

The Effectiveness of Proactive Advising Interventions on First-Year Student Success and Retention

Julie Chiki

Ohio University, frenchj@ohio.edu

Abstract - With the creation of a full-time advising position focused on retention and persistence for first- and second-year students, the Russ College of Engineering and Technology at Ohio University has expanded its capacity to implement and assess proactive advising interventions designed to increase retention and reduce time to graduation. These interventions include 1) faculty referrals during the critical first few weeks of the semester, 2) outreach to students repeating coursework, 3) promotion of summer courses to accelerate progress through the curriculum, and 4) schedule audits to ensure appropriate course registration for the following term.

This paper shares preliminary data from the first year of these advising interventions, including the impetus for their development and plans for future improvement. Each intervention has shown positive results for students who responded to the outreach compared with those who did not.

Index Terms - Advising, at-risk engineering students, repeated coursework, retention, student success.

INTRODUCTION

Ohio University is a public, residential college located in Athens, Ohio with approximately 18,000 undergraduate students and a first-year retention rate of 79.1% in fall 2015. The Russ College of Engineering and Technology, with an undergraduate population of approximately 1,800 students in seven departments, has averaged 83% first-year retention over the last seven years, with a 63% six-year graduation rate for the cohort entering in 2009.

In the spring of 2015, the university launched a Student Success Advisor initiative, with one student success advisor hired per academic college to focus on academic success, persistence and retention for first- and second-year students. The initiative is based on the appreciative advising model [1] and encourages proactive advising techniques [2].

For the Russ College of Engineering and Technology, which uses a faculty advising model, this initiative provided opportunities for the student success advisor to target specific populations of struggling students in partnership with instructors and faculty advisors.

FACULTY REFERRALS

Levitz & Noel [3] identified the first six weeks of college as most critical time in a student's transition to college, and research continues today on the impacts of early interventions on at-risk students [4]. For this intervention, instructors identified students struggling at the beginning of each semester, as evidenced by a lack of class attendance, missing assignments and/or low test grades, and referred them to the student success advisor beginning in the spring of 2015.

Students who met with an advisor based on a referral from their instructor(s) in that first semester were retained at a rate 20 percentage points higher than those who declined additional assistance (Table 1). The impact of the intervention was present but much less pronounced after the fall of 2015, probably because most Ohio University students who leave the institution do so in the spring, and are less likely to leave in the middle of an academic year.

Preliminary data from the spring of 2016 shows a margin of 18 percentage points between students who sought additional assistance and those who did not in their rates of fall enrollment, similar to the spring of 2015. The overall numbers are much lower, however, and it is likely that more students, such as those with financial holds, will register throughout the summer, and some who are registered may not actually return for fall classes.

This intervention complements an early alert program run centrally for the entire university. Thus far, this local intervention in the Russ College appears to identify more students because it does not require a formal report but instead relies on informal interactions between the instructors and advisor. The idea for this local intervention grew out of a suggestion from a department chair who encouraged instructors of introductory courses to participate by referring their students, helping to build faculty buy-in.

Ohio University plans to implement a new retention management software this fall with an early alert component, so the structure of this particular intervention will be re-evaluated, and if continued, will seek to determine the impact on a student's success in the class from which the referral originated, in addition to their retention at the university.

TABLE 1
IMPACT OF FACULTY REFERRALS AND ADVISING MEETINGS ON STUDENT RETENTION

	Spring 2015		Fall 2015		Spring 2016	
	Students	Enrolled next semester	Students	Enrolled next semester	Students	Enrolled next semester*
Met with Student Success Advisor	47	85%	39	82%	32	56%*
No meeting	60	65%	49	76%	45	38%*
Total	107	74%	88	78%	77	47%*

*preliminary numbers as of May 2016; anticipated to increase by the start of fall semester

REPEATED COURSEWORK INTERVENTION

The second intervention focused on returning students who were retaking classes, either because they failed a course or earned a grade lower than required to move on in the curriculum (e.g., a C is required for most math courses in the engineering majors). In the Russ College, students who fail to earn these grades earn what is commonly called a “strike,” and may “strike out,” or be dismissed from their major, if they accumulate three strikes for a particular class.

