The Living Textbook: Open Educational Resources for Engagement, Equity, and Inclusion to Support Student Learning Outcomes and Retention in an Entry-Point Course at an Asynchronous Online University

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The online open-access university in this study has championed diversity, equity, and inclusion (DEI) as values to be woven consciously throughout all student-facing initiatives. In support of the institution's mission to "transform the higher education landscape and make it accessible to everyone, no matter their background or circumstance," the GEN 101 Open Educational Resources Pilot project was initiated. Open Educational Resources (OER) (such as textbooks, supplemental materials, resources, etc.) also support the institution's mission by providing cost-saving learning materials that will remain accessible to students for perpetuity. The key objectives of the study were to create relatable and inclusive materials that increased a sense of belonging and to determine the effectiveness of OER on student retention and student learning outcomes. As a result, the GEN 101 OER Pilot Project team created a repository of OER for this entry-point course that was relevant, current, and reflective of the needs of diverse open-access students that supported student learning outcomes and faculty classroom engagement. Keywords: open educational resources, OER, open access, entry point, online education, DEI

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Introduction

Open-access universities are defined as degree-granting institutions that do not restrict admissions based on traditional metrics such as test scores, high school grade point average, etc. (Mathuews & Pulcini, 2017). However, serving open-access students also brings many challenges, such as financial constraints, work-life balance issues, and academic support needs. Specifically, with online students, there are additional barriers, such as technology and socialization issues. Consequently, ensuring course materials meet the needs of these students is a priority. Instructors often seek supplemental resources as these students often enter the classroom with additional academic needs. Considering the student, it is important to make these resources available at no extra cost to the student. One way to do that is by having faculty create resources aligned with the course learning outcomes. In particular, faculty have found that by incorporating Open Educational Resources (OER), they can provide university-branded supplemental resources to their students at no additional cost to the student. Open Educational Resources are defined as full courses, course materials, modules, textbooks, streaming videos, tests, software, and other tools and materials used to support access to knowledge (Anstey, 2016).

The use of Open Educational Resources (OER) with open-access students in an online university entry-point course supports social learning theory (SLT) while also offering several practical implications for using OER in the entry-point classroom (Li et al., 2023). First, SLT emphasizes learning through observing, imitating, and modeling the behaviors of others that lead to favorable outcomes (Couros & Hildebrandt, 2016). In addition, the use of OER allows open-access students to learn from various modalities that can be aligned with their demographics. Next, OER can help build a professional learning community where a sense of belonging is built from engagement with materials that help students feel a part of the classroom (Al Abri

et al., 2022). Finally, OER aligns with SLT by having inclusive and accessible materials. By leveraging these and other components of social learning theory, OER can be used in an entry-point course to increase the sense of belonging and inclusion students need to be successful in college.

The Gen 101 OER Pilot, a University Fellows Program grant-funded project, was initiated to foster feelings of academic belonging and inclusion for open-access college students in an entry point course. GEN 101 is the first course most students enroll in when matriculating. The purpose of the GEN 101 course is to ease the transition to college, develop essential life skills, foster personal and professional growth, and promote a sense of connection to the university. In doing so, this course serves as the foundation for a more equitable and inclusive classroom experience by fostering a sense of belonging, promoting a deeper understanding of differences, and supporting new open-access students. The course learning outcomes center on helping students develop skills and strategies for success. The study supported course learning outcomes by utilizing, translating, revising, and adding to existing Open Educational Resources (OER) and providing a diverse representation of materials. The 100% online institution primarily serves open-access students whose chances are often limited by many kinds of inequality, including social, income, racial, ethnic, gender, and ability. The GEN 101 OER Pilot Project aimed to be a part of a corrective process to increase equity and fairness for marginalized and minoritized populations by reducing gaps in opportunity and achievement through systematic efforts.

The GEN101 OER Project aimed to determine the effects of OER implementation on student achievement and student learning outcomes by including various learning activities, constructive feedback review, leveraging support networks, upholding academic integrity, and developing a comprehensive personal development plan. Furthermore, we examined the correlation between OER usage and student retention rates within the GEN 101 course. To gain deeper insights, we analyzed students' perspectives on their OER experiences, including their perceived value and challenges as new college students. Finally, we gathered faculty feedback on the advantages and limitations of integrating OERs into their teaching practices.

This study investigated the effect of open educational resources on GEN 101 students and faculty. Specifically, the research addressed the following questions: 1) What effect does the use of OERs have on supporting GEN 101 student learning outcomes related to specific learning activities in the course? 2) How do OERs affect student retention in the GEN 101 course? 3) How do students speak about their use of GEN 101 OERs? 4) How do instructors speak about their use of GEN 101 OERs? 5) How does using the DEI rubric impact GEN 101 OER resources? By exploring these questions, this study will contribute to a deeper understanding of the effective use of open educational resources in general education courses.

Literature Review

The GEN 101 OER Pilot Project was developed in response to the institution adopting the following pillar values: equity, empowerment, innovation, quality, guidance, and belonging. To support a culture that embraces these values, the institution encouraged full-time and associate faculty to attend the Beegle Poverty Coaching Institute developed by Dr. Donna Beegle, Communication Across Barriers. One of the two authors is a certified Beegle Poverty Coach after completing a two-day Beegle Poverty Immersion Institute. The transformational training became the impetus for this study to help meet the needs of the entry point course at the institution.

