Open Educational Resources and Barriers to Adoption

at Hudson County Community College

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Executive Summary

OPEN EDUCATIONAL RESOURCES (OER) AND BARRIERS TO ADOPTION AT HUDSON COUNTY COMMUNITY COLLEGE

AN EXECUTIVE SUMMARY BY TARA MELLOR

OER

"Teaching, learning or research materials that are in the public domain or released with intellectual property licenses that facilitate the free use, adaptation, and distribution or resources" (UNESCO).

A Strategic Priority For...

HCCC: Strategic Initiative 16: "Expand high-quality and diverse remote, online and hybrid learning modalities." Action Step 4: "Evaluate and improve technology, including classroom and Open Educational Resources." – HCCC Strategic Plan

NJ: "Every student in NJ should have access to an affordable route to a college degree with predictable tuition and fees, and support to help with non-tuition expenses." —Secretary of Higher Education,

Higher Education: The Consumer Price Index of textbooks increased 945% between 1978 and 2014 (Perry, 2015).

Textbook costs could equal 26% of the cost of tuition at four-year schools and was often higher for community colleges (Hilton, 2013).

The cost of textbooks could negatively affect student achievement, with students reporting that they had not purchased required texts and earned lower grades as a result (Fisher, 2018).

College Net Price for Low-Income Students

NATION
$6,125

NEW JERSEY
$7,057

17th HIGHEST in net price for low-income students at two-year institutions.

--Office of the Secretary of Higher Education, 2019

HCCC OER Project Goals:

- Provide access to current educational materials and resources that align with quality academic standards;
- Promote mastery of student learning outcomes;
- Provide instructional materials at no cost to students;
- Promote access to learning by meeting individual needs and interests;
- Increase student engagement using innovative learning materials and experiences;
- Improve teaching and learning through collaborations;
- Advance creativity and innovation in teaching.

--HCCC Open Educational Resources

PROBLEM OF PRACTICE

Stakeholders at HCCC were interested in understanding faculty perceptions of OER and identifying barriers to the use, and it was critical to the mission of the College and the strategic plan to find a sustainable solution to support high quality and affordable educational resources. The purpose of this quality improvement project was to understand faculty perceptions of OER, identify the scope of OER adoption since the start of the OER Project, and recognize any existing barriers to the use of OER.

PROJECT QUESTIONS

How did the OER Project at HCCC develop since the fall of 2019?

What factors did stakeholders perceive played a role in the adoption of OER?

What were the barriers to take-up and use of OER at HCCC?

CONCEPTUAL THEMES

Participation
Access and resources to participate

Perception
Stakeholder thoughts and feelings

Persuasion
Institutional & individual motivation

"I've been doing that forever, like you know, using public scholarship looking for resources that were related to supplement my instruction. And then I found out that Hudson County Community College was involved in it. It was like a no brainer, because students often struggle with the cost of education in general, so we really want to push for them to have the accessibility to learning."
– HCCC Faculty Member

FINDINGS

1. Adoption of OER increased since the start of the OER Project and as of September 2021, more faculty were using OER than is reported on the OER Project Website.
2. Faculty course coordinators played a key role in OER adoption.
3. Faculty perceived that creating a course using OER was time and labor-intensive.
4. Students were involved in the OER Project in only marginal ways.
5. Stakeholder understandings of incentives for developing OER courses was inconsistent.

RECOMMENDATIONS

1. Continue to study adoption and use of OER and provide easy pathways for reporting.
2. Develop a plan to recruit, train, and support coordinators in the adoption of OER.
3. Create a marketing and awareness campaign to highlight existing initiatives.
4. Establish multiple touch points for student education, involvement and data collection.
5. Solidify funding and allocation structure for OER course development, establish distribution procedures, and publicize this opportunity.

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Photo credit: HCCC Communications

Introduction

For this project I partnered with Hudson County Community College (HCCC) to study stakeholder perceptions and uses of Open Educational Resources (OER), as well as barriers to adoption, in order to provide recommendations to support the growth of the OER Project. OER, or "free, universally accessible educational materials" (Hilton, 2016), were a tool to remove barriers and open doors for economically disadvantaged students. However, many administrators and faculty were not aware of OER, and faculty with some familiarity were hesitant to use OER because they were concerned about the quality of the content and the effectiveness of the materials (Allen & Seaman, 2014).

The 2019 New Jersey State Plan for Higher Education framed higher education as an economic driver for the state, noting earning differences based on degree attainment. According to the plan, in 2017 the median income of New Jerseyans with bachelor's degrees was $29,408 more than residents with a high school degree. New Jersey residents with some college or an associate's degree earned $7,041 more than those with a high school degree. It was clear that a college education would benefit residents, and the Governor's Higher Education Council set a goal for 65% of adult New Jerseyans to have a "high quality credential or degree by 2025" (Office of the Secretary of Higher Education, 2019, p. 14). The report also stressed the need for financial transparency, for both tuition and all related fees. According to the State Education Plan, "The net price paid by low-income students in New Jersey is higher than all but three other states" (p. 19). Additionally, the Office of the Secretary of Higher Education (2019) reported uneven higher education attainment rates based on race, ethnicity, socioeconomic status, and age (p. 12). The cost of higher education was, and remains, an issue of equity. New Jersey was identified as one of the most expensive states for higher education in the country (College Affordability Study Commission, 2016), and low-income and underrepresented populations were

disproportionately affected in terms of access and enrollment. Addressing hidden costs,

especially costs that could total thousands of dollars annually, would allow New Jerseyans to

pursue educational opportunities. Textbook costs were one area that had viable alternatives to

address these issues of inequity and have a lasting impact, and colleges and universities across

the state and country developed programs to encourage low- or no-cost degree programs through

the use of OER.

Figure 1

Net Price for Low-Income Students (Office of the Secretary of Higher Education, 2019, p. 20)

The United Nations Educational, Scientific and Culture Organization (UNESCO) defined

OER as "teaching, learning or research materials that are in the public domain or released with

intellectual property licenses that facilitate the free use, adaptation, and distribution of resources"

(UNESCO, n.d.). This was the standard definition offered throughout existing literature and used

by organizations promoting the adoption of OER. For their adoption purposes, HCCC designated

any course that did not require the purchase of a commercial textbook as an OER course

(Hudson County Community College Open Educational Resource Project, n.d.). For the purpose

of this project and to align with the standard set forth by the client, I used the HCCC definition

when discussing practices specific to HCCC, but all other literature referenced followed the UNESCO definition.

Organizational Context

Hudson County is located in northern New Jersey along the Hudson River, overlooking Manhattan. In 2019 it was the fourth most populous county in New Jersey with a population of 672,391 (United States Census Bureau). HCCC enrolled approximately 9,000 students annually. According to data from the HCCC Office of Institutional Research and Planning (2014), more than 50% of students identified as Hispanic or Latino, 14 to 18% were Black or African American, 10 to 12% of students were white, and the ratio of female to male students was 60:40. HCCC strove to provide a rigorous curriculum and accessible educational opportunities to the diverse population of Hudson County, as outlined in the vision statement: "As one of the nation's leading and most diverse urban community colleges, we aspire to offer consistently best-practice, transformative educational and economic opportunities for our students and all residents of Hudson County" (Hudson County Community College: Mission Statement, n.d.). The values of HCCC included "understanding through data," "responsible stewardship of resources," and "support of innovation and leadership." These values were evident in the HCCC 2021–2024 Strategic Plan, which included a strategic direction to "expand high-quality and diverse remote, online and hybrid learning modalities" (Hudson County Community College, 2021, p. 42). In this study of OER at HCCC, I took a data-driven approach to understanding the perceptions and barriers of using OER in order to support the mission, values, and strategic initiatives of the organization.

In fall 2019 HCCC rolled out a new initiative led by the dean of instruction to promote the use of OER. The dean, working with a steering committee—consisting of the dean of

libraries, the dean of online teaching, faculty from the School of Education, faculty from the Foundational Learning Center, and later the director of library technology—established the OER Project. The OER Project had the following goals for OER adoption:

- Provide access to current educational materials and resources that align with quality academic standards;

- Promote mastery of student learning outcomes;

- Provide instructional materials at no cost to students;

- Promote access to learning by meeting individual needs and interests;

- Increase student engagement using innovative learning materials and experiences;

- Improve teaching and learning through collaborations;

- Advance creativity and innovation in teaching

    (Hudson County Community College Open Educational Resources, n.d.).

The ultimate goal of the OER Project was to support the implementation of a zero-cost degree for HCCC students (Hudson County Community College Open Educational Resources, n.d.). The OER Project outlined three priority levels for offering assistance to faculty development of OER based on student impact. The top priority for adoption assistance were the ten courses with the highest enrollment, followed by courses in majors with high enrollment, and finally low-enrollment courses or specialized courses in low-enrolled majors (Hudson County Community College Open Educational Resources, n.d.).

Current Challenges to OER Adoption at HCCC

When I began this project in 2020, the OER Project website offered a number of resources for various stakeholders, ranging from information for faculty about Creative Commons licenses and course materials available through the library and other open resource

websites, to information about textbook-free courses. It also included links to book appointments with librarians to receive support for course design using OER, contact information for academic liaisons, training videos, and links to state and federal legislative initiatives related to OER. While the OER Project was a comprehensive OER program, according to the steering committee there were some challenges to adoption. First, it was difficult to acquire take-up among faculty. Restyling a course and finding materials required resources; many faculty did not have the time to pursue a course redesign using OER. The normal limitations of take-up, coupled with the challenges of remote work and learning due to the COVID-19 pandemic, made it even more difficult for faculty to take on additional work. In early conversations with members of the steering committee, they shared that library and instructional technology resources were deployed to assist all faculty as they quickly pivoted to online learning modalities, thus limiting resources devoted to OER adoption. Remote work also reduced the opportunities for connections between the steering committee and other stakeholders. Between 2019 and 2021 there was also some turnover among members of the steering committee. While the members each brought specialized expertise to the team, and committee leadership had vast institutional knowledge, the turnover contributed to some gaps in knowledge and communication among members. Finally, because the OER Project was fairly new, the committee needed additional data to understand faculty perceptions and barriers to adoption.

Problem of Practice

Like many other states, New Jersey recognized the importance of affordable higher education as an issue of equity and access. The New Jersey secretary of higher education identified a need for a more rational and strategic plan for funding at the state level and called upon colleges and universities to mitigate non-tuition costs through programs and services

(Office of the Secretary of Higher Education, 2019, pp. 30–31). The New Jersey Higher

Education State Plan stated, "Every student in New Jersey should have access to an affordable

route to a college degree with predictable tuition and fees, and support to help with non-tuition

expenses" (p. 6). However, according to the American Enterprise Institute (AEI), the Consumer

Price Index (CPI) of textbooks increased 945% between 1978 and 2014 (Perry, 2015). Hilton,

Gaudet, Clark, Robinson, and Wiley (2013) noted that textbook costs could equal 26% of the

cost of tuition at four-year schools and was often higher for community colleges (p. 38). Fisher

(2018) found that the costs of textbooks could negatively affect student achievement, with

students reporting that they had not purchased required texts and earned lower grades as a result.

Other students reported that they did not register for certain courses or dropped classes due to the

cost of required textbooks (Fisher, 2018). Eliminating hidden costs and increasing access and

affordability were essential to student success in higher education. The New Jersey Making

College Affordable Working Group recommended that colleges and universities prioritize

examining textbook affordability and hidden costs. HCCC made this a strategic priority and

addressed this issue through the OER Project.

      According to the OER Project website, during the 2019 fall semester of the program,

seven professors from seven courses offered eight sections of courses using OER. The following

semester, spring 2020, saw increases of eight professors, nine courses, and at least twelve

sections (all sections of College Student Success were offered using OER, but the number of

sections/instructors was not specified on the website). The priority was to target the ten courses

with the highest enrollment, followed by courses in majors with high enrollment. The steering

committee secured some funding to compensate faculty who moved to a textbook-free course

model and participated in the OER Project. However, the committee sought a more sustainable program that could support more faculty in the adoption and development of OER.

Some of the challenges facing the OER Project included the rate of adoption of OER and the limited data on take-up. Of hundreds of courses, sections, and faculty, only a handful of courses participated in the OER Project, offering sections that used OER rather than commercial textbooks. Additionally, the steering committee did not have data about faculty use beyond the instructors affiliated with the OER Project. The committee also had no data pertaining to faculty perceptions or potential barriers to adoption. The steering committee and other college administrators wanted data to inform practices to increase the number of courses using OER. Additionally, there was little institutional data about the use of OER beyond what was reported by the HCCC OER Project. The goal was to collect data in order to understand stakeholder perceptions of OER and faculty use, or barriers to use, of OER so that we could identify recommendations for the adoption of OER at a larger scale. This was important for the steering committee as they were tasked with "evaluat[ing] and improv[ing] technology, including classroom and Open Educational Resources" to support the strategic plan (Hudson County Community College, 2021, p. 42).

Table 1

OER Project Adoption

	Fall 2019	Spring 2020
Courses	7	9
Sections	8	12*

| Faculty | 7 | 8 |

At least 12; the number of College Student Success sections was not published.

The provost and the OER Project Steering Committee at HCCC were interested in understanding faculty perceptions of OER and identifying barriers to the use of OER, and it was critical to the mission of the college and the strategic plan to find a sustainable solution to support high quality and affordable educational resources (Hudson County Community College, 2021; Hudson County Community College: Mission Statement, n.d.). Therefore, the purpose of this quality improvement project was to understand faculty perceptions of OER, identify the scope of OER adoption since the start of the OER Project, and recognize any existing barriers to the use of OER.

Literature Review

In order to study OER adoption at HCCC and make appropriate recommendations, it was necessary 1) to understand the historical foundations of OER and the relevant literature that pertained to faculty and student perceptions and use of OER, 2) outcomes of courses that used OER compared to commercial textbooks or traditional academic resources, and 3) the cost of OER compared to textbooks. In a review of the literature, I also looked at various frameworks for studying OER adoption as well as more general information about the take-up of instructional technology among educators.