Between 200 and 300 students earn at least one strike and have to repeat a course each semester, slowing their degree progress and potentially delaying their graduation. Many of these students, however, have a GPA above 2.0, and are therefore not included in the university-wide interventions for probation students. An analysis of students earning strikes in the fall of 2014 found that 70% of students who “struck out” in one course had failed several other courses in that same time period, and a pattern emerged of students taking a heavier course load to catch up after earning one or two low grades, often leading to more failures while remaining in good academic standing. This is consistent with emerging research on the “murky middle,” or students who earn GPAs between 2.0 and 3.0 in their first year and tend to drop out between their second and sixth years of college. The Educational Advisory Board [5] found that probation policies often did not catch students with downward-trending GPAs, and that the overall decline in grades stemmed from an increasing number of failed courses, rather than an overall decline in grades.

To counteract these trends, students repeating a course received weekly email “nudges” to encourage various academic success strategies, a strategy popularized by the book “Nudge: Improving Decisions about Health, Wealth and Happiness,” [6] and becoming more prevalent in higher education [7]. Students repeating a course for the second time received one-on-one advising including a self-assessment and contract based on the appreciative advising

model (Appendix A), in addition to guidance on choosing a new major in case they were unsuccessful in their third and final attempt of the class. The contracts were sent to students’ assigned faculty advisors for follow-up during registration advising along with any available midterm grade reports. This prompted students to revisit their goals and adjust if necessary, and provided supplemental information that advisors previously did not have in their efforts to support struggling students.

Students who participated in this intervention during the first semester of implementation in the fall of 2015 passed their repeated course at a rate of 70 percent, compared to 44 percent of those who were not reached, with an overall passing rate of 59%. In the spring of 2016, when more outreach was done to get students to attend an advising session, the difference was noticeably smaller, although the overall passing rate increased to 67%, in comparison to the fall of 2014, when no students received this intervention and the overall passing rate was 46% (Table 2). Students who were unsuccessful in their third attempt and did not meet the terms of the contract were dismissed from their major and reassigned to the student success advisor for assistance choosing a new major.

Although these results are promising, this intervention has several areas for growth and improvement. First, large numbers prevent one-on-one advising for all students repeating a course, but there is a need to move “upstream” as many students leave the university before attempting a class for the second or third time. This summer, we are piloting an online self-assessment and contract similar to the paper version students would complete during an advising session. The advisor can view the results of the completed assessments and offer individual feedback or resources if necessary.

Additionally, students who have earned two strikes but are not repeating the course will also be encouraged to attend an advising session, as students who avoid a third attempt are at high risk for leaving the university if they do not identify a suitable alternative major.

TABLE 2
THIRD ATTEMPT ON A COURSE INTERVENTION

	Spring 2015			Fall 2015			Spring 2016		
	Successful	Not Successful	Passing Rate	Successful	Not Successful	Passing Rate	Successful	Not Successful	Passing Rate
Met with Student Success Advisor	N/A	N/A	N/A	16	7	70%	15	7	68%
No meeting	16	19	46%	8	10	44%	5	3	63%
Total Students	16	19	46%	24	17	59%	20	10	67%

SUMMER COURSE PROMOTION

The third intervention encouraged first-year students to consider summer coursework, either through Ohio University or another institution closer to home, as a way to progress through the curriculum more quickly, retake courses in which they were previously unsuccessful, or lighten their course load during the academic year. All first-year students received information about this intervention through email and a website, which listed common equivalent courses and described how to receive prior approval for transfer work. Faculty advisors also received lists of students who were not on track to complete the second semester of calculus by the end of their first year, so they could encourage these students in particular to consider summer courses during registration advising appointments.

During the first year of the outreach in summer 2015, the number of students and number of credits earned increased at both Ohio University and external institutions. The increase was much more significant from other institutions, with a 34% increase in the number of students transferring credits, and an 82% increase in the number of courses transferred, including an 80% increase for math courses (Table 3).

TABLE 3
SUMMER COURSES TAKEN BY OHIO UNIVERSITY STUDENTS

	Summer 2014	Summer 2015	Increase
<i>Transferred Courses</i>			
Number of first-year students	29	39	39%
Number of courses	34	62	82%
Number of math courses	20	36	80%
<i>Ohio University Courses</i>			
Number of first-year students	45	54	20%
Number of courses	77	91	18%
Number of math courses	23	25	-8%

Based on faculty feedback, providing a one-page online resource made it easier to help students identify which summer courses they could take closer to home or online. Faculty who were unsure about specific details of transferring summer coursework also had a clearer picture of where to refer students in need of extra assistance.