Online Education and Challenges

Online education has evolved from early correspondence courses to massive open online courses (MOOCs) to platforms powered by artificial intelligence and modeled after social media platforms like TikTok (Fiallos et al., 2021; Vrana, 2021). Thus, the challenge is finding ways to share information with students using engaging methods that mirror how modern-day students learn. Using diverse modalities that support active learning and an interdisciplinary approach in the classroom is why learning tools like podcasting are valuable tools for sharing knowledge (Diphoorn & Leyh, 2023). Busy working students are looking for ways to streamline their study time and earn their degree efficiently in the least amount of time due to personal and financial constraints (Panacci, 2015). The nature of online education can cause students to feel isolated and sequestered at home, more so than they may feel on an on-ground campus where students have physical access to their instructors and classmates, as well as various academic supports or on-campus social groups and networks (Gillett-Swan, 2017).

Non-Traditional Students: Definition and Needs

Online students tend to be nontraditional. The National Center for Education Statistics (n.d.) defines non-traditional students as those over 24 years old, often with families or dependents, and employed full-time, along with other competing priorities. The definition acknowledges other variables impacting success, such as race, gender, lack of high school diploma, delayed postsecondary enrollment, and off-campus residency and access.

The online university in this study has an open-access model serving non-traditional students. The demographic consists of adult and military students, many of whom are first-generation college students, parents, underserved populations, and working adults seeking to improve their career prospects. At our online university, students have an average age of 35; 55% have dependents; 75% are employed full-time; 37% of our students are first-generation college students; half of entering undergraduate students are eligible for Pell grants; 26% are associated with the military and receive military funding; 69% of our students are female; 19% are Hispanic; 30% are Black or African American, and 40% are White, and they are predominately women.

Non-traditional students typically have more diverse needs than traditional post-high school students in the 18–21-year age group and have lower course and program completion rates (Ellis, 2019, p. 24). Since early course success has been linked to longer-term persistence (pp. 29-30), this pilot sought to use OER to address our students' higher attrition rates and support course and program persistence. When working with nontraditional students, there are some challenges, which can include time conflicts, educational skill gaps, academic anxiety, low confidence, past negative learning experiences, financial limitations, generational poverty, systematic racial, ethnic, or class inequities, and lack of support and representation. The fear of being stigmatized for their learning gaps means that some adult students may not reveal they do not know academic basics and rely on themselves instead of asking for help when needed. When working with nontraditional students, it is necessary to have flexibility, accessibility, and convenience in the learning environment to support their struggles with competing demands for their time (p. 25). OER can provide convenience, affordability, and flexibility that support the learning needs of adult college students. The resources created in this pilot were intentionally asynchronous, instant access, and available in formats that students could optionally view while in transit or multitasking.

Reducing anxiety and building self-confidence have been shown to boost student success (McKinley, 2013). Positive interactions with students, including demonstrating empathy and providing helpful resources, can ease students' college anxiety by boosting their self-confidence. Sharing resources allows instructors to share personal challenges and experiences with writing and research, thus showing students, they understand their struggles. Sharing learning support resources presents a fantastic opportunity to connect with individual online students. According to Bowe and Auchinachie (2022), connections in the community, at home, and the postsecondary institution sometimes make the difference [for students] between achieving their goals and giving up. By providing resources that address the specific needs of nontraditional students, instructors demonstrate that they understand the needs of their students. Proactively offering resources for non-academic challenges helps destigmatize these issues so nontraditional students understand they are not alone in facing them as part of their college experience.

University Pillars for Initiatives

Equity

Equity evolves in an institution when it is understood that everyone does not start from the same point in life. The institution adopted a general definition that defines a culture of equity as one in which everyone is treated with dignity and fairness. It is this foundation that undergirds the belief that innovative strategies for equity are needed to support students. The DOERS3 Equity Work Group, a team within the Driving OER Sustainability for Student Success (DOERS3) Collaborative, is a group of 36 public higher education systems and statewide/provincewide organizations committed to supporting student success by promoting free, customizable OER. The DOERS3 Collective found that equity has always been a goal of OER expansion across all educational sectors (2021). Making equity the norm at this institution required recognition and acknowledgment that there are a variety of inequities in our society – most stemming from socio-economic status. The equity touchpoints include access to, participation in, persistence through, and completion of quality educational programs across the student population (DOERS3 Equity Work Group, 2021). The OER approach to closing the equity gap includes eliminating the costs of textbooks and supplemental materials,

making course materials available on the first day of class, incorporating representations of diverse cultures within course materials, and ensuring that the materials are reviewed and updated more frequently than traditional publishing company textbooks and materials, keeping the information relevant and engaging. Using OER sends a clear message to students that they belong, matter, and are cared for and that the university is doing everything possible to support their well-being (Shannon, 2022, p.2; Atlas, 2020).

OER offers democratic and equitable access to knowledge, regardless of income level, if there are no technology barriers. OER can support life-long and non-formal learning by being available to people outside the formal educational system, regardless of age and previous studies. OER can offer more diversified knowledge than traditional textbooks. OER can create more dynamic experiences for learners who can take part in the creation of educational resources (Vrana, 2021, p. 579). Representatives of the University of Texas at Arlington believe "open education reduces barriers, empowers learners, and connects the academy to the world it serves" (SPARC, 2019, p. 6).

Empowerment

The institution adopted a global definition of empowerment that encompasses giving students the tools they need to achieve their academic and professional goals. According to research from the Lumina Foundation and Gallup (2024), not only were women and people of color less likely to feel belonging, respect, and support in their programs, but it was also reported that the cost of credentials/degrees is a barrier to adults considering higher education. Thus, when the costs of textbooks and supplemental reading materials are decreased, the benefit is most significant to students (University of Memphis, 2024). In addition, OER has expanded access to learning, support for lifelong learning, pedagogical benefits, and enhanced student outcomes (Adil et al., 2024), leading to empowerment beyond the classroom.

