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Piloting the Use of Technology to Provide Better Support to Students Throughout Their Life Cycle

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Abstract

For many years, Worcester Polytechnic Institute (WPI) has struggled to track and service students in a way that avoids duplication of effort, the utilization of disparate systems, and manual tracking. Improving the efficiency of these processes and implementing new tools is saving time, frustration, and leading to better customer service for WPI students. This paper will explore the path to tools that are now being implemented as part of a collaborative pilot that was driven by needs and not tools. It will include the processes that needed to be developed to define the desired engagement targets, the challenges faced, and the next steps to continue to increase effectiveness. These tools are being implemented in a cohesive way throughout the lifecycle. The student's journey from interest to graduation and beyond are now being tracked, monitored, and acted upon. While this pilot was initially implemented for efficiency and effectiveness, the future should allow for increased optimization of forecasting as well.

Introduction

Worcester Polytechnic Institute (WPI) has been delivering fully online courses and programs for over a decade. The rollout of new programs has happened gradually, and the incorporation of new technology has been mainly limited to tools for content delivery. The methods used to engage with prospective new students and shepherd them through their educational journey were manual and time consuming, with various tools being utilized to perform discrete functions. As enrollments grew, WPI knew that the current processes were not sustainable to enable the strategic objectives of increasing enrollments, enhancing the impact of student outreach, and lessening the time between student inquiry and enrollment in a program. By 2017, WPI was offering 13 Masters degrees and 11 graduate certificates and servicing approximately 1200 students participating in online graduate programs.

There has been a significant amount of research done in recent years around online student needs and preferences. This research has identified the importance of providing support to online learners and making them feel connected to the university, as both of these factors weigh heavily on the student's success. According to a report shared by the Education Advisory Board as a part of their COE forum in 2013, "fully dedicated staff advisors lead to meaningful retention gains." This research was a critical factor in the needs assessment that led to the decision to increase the use of technology. The adoption of new technology was driven by the university's goal to better support online students for retention and successful completion of their program.

Background

Like many institutions, WPI has seen benefits from instituting a first-year experience program at the undergraduate level. There is significant literature on this topic, but many publications focus on the academic preparation [1] and study support [2]. As early as the mid-nineties, Kuh observed that there are number of non-academic factors which contribute to a given student's success [3], [4], and additional work by Magolda concluded that co-curricular experiences and academics are unavoidably interrelated in terms of their influence on positive student outcomes [5].

More recently, Schroeder and Terras studied the role that traditional advising plays in both online and remote part-time graduate students in contrast to traditional campus-based students. For online students, they demonstrated that trust, personalization, and responsive process and policy clarifications were factors in student satisfaction and success [6]. While traditional faculty advising excels in course selection and learning and/or career outcomes as it pertains to knowledge in the field of study, many of these other concerns are readily addressed by university staff who are familiar with policy, process, and other resources and requirements that are not tied directly to course content or subject matter expertise.

Drawing from literature outside of academia, the work by Luthans demonstrated that a positive psychological attitude toward employment combined with a supportive work environment results in better employee satisfaction [7]. While the employer-employee relationship differs in many ways from the institution-student relationship, there is a strong analogy to be made in this case. Study habits/effort and grades in schoolwork parallel an employee's productivity and the quality of their work product, and a supportive school environment corresponds to a similarly encouraging context provided by a supportive work environment.

Looking at the institution-student relationship from a provider-consumer perspective, the satisfaction and loyalty of an individual toward any service provider is often dictated by their interactions with the provider's employees. In order to promote quality interactions, the employees must be well trained on the services and have appropriate customer information in order to provide the required services [8]. With the correct tools and information, the service provider can create a much more personalized and proactive stream of service encounters, resulting in a positive effect on customer patronage decision [9].

Implementing process change, especially around a new set of technologies can be challenging. Cohen states that managing this change is crucial for organizational success and that addressing the emotional side of this change is vital not only during the implementation phase, but also for long-term success [10]. When it comes to the process of implementing change successfully, Kotter's 8-Step process identifies the need for an organization to understand the climate for the change by understanding the pain points of the organization and reasons why change is imperative. Within this first phase, developing guiding teams that include those on the front-line is key. This helps to develop and build a process that resonates with those who will be using the technology and help reinforce adoption in both the short and long term [11].