Take-Up of Technology

Technology take-up was not a new challenge in the world of education as technology was often framed as a double-edged sword. Each invention, iteration, and advancement offered new, complex opportunities and challenges for educators. Mishra and Koehler (2008) explained the

distinct factors related to technology take-up and the unique challenges posed, noting that each

time a teacher designed a course or class, they had to consider content, pedagogy, and

technology within the context of their organization and the resources available (p. 10). In their

exploration of the duality of technology, Borko, Whitcomb, and Liston (2009) defined

technology as "the knowledge, creation, and use of tools and techniques to control and adapt to

our environment" (p. 4) and discussed technologies as affordances or constraints that can either

support or hinder learning. Affordances, as discussed by Greeno and Gresalfi (2008), were the

resources, practices, and opportunities to participate within a community or system, provided to

an individual in order to learn or gain knowledge (p. 172). The big problem, according to Mishra

and Koehler (2008) and Borko et al. (2009), was that there was no "one size fits all" approach to

take-up. The needs of a particular instructor for a particular course at a particular school, coupled

with the resources afforded to them within their organization, yielded unique results that could

not be solved by one standard intervention. Certain factors, such as affordability, ease of use, and

technical capacity, were identified as key components to encourage take-up. Institutions needed

to have the funding to pay for new technology and subsequent upgrades, instructors had to find

an advantage to using new technology as opposed to existing resources, and the teachers needed

training on how to apply the technology to their curricula and use the technology in their

classrooms (Miglino & Walker, 2010). Mishra and Koehler (2006) substantiate their claims

regarding take-up in their analysis of technology adoption and offer the following as

requirements for successful take-up by instructors, "…an understanding of the representation of

concepts using technologies, pedagogical techniques that use technologies in constructive ways

to teach content, knowledge of what makes concepts difficult or easy to learn and how

technology can help redress some of the problems that students face, knowledge of students'

prior knowledge and theories of epistemology, and knowledge of how technologies can be used to build on existing knowledge to develop new epistemologies or strengthen old ones" (p. 16).

History of OER

At the turn of the twenty-first century, as private and public organizations first navigated digital space and explored how to share information and ideas, institutions of higher education implemented new ways to share curricular tools and resources. Early adopters, including the development of MERLOT in 1997 (led by James Spohrer at the California State University, in collaboration with David Wiley of Utah State University, funded by a grant from the National Science Foundation), Open Access in 1993 (a research sharing platform), and the Budapest Open Access Initiative in 2002, set the stage for global sharing of content and research that would become OER (Bliss & Smith, 2017, p. 10). Faculty at research universities in the United States sought alternatives to traditional textbooks and opportunities to share information broadly. The program developed by Rice University developed into one of the largest providers of OER, OpenStax. The Massachusetts Institute of Technology (MIT) received grants from the Mellon and Hewlett Foundations to provide public access to 50 MIT courses through OpenCourseWare (OCW), and researchers out of Stanford University developed Creative Commons (Bliss & Smith, 2017). The Hewlett Foundation continued to fund OER research and initiatives across the country to "prioritize developing effective pedagogy and practice along with content, building capacity for education systems to implement OER, and supporting a field that is responsive to diverse educators and learners" (Hewlett Foundation). In 2007 Atkins, Seely Brown, and Hammond reviewed 134 grants issued by the Hewlett Foundation between 2002 and 2006 to study the quality of the OER content, the removal of barriers to OER, and how to understand and stimulate use of OER (pp. 4–8). Atkins et al. noted the importance of

institutional buy-in to support the sustainability of OER programs. The paper described university websites as "virtual communities of practice" and emphasized the importance of engaging students in the practice of "learning to be a scholar" through the use of OER (p. 64).

OER Research and Frameworks

In 2013 Hilton and Bliss surveyed 80 faculty from eight community colleges and their students using the COUP (Cost, Outcomes, Uses, and Perceptions) Framework (Open Education Group, n.d.). They found that OER reduced costs compared to the use of traditional textbooks, and the majority of faculty and students said that OER was "equal in quality or better" than commercial textbooks. In a study of health psychology students at the New York City College of Technology, Cooney (2017) found that half of the students preferred OER to commercial textbooks.

Allen and Seaman (2014) surveyed 2,144 faculty from across the United States to understand awareness and adoption of OER among faculty. The purpose of the study was to determine if faculty perceptions of OER had changed over time and to identify trends related to faculty perceptions, awareness, and adoption of OER. Allen and Seaman found that between two thirds and three quarters of faculty were not aware of OER, but those who were presented with OER as an option were open to trying it. They also found that many faculty used OER and did not realize it. Belikov and Bodily (2016) expanded upon Allen and Seaman's work and studied the responses of 218 faculty to study faculty awareness and attitudes toward OER. They found that most faculty needed more information about OER. Additionally, institutional support was essential to adoption because faculty needed additional resources to find, evaluate, and create OER.

In an analysis of 36 efficacy and perception studies from 2015 to 2018, Hilton (2019) found that approximately half of the students surveyed reported that OER was comparable to commercial textbooks. Hilton (2019) also found that "OER does not harm student learning," and students prefer low- or no-cost academic resources over traditional textbooks (p. 869).

Regarding efficacy of OER compared to commercial texts, Clinton and Khan (2019) conducted a meta-analysis that looked at student performance and withdrawal rates and compared outcomes between students who used commercial textbooks and students who used OER. The study found "no difference in learning efficacy between open textbooks and commercial textbooks" (Clinton & Khan, 2019, p. 1). However, there were lower withdrawal rates in courses using open texts.

In addition to positive outcomes, student perspectives were a key driver in the adoption and sustainability of OER. Fischer, Hilton, Robinson, and Wiley (2015) conducted a quantitative, quasi-experimental study to compare course completion, academic success, and enrollment intensity outcomes between students who used OER versus a group that used commercial texts. The largest study of its kind, Fischer et al. used a sample of 16,727 students with 4,909 participants in the treatment group and 11,818 participants in the control group. The study found there was no significant difference in course completion between the treatment group and the control group. Fischer et al. (2015) found that students who used OER had a significantly higher mean credit load for the fall semester and the subsequent winter term.

In terms of costs, Hilton et al. (2013) studied students enrolled in mathematics courses at Scottsdale Community College and found that if half of the students used OER as opposed to commercial textbooks, the collective student savings for one term would total more than $100,000. In a smaller study pertaining to science students at a community college, Fisher (2018)

found that the costs of commercial texts can negatively affect student achievement, with students reporting that they had not purchased required texts and earned lower grades as a result. Other students reported that they did not register for certain courses or dropped classes due to the cost of required commercial textbooks. Fisher (2018) found the average student saved $81 per course using OER. Wiley, Williams, DeMarte, and Hilton (2016) looked beyond student savings from OER and introduced the **In**creased **T**uition **R**evenue through **O**ER (INTRO) model to link OER to enrollment and, ultimately, revenue. Wiley et al. (2016) argued, "If a faculty member adopting OER leads to more students enrolling or fewer students dropping, this change in student behavior could translate into more tuition revenue for the institution. Were such an increase in revenue to occur, the increase could potentially be sufficient to cover the costs of providing OER adoption services to faculty" (p. 5). In this study the community college reduced the number of students dropping courses by using the INTRO model and saw increased revenue totaling $101,422.78.

Another framework for studying OER adoption was the OER Adoption Pyramid (Cox & Trotter, 2017). The pyramid physically represented the layers of affordances required for adoption. The broadest bottom layer represented the factors most outside of an individual instructor's locus of control, and each subsequent layer indicated increased individual control. The apex, or volition, focused on individual and institutional motivation for OER adoption and was the final key factor to determine take-up. This particular framework provided a method to evaluate OER adoption within a specific organization.

Notable OER Initiatives

In terms of notable OER programs with national recognition, Colorado passed legislation that created the Colorado OER Council with dedicated funds for a grant program to promote adoption of OER with the purpose of increasing affordability (Colorado Department of Higher

Education, 2019b). For the initial cycle the state awarded $550,000 to faculty and programs at colleges and universities in Colorado. The council divided the funds into two types of grants. The first awarded funds at the institutional level, ranging from $10,000 to $99,999. The second type awarded funds to individual members of the faculty or smaller groups, ranging from $250 to $4,999. According to the Colorado Department of Higher Education (2019b), recipients needed to apply the broadest possible license to their work using the grant, share grant-funded resources in an accessible archive, and ensure American with Disabilities Act compliance (p. 16). According to the Colorado OER Dashboard, the first cycle of grant awards yielded a seven-fold return on investment and $3.9 million in cost-savings to students (Colorado Department of Higher Education, 2019b).

Another notable program, Affordable Learning Georgia (ALG), addressed issues of equity and affordability using OER throughout the 26 colleges and universities in the University System of Georgia. Since the 2014 inaugural year of the program, ALG saved students $100 million in textbook costs, and according to ALG more than 650,000 enrollments were affected by this program (Affordable Learning Georgia, 2021).

Next Steps

In summary, the literature indicated that in order to understand take-up, it was essential to grasp the complexity of the organization, the affordances available to the faculty, and their individual motivations to use specific resources in their curricula (Mishra & Koehler, 2008; Borko et al., 2009; Greeno & Gresalfi, 2008; Miglino & Walker, 2010). In regard to efficacy, the literature established that OER was just as effective as commercial texts (Clinton & Khan, 2019; Fisher, 2015; Hilton 2013, 2016, 2019). This provided a foundational understanding of why the

administration encouraged this particular tool and why faculty were asked to consider OER when comparing instructional resources and designing courses.

Studies on stakeholder perceptions of OER accounted for a significant portion of the literature, and it was of interest to know whether stakeholder perceptions at HCCC aligned with the existing body of research. The research on perceptions suggested that students appreciated reduced costs for course materials (Fisher, 2018; Hilton et al., 2013) and that faculty needed information about OER and support from the administration to incorporate OER into the curriculum (Allen & Seaman, 2014; Belikov & Bodily, 2016; Hilton et al., 2013).

Finally, the COUP Framework (Open Education Group, n.d.), the OER Adoption Pyramid (Cox & Trotter, 2017), and the importance of access to affordances and the ability to participate (Greeno & Gresalfi, 2008) shaped the approach to understanding the problem, evaluating the data, and offering findings and recommendations.

Conceptual Framework

The framework for this study combined three strands of research related to OER adoption, as well as the adoption of practices within communities of learning, to shape the understanding of OER adoption at HCCC and guide subsequent recommendations.

COUP Framework

The COUP Framework (Open Education Group, n.d.) offered the foundation for studying OER and was widely used throughout OER research. This framework suggested that researchers and practitioners study the impacts of OER based on four categories (cost, outcomes, uses, and perceptions). The Open Education Group defined the study of "Cost" in relation to OER as understanding the "impact of financial and cost metrics for students and institutions" (n.d.). The strand of inquiry related to "Outcomes" explored the impact of OER on student learning

outcomes (Open Education Group, n.d.). According to the Open Education Group, "Use" explored how faculty and students used OER. In regard to "Perceptions," the Open Education Group encouraged researchers to ask faculty, students, and other stakeholders about their attitudes, thoughts, and feelings associated with OER, OER adoption, and how OER compared to traditional learning resources.

This framework was relevant for this study for a number of reasons. First, it was created and endorsed by a group of leading OER scholars and researchers, specifically Virginia Clinton-Lisell, Lane Fischer, John Hilton III, and David Wiley (Open Education Group, n.d.). Next, the framework was used in a number of studies specific to community colleges, notably Bliss, Robinson, Hilton, and Wiley (2013b), which involved a study of at-risk students from eight community colleges. Using a framework that was applied at similar colleges allowed for the opportunity to consider similar results, recommendations, and interventions. Finally, the Allen and Seaman (2014) questionnaire that was adapted for this study was designed to study faculty perceptions and uses of OER, which directly related to the research questions for this project. Allen and Seaman (2014) found that "the most significant barrier to wider adoption of OER remains a faculty perception of the time and effort required to find and evaluate it" (p. 2). Using the COUP Framework to study faculty perceptions of OER at HCCC provided insight into adoption at HCCC and how it compared to national trends.

The OER Adoption Pyramid

Cox and Trotter (2017) developed the OER Adoption Pyramid to represent the factors that contribute to the adoption of OER, specifically *access*, *permission*, *awareness*, *capacity*, *availability*, and *volition*. Assuming the first five components are in place within an organization (necessary infrastructure, appropriate licensing provisions and policies, institutional exposure to

OER, support systems in place for development of OER, and prevalence of quality OER), the final factor, volition, or motivation, "becomes the key factor in whether or not they will use or create OER" (Cox & Trotter, 2017, pp. 156–157).

Figure 2
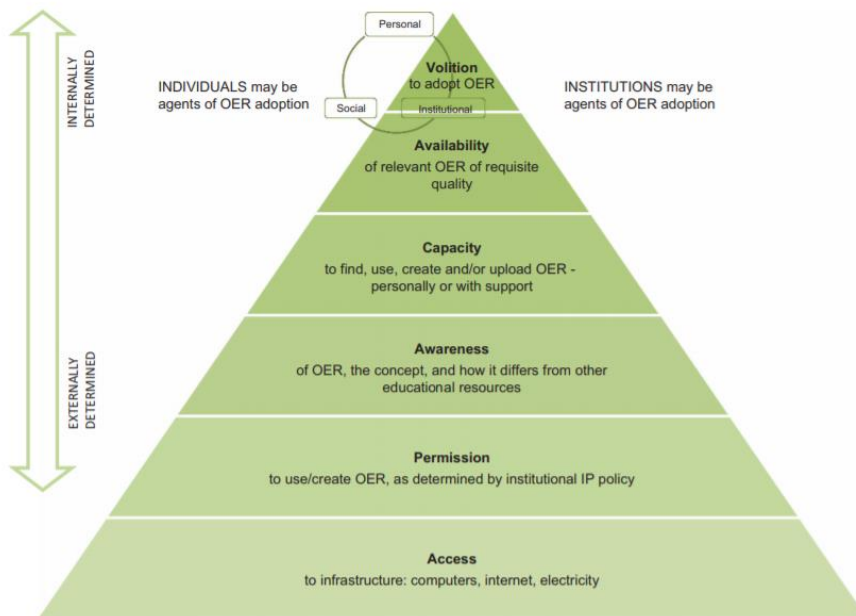
OER Adoption Pyramid (Cox & Trotter, 2017, p. 155)

Figure 1: The OER adoption pyramid

Open Praxis, vol. 9 issue 2, April–June 2017, pp. 151–171

For this study, based on the resources and infrastructure provided by the OER Project, we operated under the premise that the first five conditions were met at HCCC, and it was necessary to explore volition. Cox and Trotter look at volition in two ways: first as "individual volition," which positions faculty as the "agents of OER activity," and second as "institutional volition," which exists when faculty may select OER for instructional use, but the institution is positioned as the "agent of activity" because the organization would determine who has the copyright over materials and how the materials could be distributed (p. 157). The questionnaire and the

interview questions for this project were designed to understand the individual and institutional perceptions, barriers, and motivations to adopt OER. Using the OER Adoption Pyramid allowed us to consider both individual and structural supports and barriers to take-up.

