Early Intervention for Struggling Online Graduate Students: Processes and Short-Term Outcomes

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Declining enrollment, attrition, financial pressures, and questions about the value of a degree are creating pressures for higher education institutions, even forcing some to merge or close (Lederman, 2019a). At the same time, enrollments in online courses and programs continue to grow, albeit at a slower pace than in the recent past, especially among students who are studying exclusively online (Lederman, 2019b). As the fastest-growing segment of US higher education (Lederman, 2019b), online education is being expanded at many institutions, primarily as a strategy for replacing dwindling revenue (Pelletier, 2012). With the proliferation of online course and program offerings at institutions of all types, there is significant competition for students. To remain viable, many institutions are launching programs to attract new students, such as those of non-normative ages (e.g., working adults), enrolling less qualified students, and/or creating distance programs to attract students from beyond the local area (Sapiro, 2019).

The new student majority consists of non- or post-traditional students (Mintz, 2019), many of whom received an uneven high

school education, are among the first in their family to attend college, speak English as a second language, and/or juggle their studies with work and/or caregiving responsibilities. Online students tend be older, have children, work full time, and be single parents (Layne, Boston, & Ice, 2013). Further, for some online students, a significant amount of time has passed since they were enrolled in a university (Babcock, Lehan, & Hussey, 2019; Layne et al., 2013).

Online education can be attractive for myriad reasons, including its accessibility (Sutton, 2014). However, retention can be a challenge for many online programs (Mulijana & Luo, 2019). In particular, online graduate programs might struggle to retain students to an even greater extent than undergraduate programs (Sutton, 2014), as these students often have responsibilities that can impede continuous enrollment (Howell, Laws, & Lindsay, 2004). With the rising popularity of online master's (Blagg, 2018; Fain, 2018) and doctoral (Kumar & Coe, 2017) programs, graduate students (40%) are more likely than four-year (34.5%) and two-year (33.8%) undergraduate students to take at least some of their courses online (Lederman, 2019b). While enrolling more working adult students who have numerous (and sometimes competing) responsibilities and/or might be less prepared for success in the current higher education system, institutions are now putting more

and different types of supports in place to promote learning and success among students at all levels from diverse backgrounds.

Early Interventions

Online students reportedly desire many of the same support services that are traditionally offered to students at brick-and-mortar institutions, including academic coaching and tutoring (Payne, Hodges, & Hernandez, 2017). However, if struggling students do not seek learning assistance on their own or after encouragement or a referral by a faculty member as appropriate, another mechanism for connecting them with these services might be needed (Babcock et al., 2019). It is possible that some students do not make satisfactory academic progress because they do not access the amount and/or type of ongoing assistance that they need to learn and succeed at a sufficiently early stage (Babcock et al., 2019).

To identify and assist as early as possible students who might benefit from additional learning assistance, some institutions have developed and implemented early-alert and/or early-intervention mechanisms (Villano, Harrision, Lynch, & Chen, 2018). Early identification is crucial, especially because many students who need additional support, including from learning assistance centers (academic coaching/tutoring, library), often do not seek it themselves or even when a faculty member encourages or directs them to do so (Babcock et al., 2019). To continue to address the problem of early attrition proactively, formalized early

interventions can be developed (Muljana & Luo, 2019) collaboratively to provide (from the initial invitation through the intake session and associated recommended services/coaching plan) personalized co-curricular learning assistance to students struggling to meet performance expectations at the start of their program.

Although many different early-alert or early-intervention programs exist, research on their effectiveness is scarce. Without such investigations, institutions are at risk of wasting valuable resources and/or missing opportunities to support students as effectively as possible. This work aims to fill a gap in the literature by describing the process and outcomes associated with an early intervention implemented at one open-access graduate-focused online university. This intervention can be adapted as appropriate and employed at institutions offering co-curricular learning assistance for online students to improve educational opportunities for all.

