Instructors, Orientation, New Student Connections, Academic Success Center, and Library.

The goal of improved communication and collaboration around student success interventions, can be evidenced in the increasing numbers of referral requests within the Archivum Insights platform. The University monitored the number of referrals and cases opened within the Archivum Insights platform

since Spring 2017. Activity has steadily increased each academic term (Figure 1) demonstrating higher levels of engagement with the technology-facilitated communication.

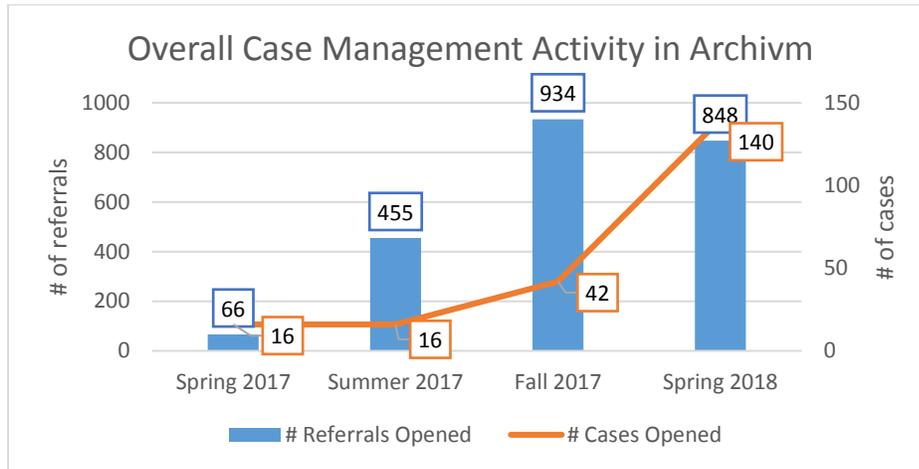


Figure 1. Overall case management activity using communication workflow in Archivm.

Since the principles of case management strategy are rooted in how effectively students are connected to the right office, so multiple offices should be involved in both sending and receiving referrals. Data shows that on average academic advisors and advocates account for over 75% of referral activity (Table 1 and 2); however, involvement by other offices shows signs of improvement.

	2016-2017	2017-2018	Percent Change
Academic Advisors	38.2%	42.4%	+4.2%
Academic Advocates	51.6%	34.6%	-17%
Academic Success Center	0.9%	0.2%	-0.7%
Career Counselors	0.0%	0.2%	+0.2%
Directors	8.0%	13.3%	+5.3%
Financial Aid	0.0%	0.3%	+0.3%
Library	0.0%	0.0%	=
Peer Advisors	0.4%	4.6%	+4.2%
Residential Life/Education	0.0%	4.2%	+4.2%
Academic Fdtns Instructors	0.4%	0.0%	-0.4%
Athletics	0.4%	0.0%	-0.4%

Table 1. Percentage of referrals sent each academic year by role type.

	2016-2017	2017-2018	Percent Change
Academic Advisors	13.8%	43.5%	+29.7%
Academic Advocates	70.7%	41.2%	-29.5%
Academic Success Center	0.4%	2.6%	+2.2
Career Counselors	0.4%	1.4%	+1.0%
Directors	12.6%	5.7%	-6.9%
Financial Aid	1.7%	0.0%	-1.7%
Library	0.0%	0.2%	+0.2%
Peer Advisors	0.0%	1.7%	+1.7%
Residential Life/Education	0.0%	0.9%	+0.9%
Academic Fdtns Instructors	0.0%	0.3%	+0.3%

Table 2. Percentage of referrals received by role type each academic year.