Innovation and Quality

The institution also adopted a generalized definition of quality to mean an unsurpassed and high-caliber program, including the degree program's design, expert faculty, quality teaching materials, and unsurpassed support for students and faculty. When using or remixing existing OER materials, there are opportunities for others to review work and make corrections or improvements to increase the quality and relevance of the materials. OER generally allows for reuse, enabling others to include innovative ideas for their contexts (Vrana, 2021, p. 579). One concern for many faculty members is the fear that OER quality does not measure up to traditional publishers' standards. In fact, most OERs are created not only by subject matter experts but also by institutions, non-profit organizations, government agencies, students, and other independent creators (Anstey, 2016). Not all OERs are peer-reviewed; however, most undergo a formal or informal peer-review process (Mickel & Scida, 2023). The ability to update, reuse, and remix these materials is unique from traditional academic publishers.

Guidance

Guidance is best understood at the institution in the context of providing an encouraging and supportive environment in which faculty, staff, and students can learn and grow. Providing faculty training in selecting, using, re-purposing, and adapting OER allows them to lean into their training and experience to create high-quality educational materials that benefit students and the university. This nurtures a feeling among faculty of being heard and appreciated, promoting a desire for faculty to become even more involved in creating teaching materials. In choosing to use OER in the entry point course, faculty supported the institution's mission by demonstrating their desire to support students "where they are," thereby encouraging them on their educational journeys with relevant materials representing their experiences. By using OER, we truly demonstrate the importance of an increased sense of belonging, which is key to student success (Strayhorn, 2018).

Belonging

Belonging is defined as the extent to which individuals feel valued, accepted, and connected to their respective college community (Halse, 2018). A sense of belonging can increase student motivation and engagement, improve academic success, enhance mental health, and lower absenteeism in class (Bowen, 2021; West, 2022). Creating a sense of belonging in an online environment can be challenging, especially when it is a solely asynchronous learning experience, as in this pilot study.

Methodology

The GEN 101 OER Pilot Project explores the impact of the use of GEN 101 OER on GEN 101 faculty and GEN 101 students. The target populations for this study were GEN 101 faculty and GEN 101 students. The faculty target goal was twenty from a population of approximately one hundred twenty-five faculty members. The student target was approximately one hundred sixty from a population of 800 (students starting the course). Quota sampling was used for both faculty and students. Consequently, fifteen GEN 101 faculty members were recruited via email from a population of one hundred thirty faculty members. In week four of the fifteen courses, students were invited to complete a voluntary, anonymous survey. The number of students at the end of the five-week course was 302, with 95 completing the student survey. All fifteen faculty completed the survey (two completed the survey twice).

The study used survey data and existing institutional data. Survey data allowed for a more manageable data collection method from the sample of faculty and students. The study relied on survey data, which allowed for a more manageable data collection method from the sample of faculty and students. Subject matter experts reviewed the surveys for question validation. The surveys had structured and unstructured questions for a more complete statistical analysis. The anonymity of the survey was beneficial to the students, and faculty could also optionally select a pseudonym. The unstructured questions allowed students and faculty to be more honest to limit response bias. The student survey had ten questions, including yes/no, ranking, and open-ended questions. The faculty survey had ten short answer questions. The 100% survey faculty completion rate and the 31% student survey completion rate mean the survey completion rate is significant. Specifically, a 20-25% response rate is considered acceptable for online surveys; this study had a 30% rate (Edwards, 2024; Holtom et al., 2022). Institutional data provided the historical context for the course, and it was reliable and cost-effective. Researchers used course learning outcome data that showed the difference in course learning outcome performance of students scoring proficient and above from week to week on written assignments. This granular data allowed the researchers to focus on the area of most significant concern, which was writing goals.
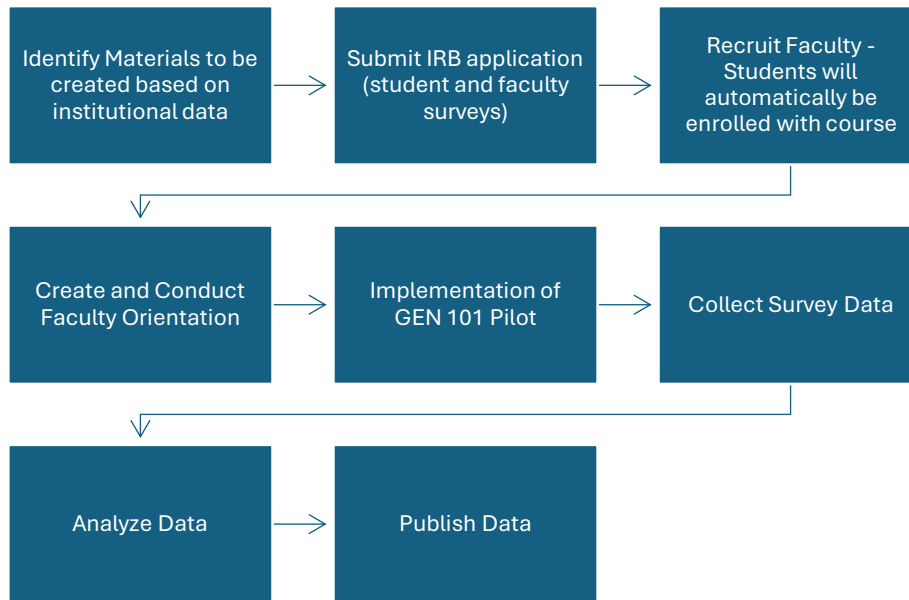
Students and faculty feel a stronger sense of belonging and inclusion when there is diversity present in the materials (Scoulas, 2021). Thus, careful consideration was given to ensure diversity, equity, and inclusion in the materials. The research furthers the understanding of how these tools can improve the student and faculty's sense of belonging, inclusion, and the value of diversity in materials. In addition, research suggests that students with a greater sense of belonging tend to have higher motivation, more academic self-confidence, higher levels of academic engagement, and higher achievement (Pedler et al., 2021). For the GEN101 OER project, we provided faculty-created and curated resources to foster inclusion, equity, and academic success in our GEN101 course. We aimed to address potential barriers to nontraditional student success, such as educational gaps, the challenges of single parenting or military life, poverty, unstable housing, technology inequities, formerly justice-involved, currently justice-involved, mental or physical illness, and stress.