Context of Study

At one open-access graduate-focused online institution, historical evidence suggested that students' performance on the first assignment in the first course was an important indicator of future success. In mid-2018, almost 80% of students who earned a failing grade on the first assignment in their first course were no longer active 20 weeks later. Around the same time, results of a formal needs assessment showed that students who worked with an

academic coach early in their program might have a greater likelihood of persistence (Babcock et al., 2019).

It also was found that students who self-selected to participate in academic coaching while in their first three courses had a significantly higher persistence rate than the general university population, as evidenced by their vesting in the fourth course. Following a baseline examination of academic coaching usage data at the university, it was found that few students were engaging with an academic coach on an ongoing basis while in their first three courses, even though it is during this time that they are most vulnerable to attrition. Overall, approximately 9% of students who participated in academic coaching were in their first three courses. Specifically, during this 8-month period, 75 students (an average of ~9/month) in their first three courses worked with an academic coach in 228 sessions (an average of ~3 sessions each). Of those 75 students, at follow up 4 to 6 months later, 53 (70.6%) had already persisted and vested in their fourth course. This persistence rate associated with students who worked with an academic coach while in their first three courses was found to be significantly greater than that of the general student population, $z = -2.550$, $p = .005$. Therefore, it seemed possible that students' choosing to work with an academic coach early in their program might be associated with greater persistence among students.

Method

The purpose of this applied research study was to investigate the extent to which students in an early intervention differed from (1) a matched sample of students in the same course with the same faculty member at the same time as well as (2) the general student population at the university. The outcomes of interest were first course final grade and persistence rate 20 weeks later. Given the study purpose, a quantitative methodology and causal-comparative design were employed.

Participants

Thirty-nine online graduate students who earned a failing grade on their first assignment in their first course after submitting it on time were included in the early intervention sample. Of these students, 28 (71.8%) participated in an intake session designed to share information about learning assistance services and learn more about their unique needs. Six of these students who participated in the intake session ultimately decided not to use these services after hearing about them, frequently because their reported reason for failure was personal or exceptional, such as the death of a loved one or technological difficulties. Consequently, 22 (56.4%) of the 39 eligible students expressed interest in additional learning assistance, and the learning center coordinator recommended a tier of service at which they should start based on their unique needs. There are three tiers of service at the learning center: Tier 1, posted self-

directed resources; Tier 2, live chat; and Tier 3, asynchronous and synchronous coaching.

Procedure

Over a four-month period, all students who (1) submitted their first assignment in their first course on time and (2) earned a failing grade were identified by the Academic Advising team. Students who earned a failing grade because they submitted the assignment late or not at all were excluded, as the goal was to identify students who would benefit most from additional learning assistance (as opposed to support in time management, for example) to align with the current services offered by the university learning center. This list of students was sent to the center's coordinator, who made three attempts to contact each student using phone and email.

Once the recruitment period ended, a request was sent to an external team member who was not aware of the purpose of the study to create a matched sample of students in the same course at the same time with the same faculty member as those students who expressed interest in additional learning assistance. In addition, demographic and academic data were requested for all eligible students in the early intervention and matched samples. Ultimately, three samples were created. The Accept sample included those students who met the eligibility criteria and agreed to participate in learning assistance services following the intake session. The Decline sample included students who met the eligibility

requirements and either did not respond to the invitation from the coordinator or decided not to participate in learning assistance services following the intake session up until data analysis. The Matched sample included students who (1) were in the same course with the same faculty member at the same time as a student in the Accept sample and (2) did not participate in academic coaching.

Analysis

To understand more fully the short- and mid-term student outcomes associated with participation in an early intervention designed to meet students' unique needs, several analyses were completed. To investigate differences across groups in the short term relating to first course final grades, a Kruskal-Wallis H test was conducted. To examine the extent to which the proportion of students in the early intervention who were no longer active at the institution differed significantly from the known value of 80%, a binomial test was run. To analyze midterm differences in persistence 20 weeks after completing their first assignment, a Fisher's exact test was done.