Utilizing predictive analytics

The adaption of predictive analytics to stratify risk began prior to the 2016 re-organization. As early as 2006 the then Vice-President of Student Affairs, along with a data analyst, created a First Year Retention (FYR) model based on pre-matriculation data. This model was utilized mainly by the advising community and first year experience instructors. In 2014 USF engaged the services of Civitas Learning to provide persistence predictive factors based on real-time data points from the learning management system. Initially, when the Civitas Inspire for Advisors application was introduced to the advising community in 2014, the response was skepticism, mainly due to challenges with weak data validation and a lack of clarity from training. However, when the Civitas Illume application was launched, the Office of Decision Support (ODS) was directly involved to better validate the data; Illume was earmarked for utilization by the Office of Academic Advocacy (OAA) and later in 2016 by the Persistence Committee members. Civitas trainers returned to the USF advising community for follow-up training in 2017. By then, the data validation was more comprehensive and the training provided greater focus on how the data could be used by advising.

The expansion of the Office of Academic Advocacy (OAA) in 2016 was driven by increasing access to data. The ability to better identify students with potential persistence concerns required more professional staff trained in case management techniques to connect with those individuals and coordinate their care. However, predictive analytics on persistence factors were only one of several data points utilized by the Academic Advocates to identify students in need of assistance and coordinated care to resolve persistence, progression or graduation barriers.

Academic Advocacy was not the only SASS unit working on ways to better identify students at-risk of not persisting or in need of additional support. The units involved with the Persistence Committee received weekly Civitas reports, which motivated them to look further into how they could use predictive analytics and other data points to better stratify risk and more effectively serve students. This was particularly evident with the work of New Student Connections, Housing and Residential Education, and Financial Education. However, anecdotal evidence suggested continued reluctance within the advising community to integrate predictive analytics or the case management model into their daily practice.

There have also been challenges with scalability and accountability at all levels. Since the development of Archivum Insights more requests have come from various student support offices to find ways to get integrated into the platform. USF's IT struggles to scale up technology development to include new areas due to the fiscal and human resources required to create new roles in the platform. Additionally there has been little to no long-term projections on the IT resources needed for sustained support of this homegrown platform from IT. The biggest recent developmental improvement is the ability to allow instructors to provide referrals into the Archivum Insights platform to a student's assigned Academic Advocate via Canvas, the CMS platform. Fall 2018 will be the first semester where this functionality is available to all instructors, so the implications for load on the Academic Advocates and Academic Advisors is yet to be seen. Time was also earmarked Summer 2018 to launch the development of an integrated appointment scheduling application with the existing Archivum Insights functionality.

Review of the Literature

The following review of literature considers the larger landscape of the relationship between student success and data analytics, the evolution of student support services and the importance of technology in accelerating the call for change.

Supporting Student Success with Data & Technology

As early as 2006, Adelman recommended colleges and universities should “fortify their institutional research capacities and integrate them more intimately with academic advising” to better support student success (pg. 103). Almost ten years later, the industry began to see an increase in institutions intentionally using data to identify where institutional reform was needed to improve student progression and graduation (Yeado, et al., 2014). As it became clear that these data-informed reform

movements needed ongoing access to student information, institutions began to seek out options for tracking student data and key performance metrics using complex student management technologies (Yeado et al., 2014). It is only during the past decade that an explosion of technology applications and software have been introduced into the market. Over 120 vendors have developed a variety of data management, tracking, and communication tools in the hopes of providing a solution to help institutions reach their student success goals (Kalamkarian, et al., 2017; Tyton Partners, 2015b). Future models for student success reform must consider how to facilitate organizational change effectively by using both technology and data.

Technology-mediated advising (also called Integrated Planning and Advising for Student Success or iPASS) has recently emerged as a strategy for using educational technology in conjunction with comprehensive organizational change specifically related to student services (Tyton Partners, 2015a). iPASS technologies fall into three types according to their central function: educational planning systems, counseling and coaching systems, and risk targeting and intervention systems (Kalamkarian, et al., 2017). What makes this a reform model more comprehensive than past initiatives are the three dimensions (structural, process and attitudinal) used to guide the key elements of institutional change needed to support the technology implementation (Kalamkarian, et al., 2017). *Structural* dimension refers to specific policies and organizational design that support student services, *process* dimension is business practices and workflow, and *attitudinal* dimension focuses on the institution's values, attitudes and beliefs related to student support and success (Klempin & Karp, 2018).