Figure 3

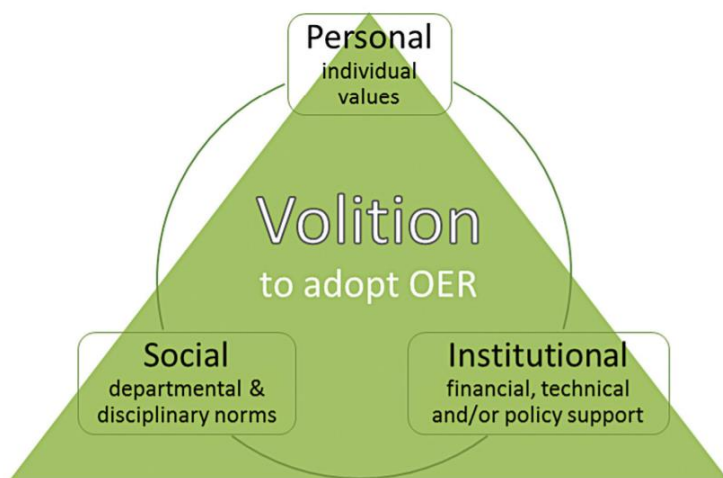*Variables Shaping Volition in the OER Adoption Pyramid* (Cox & Trotter, 2017, p. 162)

Figure 2: Variables shaping volition in the OER Adoption Pyramid

Opportunities to Learn

Butcher, Kanwar, and Uvalic-Trumbic (2011) discussed how OER created pathways for learning and afforded students and educators access to resources: "While its educational value lies in the idea of using resources as an integral method of communication of curriculum in educational courses (i.e., resource-based learning), its transformative power lies in the ease with which such resources, when digitized, can be shared via the Internet" (p. 4). The idea of access and providing students with resources needed to succeed in higher education was at the heart of the OER Project at HCCC. In a study on take-up of technology in education, Miglino and Walker (2010) noted three reasons why faculty did not use new technology in their classrooms: "money, time, and knowledge" (p. 2,492). They found that increased and sustained use depended on

"better training" that considered the challenges instructors faced in their work that were

prohibitive to the development of OER (Miglino & Walker, 2010, p. 2,494). Understanding

perceptions, access, and how stakeholders engaged with the OER at HCCC was the crux of this

project; therefore the third component of the conceptual framework stemmed from a situative

perspective of learning (Lave & Wenger, 1991). The questions of who did and who did not

participate, as well as who had access to resources, were questions of critical importance. Greeno

and Gresalfi (2008) defined affordances as "the resources and practices of the system, that

individual's access to those resources and practices, and the dispositions and abilities of the

individual to participate in a way that supports her or his activity and learning in some way" (p.

172). By using a situative perspective of learning, I was able to understand what supported or

hindered faculty pathways for participation within the community of practice. Lave and Wenger

(1991) defined learning as a social activity (p. 47), and they stressed the significance of

transformation as relationships between members and practice changed and shifted (p. 49).

Atkins et al. echoed the importance of "virtual communities of practice" and emphasized

how OER provided tools that allowed students to engage in the practice of "learning to be a

scholar" (p. 64). Understanding how stakeholders responded to the adoption of OER and the

impact on the community of practice at HCCC was the cornerstone of this project and guided my

inquiry.

Guiding the Research

Therefore, I used a conceptual framework that focused on participation, persuasion, and

perceptions. The participation strand, based on situated learning theory (Greeno & Gresalfi,

2008) framed HCCC as a community of practice and addressed organizational support or barriers

to participation. Under this strand, I considered who received affordances, who had access, who

received resources, and who served as gatekeepers to the adoption of OER. The persuasion

strand related to institutional and individual volition, or motivation (Cox & Trotter, 2017), and

how this supported or hindered adoption of OER at HCCC. This strand recognized the

interrelated nature of motivation and the context within the organization that may have impacted

individuals or groups. The structural and interpersonal components that affected motivation for

OER adoption at the institutional and individual levels were explored and contextualized in this

strand. The perception strand related to individual attitudes, thoughts, and feelings and stemmed

from the COUP Framework (Open Education Group, n.d.).

In summary, the project questions and conceptual frame focused on participation,

persuasion, and perceptions, and each area was interrelated and important to understanding

adoption at HCCC. I felt that if I could identify the perceptions and uses of OER, identify

barriers or lack of affordances, and recognize individual and institutional drivers, then I would be

able to offer recommendations to the OER Project Steering Committee for future growth.

Figure 4

Conceptual Framework
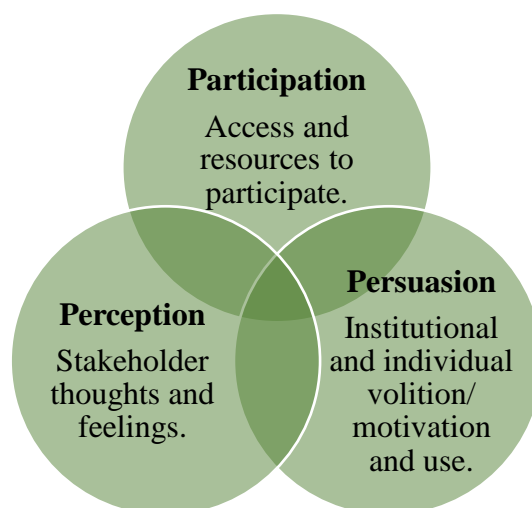
Project Questions

The following research questions guided this study:

1. How did the OER Project at HCCC develop since the fall of 2019?

2. What factors did stakeholders perceive played a role in the adoption of OER?

3. What were the barriers to take-up and use of OER at HCCC?

Project Design

The goals of this project were to see how the OER Project had progressed, to understand stakeholder, especially faculty, perceptions of OER, and to identify barriers to adoption in order to offer recommendations to further develop and refine the OER Project. To answer the project questions, I sought to use a concurrent triangulation design (Creswell, Plano Clark, Gutmann, & Hanson), meaning I conducted quantitative and qualitative data collection simultaneously. Next I analyzed both data sets and planned to compare both data sets. As the data collection progressed, I faced a number of challenges that frustrated my initial design, and I outline my responses to these situations below.

I adapted an instrument from the Allen and Seaman (2014) survey and then analyzed the data using descriptive statistics in order to provide generalized findings about OER adoption at HCCC. I used exploratory interviews to identify themes and connections to assist with sense-making. In the initial design I hoped to cross-validate the qualitative and quantitative data, expecting that the qualitative data would add depth and additional meaning to the quantitative findings; however, due to the low response rate to the survey, the collected qualitative data served as the primary data source. This was supplemented by data provided by the OER Project website related to the number of courses, sections, and instructors participating in the OER Project each semester.

Figure 5

Project Inquiry and Data Collection

Project Question	Data Required	Method to Acquire Data
How did the OER Project at HCCC develop since the fall of 2019?	Number of OER courses/ sections/instructors by semester since fall 2019. Information about growth and adoption.	Faculty questionnaire, faculty interviews, steering committee interviews, data from steering committee
What factors did stakeholders perceive played a role in the adoption of OER?	Faculty perceptions of the use, availability, and adoption of OER and how these perceptions informed their instruction.	Faculty questionnaire, faculty interviews, steering committee interviews
What were the barriers to take-up and use of OER at HCCC?	Information about why faculty do not use OER or factors that have limited the expansion of the OER Project.	Faculty questionnaire, faculty interviews, steering committee interviews

Data Collection

The goal of this study was to identify change in adoption since the start of the OER

Project, to understand stakeholder perceptions of OER, and to analyze the barriers to OER use at

HCCC. To do this I used a mixed-methods approach. To address these questions, we needed to

know about faculty participation in the OER Project and how that changed from semester to

semester. I also needed to know what faculty understood about the use, availability, and adoption

of OER and how these perceptions informed their practice and use of instructional resources. I

aimed to obtain a broad understanding of faculty perceptions and use of OER across departments

and disciplines at HCCC and to account for OER use and perceptions as accurately as possible.

To do this I surveyed faculty and followed up by conducting interviews with participants. I also interviewed members of the OER Project Steering Committee.

Allen and Seaman (2014) surveyed 2,144 faculty from a national sample to understand faculty awareness of OER and barriers to adoption of OER. I adapted the Allen and Seaman (2014) questionnaire (Appendix A) to survey the HCCC faculty with the hope of understanding the current use and perceptions at HCCC, with the potential to compare the HCCC results to the results from the national sample. The questions in the survey mostly pertained to the "uses" and "perceptions" of OER, with additional questions related to OER gatekeepers, barriers to OER adoption, and comparison to traditional learning resources. The questionnaire asked participants about their use of instructional resources, opinions about institutional support provided, familiarity with licensing, assessment of OER compared to traditional textbooks, as well as other perceptions of OER.

I wanted as many faculty representing as many majors and courses as possible to participate, so rather than select a sample I opted to cast a wide net. The survey was initially shared with various deans and administrators to distribute to faculty within their departments, with the intent to circulate to all faculty and obtain a large number of responses that represented the breadth and depth of programs and course offerings at HCCC. During a second phase of outreach to the full faculty, I offered an incentive in the form of a donation to the Hudson Helps fund, which supports students in need of resources such as counseling, food, or other essential services. I offered a $2 donation for every survey completion, up to 50 entries. As a final attempt at outreach, I contacted 70 out of 106 full-time faculty who were listed in the online directory. When sending these emails, I did not contact anyone I had previously interviewed or who had disclosed contact information in a previously collected survey response. Members of the steering

committee and department administrative leaders (deans, etc.) were not included in this outreach either. I also contacted an additional 60 people from the science, technology, engineering, and mathematics (STEM) adjunct faculty for the fall 2021 semester from a list that was available on the college website. I was not able to obtain lists of adjunct faculty from other departments for additional outreach.

When the survey closed, 27 people had responded. The respondents represented tenured faculty, tenure-track faculty, and adjunct instructors all from a diverse sampling of academic disciplines. According to the National Center for Education Statistics (U.S. Department of Education), in 2019 HCCC employed 106 full-time faculty. Community College Review (2021) reported a total of 445 faculty, which included adjunct instructors. The response rate to my survey was about 6% of the total faculty; of full-time, tenure, or tenure-track faculty there was an 8% response rate. The questionnaire was administered online via REDCap. In the last question participants had the option to provide contact information for a follow-up interview. Participants were also able to consent to using quotes they provided in the survey.

The qualitative portion of my study included interviewing members of the OER Project Steering Committee and members of the faculty (see Appendix B for interview questions). The survey served as a recruitment tool for faculty interviews and yielded five participants. Through outreach to the steering committee, I was able to speak with four members, two of whom also served as instructors. Five additional survey respondents indicated that they were interested in participating in an interview, however they did not respond to emails to schedule. All interviews were approximately 30 minutes in length and took place via Zoom. I audio-recorded eight of the interviews using Otter.ai. One participant (Participant D) did not consent to recording, so I took notes throughout the interview, and immediately following the interview I recorded myself

giving a summary of the responses. I also maintained a copy of all written notes for review. Transcripts of the interviews were uploaded to Taguette for coding and analysis. The interviews were essential to the study to gain perspectives from stakeholders and learn about the success of the OER Project and potential opportunities for growth.

I hoped to interview students but was unable to due to the timing of the study. Data collection occurred primarily in spring 2021, when most students were enrolled in remote classes, and in summer 2021, when fewer students were enrolled (compared to fall and spring semesters). As the research was conducted remotely due to COVID-19, I was not able to visit campus to recruit or meet with students.

Survey Analysis

The response rate for the survey was lower than expected; only 26 people responded, and there were only 20 surveys that were fully completed. I worked with partners from HCCC to recruit participants throughout the spring and summer of 2021. First, the survey was sent to deans of each area to distribute to their faculty. Then we added an incentive, a donation to Hudson Helps, and sent the survey directly to all faculty. Finally, I made an attempt to recruit full-time faculty and adjunct STEM faculty. While I was able to collect and review a limited amount of data from the survey, the response rate was small and did not yield enough data to account for OER use in total at HCCC or to make inferences about adoption of OER among the entire faculty population. There was not enough data to make any conclusions regarding significance, and to avoid making a Type I error I did not use the planned statistical tests (T-test, two-way ANOVA). Reference Appendix G for graphs of survey responses.

Twenty of the respondents indicated that they had incorporated OER into their courses. While this was not necessarily representative of the faculty as a whole, it was an interesting data

point. In the data on the OER Project website, seven faculty participated in the project and taught

OER courses in fall 2019, and eight faculty participated in spring 2020. The survey data

demonstrated that OER was being used on a larger scale than previously accounted for.

Additionally this aligned with the findings of Allen and Seaman (2014), who found that "more

faculty are using OER than report that they were aware of the term OER" (p. 2). Faculty adapted

their materials and adopted new resources; however they did not necessarily define their use or

their tools as OER.