Results

Certain courses, faculty members, and advisors were overrepresented in association with the sample of students who failed their first assignment in their first course after submitting it on time. In six courses, three or more students failed the first assignment after submitting it on time. Two faculty members were

working with three or more of the students who met the eligibility requirements. One of them was working with seven students, whereas the other was working with three students. Similarly, three or more students failed their first assignment after submitting it on time while working with one of three advisors. One of the advisors was working with eight students, whereas the other two advisors were working with three students each.

Using their professional judgment, the learning center coordinator recommended that 10 students participate in Tier 3, ongoing one-on-one academic coaching, the highest tier of support available at the learning center. They suggested that the other 12 students use Tier 1 (posted self-directed resources) and/or Tier 2 (live chat) services. Whereas all 10 of these students scheduled an initial session with an academic coach, 3 of them never attended (1 cancellation, 2 no shows). Four of those students had a long-term coaching plan, with the other three students only attending one session. Two of the students on a long-term plan continued coaching into their next course and were still actively attending coaching at the 20-week follow up.

According to the students who participated in the intake session, common reasons why they failed their first assignment in their first course included (1) access issues (e.g., no access to email), late access to the course (e.g., Friday access when an assignment is due on Sunday), difficulty navigating the course room (e.g., difficulty

uploading assignments); (2) a lack of clarity regarding expectations of scholarly writing (e.g., not knowing or understanding APA style and the importance of using it, lack of understanding of the importance of proper formatting and grammar); and (3) unwillingness and/or inability to navigate work and family life as well as manage time effectively.

Table 1 shows the descriptive statistics associated with the students who met eligibility requirements who both accepted and declined learning assistance services as well as those in the Matched sample. Except for one student from Germany in the Accept sample, all students who reported residency information lived in the United States. (Country of residency information was not available for one student in the Decline sample and two students in the Matched sample.)

Table 1

Descriptive Statistics for the Three Groups of Students

Sample	Age	Race	Gender	Years Since Basis-for-Admission Degree
Accept Sample	$\bar{x}$ = 51.8 (SD = 11.9)	8 – Black/African-American 6 – White 6 – Not Reported 2 – 2 or more races	11 – Female 6 – Male 5 – Not Reported	$\bar{x}$ = 10.4 (SD = 7.2) M = 9.5 IQR = (5, 15.75)
Decline Sample	$\bar{x}$ = 45.8 (SD = 13.0)	10 – Black/African-American 4 – White 2 – Not Reported 1 – Hispanic/Latino	9 – Male 6 – Female 2 – Not Reported	$\bar{x}$ = 10.6 (SD = 11.9) M = 7.0 IQR = (3,12)
Matched Sample	$\bar{x}$ = 40.9 (SD = 10.0)	9 – White 6 - Black/African-American 2 – Hispanic/Latino 2 – Not Reported 1 – American Indian/Alaska Native 1 – Asian 1 – 2 or more races	17 – Female 4 – Male 1 – Not Reported	$\bar{x}$ = 4.5 (SD = 5.2) M = 2 IQR = (1,5)

Among the 39 students who met the eligibility criteria, the average age was 49.21 years (SD = 12.6). In addition, 18 of these students identified as Black/African-American, 10 identified as White, 2 identified as 2 or more races, and 1 identified as Hispanic/Latino. This information was not available for eight students. Furthermore, 18 of these students identified as female, and 15 identified as male. This information was not available for six students. Compared to these samples, the Matched sample tended to be more racially diverse and include more women, although these differences were not statistically significant. The only significant differences across groups were related to age, $H(2) = 8.435$, $p = .015$, and time since obtaining the basis-for-admission

degree, H(2) = 10.957, p = .004. Specifically, students who failed their first assignment in their first course who accepted learning support were significantly older than those in the Matched sample. In addition, the number of months since degree attainment was significantly lower for those in the Matched sample than those in the Accept and Decline sample