Additional assessment on success in subsequent fall classes was also conducted due to faculty concerns that students might look for less rigorous classes at other institutions over the summer and therefore be less prepared for their fall classes. The majority of students who transferred in summer credit were successful in their subsequent fall course(s) with the summer course as a requisite, and they passed at similar rates to students who did not transfer summer coursework (Table 4).

When students took a class that served as a pre-requisite for multiple classes, such as calculus 1, which is required for calculus 2 and physics, their performance in both subsequent classes was evaluated. The hope is that this additional information will help alleviate faculty concerns in

future years and encourage them to continue recommending summer courses at other institutions.

TABLE 4
SUCCESS IN SUBSEQUENT FALL CLASSES
AFTER EARNING SUMMER TRANSFER CREDIT

	Number of First- Year Students	Percent
Successful in Next Course	18	69%
Successful in Only One of Two Next Courses	3	12%
Not Successful in Next Course	5	19%

Studying the students who were not successful in their fall courses led to some future modifications to the program. Of the eight students who were unsuccessful in at least one of their subsequent fall courses, five of them retook a class over the summer in which they had previously been unsuccessful at Ohio University. Because Ohio University allows students to replace grades in classes they have retaken only at Ohio University (grades do not transfer from other institutions) these students suffered two negative consequences for their GPA: The original low grade remained, and they earned a second low grade in the subsequent class. Because of this, language on the website was revised to encourage students who needed to retake a class to do so only through Ohio University.

As this intervention continues, assessment will also include impact on GPA and time to graduation.

SCHEDULE AUDIT

The final intervention began with a schedule audit conducted over the summer of 2015, which found at least one schedule issue for more than 30 percent of all first- and second-year students' fall schedules. The most common issues were under-enrollment (less than 12 credit hours) and needing to register for a retake. Less common issues included too many hours, classes that wouldn't meet requirements, or missing a class on the critical path to graduation.

When analyzed by GPA, more than half of the students under a 2.5 GPA had at least one issue, compared to less than 15% of students above a 3.0 GPA (Table 5).

TABLE 5
FIRST- AND SECOND-YEAR SCHEDULE ISSUES, SUMMER 2015

	Below 2.5 GPA	2.5 – 3.0 GPA	Above 3.0 GPA
No Schedule Issues	44%	61%	86%
Enrolled Less Than Full Time (<12 hours)	23%	12%	5%
Needs to Register for Retake	29%	14%	2%
Other Schedule Issues	16%	13%	6%

This schedule audit took many hours and is not sustainable to complete each summer. However, now that the most common scheduling problems have been identified, we can generate lists of students who are under-enrolled or require a retake much more quickly and assist them during academic breaks when faculty advisors are less available. This will reduce last-minute schedule changes during the first week of classes or the potential delay of retaking a class until the following semester, issues that are most likely to negatively affect those with low GPAs.

So far, attempts to correct these schedule issues have been limited to group emails. Since these students can now be identified more easily, the intervention can include more personal interaction and follow-up to ensure students actually adjust their schedules. Future assessment on this intervention will include the impact of resolving schedule issues, especially among students with the lowest GPAs.

DISCUSSION AND CONCLUSION

The proactive advising initiatives described in this paper were found to be effective supplements to faculty advising. Research has shown that a welcoming climate where students feel they belong and are supported helps increase motivation [8] and retention in engineering programs [9], outcomes which these advising interventions aimed to promote through an expanded network of advising support.

The faculty referral intervention helped strengthen the connection between instructors and advisors, allowing struggling students the opportunity to receive advising assistance early in the semester. Students who participated were retained at a higher rate than those who did not. Further work in this area will depend on the outcome of the university-wide retention management software implementation, and may focus on getting more students to respond to the intervention, as well as more structured advising conversations with a goal-setting component, similar to the repeated coursework intervention.

The repeated coursework intervention found that students passed their third attempt of a class at higher rates when they signed a contract and participated in the self-assessment and goal-setting advising conversation at the beginning of the semester, compared with those who did not. Faculty advisors participated in this intervention through follow-up during registration advising, and instructors provided midterm grade reports for these students. Future work to support students repeating courses will focus on reaching students earlier, during their first failure and course retake, rather than waiting until their third attempt of a course. Interventions may include a self-guided assessment and online resource, as well as determining the effectiveness of sending regular email or text communication “nudges.”