It is the synthesis of this prior work that forms the basis for WPI's conclusions and objectives as follows:

- The beginning stages of online graduate study set the tone for the remainder of the program in a manner similar to that observed for undergraduate education.
- Academic success is tightly coupled to the non-academic co-curricular experience a student has, so students would benefit from proactive, responsive, informed outreach, including assistance that would traditionally be expected of a faculty advisor.
- Success is also influenced by the attitudes formed by the student toward the university in combination with the environment that the university creates for its students.
- Because remote students do not have the same level of interaction with the campus community, special attention must be paid to providing them services in order to build that relationship.
- Meaningful, informed, personalized services during this period and through graduation will lead to higher levels of student satisfaction, retention, and success.
- Stakeholder engagement during the implementation will result in a better solution that is more readily accepted and adopted by the end users.

It is with this understanding that WPI planned to implement a set of tools and processes to provide optimized student success services, build stronger relationships with online students, and increase retention and completion of existing students.

Designing the Desired Future State

As WPI's online programs began to grow year over year, it became clear that the previous processes and tools employed to attract and retain students was no longer efficient or effective enough. Attracting talented students is difficult and time consuming. Once a student decides to enroll, WPI must provide superior student success services and ensure that the students have support when they need it. The ability to track student data, ensure effectiveness of outreach efforts, and automate processes to easily track student data through a single platform would allow the team to focus on outreach efforts, leading to higher student satisfaction.

The first step was for the online student success team to understand not only the current processes and how they were intertwined, but also to reimagine an ideal future state. During this process mapping, the team examined stakeholder pain points of staff, prospective students, and current students. In addition, an inventory of current tools and data sources was created to better understand where information was stored. Without this, communications would likely to be delivered that are not relevant to the students' needs, with the risk being that students stop communicating and stop utilizing your communications. It is important to keep in mind that the goal with any student support service is to maintain an understanding of the needs of the student and to build a solid relationship so the student feels comfortable addressing their challenges with their university contact.

Overall, the goal of the process mapping exercise was to inform the tool selection process and establish a baseline of desired functionality.

With the process completely mapped, WPI was able to more readily identify steps in the student's life cycle that were routine and repetitive. Such elements were targeted for automation, including:

- Registration confirmation emails to students
- Instructions to new students for creating university computer accounts
- Emails to students to remind them about upcoming mid-course and end-of-course surveys
- Notifications and dashboard for student success managers to identify a variety of potential student success indicators, such as:
    - Successful completion of first course
    - Current or continuing GPA falling below a 3.0
    - Student hasn't logged into the Learning Management System in the last week
    - Student has taken courses a non-matriculated student but has expressed intentions of earning a degree

If WPI was able to implement data-driven business logic to automate these tasks, more time could be spent focusing on the individual needs of students. For instance, instead of spending time reviewing the GPAs of 250 students, each student success manager could be alerted in real time when a student's GPA fell below a certain threshold. The success manager could then view a summarized panel of student information showing the current student status, a summary of all completed and transferred coursework, a summary of all admissions application activity, account balance, and other critical student information. This would prepare the student success manager for a meaningful one-on-one interaction with the student.

The student success process mapping was so effective that other teams began looking at their systems and processes. The marketing team met to brainstorm innovative ways to engage with prospective students, as the previous methods were stagnant. The team identified new ways to engage with prospective students through content marketing, blogs, eBooks, social media themes and new advertising mediums such as quizzes, infographics, LinkedIn, Twitter, reddit and Facebook. In order for new engagement methods to be successful, the marketing team also needed a system that would track the effectiveness and conversions from each of the campaigns and advertising mediums.

The recruiting and student success teams met and outlined current challenges and requirements, with the goal of developing solutions to help the team become more successful and strategic. Those items included:

- A centralized system to understand the full lifecycle of a prospective student from Marketing Qualified Lead (MQL) to Sales Qualified Lead (SQL) and their engagement
- Automated drip communications to inquiries, requiring little to no manual intervention
- Alerts to the recruiting team when a prospective student took an action on a piece of content sent by online and recording this information into the centralized system (inquiry form, advertisement, engage email, registration reminder, on-demand webinar, Virtual Open House and Tradeshows)
- Sales "stages" to understand student interest
- Appointment application to make it easy for students to schedule 1:1 time with a recruiter

- Conversion rates from Inquiry to becoming a student and MQL-SQL
- Ability to measure the effectiveness of advertising, content marketing and social media
- Clean and accurate data feeding into Salesforce
- Consistent, clean and accurate data on students to provide better support and reporting
- A way to identify which students were fully online students versus the on campus population, along with which member of the internal support team assignments for each student

Platform selection

Recording interactions with individuals and corporations, in one system, was becoming imperative as relationships with WPI deepened. There was a strong need to share information across campus. Divisions within WPI, specifically Corporate Engagement and University Advancement, were in need of a tool where they could record the communications they had with contacts at various companies and donors. It was clear that WPI was in need of a Customer Relationship Management (CRM) tool and when evaluating available systems, Salesforce came out on top. Salesforce Sales Cloud is easily customized, which makes it a powerful, scalable tool for the entire University. Additionally, Salesforce has a rich ecosystem of service providers, add-ons, and integrations that further the ability of Salesforce to be tailored for the needs of a specific organization.