First Course Final Grades

Not surprisingly, a greater proportion of students in the Matched sample earned a final grade of A in their first course than students who earned a failing grade on their first assignment. However, a greater proportion of students in the Matched sample also earned a final grade of F in their first course than students who accepted or declined participation in learning assistance services after failing their first assignment. Moreover, a similar proportion of students in the Matched sample withdrew compared to those in the samples of eligible students who both accepted and declined learning assistance services. (Note: A No Grade disposition was given when there were circumstances beyond a student's control [e.g., life events] that prevented them from being successful in a course.) Table 2 shows the first course final grades for the students in the early intervention and matched samples. When grades were collapsed into two categories (earned a passing grade/did not earn a passing grade), there were no statistically significant differences across groups, $X^2(2) = .515$, p = .773. Therefore, although they earned

a failing grade on their first assignment in their first course, which presumably factored into their final grade, both the students who accepted learning assistance and those who declined it earned a similar final course grade to their peers in the Matched sample who did not fail their first assignment.

Table 2.

First Course Final Grades for the Three Groups of Students

	A	B	C	F	Withdrew	No Grade
Accept Sample	2 (10.5%)	5 (26.3%)	3 (15.8%)	7 (36.8%)	2 (10.5%)	3
Decline Sample	5 (29.4%)	5 (29.4%)	1 (5.9%)	4 (23.5%)	2 (11.8%)	0
Matched Sample	13 (59.1%)	0	0	7 (31.8%)	2 (9.1%)	0

Persistence 20 Weeks Later

Among the 39 students in the early intervention, 51.3% of them were still active after 20 weeks. Results of a binomial test showed that persistence rate is statistically significantly lower than the known institution rate of 80% ($p < .001$). Table 3 shows the enrollment status of the students in the early intervention and matched samples. Results of a Fisher's exact test showed that there was no statistically significant difference in the likelihood of being active 20 weeks later across the three samples, $\chi^2(2) = .727$, $p = .77$.

Table 3.

Enrollment Status 20 Weeks Later for the Three Groups of Students

	Active	No Longer Active
Accept Sample	10 (45.5%)	12 (54.5%)
Decline Sample	10 (58.8%)	7 (41.2%)
Matched Sample	11 (50%)	11 (50%)

Discussion

The purpose of this applied research study was to investigate the extent to which students in an early intervention for students who earned a failing grade on their first assignment differed from both a matched sample of students in the same course with the same faculty member at the same time and the general student population in terms of their (1) first course final grade and (2) persistence rate 20 weeks later. Although they earned a failing grade on their first assignment in their first course, which presumably factored into their final grade, both the students who accepted learning assistance and those who declined it earned a similar final course grade than their peers in the Matched sample who did not fail their first assignment. From a persistence standpoint, this initiative can be deemed to be mostly successful so far. It was determined at the time during which this early intervention was developed that 80% of students university-wide who failed their first assignment in their first course were no longer active 20 weeks later. However, only 54.5% of students who accepted learning support and 41.2% of students who declined

learning support were no longer active after 20 weeks. At the same time, only 50% of the students in the Matched sample were no longer active at follow up.

Overall, although they failed their first assignment, there were few statistically significant differences between students in the early intervention, regardless of whether they accepted or declined learning support, and those in a matched sample, including in their first course final grades and enrollment status 20 weeks later. Ideally, the outcomes of students who participate in learning assistance services should be superior to those of students who choose not to participate. However, it is possible that the learning support professional's reaching out and students' knowledge that services are available if they need them explain at least some of the variance in students' outcomes.

Key Takeaways

The results of this study offer insights into the perspectives and experiences of students who struggle at the start of their program. Such insights can inform continuous improvement efforts relating to student learning and retention at the university at which the early intervention was implemented and beyond. The students who declined support cited personal or exceptional circumstances (e.g., illness, extremely late course access, and course navigation difficulties), rather than academic challenges in association with their lack of success on the assignment. The only significant

differences across groups that were found related to student age and length of time since attainment of the basis-for-admission degree. Specifically, students who accepted support were significantly older and students who declined support had a longer gap in time since earning their degree. In addition, several courses and faculty members were overrepresented in association with students' failing to meet expectations on the first assignment in the first course. These findings might be due to faculty assignment bias or within-course scaffolding misalignment. It might be worth examining (1) the first assignment in these courses to explore the extent to which the course content and interactions prepare students to succeed on their assignment and (2) the faculty members' practices in relation to expectations and conventions in the school.

