

The APUS Open Educational Resources (OER) Conversion Project

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ABSTRACT

By providing free and open access to learning, the Internet continues to be a driving force in changing the educational landscape. In the area of higher education, open educational resources (OERs) provide students with access to no- and low-cost learning. OERs give higher education leaders the opportunity to restructure delivery methods of learning resources and ensure more efficient and targeted practices. In 2017, the American Public University System (APUS) embarked on a major university-wide initiative to restructure all of its undergraduate courses with OERs. Much has been written on the efficacy of OERs in a variety of educational models throughout higher education. Although the research is replete with studies on changing faculty perceptions of OERs, research on the financial efficacy of OERs is still emerging. This paper, focused on APUS' efforts to adopt OERs, includes discussion of how such conversions relate to APUS's mission and vision in higher education and the work done by others in this space. Highlighted are the workflow aspects, various processes, involved departments, and preliminary results.

Keywords: open educational resources (OERs), undergraduate, higher education

El Proyecto de conversión de Recursos Educativos Abiertos (REA) de APUS

RESUMEN

Al proporcionar acceso gratuito y abierto al aprendizaje, Internet continúa siendo una fuerza impulsora para cambiar el panorama educativo. En el área de la educación superior, los recursos educativos abiertos (REA) brindan a los estudiantes acceso a aprendizaje sin costo o de bajo costo. Los REA brindan a los líderes de la

educación superior la oportunidad de reestructurar los métodos de entrega de recursos de aprendizaje y garantizar prácticas más eficientes y focalizadas. En 2017, el American Public University System (APUS) se embarcó en una importante iniciativa a nivel universitario para reestructurar todos sus cursos de pregrado con REA. Existen muchos textos sobre la eficacia de los REA en una variedad de modelos educativos a lo largo de la educación superior. Aunque la investigación está repleta de estudios sobre las percepciones cambiantes de la facultad de los REA, la investigación sobre la eficacia financiera de los REA todavía está emergiendo. Este documento, centrado en los esfuerzos de APUS para adoptar REA, incluye una discusión sobre cómo esas conversiones se relacionan con la misión y visión de APUS en la educación superior y el trabajo realizado por otros en este espacio. Se destacan los aspectos del flujo de trabajo, diversos procesos, departamentos involucrados y resultados preliminares.

Palabras clave: recursos educativos abiertos (REA), pregrado, educación superior

APUS开放教育资源（OER）转换计划

摘要

通过提供免费开放存取学习，互联网继续充当改变教育前景的驱动力。在高等教育领域，开放教育资源（OERs）为学生提供无成本或低成本学习机会。OERs为高等教育领导人提供机遇，以重组学习资源的交付方式，确保更高效、目标更明确的实践。2017年，美国公立大学系统（APUS）启动一项覆盖全校的大型倡议计划，用OERs重组所有大学生课程。许多文献研究了OERs在一系列高等教育模式中展现的效能。虽然已有许多研究聚焦于改变教师对OER的感知，但有关OERs的财务效能研究还在不断增加。本文聚焦于APUS在采用OERs一事上所付出的努力，对“这类教育模式转换如何关乎于APUS在高等教育中的使命和愿景、以及其他人在该领域所做的贡献”进行了探讨。重点强调的有工作流程、各项过程、所涉部门和初期结果。

关键词：开放教育资源（OERs），大学生，高等教育

The American Public University System (APUS) originated with the establishment of American Military University (AMU), founded in 1991, by a former Marine officer. The institution's purpose was to "provide career-relevant, distant education for a mobile population of military learners" (APUS, 2016, para. 1). As it grew, AMU was reorganized into APUS; in 2002, American Public University (APU) was added to "provide the same quality, affordable, and flexible education to a broader audience of motivated working adults" (APUS, 2016, para. 2). From its inception and through its rapid growth, currently at approximately 80,000 students, APUS continues to meet its commitment to provide access to higher education, even as the costs of tuition and learning resources across the country have continued to strain university and student budgets.

In order to fulfill its mission in higher education and manage the extent of student expenses beyond tuition, APUS includes the cost of undergraduate textbooks and other learning resources associated with each course as part of a student's base tuition. APUS has raised tuition only once in the past 15 years. This allows the university to keep student debt low. The current average tuition-per-credit-hour rate is \$270—\$250 with a military grant—at the undergraduate level and \$350—\$325 with a military grant—at the graduate level (APUS, 2016). This means that active-duty military members using GI Bill benefits may complete their education with the University without incurring out-of-pocket expenses.