The survey data offered a snapshot of the types of OER faculty used. Twenty people

reported occasionally or regularly using simulations or videos, 14 had occasionally or regularly

assigned material available only in eTextbook format, and 20 assigned books for which

eTextbooks and traditional formats are both available. However, only seven faculty published

digital scholarship. While I cannot infer anything based on the survey data alone, this data

supports information shared during the interviews. Many participants discussed feeling

comfortable finding and using certain resources; however, they had questions about copyrights,

legal issues, and reproducing content. When asked about the top three barriers to adoption,

Participant B said, "First, just general, lack of knowledge on subject. Second, another sort of a

similar thing about just a fear of copyright issues. And then third, probably just the effort

involved in putting the course together. And research, you know." The information from the

interviews, coupled with the descriptive data from the survey, helped me understand perceptions

of OER and barriers to adoption. When compared to the literature, including the Allen and

Seaman (2014) findings, the data from HCCC aligned with national trends. For example, in

regard to the most important factors for selecting teaching materials, the most frequently selected

factor was "cost," with 66% of HCCC respondents indicating that cost was most important to

them. This was also the most frequently selected factor in the Allen and Seaman (2014) study, which reported that 88% of faculty felt that cost was the most important factor (p. 4). When interviewing participants, the word "cost" was used 12 times, and while coding passages, "costs" was the fifth most frequently used code. This demonstrates parallels between the survey data, interview data, and the literature.

Interview Transcript Analysis

Coding: First Pass. After completing the interviews, I began coding to analyze the data. In the first pass I started by listening to the interview recordings. During the interviews I was focused on engaging with the participants, responding to their answers, and following the interview protocols. Listening to the recordings allowed me to hear responses with fresh ears and without distractions. Hearing the responses helped me prepare for the next step: reading and cleaning the transcripts. I also read my notes from each interview. After listening to the recordings, reviewing my notes, and reading and cleaning the transcripts, I wrote an analytic memo summarizing my initial impressions.

Coding: Second Pass. In the second pass I used a deductive coding method that applied codes from my conceptual framework, specifically the COUP Framework. A codebook (Appendix E) was created to support data analysis. While I was coding, new, inductive codes emerged. I initially coded these as "other," later assigning them new codes: adoption, barriers, coordinators, goals, incentives, other/interesting, steering committee, and students.

Next, I read through all passages assigned to each code. At this point I eliminated some codes. First, I determined that "adoption" was too broad. It was the most frequent code because, by definition, every code in the project related to the adoption of OER, either supporting adoption or serving as a barrier to adoption. Therefore, adoption was eliminated, and codes that

had used "adoption" were reviewed again for accuracy and assigned more specific codes, if

needed. Next, "steering committee" was eliminated as a code because it served more to define

the participants' roles or involvement rather than provide a "summative, salient, essence-

capturing, and/or evocative attribute" (Saldana, 2021, p. 5) to define the passages. To avoid

inadvertently identifying participants, and to ensure that codes were designed and defined to

synthesize meaning and contribute to substantive findings, "steering committee" was removed.

Passages with this code were reviewed again to ensure they were assigned appropriate,

descriptive codes.

Next, I did a word count analysis, or Code Landscape (Appendix F), which provided

a visual representation of the most frequently used words (Saldana, 2021, p. 285). The visual

included the 75 most common words in the interview transcripts as well as the frequency of use.

Words were displayed in alphabetical order, either increasing or decreasing in size and

prominence based on frequency of use. I included this step because I wanted to see if I was

missing anything in my analysis, and the Code Landscape provided a tool to identify the most

noteworthy words from the interview transcripts to see how they aligned with my codes. The

most frequent codes were perceptions (29), barriers (24), uses (22), students (17), costs (16), and

coordinators (14). In terms of frequent word use in the Code Landscape, there were some words

that were frequently used by interview participants that overlapped with the codes. These

included coordinator (32), students (44), cost (12), and barrier (7). This supported the addition of

codes that were not in the initial COUP Framework. For example, in my review I added the code

"coordinator" because it emerged as an important topic. The frequency of the word

"coordinator," as shown in the Code Landscape, offered support for my interpretation of the data

and the addition of new codes, such as "coordinator."

In summary, I took coded data, wrote claims in an analytic memo, and sought to answer my research questions by substantiating claims with evidence from the coded data.

Additional Data

Finally, I looked at data available about the OER Project and adoption, as published on the OER Project website. The data included a list of courses, the number of sections, and the faculty participating in the OER Project. In spring 2020 I recorded the data provided for OER courses offered in fall 2019. The site was updated with the spring 2020 OER courses, which I documented for my analysis. I compared the official OER Project participant data from fall 2019 to the data provided for spring 2020. Then I compared the official data to the data reported by faculty in the survey. Data was not available for subsequent semesters. The number of faculty who self-reported OER use exceeded the number of faculty reported as participating in the OER Project. This showed that there were faculty using OER who were not participating in the OER Project, that OER was used more widely than what was accounted for by administrators, and that there was an increase in OER use among faculty since the start of the OER Project.

Table 2

	OER Project Data Fall 2019	OER Project Data Spring 2020	Data Reported by Faculty via Survey
Courses	7	9	N/A
Sections	8	12	N/A
Faculty	7	8	20

Findings

Finding 1: Adoption of OER increased since the start of the OER Project, and as of September 2021 more faculty were using OER than is reported on the OER Project website

I found an increase in participation in the OER Project from semester to semester, as well as additional data about OER use beyond OER Project participation. According to the official OER Project website, in fall 2019 seven faculty participated, and in spring 2020 eight faculty participated. However, according to the limited survey responses, 20 faculty reported using OER in their courses. Further evidence of OER use was supported by interviews with faculty and members of the steering committee. In my conversation with Participant J, I learned about a specific faculty member, a coordinator, who was responsible for a course with 20 sections. Participant J shared that they learned about OER from this coordinator, who was particularly influential in introducing OER to all of the adjuncts for the sections of the course to OER. This coordinator, however, was not listed on the OER Project website. Participant J reported incorporating OER into their other courses after this experience; however Participant J had not officially participated in the OER Project. They were not listed on the OER Project website and had not gone through the formal process of developing an OER course. Participant J learned about OER from a coordinator and was given the tools to participate. Then Participant J incorporated these resources into other courses they taught. This is one example of use and growth beyond what was reported on the OER Project website.

The question of project growth and development aligned with the thematic discussion of participation, specifically consideration of how HCCC had created a community of practice and supported participants in the adoption of OER. This finding established that resources were available and faculty were provided with a number of pathways to participation: formally, via the

OER project; informally, as faculty learned from their peers, like Participant J; and sometimes

accidentally, as was the case with Participant A. Participant A spoke about learning about OER:

> And when I really found out what it stood for . . . I've been doing that forever, like you
>
> know, using public scholarship, looking for resources that were video related to
>
> supplement my instruction, and then I found out that Hudson County Community College
>
> was involved in it. It was, like, a no-brainer, because students often struggle with the cost
>
> of education in general, right, so we really want to push for them to have the accessibility
>
> to learning.

In sum, although official OER participation numbers appear small, my limited sample suggests

that participation in both the actual project and the types of activities the project promotes is

considerably wider than currently documented.

Finding 2: Faculty course coordinators played a key role in OER adoption

I found that faculty course coordinators were identified as gatekeepers and connectors for

OER adoption. Faculty course coordinators were full-time faculty who designed courses and

selected resources that were then used by all adjuncts teaching sections of that particular course.

In the survey the majority of responses indicated that a "program, division, or faculty committee"

played a role in selecting educational resources. Every interview participant mentioned

coordinators and the role they played. Participant F explained:

> Adjunct instructors are free to supplement his or her materials, if they want. But generally
>
> they're, you know, expected to keep with the book that's selected by the coordinator
>
> unless they bring something else forward. . . . A lot of our early adopters were people
>
> who coordinated a particular course and therefore were already with people who told—
>
> maybe for example, adjuncts—what materials to use, even though the adjuncts can use

their own materials if they'd like. But the coordinator kind of says, here's the textbook

for the course, go with this.

Stakeholder perceptions of the coordinator role in OER adoption were at the forefront of many

interviews. Participant D said that many adjuncts might be interested in using OER, but their

hands were tied because faculty in the coordinator role determined which resources to use.

Participant J spoke about one coordinator who occasionally asked for input on books or materials

but stressed that the coordinator was the ultimate decision-maker. It was not unusual for faculty

to report that others played a key role in selecting materials for their courses. In a national study

individual faculty at two-year colleges played less of a role in selecting course materials

compared to their counterparts at four-year colleges (Allen & Seaman, 2014).

When I initially spoke with stakeholders from HCCC, they identified deans and

administrators as gatekeepers, while coordinators were not mentioned. Similarly, participant B

commented on the need for "upper administration" to advance the program. Participant F spoke

about announcements from administrators to encourage take-up. Some participants initially

named deans or administrators as decision-makers who had the greatest influence on adoption;

however, upon further discussion, they each shared the importance of the course coordinator role

in selecting materials for adjuncts. It seemed as though there was an assumption among

stakeholders that deans and administrators had the greatest influence on OER adoption; however,

in the discussion of practice, the role of the coordinators as gatekeepers to OER adoption

emerged. This was similar to change management and OER adoption processes at other colleges

and universities. Gano-Phillips and Barnett (2008) outlined a change management initiative at

the University of Michigan–Flint, and Dean (2018) described the OER adoption process at

Clemson University. In both cases the authors expressed that while colleges and universities

often relied on administrative directives and policies to drive change, a more sustainable

approach was to work with faculty to drive sustainable change-initiatives. One area of

uncertainty among participants was in regard to the recruitment of coordinators to the OER

Project and training on the adoption of OER. Participant D said that there had been some limited

outreach to recruit coordinators, but there was room for growth in that area. They spoke about

the critical role coordinators played in supporting the adoption of OER by adjuncts and the need

to address this. Other participants were not aware of coordinator-specific outreach, while one

interviewee spoke about strategic collaborations with a few coordinators. This reiterates the

importance of the elements for adoption outlined by Greeno and Gresalfi (2008), specifically the

affordances offered and the ability to participate. In terms of participation, coordinators received

specific affordances and opportunities within the community of practice and, in turn, set the

stage for the participation of adjuncts in regard to the adoption of OER.

The coordinator role reinforces the theme of persuasion because it was influenced by

both individual and institutional volition. Cox and Trotter (2017) said that "individual volition is

potentially shaped by both social context (departmental and disciplinary norms) and institutional

structures (policies, strategies, and mechanisms)" (p. 157). At the institutional level HCCC was

motivated to adopt OER, as outlined in the mission, the strategic plan, and the development of

the OER Project and the OER Project Steering Committee. HCCC created agency for adoption

and empowered coordinators to design courses that used OER. Coordinators had their own

motivation to select OER materials. One participant, a coordinator, spoke at length about

wanting to provide peers with free quality materials. Participant C was particularly motivated by

student cost savings:

Starting this coming semester, every section, we have about 30 standard sections . . .

every one of them has made a commitment to us, so we've completely dropped our

textbook for that course. You know if it was in Barnes and Noble, it would cost $90.95.

But the bookstore is charging $130, and the rental was like $80 or something. So, it was

one of the more egregiously overpriced books.

They emphasized that 30 students per 30 sections would impact about 900 students. Assuming

those students would have individually paid the $130 bookstore rate, they would have

collectively saved up to $117,000. This knowledge persuaded Participant C to adopt OER and

stay motivated to research and create resources while also motivating others to adopt OER.

Finding 3: Faculty perceived that creating a course using OER was time- and labor-intensive

I asked which factors were barriers to the use of OER, and faculty and other stakeholders

indicated that the work required to develop an OER course was a deterrent. This was consistent

with the findings in the literature. Belikov and Bodily (2016) found that though faculty were not

opposed to the use of OER, "they expressed that it was not attainable for them to spend the

necessary time evaluating and adapting these resources" (p. 241). Similarly Allen and Seaman

(2014) found that "the most significant barrier to wider adoption of OER remains a faculty

perception of the time and effort required to find and evaluate it" (p. 2). My interviews yielded

similar findings. Participant B discussed the challenge of creating a course from scratch and not

relying on materials from a publisher. They went on to discuss how overwhelming the course

development process could be and identified the time and effort needed as a major barrier to

adoption. Participant C spoke about faculty being comfortable with their materials and hesitant to

do more work. Participant D echoed these sentiments and stressed that faculty needed a major

motivator to scrap an existing course and do all of the work necessary to recreate the course

using OER. Participant E said the number one barrier to adoption was how time-consuming it was to research, find, and create resources.

Irvine, Kimmons, and Rogers (2021) argued that the "greatest barrier to OER creation and adoption among higher education faculty stems from a perceived lack of time to devote to these activities." At HCCC faculty were not motivated to adopt OER based on their perceptions—or the fears and concerns that arose from them. Faculty questioned the availability of resources and time needed to adopt OER. This suggested that opportunities to offer affordances and support for adoption could, in turn, help to shift perceptions and persuade or motivate individuals to engage with the community of practice. Irvine et al. (2021) recognized the role of affordances and perceptions in regard to faculty motivation to adopt OER: "Lack of support, technological tools, quality, skill, and time prevents many educators from publishing or using OER, but with a little rethinking and innovation in the tools we use and the processes we follow, those barriers can be reduced or altogether eliminated."

Finding 4: Students are involved in the OER Project in only marginal ways

Faculty commonly cited student perceptions of OER but were not able to point to data to support those claims. During the interviews each participant spoke about students—often about care for students, the push for student cost savings, connecting with students using new modalities for learning. Participant G spoke about "affecting as many students as possible" to lower costs as well as the importance of increasing student engagement. However, although I asked for data, I did not receive or find any data, satisfaction surveys, or course assessments related to the student experience of OER. In regard to student perceptions, Participant E said, "But generally they love it. They love the fact I quote right on the syllabus, I tell them that announcement, free, you don't have to buy a textbook, they love that." Other participants expressed similar sentiments. Many participants relied on individual conversations with students

to assess student perceptions of their OER course materials; however, systematic data was not available.