WPI's continuing education department saw the potential to use Salesforce for their recruiting and retention efforts. Within Salesforce Sales Cloud, recruiters are able to view prospects who are interested in programs and record email exchanges. By using Salesforce, the team can track needs of prospective students and outreach efforts – providing accurate and timely information to all inquiries. Once the student applies and registers for courses, the Student Success Team is able to support the student throughout their journey by using automation and early warning sign dashboards, built within Salesforce.

As the continuing education department developed, the need for a Marketing Automation tool and Social Media Management tool became crucial. Among the requirements was the ability to easily integrate with the data already captured in Salesforce Sales Cloud. Pardot and Social Studio, both Salesforce products, were selected based on functionality, ease of use, and built-in, full-featured integration to Sales Cloud. Pardot allows the Marketing team to develop engagement programs, dynamic content, landing pages and progressive forms to easily capture data on interested prospects, while Social Studio provides the ability to publish and listen for social media posts related to WPI. All of this functionality integrates within the CRM and contributes to developing a 360 degree view of incoming student prospects.

By choosing products that are tightly integrated with the Salesforce CRM, such as Pardot, WPI can use the rich portfolio of business process automation tools to make the interaction with prospects more efficient. For instance, actions taken by prospective students in Pardot and Social Studio can alert Sales Cloud users or provide automated responses to appropriately follow up with prospects and provide timely customer service. By taking advantage of Einstein

Analytics, another Salesforce product, the department is able to easily extract data points and create interactive dashboards. Einstein Analytics is a visualization and reporting tool, which allows users to make informed decisions based on data available within Sales Cloud, Pardot, and Social Studio. The tools enable WPI to better understand what customers want and how they go about making their decision to attend the university.

The Salesforce platform also has a fully featured API that allows for manipulation of nearly every data element in the entire platform. This allows WPI to use a third-party Extract/Transform/Load (ETL) tool to bring in data from platforms such as our Banner Student Information System (SIS) and Canvas Learning Management System (LMS). As with the native integrations of Pardot and Social Studio, these custom-built ETL integrations contribute to the 360-degree view of the customer and enable further business process automation within the CRM.

As new needs arise, WPI looks to the Salesforce ecosystem for a solution that meets those needs and enhances the 360 view of constituents across the community. As Salesforce releases additional functionality for their Higher Education customers, WPI will be in a position to take advantage of the advancements in the technology.

Implementation: Effective Change Management

Benefits

By utilizing Salesforce Sales Cloud, Pardot, Analytics, and Social Studio to meet stakeholder needs, WPI's online team is able to work together within the Salesforce ecosystem to provide support for prospective and current students. By taking advantage of tools on the Salesforce platform, the online team is able to collaborate across their functional areas, on one platform. The team was immediately able to see the benefit of implementing these tools, which allowed for celebrating wins and the collection of feedback. It has been WPI's experience that these factors are critical for success and adoption in the implementation of a new system.

For the marketing team, the data has enabled agility in marketing efforts. When weekly and monthly reports are pulled, the marketing team is able to see what advertising mediums were more effective and quickly make a change. Some of the benefits that have come from this are: finding that plain text emails have better open rates, quizzes generate an abundance of leads, and blogs that are more general about the online experience are better received. Most importantly, the team is able to calculate MQL to SQL conversion and cost per lead in a centralized place, which takes less time and provides more accurate data.

For the recruiting team, the implementation of Salesforce and Pardot has been instrumental for success. The team is now able to have more informed conversations with prospective students because of the insights collected using Salesforce to track their journey with WPI. It allows the interaction to be more personal and effective. In addition, the recruiting team is able to engage with prospective students at the right time and identify highly engaged prospects versus spending significant time on those that are less engaged. Since the implementation of the recruiting team's new efforts, the recruiting statistics have gone from a 209-day inquiry-to-student conversion to 164-day inquiry-to-student conversion - a 22% reduction in the number of days to convert an inquiry to an online student.

Salesforce enables the student success team to have an overall view of the entire online student population, as well as the staff assignments to support the students by program. This has greatly increased functionality available to the team since the student information system (SIS) system is unable to allow for this level of integrated data. The SIS required that each student be viewed individually, often by accessing numerous separate forms. This time consuming process made it very difficult to identify issues. By utilizing a more integrated system, the team now has a more holistic view of each student and program.