However, the institution is not immune to budget challenges, and many graduate students still face the high cost of textbooks. APUS traditionally spent many millions of dollars annually on Electronic Course Materials (ECMs) for undergraduate students through its book grant policy. The rising cost of textbooks is well documented (Lindshield and Adhikari, 2013). Faced with the major challenge of increasing costs for textbooks and accompanying learning resources, APUS enthusiastically entered the Open Educational Resource (OER) space as a way to continue meeting its mission of expanding online access to affordable, relevant, high-quality higher-education offerings. APUS is completely online; students access and use Sakai as their Learning Management System (LMS), which holds the ECMs referenced herein.

What Are Open Educational Resources?

OERs are free or low-cost openly licensed educational materials for use in teaching, learning, and research. [The William and Flora Hewlett Foundation](#) (2016) defined OERs as:

... teaching, learning, and research resources that reside in the public domain or have been released under an intellectual property license that permits their free use and re-purposing by others. Open educational resources include full courses, course materials, modules, textbooks, streaming videos, tests,

software, and any other tools, materials, or techniques used to support access to knowledge.

Another definition from the [OER Commons](#) (2018) stated:

Open Educational Resources are teaching and learning materials that you may freely use and reuse, without charge. OER often have a Creative Commons or GNU license that state specifically how the material may be used, reused, adapted, and shared.

As long as there is proper attribution assigned, one may revise, edit, and republish OERs to meet various educational needs.

Trends in the Literature

The literature on OERs is sparse and relatively new (Aremellini & Nie, 2013), yet reveals that the movement toward OERs is not without resistance. Mazoue (2012) highlighted a higher-education system still clinging to an educational platform of the past, and outlined four university realities that are forcing institutions to make this change: “the emergence of the learning sciences, the wikification of knowledge, the unbundling of faculty roles, and the migration of learning online” (p. 75). Institutions of higher learning should no longer ignore evolving societal educational trends and need to reflect those structural changes in their practices.

Bonk (2012) focused on the learning sciences and outlined three major trends to which universities must

pay special attention: learner engagement, pervasive access, and customization. Overall, he argued that the learning sciences are redefining how people pursue education in the face of technological changes. In Education 3.0, instructors attempt to foster learning autonomy and self-directed learning (Keats & Schmidt, 2007). Learning in the 21st century transitions the role of instructor from imparting knowledge to facilitating and mentoring the learning process. One might describe this evolution as a movement away from educators as *sages on the stage* to *guides on the side*. Technological and social trends are rapidly changing the higher education panorama, and universities must adapt to remain relevant.

Financial Efficacy

OERs provide institutions with a viable option for addressing emerging trends. The research on reducing costs for students is well documented (Colvard, Watson, & Park, 2018). APUS spends large sums annually on ECMs for undergraduate students via its book grant policy, which supplies all undergraduate students with e-texts. APUS continues to seek ways to reduce these costs while also maintaining a high-quality student experience and avoiding increasing the rates at which students withdraw, earn incompletes, or earn grades of D or F. (i.e., Drop/Fail/Withdraw/Incomplete [DFWI] rates). In 2017, the goal set for the APUS Academics Department was to reduce e-text costs by at least \$2 million dollars for the year. APUS strives to continue to reduce ECM costs when appropriate and viable, while remaining

focused on maintaining a high-quality student experience.

Competitor OER Conversion Data

Specific data on how much money APUS's competitors have spent to convert courses to OERs are difficult to acquire. With a few exceptions, competitors tend not to share their course-conversion figures. However, a search of available online articles yielded some interesting indicators of the scale of actions taken by others, primarily state university systems. Many of these initiatives supported by states are through grant funding made available to faculties for this purpose.

Recent articles have claimed that University of Maryland University College, the University of Minnesota, Oregon State University, and the Washington State Community College systems have started converting course materials to OERs, resulting in substantial savings for students (American Council on Education, 2015; Millard, 2014). Several relatively large expenditures mentioned in the articles are both interesting and important to note, especially due to APUS relying largely on full-time faculty (FTF) to accomplish these tasks as part of their annual work agreements. By involving faculty members from the outset of the project, APUS maintains low costs and increases faculty buy-in and curricular ownership.

