The Importance of Reengagement: How Pearson & Peer Guides Can Assist

Self-Regulated Learning Behaviors

Self-regulated learning includes a collection of behaviors and skills which have been shown to improve student success. These behaviors include spaced practice (as opposed to cramming), starting early, and successfully reengaging after a setback. In prior research, these learning behaviors have been shown to have a stronger influence on student outcomes than known influential demographic characteristics such as first-generation, Pell eligibility, and ethnicity.[2]

As more of the learning experience moves online, these behaviors can be difficult for teachers to see, leaving some students lacking the attention and outreach which could help them improve.

Partnerships between schools and publishers can help illuminate these behaviors and the subsequent outcomes – giving school staff the data & tools to reach out to students and improve their behaviors and outcomes.

In this paper, we describe a partnership between Bluegrass Community & Technical College (BCTC) and Pearson Education, where we defined a reengagement trend behavior and used it as a flag for student outreach. Our focus was on a specific mathematics course (Contemporary Mathematics) for non-STEM major students.

Reengagement Behavior

Describe Student Session Behavior

The first step in defining the reengagement trend behavior is to describe the student behavior in individual sessions. A session is defined as total time spent working on a single activity or assignment within the Pearson product. We use the Google Analytics method[1] and group activities within a session if they happen within 30 minutes of the previous activity. This allows us to group student activity more accurately than relying on the calendar date of a timestamp, since students frequently are working across the midnight boundary.

Measuring Giving Up or Problem Abandonment from Problem to Session to Trend

We defined a new behavior – "Giving Up" or "Problem Abandonment" – at the problem, session, and multi-session trend level. Problems with which students engaged were either solved or not during a given session. If a student engaged with a problem (checking answer, getting hints, etc.) but did not solve it, they "gave up" on that problem. At the session level, this allowed us to calculate a % of problems where the student "Gave Up" (i.e., worked on but did not solve). Across several sessions, we could now build a trend which showed either positive re-engagement (abandoning less problems after a setback or bad session) or negative re-engagement (abandoning more problems).

Evaluating historical data for the MA111U Contemporary Mathematics course at BCTC showed us that the reengagement trend was a statistically significant predictor of student-course outcomes such as grades and success/DFW rate.

Reengagement Trends and Success

All Students:

Success Rate	
Success	DFW
0.66%	-3.58%

First-Generation Students:

First Gen	Success Rate	
	Success	DFW
Yes	2.16%	-2.66%

Pell Eligible:

Pell Eligible	Success Rate	
	Success	DFW
Yes	0.67%	-3.44%

Ethnicity:

Race Ethnicity	Success Rate	
	Success	DFW
Black/African American	2.81%	6.28%
Hispanic/Latino	2.66%	3.36%
White	0.33%	-7.36%

For aggregated students, as well as many of the different demographic groups, the difference in reengagement behavior between successful/failing students was significant. These data led us to design an intervention plan for an upcoming term.

Because this difference in reengagement trends across successful/failing students *exists,* it is worth trying to impact. Working together with faculty and student success we designed a new report and planned intervention for the Fall 2021 term with the same course. As part of this intervention, we worked with a Peer Guide so that the outreach would be coming from a fellow student, rather than a member of the faculty or advising teams.

Intervention & Outcomes

Intervention Plan – Fall 2021

During the Fall 2021 term, outreach was coordinated by a Peer Guide, a student at the same college, who reached out to identified students via email, text, and phone. Data were tracked & reported at the weekly level. Working together, a coordinator at BCTC, a scientist at Pearson, and the BCTC Peer Guide met to prioritize students based on their reengagement trend. Additional data points were used to identify the behaviors for spaced practice (number of homework sessions per week) and starting early.

Key goals for the student outreach were to better understand the student's issues and to use that understanding to guide the student to resources such as an embedded peer tutor, student success materials, counseling, and financial aid. Student outreach dates, methods, and notes were tracked throughout the term.

Outcomes – Fall 2021

At the end of the semester, we collected data to evaluate the impact of the outreach, both at the individual student and course levels.

Individual Student

For individual students we saw *immediate and impressive* changes in behavior following peer outreach. This was the case regardless of whether the student responded to the peer outreach.

This was especially meaningful for several student groups:
- First-Generation students 6% improvement
    - First-Gen Hispanic 11.64% improvement
    - First-Gen Female 8.21% improvement
- African American students 7.83% improvement
    - AA Females 18.05% improvement
- Pell-eligible students 8.09% improvement

Course-Level Success

Our next step was to look at course-level success rate outcomes. Working with the institution, we compared success rates (students receiving a letter grade of "A", "B", or "C") between Fall 2020 and Fall 2021 terms.

Success Rate Comparisons

Course Category	Success Rates (A/B/C grade)		Difference
	Fall 2020	Fall 2021	
16-week	37.19%	46.07%	8.88%
Hybrid	31.58%	44.16%	12.58%

For Fall of 2021 the course material remained unchanged from previous terms. The active change was tracking and outreach based on student learning behaviors.

Looking at the data, we see the success rate for the 16-week (on campus) sections has climbed from 37.19% to 46.07% (+8.88%). For Hybrid sections, success rate climbed from 31.58% to 44.16% (+12.58%). These substantial improvements brought the course success rates back to pre-COVID levels.

Summary

Based on these data from our Fall 2021 pilot, we can make strong correlational claims that behavior-based outreach (1) immediately improved the behavior for many students and (2) led to improved outcomes at the course and instruction mode levels.

These results, and qualitative feedback from students and the peer guide, have led BCTC and Pearson to expand the partnership for Spring 2022 by adding an additional course (MAT 150: College Algebra) with another peer guide while maintaining the project in the MA111U Contemporary Mathematics course.

References:

1. Analytics Help. (n.d.). *How a web session is defined in Universal Analytics*. https://support.google.com/analytics/answer/2731565?hl=en#zippy=%2Cin-this-article
2. Olsen, Jenna & Shackelford, Sydney. (2021). Intersectionality and Incremental Value: What Combination(s) of Student Attributes Lead to the Most Effective Adaptations of the Learning Environment?. 10.1007/978-3-030-77857-6_41.