The integration of the SIS, learning management system (LMS), and email system within Salesforce allows each member of the online team to easily see what communications have been sent to the student, along with key information about LMS and course activity all within one record. Prior to Salesforce, staff would need to check multiple systems to gather insight into interactions the student has had with WPI. The timing savings allows for a faster response to students, not only by email, but also when students call for support. With the multiple systems, it had previously taken approximately five minutes to see where a student was within their plan of study and the breakdown of credits they had earned. Now in Salesforce, what had taken at least 5 minutes per student, takes approximately one minute. Multiply this by 400+ students and it is quite the time savings.

While the team benefits from the automation afforded by Salesforce, the tool also allows WPI to maintain a level of personalization to help students feel connected to the staff. The integration and capabilities within Salesforce allow the entire recruitment and student success team to consistently share the same message, at the right time, throughout the student's journey at WPI. Staff are able to handle a large number of students while providing proactive outreach and support for the students. Coverage when a team member is out of the office is also significantly easier because there is one place to access information on the student.

Results

Like many higher education institutions, WPI's data collection was limited to the traditional information captured by universities for reporting to groups such as IPEDS. Until 2015, WPI did not delineate student status beyond undergraduate, graduate, part-time, full-time and major. There was no designated code for online students, let alone tracking metrics such as marketing campaign clicks, length of time to convert an inquiry into a course registration, the lifecycle of an online student, etc.

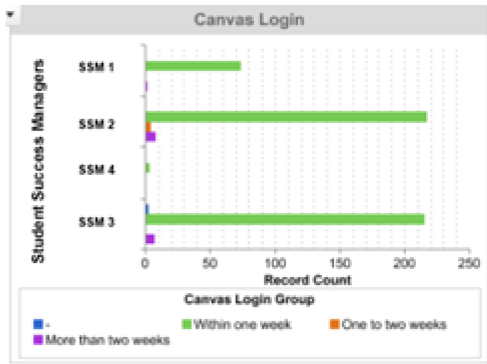
The exploration of the use of technology was driven in part by a need to understand the online student population. For example, WPI wanted to learn more about the target demographic, how to reach them successfully, and their student journey from beginning to end. WPI was able to accomplish this, specifically gaining a better understanding of the results of marketing efforts, by adopting a marketing automation tool along with Salesforce. Having the marketing tool integrated with Salesforce allows WPI to nurture prospective student leads over time, while students are considering their options for graduate school. While the processes are still being refined and success metrics continue to be evaluated, WPI has already been able to reduce the time from prospective student inquiry to course registration from 209 days to 164 days.

Additionally, it was a priority to develop the infrastructure necessary to support continued growth of online programs. There was recognition that WPI had to both provide a high level of personalized support to students, while also using limited time and resources as efficiently as possible. Providing a high level of one-on-one support can be challenging when working with a large number of students. WPI selected a target ratio of one student success manager for approximately 250 online students. Technology was a necessity in order to be effective in managing this volume of students in a high-touch environment.

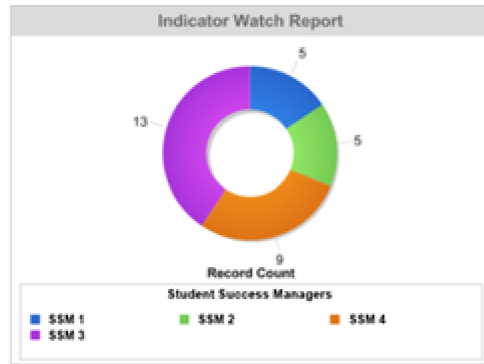
To manage up to 250 students with personalized service, WPI needed to have a clear understanding of each online student and an effective way to manage information from multiple sources. The use of Salesforce enables the student success managers to see the full picture of the student– application status and history, enrollment history, current registration, GPA information, LMS information, communication history, etc. – instantly and at the fingertips of the team. It integrates information from several systems, including SIS academic records, admissions application information, and LMS information. A visual presentation of information as a dashboard, as well as more detailed reports, are available to the team to allow for effective management. Trends can easily be seen at a macro-level and analyzing individual student data can be done with the click of a button.