The University of Connecticut (n.d.) has engaged faculty members in an OER conversion project, as has Tidewater Community College (n.d.) in Virginia. The preliminary results were very positive, as a majority of

students reported satisfaction with the free materials provided (Adams, 2017). An OER fellowship program based in the University of Hawaii Community College system also resulted in savings for students via conversion of existing course materials to OERs (Oshiro & Risely, 2016). Similar, the State of Michigan's OER Textbook Initiative was successful at reducing costs to students; the University of British Columbia system in Canada achieved similar results (Rodriguez & Pieri, 2017). The Ohio government's efforts to convert courses to OERs include grant funding for faculties in its state university system (Vogt, 2014). An OER initiative at the University of Massachusetts-Amherst was successful, as was one based in the University of California-Los Angeles library system, which pays faculty members small stipends to convert courses to OERs (Salem, 2017).

The New York and California state university systems are investing millions in OER conversion. When such states adopt an initiative, the rest of the nation typically follows. More states are beginning to fund efforts to convert courses to OERs, and the federal government recently announced \$5 million dollars in grants for institutions seeking to begin this work (SPARC, 2018; Dimeo, 2017).

Notably, major publishers have started to enter the OER movement. Among others, Lumen and VitalSource recently began wrapping their existing OER offerings with additional proprietary materials to create relatively low-cost courses of their own. It is likely that such publishers are observing the

trends related to the global institutional move to OERs and adjusting their business models accordingly.

In a highly competitive higher education learning environment that seeks to increase student enrollment and against a backdrop of financial constraints, competition might force institutions to join the OER movement. Trends are driving changes in higher education. For example, the decision to move forward with OER conversions in 2017 provided APUS with a great opportunity to evolve and continue to fulfill its mission. As previously referenced, those who chronicle the higher education space noted the high costs that texts add to already skyrocketing college tuition. Such researchers have published articles illuminating the fact that some students face painful economic decisions as a result. Other articles have pointed to the disruptive power of OERs in radically transforming the traditional textbook publishing space—with major publishing houses potentially losing significantly, while students benefit.

Overview of the APUS OER Project

The ongoing OER Conversion Project at APUS involves collaboration across multiple departments and includes faculty members, program directors, and deans, in addition to the teams from Academic Instructional Technology (AIT), the Library, and BookList, Copyright, and Classroom Support departments. It is a university-wide effort. In 2017, APUS converted 222 course materials to OERs. In 2018, 192 additional OER-enabled courses were converted and launched. These course conversions have resulted in additional savings for the ECM budget. Table 1 reflects the number of courses slated for conversion in 2018 by each of the six APUS Schools: (1) School of Arts and Humanities (SoAH), School of Business (BUSN), School of Education (SoE), School of Health Sciences (SoHS), School of Security and Global Studies (SSGS), and School of STEM (STEM). Table 1’s shaded highlights indicate relative course-launch volume by month.

Table 1: 2018 American Public University System Course Conversions by Month and School

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
SoAH	9	2	2	5	9	2	3	3	4	2		2	43
BUSN	2	1		4	3	2	5	6	7	5	4	4	43
SoE				2		2		2	3		1	2	12
SoHS						6	8	1	4	2	3	1	25
SSGS	4	7	1	5	5	2	1	3	5	2	3	1	39
STEM	5	1	4	2	1	8			1	1		7	30
Total	20	11	7	18	18	22	17	15	24	12	11	17	192

APUS actively tracks the savings realized from the 2017 course conversions, which continue to accrue, along with the additional savings due to the 2018 conversions to-date. These amounts are calculated by summing the product of the difference between pre- and post-conversion costs times the actual net registrations in each course since conversion. Notably, undergraduate conversions save the *University* money, and graduate conversions save the *students* money. The more course materials that are converted to OERs, the more money the institution and students save.

Reduced expenditures due to the undergraduate book grant and e-text costs benefit graduate students directly. Undergraduate e-text costs typically range from \$35 to \$50 per student. With a few exceptions, \$100 is the cap for graduate course materials, and few students even have to pay that amount anymore. As a direct result of this project, the University has saved close to \$5 million dollars in undergraduate ECM costs, while saving graduate students more than \$1 million dollars to date. Those amounts continue to increase monthly.