When I asked follow-up questions about how students could identify courses or sections that used OER versus traditional texts, participants said that this was shared in the syllabus, which was usually provided on the first day of the course or shortly before the start of the semester. Participants said that students may not be able to find this information prior to course registration. Information about prior semesters' offerings are posted on the OER Project website, but current or upcoming courses are not available publicly. Finally, there was no student representation on the OER Project Steering Committee.

In a meta-analysis of OER studies, Clinton and Khan (2019) reported that students who used OER were less likely to withdraw. In their study of students at the University of Georgia, Colvard, Watson, and Park (2018) also found a reduction in withdrawals as well as grades of D and F. Students were important stakeholders, and information about how they engaged with OER was a missing piece to understand OER adoption at HCCC.

Finding 5: Stakeholder understandings of incentives for developing OER courses was inconsistent

Another barrier to adoption was related to incentives for OER course development, which was linked to the perception that adoption was labor-intensive and time-consuming. To encourage OER adoption and compensate faculty for the additional work involved, many organizations offered incentive programs (Colorado Department of Higher Education, 2019a; Staben, 2019; McGeary et al., 2021). Compensating faculty for OER course development provided motivation to participate, granted affordances to members of the community, and shifted faculty perceptions. In a discussion of the OER incentive program at Rollins College, Miller (2018) observed:

The grant program has a multiplier effect by raising awareness of OER. This happens in several ways. First, some faculty who have been using openly available resources (although not all always meeting the strict definition of OER) in their courses come to realize that they are inadvertently part of a wider movement. Secondly, some faculty who apply but are not awarded the OER grant continue to explore the use of OER in their courses, and finally the requirement that the successful grantee present in a faculty forum on their project spreads the word about OER, as does the normal everyday faculty and departmental conversation about teaching on campus. In these ways, the small OER grant is a catalyst for wider action and discussion."

Incentives were discussed in the interviews with the stakeholders at HCCC, however the responses were inconsistent. Participant G said:

When we started this project, one of the barriers was that we weren't starting as many projects without a grant or without some sort of cash windfall, or anything like that . . . we're just going to come out of our normal budgets, and we have kind of adopted ways to do that. So instructors will be compensated for creating these courses. . . . From the very get go, we do want to compensate backwards for doing this. It does take a lot of time. And it is very similar to some of the other things that we compensate them for, such as creating an online course or things of that nature, so it is very similar to what we already do. We're just trying to find the exact ways to do that.

Participant B expressed some confusion about the incentive program:

I actually am not sure that the incentives have started . . . we've discussed giving faculty who participated at certain levels like, credit hours, or, you know. But, to my

> understanding, that hasn't started, because it's still being tweaked. . . . So I think right
>
> now, they're just doing it because they want to.

Participant D shared that the incentives had started, however one of the challenges was that it took almost a year to pay faculty because it took time to verify funding sources and ensure distribution.

When I reviewed the OER Project website, I found no references to incentives or compensation for adoption. Over half of the survey participants agreed or strongly agreed that HCCC had a fair system of rewarding contributions made to digital pedagogy. However 19% said they did not know, so I prioritized asking about this in my interviews. I found that most interviewees were not aware of incentives or were unsure of the status of the incentive program.

Recommendations

Recommendation 1: Continue to study adoption and use of OER, and design easy pathways for reporting

The OER Project was only a few years old at the time of this study, and the COVID-19 pandemic occurred right while the program was starting. While there was some data available, information was limited, and the survey response rate was too low to draw definitive conclusions about faculty-wide use of OER. The OER Project Steering Committee was tasked with "evaluat[ing] and improv[ing] technology, including classroom and Open Educational Resources" (Hudson County Community College, 2021). The questionnaire used for this study could remain open or be modified and used for additional cycles of data collection to understand perceptions of OER and barriers to adoption.

Figure 6

Recommendations

Q1: How did the OER Project at HCCC develop since the fall of 2019?

Finding 1: Adoption of OER increased since the start of the OER Project, and as of September 2021, more faculty were using OER than is reported on the OER Project website.

Recommendation 1: Continue to study adoption and use of OER, and design easy pathways for reporting.

Q2: What factors did stakeholders perceive played a role in the adoption of OER?

Finding 2: Faculty course coordinators played a key role in OER adoption.

Recommendation 2: Develop a plan to recruit, train, and support coordinators in the adoption of OER.

Q3: What were the barriers to take-up and use of OER at HCCC?

Finding 3: Faculty perceived that creating a course using OER was time- and labor-intensive.

Recommendation 3: Create a marketing and awareness campaign to highlight existing OER initiatives.

Q3: What were the barriers to take-up and use of OER at HCCC?

Finding 4: Students were involved in the OER Project in only marginal ways.

Recommendation 4: Establish multiple touch points for student education, involvement, and data collection.

Q3: What were the barriers to take-up and use of OER at HCCC?

Finding 5: Stakeholder understandings of incentives for developing OER courses was inconsistent.

Recommendation 5: Solidify funding and allocation structure for OER course development, establish distribution procedures, and publicize this opportunity.

In my findings I discovered that there were faculty using OER who were not participating in the OER Project. I recommended that the OER Project Steering Committee find opportunities to capture information about OER use and interest, beyond formal participation in the OER Project. Identifying faculty members who used OER or might be interested in learning more

about OER would provide important data points about adoption and create a pipeline of potential

participants for the OER Project. In terms of ease of reporting OER use or course design, the

website included steps for adoption (Figure 7). However, this could appear cumbersome to

faculty who perceived OER course development as time- and labor-intensive, nor does it capture

the information of interested parties.

Figure 7

I'm interested in developing an OER course. What next?

- Notify your coordinator and division dean
    - Upon doing so, you will be assigned to one of the aforementioned priorities.
- Meet with librarian and Instructional Technologist to discuss needs
    - In collaboration with librarian, curate course materials, conform with IP law and ADA requirements
    - In collaboration with Instructional Technologist, field materials on Canvas
- Present course to OER Committee for review and approval
- Submit course data on student engagement and student success to OER Committee as requested
- At the end of term, complete a survey and return it to the OER Committee
- Regularly inspect to insure that course materials remain available

Edits to this section could capture information from faculty who wish to report their OER use or

request more information. A more detailed outline could be shared once the faculty connects

with the steering committee. Additionally, in consideration of power dynamics at play, instead of

placing the agency on the faculty member to communicate with deans or coordinators, the

steering committee could make these connections to demonstrate institutional volition and an

invitation into the community of practice. A few minor modifications could provide new data

about use and new faculty into the pipeline for OER course development. For example, Colorado

State University invites faculty to "join us" and provides their OER@colostate.edu email address

for faculty to connect and share their course materials and scholarship (Colorado State

University, n.d.). HCCC could offer a direct email address for the OER Project in lieu of the

checklist. The website could say, "I'm interested in developing an OER course or I want to share

my work. What next?" Then say, "Contact the OER Project at OERProject@hccc.edu." A point

person would follow up with faculty to review the next steps for involvement in the OER

Project.

Recommendation 2: Develop a plan to recruit, train, and support coordinators in the adoption of OER

Coordinators were gatekeepers for OER use and played a pivotal role in supporting the

goals of the OER initiative. At Clemson University they "prioritized grassroots-led efforts over

administrative action" (Dean, 2018) and focused on faculty adoption and student participation. I

recommend that HCCC take a similar approach and prioritize the involvement of faculty,

specifically faculty in coordinator roles. By prioritizing relationship building between the

steering committee and faculty in the coordinator roles, and by creating a support system for

coordinators in the OER course development process, HCCC would have an opportunity to

recruit influential stakeholders. The steering committee could target the coordinators for the

highest-enrolled courses and courses in high-enrolled majors who have yet to participate in the

OER Project. If the committee strategically recruited three new coordinators from these

categories each semester and offered them support for instructional design and OER training,

HCCC could see the program more than double in two years. This recommendation supported

the priority to "allow OER at HCCC to have the largest impact on students" (Hudson County

Community College: Open Educational Resources) and support the metrics for success, as

defined by HCCC's Strategic Plan (Hudson County Community College, 2021).

Recommendation 3: Create a marketing and awareness campaign to highlight existing OER initiatives

The OER Project was a comprehensive program that had clear goals and objectives,

offered support for OER adoption and training programs, and included stakeholders from the

library, instructional technology, and various academic departments. The activities and resources

offered by the OER Project were consistent with models from the literature and established evidence-based practices. For example, the OER Project website included resources ranging from information for faculty about Creative Commons licenses and course materials available through the library and other open resource websites, to information about textbook-free courses. It also included links to book appointments with librarians to receive support for course design using OER, contact information for academic liaisons, training videos, and links to state and federal legislative initiatives related to OER. However, while the essential pieces were in place, faculty still perceived that OER adoption was labor-intensive. Therefore, this was an opportunity for HCCC to market existing programs and resources. In the early phases of their OER outreach, Clemson University focused their efforts on "outreach: media and advertising; presentations to both self-selected groups and influential campus bodies; contests; flyers; displays; networking; one-on-one discussions, etc." (Dean, 2018) in order to raise awareness on campus, gauge interest, and recruit interested faculty and students. HCCC having all of the right pieces in place including a broad marketing campaign—especially while faculty and students are returning to campus post-COVID—would benefit the OER Project and key stakeholders.

Training Programs

The OER Project website offers a vast array of resources and training opportunities, and interview participants spoke about the quality of the professional development programs offered. In their discussion of affordances and technology take-up, Borko et al. (2009) said, "It is crucial that investments in both the technologies and the preparation that supports their use be made wisely and efficiently so that they add value to the learning experience" (p. 5). If HCCC focuses on "wisely and efficiently" marketing their training programs, they will encourage faculty adoption.

Support for Course Creation

According to the OER Project website, the course development process includes collaborating with a librarian and an instructional technologist. However, the scope of the support and the time associated with these partnerships was unclear. The OER Project website could include testimonials from faculty that describe the support provided and work required to develop the course.

Current Faculty Use

The website listed faculty who taught OER courses in prior semesters; however current faculty were not included. To acknowledge the work of faculty who are involved, and to address faculty perceptions of the adoption process, HCCC could offer faculty spotlights on the website or via newsletters that showcase the work of faculty and celebrate the outcomes.

In summary, by highlighting current programs, services, and faculty involvement through website updates or newsletters, HCCC may be able to shift perceptions and encourage adoption of OER.

Recommendation 4: Establish multiple touch points for student education, involvement, and data collection

There was little information about student participation and perceptions, so I recommended that the OER Project develop multiple pathways for student involvement. These could include publicizing OER courses prior to registration, including student representatives on the OER Project Steering Committee, and conducting focus groups with students.

Publicize OER Courses Prior to Registration

Incorporating an OER designation into the course catalogue was one component of the OER adoption plan at the University of Pittsburg at Bradford (Collister, 2018). Interview participants from HCCC shared that students often learned that their courses were textbook-free on the first day of class. According to Participant E:

So it wouldn't be in the course catalog, because it might not be all sections, but when

they go online to search for sections and they look at the different sections. Probably

doesn't say in there either. That's a really good question, they're not going to find out.

Unless their professor tells them where they see the syllabus in advance.

To encourage student participation in OER courses, students need to know about their options in advance. Ideally, this would occur via the course catalogue or registration process, but an alternative would be to promote classes using OER prior to registration via student emails, social media accounts, or the OER Project website. Over time, this would allow the steering committee to collect data on student preferences and comparisons between courses using OER and traditional texts, as well as comparative data on student cost-savings.

Representation on Steering Committee and Focus Groups

Student representation on the steering committee, either from volunteers or from the student government, would allow the committee to gain the student perspective and create an avenue for peer-to-peer information sharing. It is not uncommon for colleges to rely on faculty for OER development, while excluding students. Joyce (2006) noted that "the prevailing culture in higher education places the responsibility for innovation in the hands of academics, rather than students who may have stronger incentives to experiment with and advance teaching and learning methods" (p. 9). Baker and Ippoliti (2018) described student involvement with OER at Oklahoma State University (OSU). OSU partnered with graduate students for course development initiatives, and their library staff partnered with the Student Government Association to plan a series of programs about OER. The library at OSU also surveyed students regularly to gain student perspectives on textbook costs. The librarian responsible for OER at Clemson University worked with the Clemson Undergraduate Student Government, specifically the academic affairs committee, to gain student perspectives and assist with student outreach

(Dean, 2018). To gather current information about student perceptions, the steering committee could conduct focus groups once per semester with students enrolled in OER Project courses.

Recommendation 5: Solidify funding and allocation structure for OER course development, establish distribution procedures, and publicize this opportunity

As this was the area with the most inconsistent responses from participants, I recommended that the steering committee focus on securing resources for the incentives, establishing protocols for prompt payments, publicizing the amount faculty will be paid for designing OER courses, and ensuring this information is on the OER Project website. This would involve identifying a sustainable funding source for the incentives, either through the institutional budget or grants, and working with human resources and payroll to ensure that funds were distributed according to an established timeline.

Next, the steering committee should determine how much funding will be issued for various types of OER use and course development. In 2020 the Community College of Aurora offered a limited number of awards, starting with 28 awards of $250 for OER textbook review, four awards of $1,577 for OER textbook adoption, and one award of $3,154 for OER adaption or curation (Community College of Aurora). Boise State offered a summer grant program in which participating faculty earned a $2,000 stipend for the eight-week instructional experiences that resulted in OER course design (Boise State). Michigan State University offered grants ranging from $1,000 for adoption of existing OER, to $4,000 for the creation and development of new OER, as well as department-wide grants of up to $5,000 for initiatives that have a broad impact (MSU Libraries). In my interviews some stakeholders shared an incentive plan, while other participants were not aware of a formalized structure. The steering committee should ensure that all stakeholders are aware of the incentives and that the program is publicized. Dean (2018)

recommended presenting the incentive program to groups and departments, especially library staff, and publicizing the program on the website and via newsletters and social media accounts.

