Managing Course Enrollment Exceptions Using Web-Based Forms

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Abstract

Every semester, faculty and administrators are flooded with requests to add courses that have closed because they have reached the enrollment cap or prerequisites have not been met. The traditional approach is to assess each request as it is received to determine if the request is valid and justified. Since each request is evaluated individually, there is a chance that students with a greater need than others may not be able to enroll in the course they need. Also, since over 200 requests for closed courses can be received every semester, the process can become confusing and a tremendous burden on faculty and administrators as they try to wade through legitimate requests. The recent budget shortfall has reduced the number of courses, making the problem worse since fewer seats are available. To help address the problem, a course special add request system was developed and deployed in a large department that allows students to request enrollment in closed courses using a Web form during an open enrollment request period. The system aggregates all requests and allows advisors to quickly determine the number of requests for each course and which requests are legitimate, while giving equal chance to every request. Furthermore, faculty and administrators are no longer interrupted by course requests as they prepare for the upcoming semesters, since all requests are submitted during an open window and assessed at once by a group of advisors who then enroll those students allowed in each closed course. Feedback on the effectiveness of the system received from faculty, students, and advisors has been very positive since the initial deployment.

Introduction and Literature Review

Every semester, faculty and administrators are flooded with requests from students for permission to enroll in courses that have been closed because they have reached the enrollment cap or students have not fulfilled prerequisites. In some respects, this appears to

be an enviable predicament. Enrollments in higher education across the U.S. have been on a consistent upward slope, increasing 37% between 2000 and 2010 [1], implying a demand greater than the supply and more revenue for degree-granting institutions. This, we are well aware, is one side of a double-edged sword. Increased enrollments imply substantially greater numbers of students supported by financial aid, resulting in greater accountability. Institutions of higher education are under increasing pressure to demonstrate that public dollars are well-invested, evidenced by students successfully completing academic programs within a reasonable amount of time. Yet, criticism of higher education institutions by external entities is becoming more frequent because of low persistence and graduation rates [2]. This challenge is exacerbated by the precipitous decrease in public education funding, intensifying the "affordability crisis to unprecedented levels" [3]. Less money for the institutions to work with results in cutting the number of courses they offer, leading to what could be paralleled with today's typical flying experience: limited seat availability, overbooked courses, and disgruntled customers. Put simply, higher education institutions are being forced to do more with less, such as ensuring graduation of more students with less revenue to spend and fewer courses to offer.

It is, therefore, not surprising that students are seeking the quickest route possible to completion, although national data may not bear this out, particularly when only 61% of full-time students complete a bachelor's degree within eight years and only 24% of part-time students complete a degree in the same amount of time [3, 4]. The fact that terms such as "swirl," "double-dipping," "intra-institutional swirl," and "major migration" [5] now hold a place in the enrollment management officer's daily vocabulary suggests that educational leaders readily acknowledge the increasingly porous and permeable boundaries between and among educational providers [6].

This also raises the possibility that a significant number of students possess the desire and determination to acquire a degree in the shortest time possible. These now commonplace terms indicate that if a desired course is not available, students are willing to shift between institutions for a single class or permanently (swirl), or enroll in two institutions at the same time (double-dipping). Likewise, students may transfer to a different program at their current institution (intra-institutional swirl, major migration) if they are having difficulty accessing coursework within a given major. McCormick [7] classified eight types of swirl. Perhaps the one most relevant here is what he calls "supplemental swirl," where students enroll at another institution for one or two terms to supplement or accelerate their program.

Certainly, there are perceived benefits to this phenomenon. Students are afforded greater choice in terms of course selection, pathways to graduation, lower tuition rates, and perhaps even the opportunity to earn a degree from a more prestigious school [8]. Likewise, schools stand to benefit from revenues generated by swirling and double-dipping students.

Research suggests, however, that the downsides of "credit portability" [7] outweigh the advantages. For instance, evidence indicates that students who swirl tend to have lower GPAs and, paradoxically, longer time to graduation [7, 8]. Institutions, as well, are vulnerable to a variety of challenges such as assessment of need for financial aid; data

collection for progression, retention, and completion rates; and the impact from "the reality of student flow" on planning for academic programs and courses [5].

In the end, lost enrollments, or "walk away" registrations, may represent frantic and frustrated students attempting to build desired schedules [9]. These may be students who have no intention of returning, which translates to lost tuition potential and institutional investment, based on the argument that it costs more to recruit new students than to retain existing ones [10]. Further, Johnson & Muse [8] argue that lost enrollments resulting from lack of access to upper-level undergraduate courses may threaten the viability of an academic program.

Increasingly, researchers in enrollment management are pointing toward technology as the most viable solution to student attrition resulting from a lack of access to courses. The literature is replete with implications for the role of technology in the reduction of student attrition, such as enrollment management is "very much a technology-intensive, data-driven, process and enterprise" [6], "academic officials act on the basis of fragmented and incomplete information" [9), and "by improving its ability to predict students' enrollments and course taking patterns, an institution will be better able to identify students most at risk of dropping out" as well as estimate future revenue and capacity needs [4]. Yet, there is surprisingly little specificity in terms of utilizing technology at the course and program levels to manage enrollments; most pertain to the institutional level. This paper will make a case for managing enrollments at the course and program levels by introducing a specialized software developed specifically for reducing attrition at a four-year public institution of higher education.