Faculty from our School of General Studies developed a series of holistic open educational resources to meet the identified needs of our entry-point student population. The format for the OER includes videos, podcasts, and infographics supporting academic success in the course, as well as personal well-being. Some resource topics included time management and procrastination, goal setting, college writing anxiety, mental health, physical wellness, and finding support networks. Faculty in the study group then offered these OER to students in their courses through targeted outreach efforts, including personally tailored emails and general course announcements.

This university is structured on a five-week asynchronous course model. With such short modules, there are few opportunities to share supplemental materials without overwhelming students, which led to the planning of the OER materials. All OER materials were developed considering the students' time management challenges. We chose open educational resources (OER) so students could access these supportive materials outside the GEN 101 course throughout their academic and professional careers. We also wanted to make these OER available to faculty in all disciplines at our college by providing resources they can use or customize to meet students' needs. By providing these resources outside of the course curriculum, faculty can customize their use and offer these resources "a la carte" to students in announcements and outreach efforts in any program or course at the university. Given the financial barriers faced by many college students, it was important that these resources be accessible outside the classroom and that they be offered for free to all students.

Prior to the study, faculty received training (in person or from a recording) on the GEN 101 OER materials and later completed a survey at the end of the pilot. The GEN 101 five-week courses began over a series of three months. See the Pilot Project Implementation Timeline in Table 1.

Table 1
Pilot Project Implementation Timeline

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┌─────────────────────┐    ┌─────────────────────┐    ┌─────────────────────┐
│ Identify Materials  │    │ Submit IRB          │    │ Recruit Faculty -   │
│ to be created based │ →  │ application (student│ →  │ Students will       │
│ on institutional    │    │ and faculty         │    │ automatically be    │
│ data                │    │ surveys)            │    │ enrolled with course│
└─────────────────────┘    └─────────────────────┘    └─────────────────────┘
                                                                 │
┌─────────────────────┐    ┌─────────────────────┐    ┌─────────────────────┐
│ Create and Conduct  │    │ Implementation of   │    │                     │
│ Faculty Orientation │ →  │ GEN 101 Pilot       │ →  │ Collect Survey Data │
│                     │    │                     │    │                     │
└─────────────────────┘    └─────────────────────┘    └─────────────────────┘
         │
┌─────────────────────┐    ┌─────────────────────┐
│                     │    │                     │
│ Analyze Data        │ →  │ Publish Data        │
│                     │    │                     │
└─────────────────────┘    └─────────────────────┘
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The GEN 101 OER team created the Open Educational Resources for the course after reviewing institutional data that indicated that students struggle with goal writing, time management, and procrastination. First, as a team, we created an outline of potential topics based on institutional data, anecdotal experiences from faculty, and conversations with students who have attempted the course. Next, each faculty and staff member agreed to research the potential of OER and to create one or more resources for the project that were either new or based on existing resources and remixed to meet the specific needs of students in the GEN101 course. As a result, the resources used for the course were unique or used existing OER content to support and expand the resources we created.

In addition, students expressed challenges with assimilating into the college community. So, creating OERs that were not only reflective of the diverse student population but related to the current course work to improve learning outcomes was important. Even though students were exceeding an acceptable target of 70%, scoring Proficient or above on the Course Learning Outcomes, the GEN 101 team took a "no man left behind" approach to ensure success for all students by brainstorming on how to decrease the number of students scoring basic and below proficient on the assignments related to goals.

The institution's communication department reviewed the OER resources and housed them on the public-facing UAGC Hub. The only data collected from website usage were "clicks," so even though we cannot tell who visited the site, we can learn what pages were visited the most. For example, in the weeks when students have traditionally struggled (weeks 2, 3, and 5), there were more clicks. To help faculty use the OER, we provided email templates promoting these resources that were easy for faculty to send to students in bulk using Signalz, an internal communications tool. As the study ended, the pages that contained information about Procrastination (ranked 2) and Time Management (ranked 5) had more traffic, though not specifically related to a particular week but rather to issues students have expressed within assignments and discussions. Also, the college writing anxiety OER ranked #4. Students often share that they have been out of school for many years and fear their writing is not "college-level."