Conclusions

The OER Project Steering Committee at HCCC was interested in understanding faculty perceptions of OER and identifying barriers to the use of OER, and it was critical to the mission of the college and the strategic plan to find a sustainable solution to support high quality and affordable educational resources (Hudson County Community College, 2021; Hudson County Community College: Mission Statement, n.d.). The purpose of this quality improvement project was to understand faculty perceptions of OER, identify the scope of OER adoption since the start of the OER Project, and recognize any existing barriers to the use of OER. To do this, I asked the following questions: 1) How did the OER Project at HCCC develop since fall 2019? 2) What factors did stakeholders perceive played a role in the adoption of OER? 3) What were the barriers to take-up and use of OER at HCCC?

Upon analysis of the data from the questionnaire and the stakeholder interviews, I found that adoption of OER increased since the start of the OER Project, and even more faculty were using OER than was reported on the OER Project website. I also found that coordinators played a key role in OER adoption, and that faculty perceived that creating an OER course was time- and labor-intensive. Furthermore, student involvement in the OER Project was very limited, and faculty awareness of incentives for developing OER courses was inconsistent.

Based on these findings, I offered a number of recommendations that were provided to the HCCC administrators and the OER Project Steering Committee. First, continue to study adoption and use, and provide easy pathways for reporting. Second, develop a plan to recruit, train, and support coordinators in the adoption of OER. Third, create a marketing and awareness

campaign to highlight existing initiatives. Fourth, establish multiple touch points for student

education, involvement, and data collection. Finally, if HCCC can solidify funding and

allocation structure for OER course development, establish distribution procedures, and

publicize, I expect faculty take-up will increase significantly.

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Appendices

Appendix A – Survey OER Perceptions and Use at HCCC

Adapted from Allen & Seaman (2014)
Creative Commons Attribution 4.0 International License
https://www.bayviewanalytics.com/reports/openingthecurriculum2014.pdf

Informed Consent:

You are invited to take part in this quality improvement project because you are a member of the faculty at Hudson County Community College (HCCC). This is a quality improvement project on the use of technology and other educational resources in teaching at HCCC. Participation is voluntary involves completing a brief questionnaire. The questionnaire will take approximately 15-20 minutes to complete. Participants may withdraw at any time. Data gathered from this quality improvement project may provide information that will improve instructional practice for faculty, reduce costs for students, and support positive student learning outcomes. This could also lead to enhanced support for using technology and other resources for instruction.

Confidentiality:

All efforts, within reason, will be made to keep your personal information confidential but total confidentiality cannot be guaranteed. The researchers will have access to your data so that we can analyze the data and conduct the quality improvement project. We will share our findings with administrators from HCCC and we may share findings in publications or presentations. Only aggregate data and data with de-identified results will be shared or published.

As your colleagues, department chair, other administrators, and students are likely already aware of the learning tools and resources you use for instruction, we believe there is little risk to participation. You may skip questions if you have any concerns. We do not anticipate unforeseeable risks to participation in this quality improvement project.

Contact:

If you should have any questions about this quality improvement project, please feel free to contact Tara Mellor at tara.l.mellor@vanderbilt.edu or my Faculty Advisor, Dr. Michael Neel at michael.a.neel@vanderbilt.edu.

For additional information about giving consent or your rights as a participant, to discuss problems, concerns, and questions, or to offer input, please feel free to contact the Institutional Review Board Office at (615) 322-2918 or toll free at (866) 224-8273.

STATEMENT BY PERSON AGREEING TO PARTICIPATE IN THIS PROJECT

Progressing to the next question indicates that 1. You read and understand the statement of informed consent and 2. You are a faculty members at HCCC and 3. Your willingness to participate in this study

Survey adapted from:
Allen, I.E. & Seaman, J. (2014). Opening the curriculum: Open educational resources in U.S. higher education, 2014. Creative Commons Attribution 4.0.

I have read the statement of informed consent and I wish to voluntarily participate in this study.	☐ Yes ☐ No
Gender Identity	○ Man ○ Woman ○ Non-binary ○ I prefer not to say ○ I prefer to self-describe
Gender Identity: Self-describe	_____
Teaching Status	○ Full-Time ○ Part-Time

Number of Years Teaching	◯ Less than 1
	◯ 1 to 3
	◯ 4 to 5
	◯ 6 to 9
	◯ 10 to 15
	◯ 16 to 20
	◯ 21 or more

Tenure Status	◯ N/A
	◯ Tenured
	◯ Tenure track, not tenured
	◯ Not tenure track

Primary Discipline	◯ Accounting
	◯ Arts and Literature
	◯ Business Administration
	◯ Culinary Arts
	◯ Computer and Information Science
	◯ Economics
	◯ Education
	◯ Engineering
	◯ Hospitality Management
	◯ Humanities
	◯ Law
	◯ Linguistics/Language
	◯ Mathematics
	◯ Medicine
	◯ Nursing
	◯ Natural Sciences
	◯ Philosophy
	◯ Psychology
	◯ Social Sciences
	◯ Other

Age	◯ Under 25
	◯ 24–34
	◯ 35–44
	◯ 45-54
	◯ 55+

Which of the following have you taught during the most recent academic year?	☐ In person, synchronous course
	☐ Remote, synchronous course
	☐ Online, asynchronous course
	☐ Blended/Hybrid course

| Did you make any modifications to your course instruction delivery methods due to COVID-19? | ◯ Yes |
| | ◯ No |

When HCCC permits 100% face-to-face, on-campus instruction, how will you teach your course(s)?	☐ In person, synchronous course
	☐ Remote, synchronous course
	☐ Online, asynchronous course
	☐ Blended/Hybrid course

How often have you done each of the following?

	Never/NA	Rarely	Occasionally	Regularly
Used digital materials such as simulations and videos in course presentations.	○	○	○	○
Assigned material available only in eTextbook format.	○	○	○	○
Assigned books for which eTextbooks and traditional formats are both available.	○	○	○	○
Published digital scholarship (beyond publishing an online version of a traditional scholarly paper).	○ ○ ○ ○			
Used social media to interact with students.	○	○	○	○
Used social media to interact with colleagues.	○	○	○	○

What is your opinion about the nature of support that you have received from your institution?
My institution...

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Don't Know
Respects teaching with technology (in person or online) in tenure and promotion decisions.	○	○	○	○	○	○
Has a fair system of rewarding contributions made to digital pedagogy.	○ ○ ○ ○ ○ ○					
Has strong policy to protect intellectual property rights for digital work.	○ ○ ○ ○ ○ ○					
Provides support and flexibility	○ ○ ○ ○ ○ ○					

in understanding and choosing intellectual property policies.

Who has a role in selecting educational resources for use in the courses you teach? Select all that apply	☐ Me ☐ Another faculty member ☐ A faculty committee ☐ Program or division ☐ Instructional design group ☐ Administration ☐ Other
Who has the PRIMARY role in selecting educational resources for use in the courses you teach?	○ Me ○ Another faculty member ○ A faculty committee ○ Program or division ○ Instructional design group ○ Administration ○ Other
When selecting resources for your teaching, which of the following factors are most important to you? Choose three	☐ Cost ☐ Proven to improve student performance ☐ Easy to find ☐ Includes all the materials I need ☐ High-quality and factually correct ☐ Covers my subject area sufficiently ☐ Works with my institution's Learning Management System (LMS) ☐ Mapped to learning outcomes ☐ Current and up-to-date ☐ Easy to use ☐ Used by other faculty members ☐ Provided by my institution ☐ Ready to use ☐ Adaptable/editable ☐ Any other factor

How aware are you of each of the following licensing mechanisms?

	Unaware	Somewhat Aware	Aware	Very Aware
Public Domain	◯	◯	◯	◯
Copyright	◯	◯	◯	◯
Creative Commons	◯	◯	◯	◯

How aware are you of Open Educational Resources (OER)?

◯ I am not aware of OER
◯ I have heard of OER, but don't know much about them
◯ I am somewhat aware of OER but I am not sure how they can be used
◯ I am aware of OER and some of their use cases
◯ I am very aware of OER and know how they can be used in the classroom

OER is defined 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." Unlike traditionally copyrighted material, these resources are available for "open" use, which means users can edit, modify, customize, and share them.

Please provide some examples of Open Educational Resources that you are aware of. _____

If you were to describe the concept of open resources for education to a colleague, which of the following would you include in your description?

	Not Included	May or May Not Include	Would Include
Is available for free	○	○	○
Has the ability to remix and repurpose	○	○	○
Is provided with a Creative Commons license	○	○	○
Is easy to combine with other course materials	○	○	○
Is of high quality	○	○	○
Is more up-to-date than textbooks	○	○	○

Have you used open educational resources in either of the following ways?

I have used OER as...

	Never/NA	Rarely	Occasionally	Regularly
Primary course material (main class material used by teacher and students)	○	○	○	○
Supplementary course material (supporting material to enhance teaching or as further reference for students)	○	○	○	○

Have you used any of the following types of open educational resources?

	Yes	No
Videos	○	○
Audio Podcasts	○	○
Images	○	○
Infographics	○	○
Interactive games or simulations	○	○
Video lectures/tutorials	○	○
Tests and quizzes	○	○
Open textbooks, chapters from textbooks	○	○
Homework exercises	○	○
Slides and class presentations	○	○
Whole course	○	○
Elements of an existing course e.g., a module/unit	○	○
Lesson plans	○	○
Any other type	○	○

How would you compare the quality of open resources to that of traditional resources on the following dimensions?

	Open Resources Superior	About the Same	Traditional Resources Superior	No Opinion/Don't Know
Cost	○	○	○	○
Proven to improve student performance	○	○	○	○
Easy to find	○	○	○	○
Includes all the materials I need	○	○	○	○
High-quality and factually correct	○	○	○	○
Covers my subject area sufficiently	○	○	○	○
Works with my institution's Learning Management System (LMS)	○	○	○	○

Do you think you will use Open Educational Resources
In the next three years?

- o I am not interested in using Open Educational Resources
- o I might consider using Open Educational Resources
- o I will consider using Open Educational Resources
- o No opinion/Don't know Open Educational Resources

How would you rate the quality (factually correct, up-to-date, well-written, organized, effective) of Open Educational Resources and material from traditional publishers?

	Poor	Average	Good	Excellent	Don't Know
Traditional Publishers	○	○	○	○	○
Open Educational Resources	○	○	○	○	○

How would you rate the ease of searching for educational resources for your courses?

	Very Difficult	Difficult	Easy	Very Easy
From traditional publishers	○	○	○	○
Open educational resources	○	○	○	○

What are the three most important deterrents to the use of Open Educational Resources in

☐ Too difficult to use
☐ Too hard to find what I need
☐ Not enough resources for my subject
☐ Not high-quality
☐ Not current, up-to-date
☐ Not relevant to my local context
☐ No comprehensive catalogue of resources
☐ Not knowing if I have permission to use or change
☐ Lack of support from my institution
☐ Too difficult to change or edit
☐ Too difficult to integrate into technology I use
☐ Not effective at improving student performance
☐ Not used by other faculty I know

Do you believe the following statements about Open Educational Resources (OER) are true?

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	No Opinion
Use of OER leads to improvement in student performance.	○	○	○	○	○	○
Use of OER leaders to improvement in student satisfaction.	○	○	○	○	○	○
The open aspect of OER creates different usage and adoption patterns than other online resources.	○	○	○	○	○	○
Open educational models lead to more equitable access to education, serving a broader base of learners that traditional education.	○	○	○	○	○	○
Use of OER is an effective method for improving retention for at-risk students.	○	○	○	○	○	○
OER adoption at an institution level leads to financial benefits for students and/or institutions.	○	○	○	○	○	○
Use of OER leads to critical reflection by educators, with evidence of improvement in their practice.	○	○	○	○	○	○

We welcome your comments. Please let us know your thoughts on any of the issues covered in this survey.

_____

May we quote your response(s)?   ○ Yes
                                      ○ No

Published comments will only include the institution and attribution of the discipline of the faculty member and if they are full- or part-time. ("Full-time Natural Sciences Faculty from HCCC," "Part-time Humanities faculty from HCCC.") No personal identifiable information will be included.

May we contact you to participate in a follow-up interview?   ○ Yes
                                      ○ No

Please provide your name, email address, and phone number.

Appendix B – Faculty Interview Questions

1. Tell me about yourself and your role at HCCC.
2. What is your background/familiarity with OER at HCCC?
    a. Please provide some examples of Open Educational Resources that you are aware of at HCCC.
3. How would you compare the quality of open resources to that of traditional resources?
4. Who plays a role in selecting educational resources for instructional use in courses?
5. What support have you received for adopting OER/designing courses to use OER?
6. What challenges have you encountered related to OER use?
7. What would you say are barriers to OER at HCCC?
8. What has the student response to OER looked like?
9. Can you recommend any other faculty members or students for interviews for this project?

Appendix C – OER Project Steering Committee Interview Questions

1. Tell me about yourself and your role at HCCC.
2. What is your involvement with the OER Project at HCCC?
    a. Please describe the purpose and goals of the OER Project.
3. What is your assessment of the OER Project to date?
4. Who plays a role in selecting educational resources for instructional use in courses?
5. How does HCCC demonstrate respect for teaching with technology (in person or online) in tenure and promotion decisions?
6. What are the three most important barriers to the use of Open Educational Resources at HCCC?

7. Can you recommend any other faculty members or students for interviews for this project?

Appendix D – Informed Consent Form for Interviews

Open Educational Resources: Perceptions and Use at HCCC
Informed Consent Form for Interviews

Informed Consent:

You are invited to take part in this quality improvement project because you are either a member of the faculty, a student, an administrator, or a stakeholder involved with Hudson County Community College (HCCC). This is a project on the use of technology and other educational resources in teaching and learning at HCCC. The project involves a 30- to 60-minute interview. Participants may withdraw at any time. Data gathered from this quality improvement project may provide information that will improve instructional practice for faculty, reduce costs for students,

and support positive student learning outcomes. This could also lead to enhanced support for using technology and other resources for instruction.

The interview will take approximately 30 to 60 minutes and will be recorded. Questions will ask about practices related to the use of various resources for teaching and learning. There are no costs to participants to participate in this survey. We believe there is minimal risk to participation in this project as the content pertains to use of various teaching and learning resources. Submission of personal or upsetting information is not required. If you have concerns about any questions, you may skip them or quit at any time.