Institutional Commitment for OERs

The cost savings to the institution and its students would not have been possible without an effective institutional strategy and commitment from leadership, faculty, and staff at APUS. The first strategic step was to identify ways to accomplish the work efficiently. After an extensive search, APUS developed

a partnership with Intellus Learning (<http://www.intelluslearning.com/>)—a company whose software helps faculty members quickly identify potential OERs that align with their courses' learning objectives. Intellus provides APUS with the ability to integrate OERs from its own library database offerings, online videos and podcasts, and an array of other educational websites. Intellus allows tagging of identified resources to assist APUS with gathering analytic data on their usage. In addition, Intellus generates automated email alerts when OER links in the LMS fail and suggests potential replacements.

With the right partnership in place, the next step of the OER strategy was to leverage the vast amount of subject-matter expertise among APUS faculty members, librarians, copyright team members, and other support staff. All APUS librarians hold Master's of Library Sciences or Master's of Library and Information Sciences degrees and work closely with assigned Schools within the University based on their familiarity with particular content areas. These experts assist faculty members who may struggle to identify potential resources. The librarians collaborate with the copyright and course materials teams to ensure that Schools have not only the proper permissions, but also sufficient licenses for any database resources to which they might already subscribe. An ECM cost analysis helped with prioritizing revisions in 2017 based on course material costs in conjunction with course enrollment data.

APUS Faculty and Staff Involvement

The APUS OER strategy included a *train the trainer* approach in which deans and program directors first learned to use the Intellus database and then trained their faculty members in one-on-one or small group clusters. This allowed for quick training dissemination for the skills needed to begin the process. Prior to this, the dean and director training included a daylong seminar aimed at learning how to use Intellus to choose from a variety of recommended OER options.

Careful expert analyses of the subject matter are required to ensure that OER replacement options align well with the learning objectives they address, are at the appropriate reading level, and engage students in the learning process. An OER replaces an existing learning resource only after the faculty member responsible for it verifies those features. In addition, a course's forum discussion prompts, lesson content, syllabus, announcements, and assignments may require revisions following a change in course materials. Directors and faculty members collaborate on those aspects and then typically work with the AIT team to create eLearning Format (eLF) versions of the new *enhanced* lessons that ultimately replace existing e-texts in a particular course. However, the eLF process is primarily for higher enrollment courses.

Once the training for the deans and directors was complete, taking the program to the full university-wide faculty required coordination; this is an on-

going process. Each School's dean and program directors lead the effort. With director support and review, faculty members are responsible for reviewing and vetting OER recommendations and identifying alternatives on their own or with aid from librarians. Together they ensure alignment to learning objectives and appropriate reading levels for the target courses. After identifying and vetting suitable OERs, faculty members revise forum prompts, assignments, lessons, announcements, and assignments as needed to ensure cohesive, integrated, flowing courses that foster positive student experiences and outcomes.

Faculty members regularly collaborate with the Assessment Department to create iRubrics for any assessments that lack them and revise existing rubrics for assessments altered as a result of the OER conversion process. The Classroom Support Department loads new course materials into model course shells within the Sakai to prepare for cloning into monthly course-start sections as needed.

Additional institutional support includes teaching-load reductions for faculty members who prove to be adept at this type of curricular curation and creation and who are willing to take on additional OER course conversions. APUS is committed to converting both undergraduate and graduate courses to OERs to the greatest extent possible. It requires FTF to handle many of the OER conversions as part of their annual work plan agreements. Part-time faculty (PTF) complete additional conversions for a modest stipend, which

increases the overall cost of instruction. However, these costs shift from the ECM budget to payroll. When updated courses use library-subscribed materials, the costs shift to the library budget in the form of additional licenses as required. Eliminated publisher-produced e-text expenses offset the stipends paid to PTF members to convert undergraduate course materials to OERs.

To-date, the OER Conversion Project has leveraged the subject matter expertise of no fewer than 250 APUS faculty members and directors who have collectively revised more than 350 courses. The project is well on its way to converting approximately 500 course materials to OERs in less than two years. Coordinated efforts involving every department at the University have led to these results.

The OER conversion process requires faculty members to connect deeply to and feel ownership of the entire contents of a particular course. One criminal justice professor shared:

As a full-time faculty member, I manage the content and quality of four courses. I strive to provide a valuable learning experience for students by ensuring that the course content is relevant and timely to the criminal justice field. I also create a rigorous curriculum that provides opportunities for student growth and real-world experience. For example, in the Criminalistics (CMRJ341) course I incorporated lab assignments requiring students to apply their new

knowledge while conducting hands-on crime scene investigations. I immerse myself into each course and develop a plan of action to improve the quality of the content and delivery. Last year, the university began to transition from using textbooks in the classroom to the Open Educational Resources (OERs). This presented a unique challenge and an opportunity to conduct research and locate timely and relevant resources for each of my courses. Customization of the course materials allowed me to create contemporary, flexible, and quality content. The assessments and assignments were also adapted to ensure that they aligned with the OER As an educator and a researcher, I attempt to locate the most pertinent information on the course topics, emerging trends in the criminal justice field, and current events to incorporate in the classroom. (APUS Criminal Justice Instructor Nicole Cain, ABD, personal communication, August 2018)