Background

Every semester, courses fill up during registration periods, forcing students to contact course instructors or advisors to gain permission to register for courses they need to graduate. Also, some courses have prerequisites that restrict online registration if the prerequisites have not been met. Therefore, students must either gain the prerequisites and take those courses in subsequent semesters or get permission from course instructors to register for those courses. The number of students needing access to courses can quickly skyrocket in a short period of time. It is not uncommon for a department of 600 full-time students to have up to 200 requests for closed courses within two weeks of the start of courses.

The problem has worsened in recent years, since fewer sections are being offered due to budget cuts. Furthermore, sections are being cancelled just before courses begin due to low enrollment, requiring students to look for other available courses. Often, students are forced to scramble, looking for enough courses to meet the full-time load requirement, or some students run into financial aid problems, are not able to pay their tuition in time, and are dropped from courses. These students must then search for courses they need that are, by that time, full. All of these different problems end up amounting to a large number of student requests for closed courses or courses that those students don't have the prerequisites for.

The traditional approach to this problem is a free-for-all, where every student is forced to look out for themselves. The process involved contacting the instructor for the closed course to gain permission to register for the course. The student then gave the permission form or email to their advisor who would enroll them in the course. This approach flooded instructors of popular courses with requests that came in by email, phone, and in person. Further complicating the problem is that instructors were forced to decide which requests to approve or reject. Instructors had to try to determine which students were telling the truth and which were lying in order to get into the course. Since these requests usually came in just before the start of the semester, instructors were busy preparing for courses and had little time to research each request. Therefore, some instructors took the word of the student who claimed s/he needed the course to graduate.

Also, students who contacted the instructor first had a better chance of getting into the closed course over someone else who actually needed the course. Furthermore, students who actually needed a course to graduate might not be able to get into the course because the course seating capacity had been reached. This was a result of admitting students who did not legitimately need the course to graduate. Another problem is that popular instructors were flooded with requests, while less popular instructors received far fewer requests. On top of all of those problems is the fact that some students were forced to go to other schools to find a similar course they needed and then hoped they would be able to transfer that course into their program of study. It was not uncommon for students to take longer than required to complete their program of study because they weren't able to get required courses when they needed them.

To streamline the process and reduce the chances of such problems negatively affecting students, a committee was formed to study the problem and develop a Web-based solution to automate the process, one that allowed students to submit a request for each closed course. Each course request was dated, time stamped, and included contact information and specific reasons why the course was needed. Furthermore, students had to provide supporting evidence documenting need. This paper outlines the design, development, and the initial success of this solution to the problem.

Planning and Design Approach

To address this labor-intensive problem inherent in the traditional approach to the management of closed courses, a committee was formed to study the problem and develop a solution. The committee consisted of five academic advisors and a faculty member with software development experience. Over the course of several weeks, the committee evaluated different solutions to include a process recently implemented by another department within the college to address a similar problem. The solution the other department implemented involved the use of Survey Monkey, a Web-based survey tool, to gather student requests for closed courses. Their existing solution was evaluated to determine if it could be implemented as is. Unfortunately, several problems were apparent with this solution, including a lack of uniform data collection since the survey input form required students to type in the courses they needed, which resulted in input errors such as entry of the wrong course number or

section number. Another problem was the instrument's inability to determine the exact number of closed course requests submitted for each course at any given time without downloading all of the requests. This limitation made it difficult for the department chair to quickly determine if a new section of a course should be added to accommodate the requests.

As a result of these limitations, the committee decided that the most appropriate action was to develop a new solution that also uses a Web form, one that would have more features to make it easier for students to complete the form and afford more tools to allow the department chair to determine, at any given moment, the number of requests for each course. Also, the new solution would allow the capture of more uniform and consistent responses from students, thus reducing the chances of input errors. Lastly, the new solution would allow data to be downloaded in various formats for analysis and approval of valid requests for closed courses.

To ensure consistency in handling the requests, procedures were developed, approved by the department chair, and implemented. Faculty and students were provided a copy of the procedures to request enrollment in a closed course. Furthermore, a specific request period was selected to identify when requests would be accepted, when they would be evaluated by a team of advisors, and when students would be notified. The committee determined that faculty would no longer be required to accept requests for closed courses and therefore would not be involved in the special add course request process. This change was presented to faculty at a departmental meeting and approved for adoption in the following semester.

The Web form opening screen provided instructions and useful information such as the open request period dates, notification dates, and where to submit supporting documents. The link to the form was emailed to students at the beginning of the course registration period and was also posted on the department's website.

The new form was developed using Qualtrics, a Web-based survey generation and management tool. The form consisted of text boxes, drop-down lists, and option selection fields for data entry. Table 1 provides a list of the data entry fields used in the form. Students were also instructed to send all supporting documentation to a designated email address.