Focusing only on technology implementation provides a limited view of change in student success (Klempin & Karp, 2018). Structural change (e.g., changing organizational hierarchy and reporting lines) without the accompanying change in process or attitudes will result in unsuccessful reform. One department may balk at being transitioned under new leadership because the move is perceived as punitive (e.g., attitudinal barrier) while another department has objections related to how the transition caused their office to duplicate work already being performed within another unit (e.g., process barrier). It is not uncommon for disruptive change to be met with resistance since organizations are predisposed to guard existing structures (Marshall, 2011). That is why it is important to approach reform strategically and comprehensively.

As educational technologies have become more prevalent within higher education, the accompanying organizational change to people, policies and processes has not happened (Marshall, 2011). Increasing numbers of institutions are investing resources to implement student success management systems (Tyton Partners, 2015a); however, successful implementation requires institutional knowledge as well as technical knowledge to best facilitate change management (Tyton Partners, 2015b). Marshall (2011) observes that institutions must “rapidly evolve to sustain the execution of change at the same increasing pace at which new technologies are developed” (pg.24). This problem of managing innovation is exacerbated by the short-term perspective that a successful implementation is akin to technology adoption when it is the long-term use of a technology that indicates sustained change (Son & Han, 2011). Moreover, when users feel comfortable regularly using the more innovative functions offered by a technology tool, they report higher feelings of satisfaction (Son & Han, 2011).

A Coordinated Care Model of Student Services

In order for comprehensive institutional reform to become enculturated, it must address the long-standing structural challenges that limit effective student support services. In examining the student success movement, research by EAB (2016) highlights similar types of problems plaguing both postsecondary education and the healthcare system. In both industries, service is commonly transactional delivered during in-person meetings with experts (EAB, 2016). Additionally, the service model is reactive, waiting for issues to become “symptomatic” before delivering care. Finally, the organizational models for both healthcare and postsecondary education are a collection of service providers with a vast network of uncoordinated records, policies and practices (EAB, 2016). EAB (2016) has envisioned a new student success management strategy, “coordinated care” that adopts concepts used to address these similar service issues found in healthcare.

The concept of “coordinated care” consists of a strategy to improve the effective and efficient delivery of support services by creating mechanisms to identify patients (or students) at highest risk for developing problems and developing differing intensities of service to align with that risk (EAB, 2016). **Risk stratification** requires the ability to disaggregate students into groups based on the type of care they need to receive (EAB, 2016). For example, in higher education, this means developing the capacity to quickly ascertain whether a student’s financial problem is related to a lack of funding to pay a \$10,000 balance or the inability to set-up a required direct deposit account? While both can impact a student’s enrollment, the difficulty of resolving the issues are different and need varying intensities of support. This means that risk stratification must be coupled with effective differentiated care; **differentiated care** is providing different service options to students at varying levels of intensity based on need: low, medium and high (EAB, 2016).

Coordinated care also requires a connected system of service providers with clear ownership and accountability. **Scalable support** recognizes that primary care providers cannot do everything alone. Instead they need connections to other experts in the field who can support students through a variety of specific issues (EAB, 2016). If academic advisors are considered “primary care providers”, it is essential to ensure students also fully utilize the range of student service offices across the institution. Financial aid counselors, career advisors, registrar, cashiers, tutors, and mental health practitioners are just some of supporting offices integral to the development of a strong model of coordinated care. EAB (2016) recommends the creation of a new role, such as student success managers, to serve as the linchpin of this model. These managers are empowered to use analytics and this connected system of service providers to support those most at-risk and drive the other three pillars of coordinated care. This final element of the model creates an intentional mechanism for **ownership** and **accountability** to drive systematic reform.

Qualitative Evaluation on the Implementation of Case Management Model

In order to fully implement the case management model, the University must successfully facilitate institutional reform regarding the use of technology and analytics as well as comprehensive organizational change in multiple dimensions across different offices and units. To assess the progress of the implementation of the case management model, the University completed self-assessment evaluations with small focus groups from three populations essential to the effectiveness of this initiative: institutional executive leadership (n=9), academic advocates (n=6), and academic advisors (n=6). The institutional self-assessment rubric, developed by Community College Research Center and Tyton Partners (2017), examines the transition to holistic student support using eleven categories. Focus group participants were asked to consider the University’s progress towards adopting an advising and student support culture where student services are “sustained, strategic, integrated, proactive and personalized (SSIPP)” (CCRC & Tyton Partners, 2017).