Findings

Supporting Learning Outcomes

Targeted OER can support academic success and learning efficacy in the classroom. Thus, the preliminary findings are incredibly positive for the small pilot study of fifteen courses over two months. See Table 2 for information related to course learning outcome data. In this graph, student performance improves from week three to week five on an academic and professional goal writing activity. Faculty are provided some resources but are generally responsible for their own supplemental resources. For adjunct faculty, primarily the instructors of this course, spending time identifying current resources can feel like unpaid labor. Supporting adjunct faculty with supplemental resources can afford them time to spend one-on-one with students. The bonus is that these resources can be updated and replaced if they become outdated, and they are branded for the university which lends to the intellectual property of the institution. Faculty overall reported that the OER materials decreased their time finding supplemental materials for their students. A faculty member said:

> *"The OER materials decreased the time spent trying to find supplemental instruction for students and helped me link to the students' focus during the course."*

A review of student retention data in the fifteen faculty courses before and after the pilot indicates a higher rate of retention in the courses, as demonstrated in Table 3

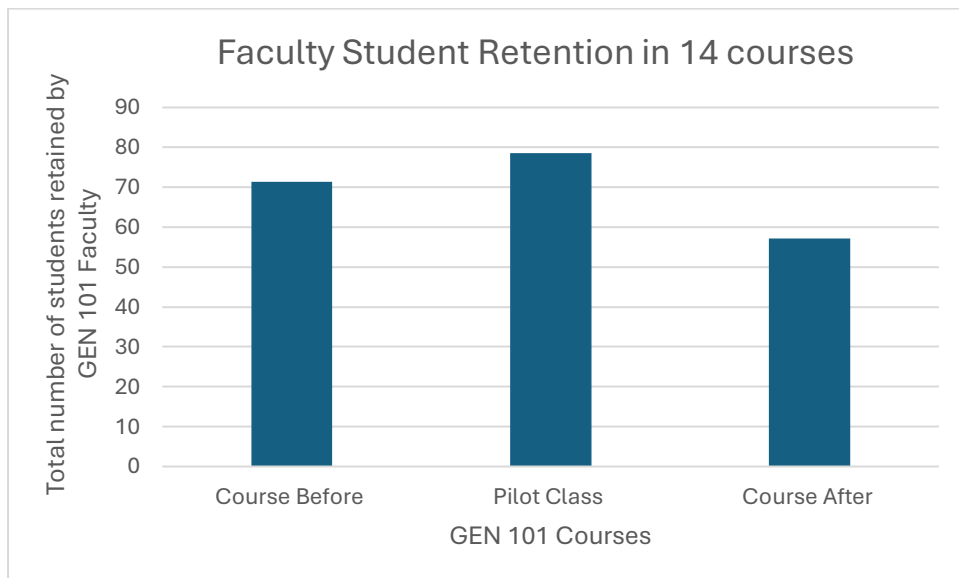Table 2
Course Learning Outcome Data
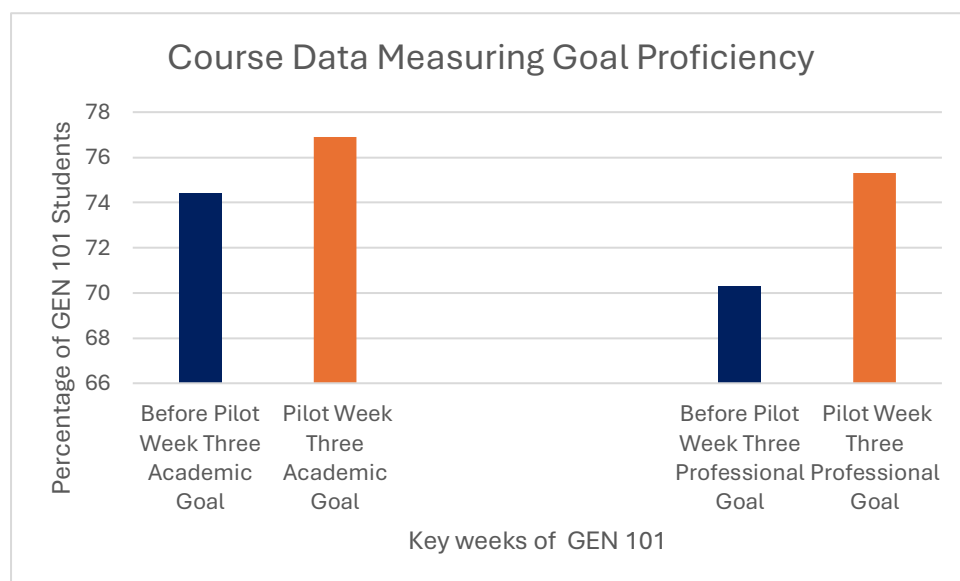
Note: Students work on writing their personal academic and professional goals in multiple weeks in the course.

Each GEN 101 course starts with approximately 40 students. When reviewing the course data for the faculty involved in the study, 71% of the students were retained. During the study, 78% of their students were retained, and for their first course after the pilot, only 57% were retained. Students shared that they were more likely to respond to their instructor when supplemental information was shared with them. Consistent with Kahu et al. (2022), GEN 101 students reported that sometimes it felt like there was too much information for them to process as they transitioned to college; thus, the precise point of too much versus not enough is debatable. One student shared:

> *"There are a lot of resources provided, and I [sic] as I try to manage my time for work and school work, I am glad I can refer back to these resources as [sic] any time."*

Table 3
GEN 101 Faculty Student Retention in 14 Courses

Note: The graph shows *students retained in the fifteen courses of the GEN 101 by faculty in the study before the pilot, during the pilot and after the pilot.*