Students who failed their first assignment but declined learning support persisted at a similar rate as both students who accepted support and students in the Matched sample. This finding might be explained by students' who declined support citing personal or exceptional circumstances (e.g., illness, extremely late course access, and course navigation difficulties), rather than academic challenges in association with their lack of success on the assignment. In addition, students who accepted learning support persisted at approximately the same rate as those in the Matched sample who earned a passing grade on the first assignment in the first course. Therefore, it seems that personalized intervention immediately

following failure seems to be effective in ameliorating the risk of early attrition among students who earn a failing grade on the first assignment in the first course.

Potential Next Steps

Although the sample was relatively small in size, it was representative, as all students who failed their first assignment in the first course were included. Further, a matched sample of students was created to increase confidence in the findings. Nevertheless, given that little time had passed since the study ended, it is unclear to what extent the effect of early personalized learning support on student success persists over time. The promising preliminary findings warrant moving towards a broader longer-term evaluation following these groups of students through graduation.

Moreover, outreach efforts aimed at supporting student learning and achievement should be personalized in nature. If students feel as though faculty and staff members care about them personally as unique individuals, it can have a positive impact on their outcomes, including persistence and graduation (Kezar & Maxey, 2014). Also, as was done in this study, use of the students' preferred communication modality (e.g., phone, text, teleconference, email, chat) and availability during days/times when they are prepared to learn are critical. Beyond simply explaining the services and support that are available to them, it is important first to seek to

understand each student's strengths, growth areas, and needs before developing a personalized support plan. Special attempts at outreach should be made for students trending older and students with a longer gap in time since obtaining their basis-for-admission degree.

Limitations

The findings of this study should be considered in light of the following limitations. Although a matched sample of students in the same course with the same faculty member at the same time was included in the analyses, student pairs sometimes differed in demographic characteristics (e.g., sex/gender, race/ethnicity) when an exact match was not available. These and other factors might partially explain these findings. In addition, due to group sizes, no preliminary analyses were conducted to examine differences between (1) the 28 students who responded to the initial invitation and the 11 who did not, (2) the 22 students who accepted learning assistance and the 6 who did not, and (3) the 7 students who participated in the scheduled initial session and the 3 who never attended. Furthermore, both students who did not respond to the invitation from the coordinator and those who decided not to participate in learning assistance services following the intake session were included in the Decline sample. Future researchers might investigate whether meaningful differences exist between these groups to understand more fully the relationship between

participation in live one-on-one synchronous academic coaching and persistence.

Moreover, due to system constraints, although students were encouraged to use the various tiers of learning assistance based on their unique needs, only the interactions of those who participated in live one-on-one synchronous academic coaching could be tracked. That is, it was not possible to determine the extent to which specific students used posted resources (Tier 1) or live chat (Tier 2). Future researchers might track all interactions that students have with the learning assistance center to develop a more complete picture of the center's impact on student outcomes, including persistence. Finally, a notification was sent to the learning center coordinator, who invited the student to an intake session, once the student earned a failing grade on the first assignment in the first course. It is possible that some faculty members allowed students to redo these assignments or earn additional points in some other way. Future researchers might exclude those students if they are interested in examining the relationship between participation in live one-on-one synchronous academic coaching and final course grades.

Conclusion

Institutions increasingly are being held accountable with respect to program outcomes, including completion rates. To remain viable, some institutions that offer online courses and programs are

attempting to boost enrollments by targeting students of non-normative ages to include working adults and less qualified students. Therefore, they must continuously develop and evaluate programs and services aimed at supporting the learning and success of students from diverse backgrounds with varying and sometimes competing responsibilities. The intervention evaluated in this study can be adapted as appropriate and employed easily at institutions offering co-curricular learning assistance (e.g., academic coaching/tutoring, library research consultations) for online students. In addition, this work can begin to build an empirical foundation in the literature on open and distributed education to promote understanding of online graduate student experiences and outcomes. Future investigations might focus on the extent to which these (1) processes and outcomes are achieved at other institutions and (2) promising preliminary findings endure in the longer term.