Table 3 summarizes the observations made by the institutional executive leadership group; participants in this focus group represent roles in senior administration (Vice-President or higher), academic administration (Academic Dean and/or Department Chair), Enrollment Planning leadership (Assistant Vice-President or higher), and Student Affairs leadership (Assistant Vice-President or higher). Responses across all categories are primarily grouped under “Developing” and “Accomplished”, with 43% of responses falling under each area.

CATEGORY	EMERGING	DEVELOPING	ACCOMPLISHED	EXEMPLARY	N/A
Organizational Structures for Student Support		2	5	1	1
Process Alignment across Depts	3	1	4		1
Advising & Student Support Leadership		5	2	2	1
Vision for Benefits of Advising & Student Support		4	4	1	
Technology Integration		7	2		
Advisor/Student Engagement		4	5		
Education Planning	1	5	3		
Student Analytics for Risk Identification & Early Intervention		1	7	1	
Institutional Analytics for Continuous Improvement	1	4	4		
Technology Use		5	4		
Staff/Faculty Prof Development	1	5	3		

Table 3. *Qualitative self-assessment results on technology-mediated student support reform from the institutional executive leadership focus group.*

Table 4 summarizes the observations made by the academic advocates focus group which consisted of only full-time professional staff members employed in the Office of Academic Advocacy. Academic Advocates are the “student success case managers” referenced in EAB’s population health model. Responses were overwhelmingly more likely to be grouped under “Developing” with 65.2% of responses; the next highest classification was “Accomplished” with only 19.7% of responses.

CATEGORY	EMERGING	DEVELOPING	ACCOMPLISHED	EXEMPLARY
Organizational Structures for Student Support		5		1
Process Alignment across Departments	2	4		
Advising & Student Support Leadership		4	2	
Vision for Benefits of Advising & Student Support		4	2	
Technology Integration		4	1	1
Advisor/Student Engagement	1	4	1	
Education Planning	1	4	1	
Student Analytics for Risk Identification & Early Intervention		1	3	2
Institutional Analytics for Continuous Improvement		3	2	1
Technology Use		5		1
Staff/Faculty Professional Development		5	1	

Table 4. *Qualitative self-assessment results on technology-mediated student support reform from the academic advocate focus group.*

Table 5 summarizes the observations made by the academic advising group; participants in this focus group represent professional academic advising roles located in the academic colleges. Advising positions range from entry-level Academic Advisor I and Academic Advisor II as well as Senior Academic Advisor I and II positions. Again “Developing” was the most frequently occurring response (59.1%) followed by “Accomplished” (25.8%).

CATEGORY	EMERGING	DEVELOPING	ACCOMPLISHED	EXEMPLARY
Organizational Structures for Student Support	1	3	2	
Process Alignment across Departments	4	1	1	
Advising & Student Support Leadership		5	1	
Vision for Benefits of Advising & Student Support		4	1	1
Technology Integration		5	1	
Advisor/Student Engagement		2	4	
Education Planning		4	2	
Student Analytics for Risk Identification & Early Intervention	1	3	2	
Institutional Analytics for Continuous Improvement	1	5		
Technology Use	1	4	1	
Staff/Faculty Professional Development	1	3	2	

Table 5. *Qualitative self-assessment results on technology-mediated student support reform from the academic advisor focus group.*

Most notably, the academic advising focus group was **twice as likely** to identify a category as “Emerging” (13.6%) than either the institutional leadership (6%) or academic advocacy (6.1%) focus groups. Additionally, academic advising was **less likely** to identify a category as “Exemplary” (only 1.5% of responses) than the other two focus groups.