Effect of OER on Students

The chart in Table 4 illustrates Signalz's use of templated emails according to the topic. We found that our faculty sent the first email the most, and as the weeks progressed, they used the templates less. One reason is that teachers and students reported fatigue with schoolwork and grading. Consequently, there were more clicks on the time management resources in those early weeks. The top three pages with the most clicks were the *Procrastination: How to Defeat It!* infographic and video, the *Thinking About, Setting Up, and Assessing S.M.A.R.T. Goals* podcast, and the video and podcast *College Writing Anxiety: Strategies and Support.* All are constructed with time management in mind so on-the-go mobile students can review and use these supplements easily and on their schedules.
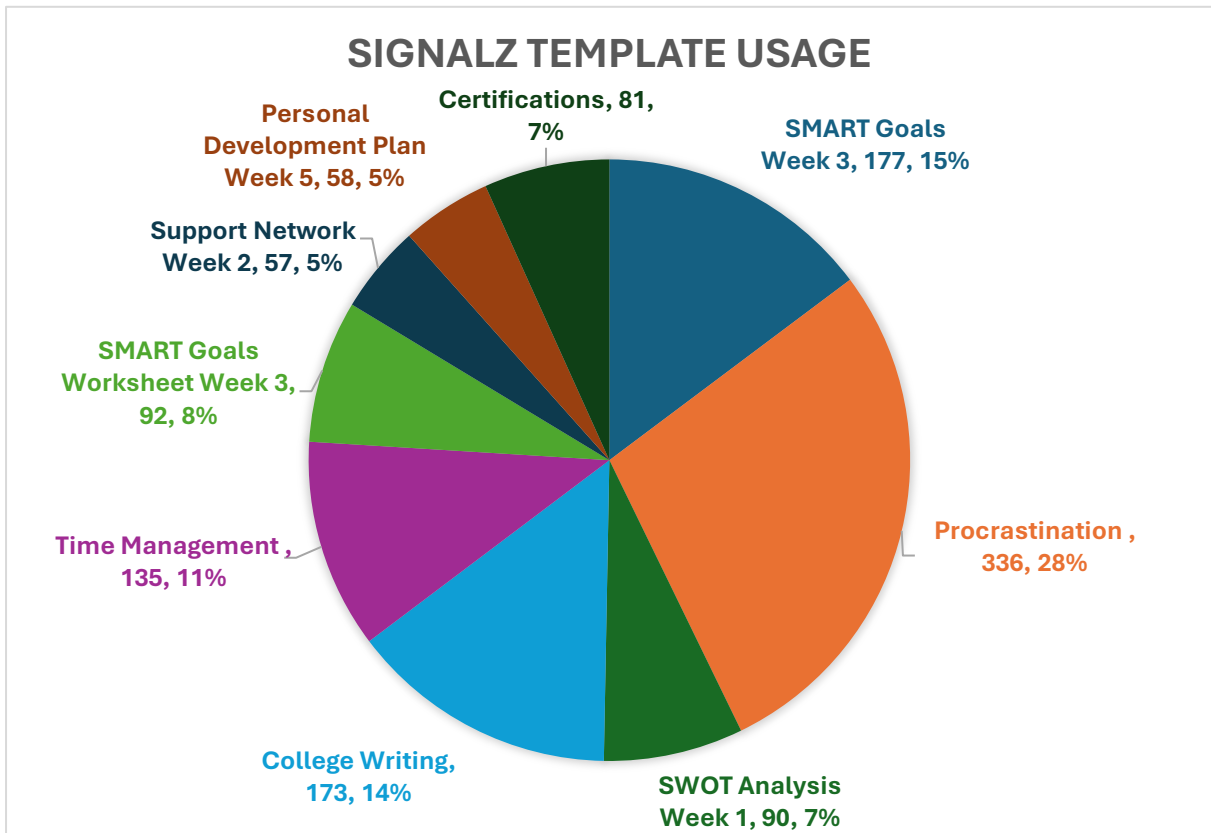
Students overwhelmingly reported that they felt the supplemental resources connected with who they are as a person and their personal experiences. When asked if they wanted to share anything about their experience, one student shared:

> *"This being my first class I don't really have much experience with what to expect from these resources. But I do know I feel confident going into future classes with what I've seen so far."*

Most students reported that they would continue to their next course and return to the publicly facing resources. The resources are available to all students, but they are housed on an open-access webpage and named for the GEN 101 course.

Table 4
Signals Template Usage

SIGNALZ TEMPLATE USAGE

Certifications, 81, 7%
SMART Goals Week 3, 177, 15%
Personal Development Plan Week 5, 58, 5%
Support Network Week 2, 57, 5%
SMART Goals Worksheet Week 3, 92, 8%
Procrastination , 336, 28%
Time Management , 135, 11%
College Writing, 173, 14%
SWOT Analysis Week 1, 90, 7%

Notes: Graph illustrates the number of times the resources were accessed by GEN 101 students in the 14 pilot courses.

Based on our study, students and faculty report positive outcomes from using and providing OER in the course. Overall, students reported that the materials were useful. In addition, students reported an increased understanding of the course materials, increased confidence in the course, and a stronger connection to the university after accessing the OER provided by their instructors, as demonstrated in Table 5. Another data point for the study was institutional course data that shows weekly student performance at the criterion level for the assignments in the course. This quarterly data allowed researchers to examine changes in students' overall course learning outcome performance during that time. For example, in the course data of the study, students consistently struggled with proficiency in writing an academic SMART (Specific, Measurable, Achievable, Relevant, and Time-bound) goal, with only 74.4% scoring distinguished or proficient. However, the course data from the time period during the study demonstrated a slight increase to 76.9% of GEN 101 students scoring distinguished or proficient when writing and academic SMART goals. Furthermore, the course data from the quarter after the pilot project ended revealed a decrease in student achievement on the academic goal criterion, as illustrated by students scoring only distinguished or proficient at 73.4%. There are undoubtedly other factors at play, but the one deciding factor is the use of the supplemental OERs in over fifteen courses; when sixty classes were running, 23% of those classes were using the pilot resources.