Acknowledgments

We would like to thank Dr. Sara Northern for providing excellent learning assistance to all the students in the early intervention. We also express our sincerest gratitude to Dr. Ramon Daines, who facilitated student outreach and interviews. Further, we are thankful to Ian Cooper and Erika Mendoza for overseeing the student-identification process for the intervention and matched samples, respectively.

References

Babcock, A, Lehan, T., Hussey, H. D. (2019). Mind the gaps: An online learning center's needs assessment. *The Learning Assistance Review, 24*(1), 27-58.

Blagg, K. (2018). The rise of master's degrees: Master's programs are increasingly diverse and online. https://www.urban.org/sites/default/files/publication/99501/the_rise_of_masters_degrees_1.pdf.

Howell, S., Laws, D., & Lindsay, N. (2004). Reevaluating course completion in distance education. Avoiding the comparison between apples and oranges. *The Quarterly Review of Distance Education*, *5*(4), 243-252.

Fain, P. (2018, December 12). Master's degrees more popular, increasingly online. https://www.insidehighered.com/quicktakes/2018/12/12/masters-degrees-more-popular-increasingly-online

Kezar, A., & Maxey, D. (2014). Faculty matter: So why doesn't everyone think so? *Thought & Action*. http://www.nea.org/assets/docs/HE/e-Kezar.pdf.

Kumar, S., & Coe, C. (2017). Mentoring and student support in online doctoral programs. *American Journal of Distance Education*, *31*(2), 128-142.

Layne, M., Boston, W. E., & Ice, P. (2013). A longitudinal study of online learners: Shoppers, swirlers, stoppers, and succeeders as a function of demographic characteristics. *Online Journal of Distance Learning Administration*, *16*(2), 1-12.

Lederman, D. (2019a). *The incredible shrinking higher ed industry*. *Inside Higher Ed*. https://www.insidehighered.com/news/2019/10/14/higher-ed-shrinks-number-colleges-falls-lowest-point-two-decades.

Lederman, D. (2019b). *Online enrollments grow, but pace slows.* https://www.insidehighered.com/digital-learning/article/2019/12/11/more-students-study-online-rate-growth-slowed-2018.

Mintz, S. (2019, October 3). Why higher education will change: Innovation in higher education is not an option. It is essential. [Blog Post]. *Inside Higher Ed*. http://www.indiehighered.com/blogs/higher-ed-gamma-why-higher-education-will-change.

Muljana, P. S., & Luo, T. (2019). Factors contributing to student retention in online learning and recommended strategies for improvement: A systematic literature review. *Journal of Information Technology Education Research, 18*(1), 19-57. doi: 10.28945/4182

Payne, E. M., Hodges, R., & Hernandez, E. P. (2017). Changing demographics and needs assessment for learning centers in the 21st century. *The Learning Assistance Review*, *22*(1), 21-36.

Pelletier, S. G. (2012). Rethinking revenue. *Public Purpose*, 2-5. https://emp.nacubo.org/wpcontent/uploads/2018/05/12summer_p2_RethinkingRevenue.pdf.

Sapiro, V. (2019). Working paper: The life course of higher education institutions: When the end comes, 1890-2019. http://blogs.bu.edu/vsapiro/files/2019/02/SapiroWhenthe EndComes2019-1.pdf.

Sutton, R. (2014). Unlearning the past: New foundations for online student retention. *Journal of Educators Online, 11*(3), 3-34.

Villano, R., Harrison, S., Lynch, G., & Chen, G. (2018). Linking early alert systems and student retention: A survival analysis approach. *Higher Education: The International Journal of Higher Education Research*, *76*(5), 903-920. doi: 10.1007/s10734-018-0249-y