A closer examination of all responses was performed to examine the different perspectives of the success of the university regarding the transformation of advising and student support practice. For the purposes of this assessment, successful transformation was defined by an “Exemplary” or “Accomplished” response. Figure 2 compares the total number of “Exemplary” or “Accomplished” responses from the different focus groups within each of the categories. Technology Integration was the only category with relative consensus across all three focus groups.

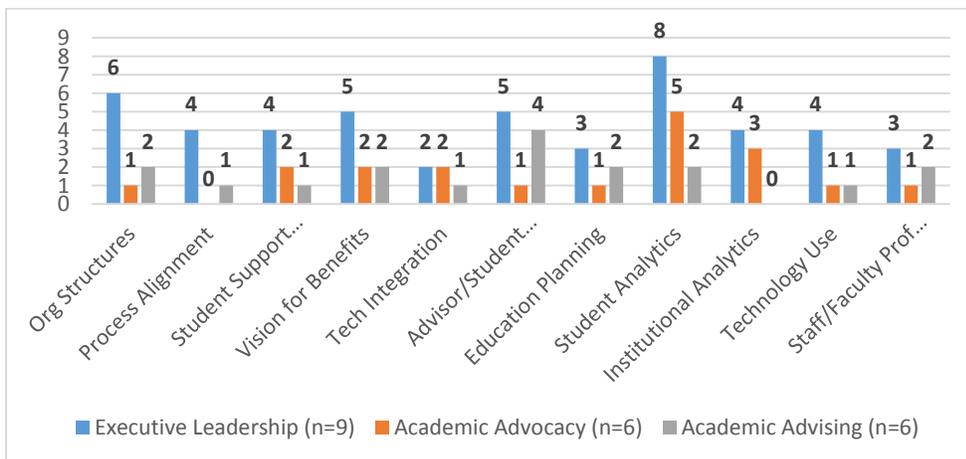


Figure 2. *Comparison of 'exemplary/accomplished' responses in each category by focus group.*

Academic advising and academic advocacy were **less likely** than the institutional leadership focus group to perceive success in the following five categories: Organizational Structures, Process Alignment, Advising & Student Support Leadership, Vision of Benefits, and Technology Use. Institutional leadership and academic advising perceived more success in the Student/Advisor Engagement category than the academic advocacy focus group; institutional leadership and academic advocacy perceived more success in Institutional Analytics and Student Analytics than academic advising.

The Value of Reflective Self-Assessment

The continued creation of initiatives in support of improving metrics without reflecting on their impact is insufficient to create sustainable change in a higher education institution. Assessment must consider more than whether the project reached its intended outcome. Basing assessment of the success of initiatives on the metrics is insufficient to reveal the important gaps and disconnects that tend to arise when higher education organizations attempt culture change. Instead, comprehensive assessment includes reflections on the process and implementation of the reform including whether the mechanisms used during implementation are sustainable for the life of the reform. This type of assessment is particularly salient for institution-wide reform that includes so many people, systems, and departments it is often difficult to see the full impact of the reform.

In the USF experience, the focus group self-assessment reflections were particularly revealing of the disconnections regarding organizational structures, process alignment, leadership, vision, analytics and technology utilization. For this discussion it is not important to delineate the reasons for the disconnects, but to recognize that by uncovering them we are now able to better focus on our opportunities for improvements and reveal our barriers to understanding. Additionally, by identifying places where reform is not consistently applied and/or perceived, the university increases the likelihood the reform has an equitable positive impact on all stakeholders involved and will be sustainable beyond the first few years of development. The next steps will be to consider how this information can be applied to develop strategies to address the structural and attitudinal disconnects that could jeopardize the long-term sustainability and scalability of the case management model. This could include expanding the focus groups to the other participants in the student success movement at USF.

The literature supports the efforts USF has made towards integration of Case Management, yet the self-assessment reflections indicate the institution has more work to do to ensure the scalability and sustainability of their efforts. The current climate of Performance Based Funding metrics requires continued movement towards reaching goals and setting sights on future goals. So, taking 'time' to reflect is often seen as a luxury not afforded to institutions working to succeed in this climate. The results represented here indicate that self-reflection is not a luxury, but a necessity in accessing perceived institutional challenges that could impact future goal achievement.

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