Confidentiality:

All efforts, within reason, will be made to keep your personal information confidential but total confidentiality cannot be guaranteed. The researchers will have access to your data so that we can analyze the data and complete the project. We will share our findings with administrators from HCCC and we may share findings in publications or presentations. **Only aggregate data and data with de-identified results will be shared or published.**

Contact:

If you should have any questions about this quality improvement project, please feel free to contact **Tara Mellor** at **tara.l.mellor@vanderbilt.edu** or my faculty advisor, **Dr. Michael Neel**, at **michael.a.neel@vanderbilt.edu**.

For additional information about giving consent or your rights as a participant, to discuss problems, concerns, and questions, or to offer input, please feel free to contact the Institutional Review Board Office at (615) 322-2918 or toll free at (866) 224-8273.

<u>STATEMENT BY PERSON AGREEING TO PARTICIPATE IN THIS PROJECT</u>
I have read this informed consent document and the material contained in it has been explained to me verbally. All my questions have been answered, and I freely and voluntarily choose to participate.

Date	Signature of volunteer

Consent obtained by:

Date	Signature

Printed Name and Title

Appendix E – Codebook

Code	Description	Origin	Example
Costs	The code *costs* refers to the price or savings on the purchase of educational materials and/or financial impacts of OER adoption.	Deductive	"It was like a no brainer, because students often struggle with the cost of education in general right so we really want to push for them to have the accessibility to learning."
Outcomes	The code *outcomes* refers to learning impacts of OER adoption.	Deductive	"So what we really wanted to do when we change the materials for a course is get to those student learning outcomes in a different manner than would normally be achieved through the original course materials that also incorporates something called backwards design."
Perceptions	The code *perceptions* refers to how stakeholders feel about OER and OER adoption.	Deductive	"The course development process is so overwhelming, that a lot of my job is like, it's gonna be okay. We're gonna be fine. Yeah. And so trying to find a way to integrate learning a whole, you know, big thing…"
Uses	The code *uses* refers to the ways faculty use OER.	Deductive	"In conjunction also with some of the universities, other universities that you might not have come in contact with as an educator, you could kind of see what they're doing well, what are their best practices, what materials that they are using, you know to build your lectures and experience for the students."
Adoption*	The code *adoption* refers to take up of OER by faculty.	Inductive	"We have had a lot of success in that we have had a lot of sections and a lot of courses switched over to OER, and we have gained, we gained a lot of momentum in the original year of the project, which kind of tapered off a bit, and it has come back and we have a lot of

Barriers	The code *barriers* refers to obstacles to take up of OER.	Inductive	people interested in switching over to where we are and it's kind of snowballing a lot."
			"Well, you know, one, in my case, I think it's when you've been teaching a long time and you're comfortable with your materials. It's extra work. And I like what I'm doing. There's no need to change so there's a certain amount of stubbornness that comes from that."
Coordinators	The code *coordinators* refers to members of the faculty responsible for specific courses, including the development of the syllabus, Canvas shell, and other instructional materials, that are used by other adjuncts teaching sections of the course.	Inductive	"An adjunct generally can't just say I want to use something else. So there's usually a standard textbook for our class and it's the coordinator who decides that."
Goals	The code *goals* refers to formal and informal goals of , or associated with, the OER project.	Inductive	"The first goal is to provide access to current educational materials and resources that align with quality academic standards. And so we want to make sure that we're not just providing faculty members and students with subsidiary materials or other materials but rather materials that have the same amount of quality as the materials we were currently using."
Incentives	The code *incentives* refers to compensation for the work associated with developing OER courses.	Inductive	"Hopefully, the Department of Education more grants will be forthcoming. It is much easier to do that with a large amount of money because then not only can you compensate people fairly, but you can also send people to conferences."
Other/Interesting	The code *other* refers to interesting statements that were not associated with established codes.	Inductive	"The last goal is to advance creativity and innovation." "COVID or some of the things of this, but a damper on our project of

			many other projects across Hudson, that kind of got put on the back shelf. And now we're being brought to the forefront and of course we have a different landscape and we're trying to figure out how to navigate that."
Steering Committee*	The code S*teering Committee* refers to goals, tasks, and responsibilities of the leadership team who manage the OER Project	Inductive	"Then I sort of, by chance, came on the OER steering committee, and learned that there was an actual project and initiative going on."
Students	The code *students* refers to enrolled undergraduates at HCCC.	Inductive	"I have not seen students involved in the process."

Eliminated after second pass

Appendix F – Code Landscaping

Produced Using TagCrowd (tagcrowd.com)

access (14) adjuncts (9) adopt (5) already (6) available (5) barrier (7) bit (5) books (8) buy (7) certain (7) change (8) choose (5) class (7) college (5) comes (6) committee (5) compensate (7) coordinator (32) cost (12) course (30) development (8) different (8) easier (5) education (8) experience (6) faculty (21) figure (5) free (11) general (10) getting (5) giving (6) goal (12) going (9) help (5) hudson (5) initiative (6) instructors (7) interests (5) learning (17) lectures (5) links (5) lot (36) love (5) materials (34) maybe (6) oer (11) online (7) outcomes (6) people (16) possible (5) professional (5) project (14) provide (7) question (5) really (25) resources (11) sections (8) select (6) similar (8) something (7) started (14) students (44) sure (10) teaching (6) text (6) textbook (36) things (15) think (17) work (20) year (8)