Table 5
GEN 101 OER Pilot Overall Student Experience
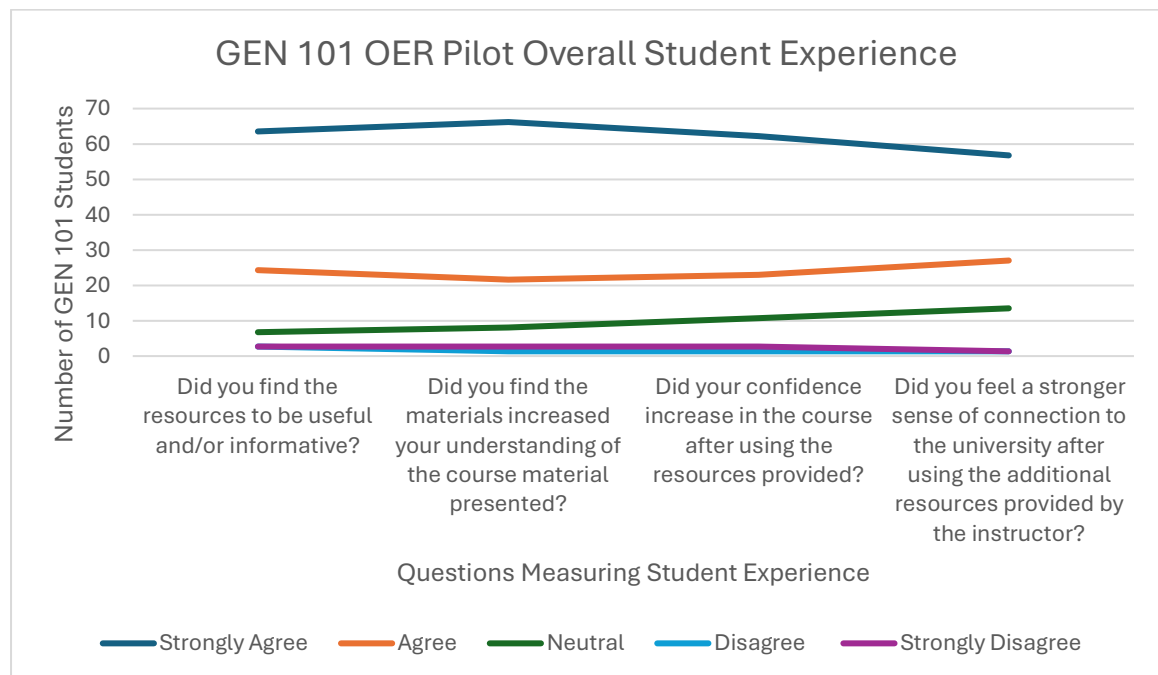
Note: *Student experience completing assignments after using the GEN 101 OER materials*

Faculty Experience Using OER

GEN 101 Instructors trained to use the OER felt prepared and that the resources supported the current course materials. One bonus was that some faculty members decreased their time in finding supplemental materials to support students. For example, one instructor said: "…it did help me in not having to search for ADA-accessible videos."

Another shared

> *"Yes, they did decrease time in finding materials, but I spent more time trying to insert them in the discussion boards and announcements and in Signalz."*

One instructor reported that their student engagement was higher than in previous courses. Another instructor reported that their students were more proactive and successful at completing assignments than in previous courses.

Student Experience Using OER

Using OER to help students feel they belong in college during this entry-point course was important to the researchers. In this case, the OER was intentionally created around weekly coursework and learning outcomes. Knowing that students enter the classroom with learning differences means that scaffolding support is important. So many students feel that they don't belong in college and speak negatively about their abilities and performance. Students reported that they appreciated the care from their instructor, who sent them a resource that addressed a specific need. Others stated that instructors pointed them in the right direction and were responsive.

One goal of the researchers was to ensure that the students see themselves in the materials and make connections to the institution, course, and instructor. This is what happened, according to one student:

> "I appreciated the details of the resources needed. Our professor paid attention to our weaknesses and opportunities written out in our discussions and then provided a resource that could assist the entire class regarding time management skills."

One student shared the impact on their confidence:

> *"I hated discussion post [sic], but just in these 5 weeks that changed. Thanks to Dr. X for building up my confidence."*

Yet another student shared how they achieved a deeper understanding:

> *"My instructor provided great resources and different videos and article [sic] to help me get an understanding of the material given. She also provided great feedback and was always available to help me whenever I needed it."*

The data in Table 6 illustrates that students overwhelmingly report increased confidence related to each assignment and theme of the coursework after using the materials.

Table 6
*GEN 101 OER Student Confidence After Using Materials*
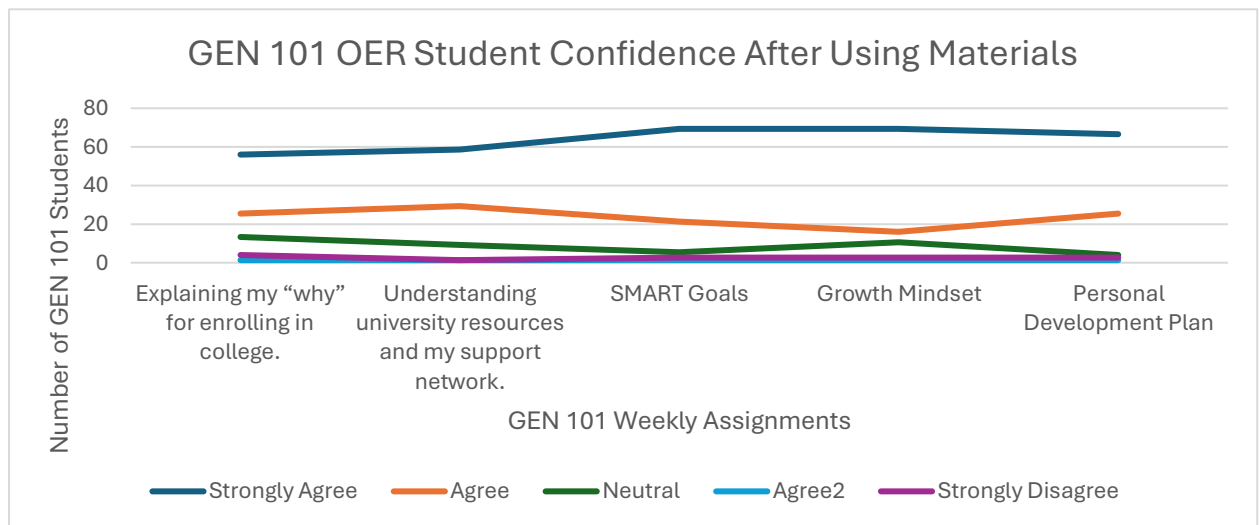
Note: *Confidence level of students completing assignments after using the GEN 101 OER materials*