Because there is detailed information readily available, the student success team can be more proactive and less reactive. The dashboards provide a fast, user-friendly way to identify potential issues, such as a student who has not logged into the LMS system for several days or a GPA that has fallen below the required minimum. This allows for immediate intervention, often with the student success manager proactively contacting the student to check in and determine a corrective course of action. In addition, the team proactively calls each registered student every semester, even if all indicators are positive, simply to touch-base and solicit their feedback. The team tracks the results of this outreach to identify trends and opportunities. For 2016-2017 academic year, the team had a 76% success rate of connecting with students about their semester. For the fall 2017 semester, the team had a 77% success rate of connecting with students. It is believed that these conversations not only provide good feedback about what is working well and what can be improved in the online programs, but also makes the student feel connected to, and valued by, WPI.

LMS Activity Dashboard



Key indicator dashboard



Most importantly, student retention has improved as a result of the proactive outreach and improved level of student information. From the 14/15 academic year to the 15/16 academic year, WPI saw a year over year retention rate of 73.9% of current students. The next year, from 15/16 academic year to 16/17 academic year, WPI saw a retention rate of 77.4%, an overall increase of 4.7%. The long-term goal is to see 90% of students successfully complete their program.

Future Next Steps

The team is continuously evolving and identifying new ways to connect and assist with online students. Salesforce.org provides a Higher Education Data Architecture (HEDA), which is built on Salesforce, to support students and enable schools to take advantage of the CRM capabilities Salesforce offers. By implementing HEDA, the online team will continue their growth on the platform and take advantage of future product releases. The recruiting team would like to expand the use of Salesforce and Pardot, by developing more dynamic content, implementing live chat, expanding targeted engagement programs, creating a collaborative space for program launches and development, and allowing for appointment scheduling. These tools and techniques will enable the online team to spend their time on the most interested and qualified prospects, lowering the conversation rate from inquiry to student and MQL to SQL.

Further integration with the LMS to create an early warning system is essential for the continued success of the students. Being aware as early as possible that a student is beginning to struggle in a course is important for long-term success.

Additionally, developing a system to assist in course planning within Salesforce would further enhance the ability for the staff to see what courses need to be taken across the entire student population. This will allow for more targeted course planning and outreach when courses are scheduled.

Lastly, expanding Salesforce usage to include Salesforce Communities is also being explored. It will allow for continued growth and provide a place for students to easily access answers to commonly asked questions and a collaborative space for them to connect with each other, staff, and faculty.

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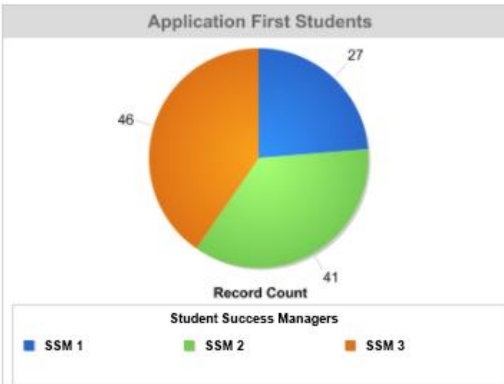
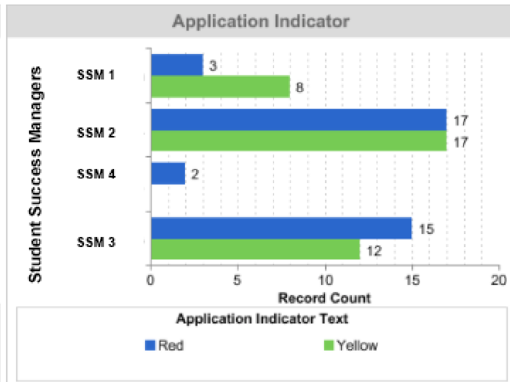
Appendix A

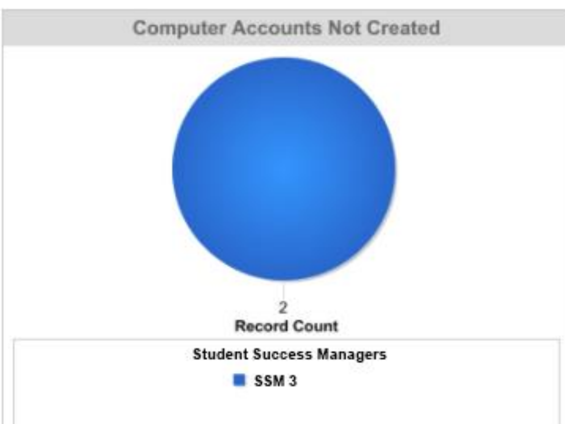
Dashboards for Student Success

Dashboards to assist in managing student applications for admission





Dashboard notification of computer account set-up – early warning for preparedness to start



Appendix B – Strategy for Data Retrieval