In this way, as an institution, APUS has become less dependent on publishers' choices and more reliant on its faculty for students' curricular experiences. Graduate course material conversions to OERs result in immediate cost savings to students. Complete course conversions by program at the graduate level permit APUS to create and advertise "Z-degrees," or "zero-costs-for-

textbooks degrees.” This is a market differentiator that should help make APUS graduate degrees not only more appealing but also more affordable. With many Z-degree graduate-level programs in place, several additional programs are nearing completion. For example, the master’s programs in Management, Political Science, Environmental Management & Policy, International Relations, and Public Policy are now Z-degrees.

Preliminary Results

Regarding DFWI rates, the initial limited data indicate that courses with materials converted to OERs have somewhat mixed results in terms of student satisfaction. Some students do not like the change from the single-download e-texts to which they may have grown accustomed. To address this, APUS is currently investigating various e-publication platforms that may permit students’ note-taking and highlighting capabilities. However, other feedback is positive, and many students express approval for changes to OER course materials.

The research on student learning is growing. Colvard et al. (2018) documented studies showing that OER conversions lead to higher final grades. However, Colvard et al. (2018) also reviewed studies suggesting resulting lower grades, and other studies showed

no significant difference. Brannum and Drumhiller (2017/2018) described the social justice perspective and equity issues at stake in an institution’s commitment to OER course conversion. Brannum and Drumhiller (2017/2018) wrote that they viewed moving to OER materials as an opportunity “to help lower-income students receive the same access to educational materials as wealthier classmates” (p. 43). APUS continues to collect data and monitor the efficacy of the project, and is currently conducting a research study on student performance and attitudes in courses recently converted to OERs.

In addition, APUS closely monitors DFWI rates and has yet to detect any significant increases in converted courses. The APUS Institutional Research department stated:

As a whole, we have seen an overall decrease in DFWI rates across the university, and at a high level, it doesn’t appear that changing course materials to OER materials has had a negative impact on these rates. The [table below] shows the 6-month period prior to the material changes to OERs, and then the launch month and following 5 starts. (Personal communication, September 5, 2018)

Table 2: Average Course DFWI Rate

6 months before launch	6 months after launch
10.5%	9.4%

APUS does not typically publish registration data, but note that the n for each of the above are substantial and similar both pre- and post- OER launch. Thus while the use of OERs may not be definitively attributed to changes, it does not appear to affect student performance adversely.

The AIT team works with faculty members and directors to address related student, logistical, and other identified problems quickly. APUS's innovative OER Conversion Project allows it to increase students' access to high-quality educational resources while lowering costs. The program aligns well with the University's mission to provide an exemplary education through respected, relevant, accessible, *affordable*, and focused online programs that prepare students for service and leadership in a diverse global society.

Conclusion

Technology continues to evolve and change higher education. Although APUS should continue experiencing decreasing ECM costs, the rate at which those costs decline has begun to decelerate because the institution has converted most of the highest-registration, highest-cost course materials to OERs. For example, the majority of the *general education* course material changes have been completed. In addition, feedback from students with poor experiences and data indicating poor student performance may lead the University to reverse these practices and revert to e-texts. Such changes would undo prior savings re-

alized by conversions to OERs that adversely affected the student experience. So far, however, this has occurred just once. Additional non-free—albeit low-cost—OERs may be adopted in larger numbers. For example, Lumen Learning (<https://lumenlearning.com/>) has \$5, \$10, and \$25 math course options available, with prices depending on the courses' features. Other publishers have similar relatively low-cost offerings.

The APUS OER Conversion Project has been a great success to-date—one involving the concerted, sustained efforts, and intense focus of multiple departments across the University for just over a year and a half. The results are extremely promising, with neither student performance nor student experience having been adversely affected. There is substantial and growing impact on the amount of savings to the institution. APUS will continue to convert courses to OERs, as it is able. The participants in this project look forward to continuing to give content to the OER Commons as part of their corporate civic duty so that others may benefit.

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