Ensuring Equity

The primary use of OERs was as a supplemental resource to support student learning outcomes in the GEN 101 course. The researchers wanted to provide supplemental resources that reflected the demographics of the students and their experiences. One tool used on some of the resources was the Diversity Equity and Inclusion Rubric, which helped researchers ensure that the materials met that standard for inclusion and accessibility. Using these supplemental OER allowed instructors to customize their support according to student needs, which varied from course to course. Additionally, faculty could personalize the materials for the individual students in a class.

See Table 7, where course data from the quarter before the study demonstrates students' ability to write their academic SMART goals at two critical points in the course compared with course data after the pilot.

Table 7
Course Learning Outcome Data
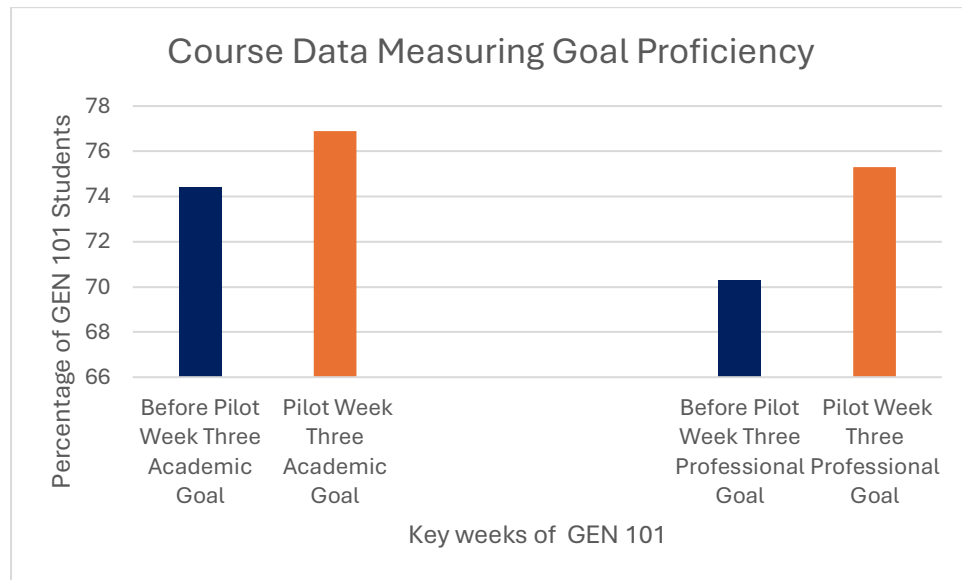
Note: Students work on writing their personal academic and professional goals in multiple weeks in the course.

Conclusion and Next Steps

Supporting open access students who enter the online classroom with red wagons full of barriers to the classroom need and can benefit from a supportive and inclusive classroom that considers their need for academic support for foundational skills. Thus, OER can fulfill one of its original intents by providing knowledge in its original form to those with limited access to knowledge (Al-Abri et al., 2022). One of the ways the GEN 101 OER Pilot Project sought to do this was by creating OER that students could relate to and that facilitated connections to faculty while enrolled in their first course. The pilot study demonstrated that using university-created supplemental resources aligned with course learning outcomes not only helps instructors support their students but also allows students to increase their confidence and skills so they can persist through their first course.

After we completed our study, we reflected on the process and developed guidelines and recommendations for incorporating OER into the online college classroom to foster a sense of belonging and equity. First, incorporate student voices, experiences, and perspectives into the curriculum using OER supplementary materials, demonstrating that instructors are empathetic to their personal barriers to academic success. Next, be selective when selecting OER to support students. Consider student demographics and determine what your students need, including their unique struggles. Also, a survey of students to determine how they feel about their progress in the course and what they face in their personal lives that may be barriers to their success. Finally, diversity in modalities of instruction should be ensured to accommodate different learning preferences. In this study, we made sure to have vodcasts, podcasts, templates, videos, infographics, and more. Students could select the learning tools they preferred, which allowed them to have agency over their learning.

The findings from this pilot project support the guiding belief that OER in general studies courses can level the playing field and allow open-access students to learn in an environment that connects their lived experiences to the degree they seek. We fostered a sense of inclusion in our entry-point course as students understood they were not alone in grappling with these issues. The academic-based resources in the project also promoted greater educational equity by helping all students meet the weekly and course learning outcomes in the fifteen piloted GEN101 courses. Overall, our study was successful in helping students gain a better connection to the university, instructors, and course materials, as well as easing their anxiety about non-academic challenges or barriers to college success. The information we discovered will shape future iterations of faculty-developed OER in general education courses and other undergraduate courses at our university.

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