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SUPPORTING

— OPEN EDUCATION —

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RISING DIGITAL

Technology Use at Montgomery College

While technology has become a mainstay of our society as a whole, within the educational setting it is underutilized and at times ineffectively incorporated into daily lessons. There is a distinct divide between its use in and outside of the educational setting as a tool for aiding the learning process (Lenhart, 2015; Li, 2007). Teachers and schools are challenged to find ways to adapt instructional best practices for incorporating technology into the classroom so that lessons are meaningful, relevant, and engaging for students (Greenhow, et al., 2010; Lenhart, 2015; Li, 2007; Pokhrel & Chhetri, 2021; Selwyn, 2012; Selwyn & Facer, 2014). The traditional education environment is in danger of becoming archaic if the system at large does not find appropriate ways to effectively integrate technology in an effort to empower student ownership of learning as they become digital natives defining the 21st century (Selwyn, 2012).

Throughout the COVID-19 pandemic, EdTech evolved and adapted at a rapid pace in ways to support the continuum of teaching and learning (Adedoyin & Soykan, 2020; Daniel, 2020). Education at Montgomery College (MC) has become more digitally supported, and faculty use of Open Educational Resources (OERs) and Reusable Learning Objects (RLOs) has become a mainstay at MC and other colleges worldwide. Over the past 2 years, faculty, support staff, and students at MC have identified and evaluated a

variety of open-source, web-based applications and content creators and concluded that OERs and RLOs have the potential to redefine how education is delivered, tracked, and experienced by students and can also save funds associated with curriculum and support materials.

OERs and RLOs are foundational elements of the MC Open Initiative, which provides professional development and materials to faculty and students to adopt OERs to save students money while attending MC. Since its inception in 2017, it is estimated that students have saved \$9 million due to the faculty's intentional use of OERs at MC. Furthermore, a study as part of the Achieving the Dream OER Degree Initiative found that students at MC enrolling in 1 or 2 OER courses on average attempted 2.05 more credits than otherwise similar students who did not take any OER courses (0.18 effect size); students enrolling in 3 or more OER courses on average attempted 5.39 more credits than otherwise similar students who did not take any OER courses (0.49 effect size). The estimated return on investment to MC from this combined increase in credit activity was \$518,000, or 30%, after accounting for the program costs (\$733,000) and additional instructional costs associated with increased course demand (ATD OER Degree Initiative ROI Analysis, 2018).





TARGETED IMPLEMENTATION of Free Reusable Learning Objects in Spanish 101 and 102

MC's commitment to OERs and research in this area has led to an institutional adoption of Pressbooks (an open course content management system designed for creating eBooks) and the redesign of MC's Spanish 101 and 102 courses to replace a suite of fee-based practice activities with a series of free RLOs powered by H5P. H5P is a free and open-source content collaboration framework based on JavaScript. H5P is an innovative way to create, share, and reuse interactive RLOs aligned to specific learning outcomes. With over 41 different learning types (and counting), H5P provides the MC community with rich, interactive content for use on computers, smartphones, and tablets.

Utilizing a participatory action research model, faculty and students have collaborated to inform the design, development, and refinement of H5P RLOs designed to meet institutional goals through targeted student practice. As previously mentioned, H5P RLOs were developed and embedded as a part of MC's Spanish 101 and 102 curricula to substitute fee-based practice activities with free and open resources. The H5P-enriched courses were led by 2 faculty and consisted of 47 students who utilized the H5P RLOs as a part of the course expectations. Upon completion of the courses, students not only reported a high level of satisfaction (4.54

average rating out of 5) but were overwhelmingly (89%) in favor of the practicality and usefulness of the H5P practice materials as a viable tool that helped them achieve success in their courses.

Overall the students' and instructors' experiences with the H5P RLOs were positive. As one student said, "They [the H5P learning elements] are useful, and most importantly they cover the elements (vocabulary/grammar) covered on each unit." This coverage was enough to not only support outcomes but to provide just-in-time support in an engaging way. As another student said, "They are a fun way to make sure I know what we just learned and if I need to review anything before moving on" and "I liked how it gave real-world activities and it would tell you when you got an answer incorrect." In relation to the types of RLOs selected, the design team was happy to know that students "liked the variety of the activities as it helps cater to different learning types" and that "The exercises greatly help my understanding of how each concept works in sentences and in a real-world context." As one student reflected, "I think they [H5P RLO's] are awesome!" This certainly provided additional motivation to the development team who was committed to creating a product that was equal to that of a fee-based program.



PROMOTING THE

Adoption of Free Digital Technologies to Support Instruction at Maryland Colleges

With so much potential in support of the MC Open Initiative, MC, in partnership with the Community College of Baltimore County (CCBC), launched the Maryland H5P Collaborative Network (Network) in the fall of 2021 as a way of building awareness and increasing institutional adoption of H5P. Together, we aim to support organizational learning of H5P across institutes of higher education in Maryland. The Network offers a virtual community that provides opportunities to:

- share techniques in identifying best practices for creating and using H5P to support learning;
- support one another through problem solving, mentoring, and coaching;
- foster collaboration in a safe and informal environment; and
- improve performance and productivity through innovative development, integration, and practice approaches.

To date, the Network has an active membership of approximately 250 faculty and staff across 40 higher education institutions in Maryland and beyond and is recognized by the Maryland Open Source Textbook (MOST) Initiative and Maryland Online. To support the Network's rapid growth and initial success, MC and CCBC have partnered with MOST to create a statewide repository of professional development resources and support leveraging their existing Hub network. Together, we hope that this cross-institutional effort will support the design, development, implementation, and evaluation of OERs and H5P RLOs aligned with learning outcomes across multiple disciplines (e.g., world languages, nursing, library sciences/information literacy, etc.). Over the next academic year (2022–2023), the Network has plans to develop: just-in-time professional development OERs

(e.g., instructional videos, how-to-guides, etc.) to support the awareness and adoption of H5P; solicit expert advice from instructional designers and developers of H5P; and coach and mentor opportunities to support the use of H5P.

In addition, MC is leveraging the Network to design, develop, implement, and evaluate an H5P micro-credential that represents the mastery of H5P RLO development in support of student learning. Upon developing the H5P micro-credential, MC will work with CCBC, MOST, and Maryland Online to replicate the badge at the Network level. This will enable the micro-credential to be awarded to Network members and recognized beyond MC.

The OERs and RLOs developed through the Network (e.g., discipline-specific H5P learning objects, instructional videos, how-to-guides, etc.) will be available to all MC and CCBC faculty and staff on the MC ELITE, CCBC Library, and MOST Commons websites and promoted using the MC Open Initiative. The availability of these OERs/RLOs will help expand the infrastructure and faculty/support staff knowledge necessary to promote change in all MC courses and student support services. This level of open access will encourage cross-institutional faculty/support staff and student collaboration through the intentional integration of OERs and RLOs into existing course offerings while reducing the cost of program materials at the student level.

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