The summer course promotion found an increase in the number of students taking summer classes through Ohio University and other institutions. Students chose to take courses to catch up or get ahead in the curriculum, although more guidance is needed for students who are retaking

courses to choose options that reduce the chance of further harm to their GPA.

Finally, the schedule audit highlighted common scheduling issues such as needing to retake a course or enroll in more credit hours, and revealed that the students most likely to need assistance were those with a GPA below 2.5. Now that specific scheduling issues have been identified, the impact of alerting students prior to the start of each semester can be assessed, with the goal of reducing scheduling changes during the semester or delays in retaking required courses.

Although preliminary results show the four advising interventions described in this paper — faculty referrals, repeated coursework interventions, summer course promotion, and a schedule audit — to be effective, challenges still remain, primarily getting students to participate in the additional advising intervention(s) and reaching students as far “upstream” as possible given limited resources. However, being proactive in outreach and coordinating efforts with faculty and instructors has shown to be an effective means of helping students feel supported, get assistance when needed, and ultimately progress toward a degree.

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AUTHOR INFORMATION

Julie Chiki Student Success Advisor, Ohio University, frenchj@ohio.edu

Russ College of Engineering and Technology Third Attempt Assessment

The following assessment is meant to help you reflect on your academic strengths and weaknesses and identify new strategies for success.

Why did you choose to attend Ohio University and pursue your current major?

What are your goals after graduation?

What have been your best classes, and what strategies did you use to be successful?

What has caused you to not to reach your full potential academically?

Academic Reasons

- ☐ Lack of study skills
- ☐ Heavy course load
- ☐ Poor time management/procrastination
- ☐ Test anxiety
- ☐ Difficult course material
- ☐ Poor attendance
- ☐ Unhappy with instructor
- ☐ Unprepared for level of difficulty
- ☐ Unsure of major
- ☐ No clear career goals or plans
- ☐ Lack of motivation
- ☐ Possible learning disability
- ☐ Other _____

Personal Reasons

- ☐ Adjustment to college
- ☐ Homesickness
- ☐ Housing/roommate issues
- ☐ Trouble making friends
- ☐ Overinvolved in activities
- ☐ Working too many hours
- ☐ Family issues
- ☐ Financial difficulties
- ☐ Injury or illness
- ☐ Use of alcohol or other substances
- ☐ Anxiety, depression, or stress
- ☐ Lack of sleep
- ☐ Other _____

To successfully complete a course in which you have previously earned a strike, you must use different strategies to expect different results. Please choose the top two reasons marked above and write a specific goal for each. (Remember, the best goals are specific, measurable, action-oriented, reasonable, and time-based. It is better to say "I will study in the library for one hour after my math course each day by reviewing my class notes and reworking problems," than it is to say "I will study more.")

Goal 1: _____

Goal 2: _____

As a Russ College student, I understand the requirement to satisfactorily complete all required major courses in three attempts or less. I acknowledge that I have one attempt remaining in _____. In order to maximize my chance of success in the course, I agree to the following: *(Student and advisor should discuss based on individual student's situation.)*

- ___ Attend all class sessions except in case of emergencies or pre-arranged absences.
- ___ Introduce myself to the professor of the class during the first week.
- ___ Read entire course syllabus, making note of all due dates and grading policies.
- ___ Check Ohio University email daily for course updates and university/college communication.
- ___ Complete a study schedule that includes a minimum of 2 hours of study time per credit hour per week.
- ___ Attend office hours ___ times per _____. (Instructor's office is located in _____).
- ___ Attend any available Supplemental Instruction sessions for this course. (Current schedule is available at www.oumobilesi.com.)
- ___ Sign up for tutoring ___ times per week. (Free tutoring is available through the Math and Science Center on the first floor of Alden Library. Learn more at www.ohio.edu/uc/tutoring.)
- ___ Complete attached assessment and goal-setting sheet.
- ___ Re-evaluate major choice and consider parallel plan: _____
- ___ Other _____
- ___ Meet with advisor for a follow-up appointment on _____.

By signing below, I understand the requirements of the Three Strikes Policy, and that failing to earn the required grade will result in dismissal from my major.

Student Name (please print): _____ PID _____

Student Signature: _____ Date: _____

Cell / Athens Phone #: _____ Email: _____

Advisor Signature: _____ Date: _____