Table 1. Data entry fields used for data collection

Field	Type of Field	Example
Student ID	Text box	B00011110
Last Name	Text box	Smith
First Name	Text box	John
Email	Text box	Smithj@university.mail.edu
Expected Graduation Date	Text box	12-15-14
Major	Drop down list	Networking
Advisor	Drop down list	Mike Johnson
Credit Hours Earned	Text box	68
GPA	Text box	3.5
Credit Hours Transferred In	Text box	33
Type of Student (face-to-face or distance education)	Option buttons	Distance education selected
Prefix of Needed Course	Drop down list	ICTN
Course	Drop down list	3000 Networking Essentials
Section	Text box	001
DE Course (Yes or No)	Option buttons	No selected
Why course is being requested (Time conflict with another course, Need the course to graduate, part-time student needing full-time status, job, health, family commitment, re-admitted to university, course closed, other)	Multi option selection	Job and family commitment choices selected

The request for closed courses lasted for one week each semester. At the close, the data were downloaded in Excel format and separated by advisors. Over a two-day period, advisors evaluated each request, giving priority to the earliest and most critical requests, such as requests for courses needed to graduate during the current semester. At the end of the second day, all students were notified whether their request to take the course was approved or denied. Those who received approval to take a closed course were registered for the course. During the request collection period, the department chair and advisors were able to see the number of requests per course by viewing a live report generated from the currently submitted requests. The report enabled the chair and the advisors to better prepare for courses that required new sections.

Limitations

There are several limitations to this study. One of these is that the scope of the Web-based solution is limited to one department. Evaluation of this new approach to course requests after implementation in several departments and universities would have produced more

accurate results of the effectiveness of this solution. An additional limitation of this study is the lack of student satisfaction data, which could be used to evaluate the effectiveness and acceptance of this approach. A survey of students who have completed this survey would have helped determine if this approach is truly welcomed by students and would have identified any suggested improvements to the Web-based form.

Also, the long-term effects of this approach on course management are not readily available since this study was limited in scope and in the data collection period. Data collected over a longer period of time could be used to determine if students remained in the same programs or completed their program on time and would have produced a more accurate assessment of the Web-based tool.

Another limitation of this study is the lack of evaluation of other systems and procedures implemented at other locations that address similar problems. Due to the lack of funds, this study was limited to the department's ability to develop an in-house solution. Since the university already had access to the Web-based survey tool, development of the new solution did not incur any new expenses.

Conclusion and Recommendations

Although the initial introduction of the new approach was met with some resistance by faculty who did not want to give up control of the decision to allow students in their courses, the new approach and associated procedures were adopted and implemented without any notable difficulties. During the first semester of use, a small group of students attempted to request access to closed courses using the traditional approach. They were advised of the new procedures and were able to submit their requests within the time period.

The adoption of the new approach significantly reduced confusion as to how many students were added to closed courses, whether the physical seating capacity was exceeded, whether students needing access to closed courses to graduate gained access to those courses, and whether students were being honest about the need for courses because they had to provide evidence supporting their reasons for the request. Since approximately 200 requests for closed courses were received each semester during a time period when instructors are preparing for the upcoming semester, the implementation of the new approach and Web-based data collection tool allowed instructors to concentrate on other critical course preparation tasks.

Also, the new Web-based tool enabled the department chair and advisors to quickly determine whether new sections were needed before the request period even ended. This allowed the department chair to find additional instructors and add new sections in advance, which reduced the chances of last-minute changes to student and faculty schedules. Another benefit of this approach to the management of closed courses was the improved visibility of the process. The data obtained during the closed courses request periods can now aid in determining if certain patterns of student problems in registration are evident and allow for appropriate action.

Students and faculty appear to embrace the new procedures and Web-based tool. Informal feedback from students and faculty indicated the new approach is a sound solution to a problem many institutions likely encounter. Also, by the second semester of use, it was evident that confusion about requesting access to a closed course was reduced. This reduction in confusion could be attributed to the direct communication with students and faculty about the new procedures and web-based tool. Despite the apparent success of this new approach, more research is needed to determine if it is effective in different departments and universities. Studies involving multiple departments and universities would help evaluate the appropriateness of this approach to a common problem, and longitudinal studies over time would also help determine the effectiveness of this approach.

Furthermore, other solutions should be developed that connect student closed course request tools to student course registration systems. The student request process should be streamlined so that when a student attempts to register for a closed course, s/he is prompted to enter the reasons for needing the closed course and upload supporting documentation. Also, solutions should be developed that connect student advising, registration, and requests for closed courses. Student programs of study should be populated and managed with the aid of advisors. Prepopulating lesson plans will help department chairs plan for the number of sections needed for each course in advance of registration periods. This would help reduce the number of requests for closed courses and the need to cancel courses with low enrollments. While student interest in programs and other factors may affect the number of sections needed at any given time, integration of these processes through information technology is likely to lead to better visibility and management of all processes involved.

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