Appendix G – Selected Graphs of Descriptive Survey Data

Teaching Status
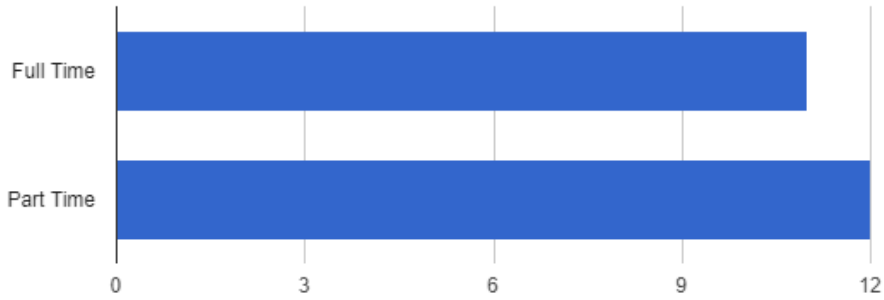
Tenure Status
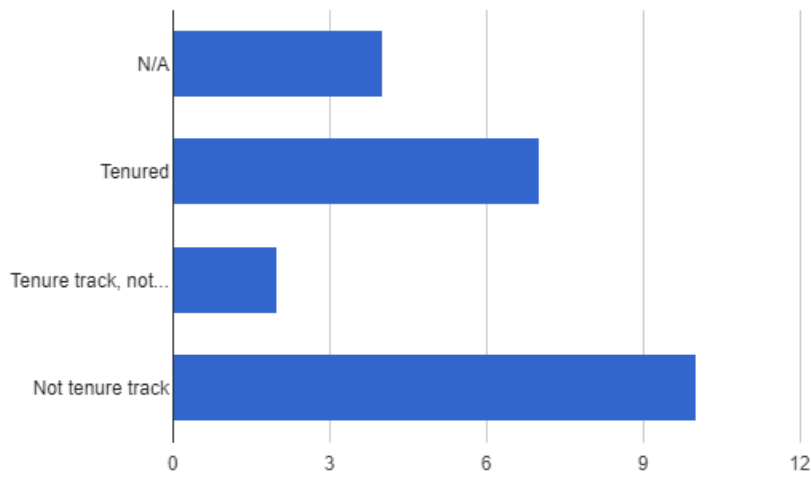
How often have you used digital materials such as simulations and videos in course presentations?
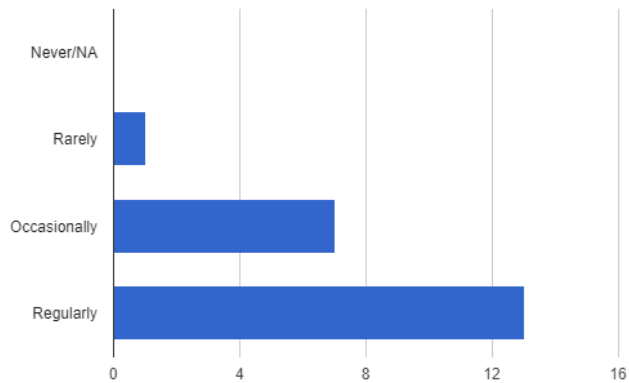
How often have you assigned material available only in eTextbook format?
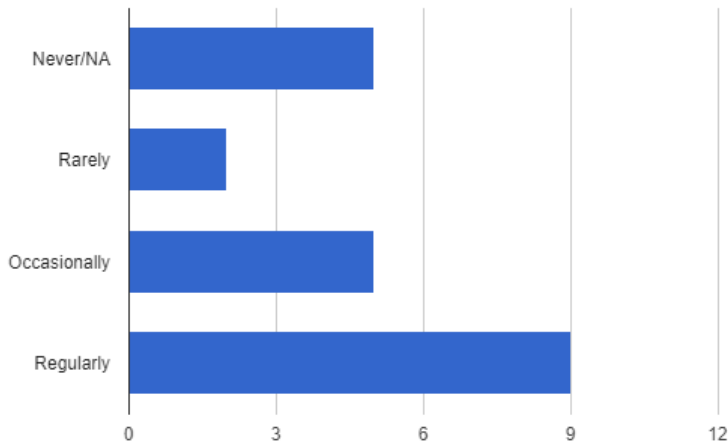
How often have you assigned books for which eTextbooks and traditional formats are both available?
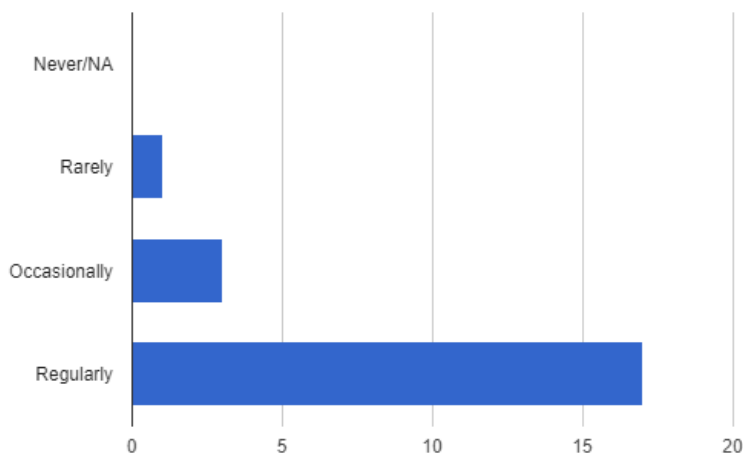
How often have you published digital scholarship (beyond publishing an online version of a traditional scholarly paper)?
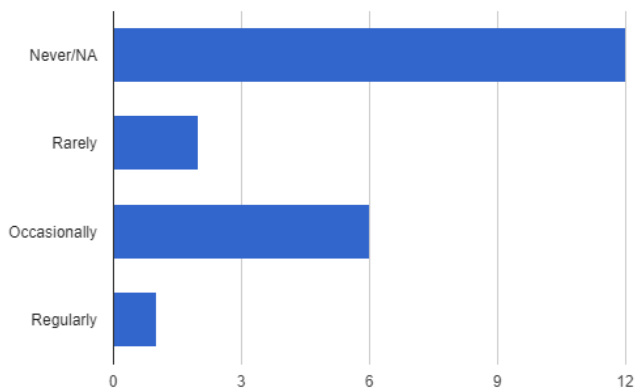
My institution has a fair system of rewarding contributions made to digital pedagogy.
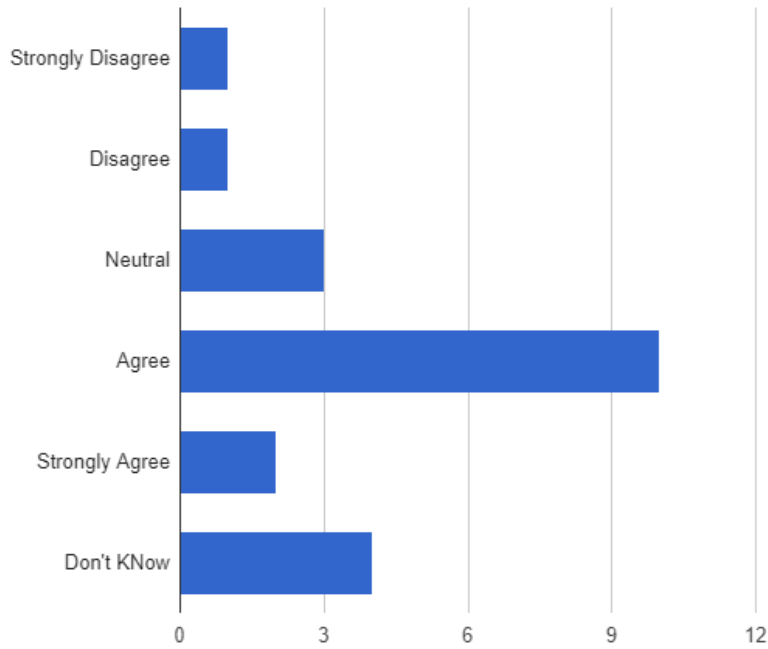
My institution has strong policy to protect intellectual property rights for digital work.
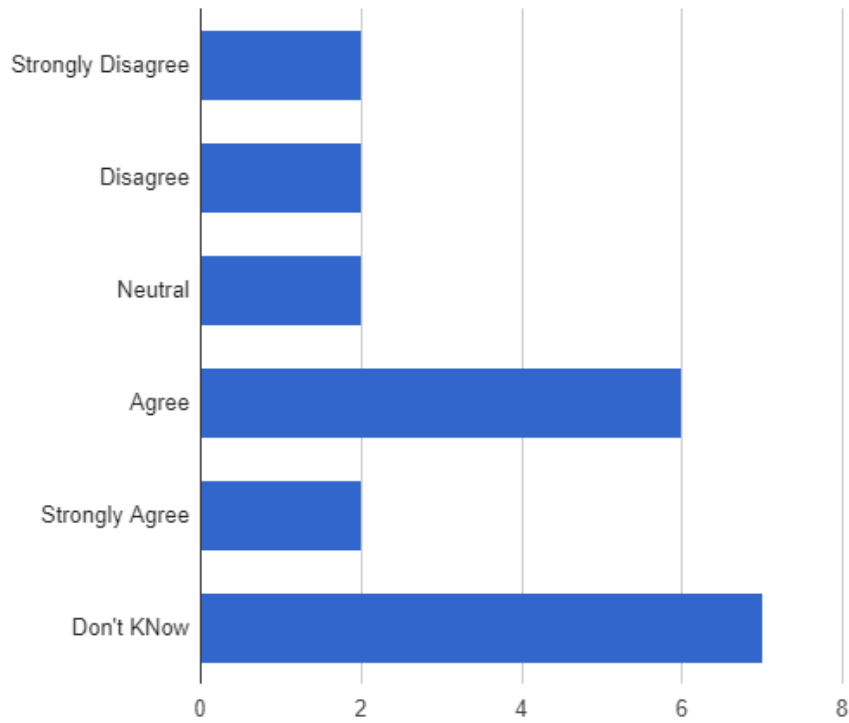
My institution provides support and flexibility in understanding and choosing intellectual property policies.
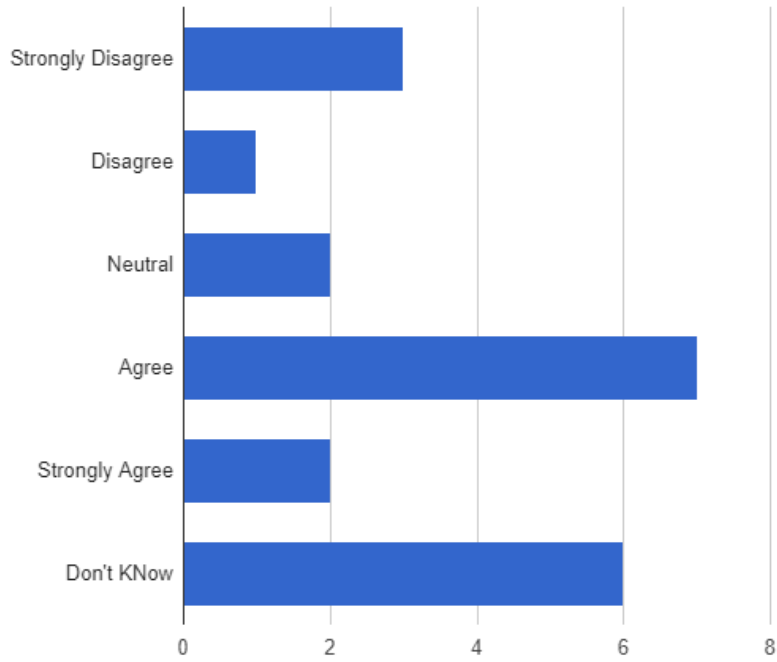
Who has a role in selecting educational resources for use in the course you teach?
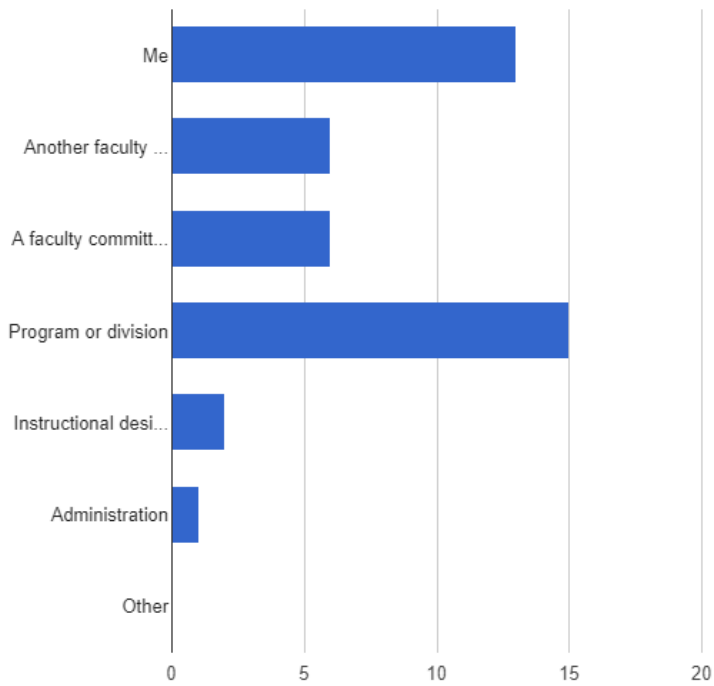
Who has the PRIMARY role in selecting educational resources for use in the courses you teach?
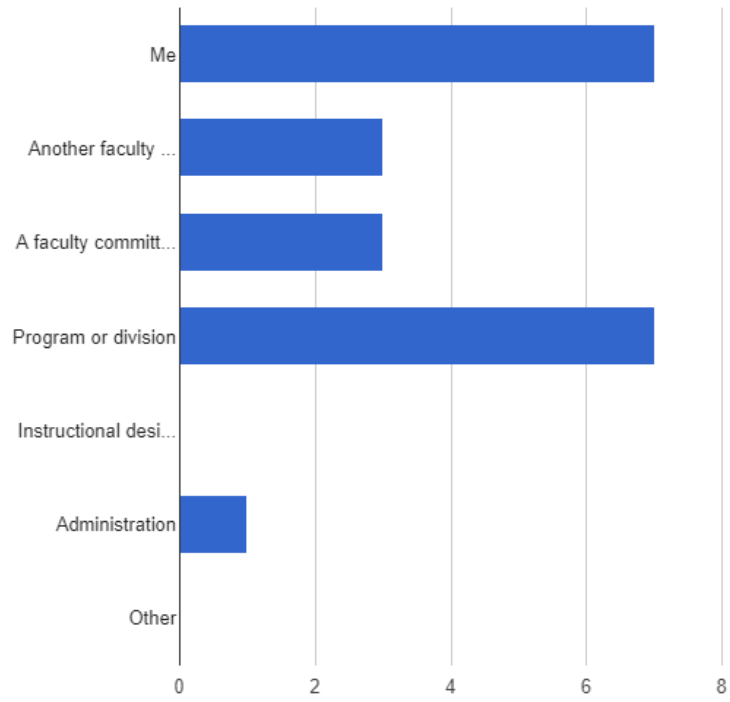
When selecting resources for your teaching, which of the following factors are most important to you?
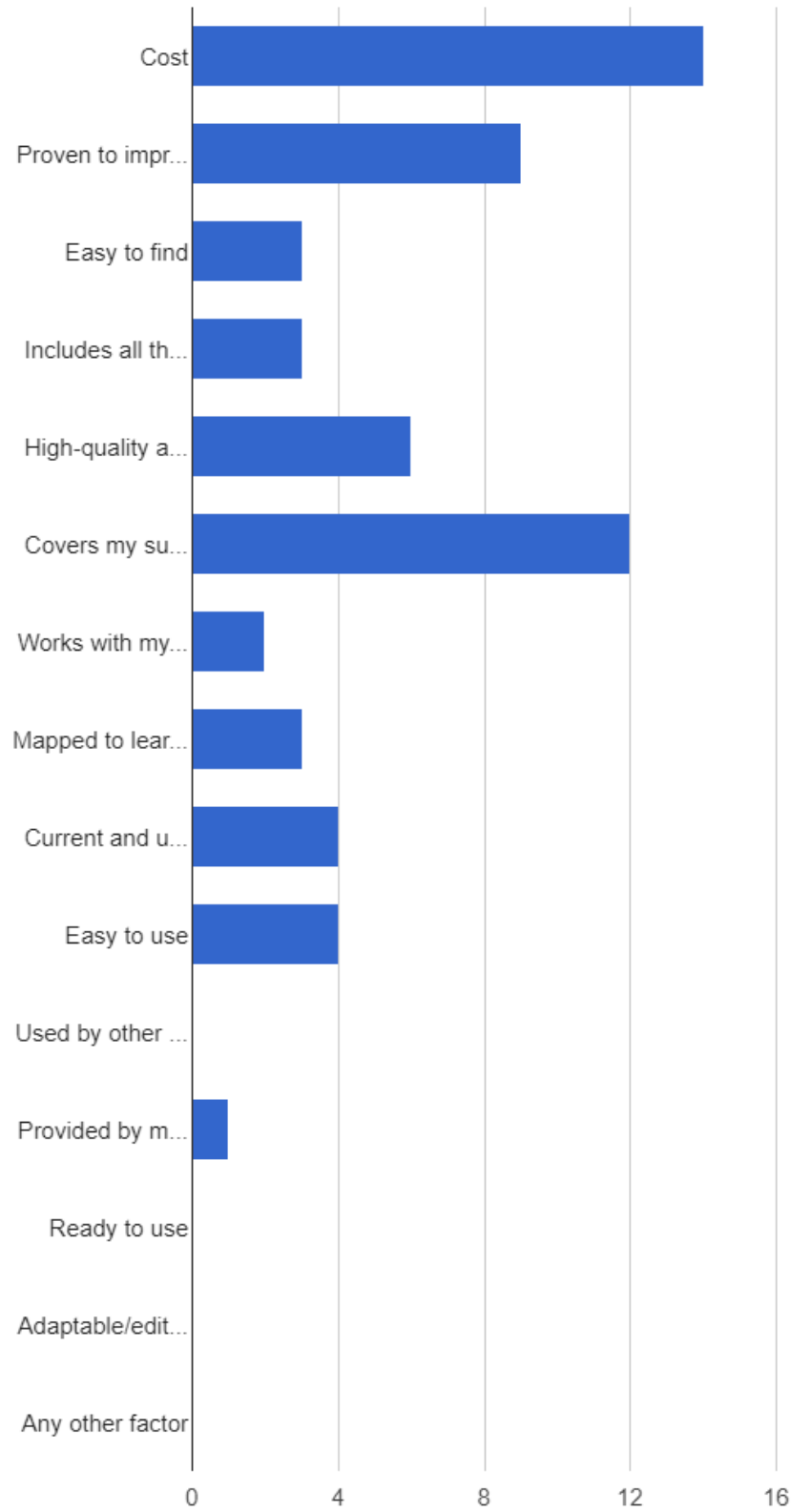
How aware are you of the following licensing mechanism: public domain?
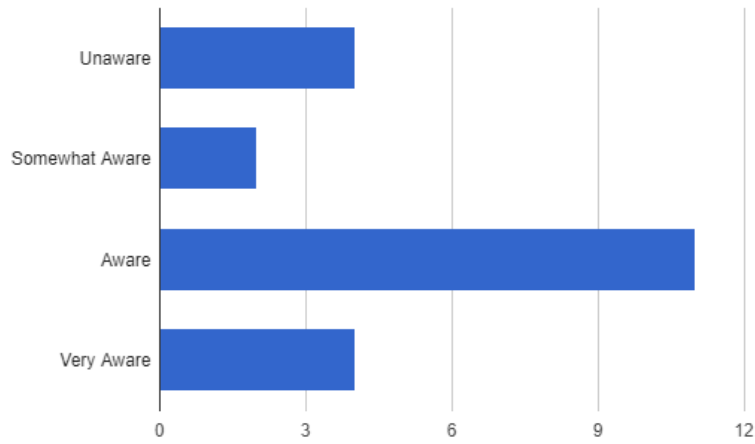
How aware are you of the following licensing mechanism: copyright?
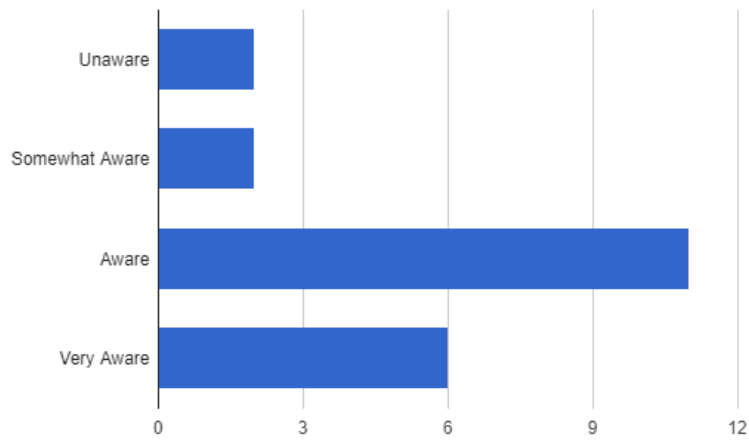
How aware are you of the following licensing mechanism: Creative Commons?
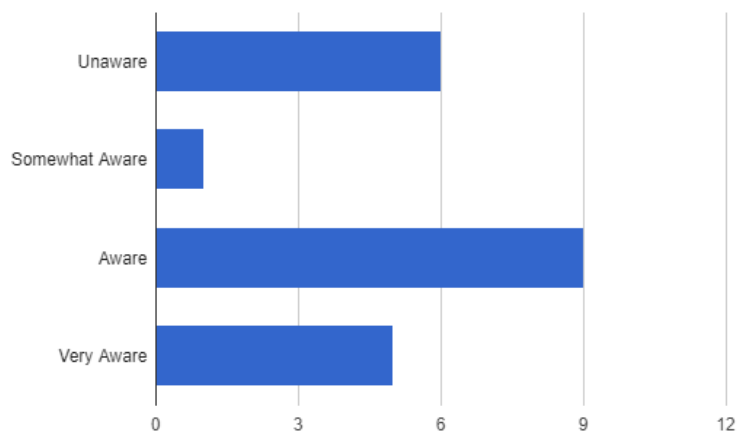
How aware are you of Open Educational Resources (OER)? OER is defined as "teaching, learning, and research resources that reside in the public domain or have been released under an intellectual property license that permits their free use and re-purposing by others." Unlike traditionally copyrighted material, these resources are available for "open" use, which means users can edit, modify, customize, and share them.
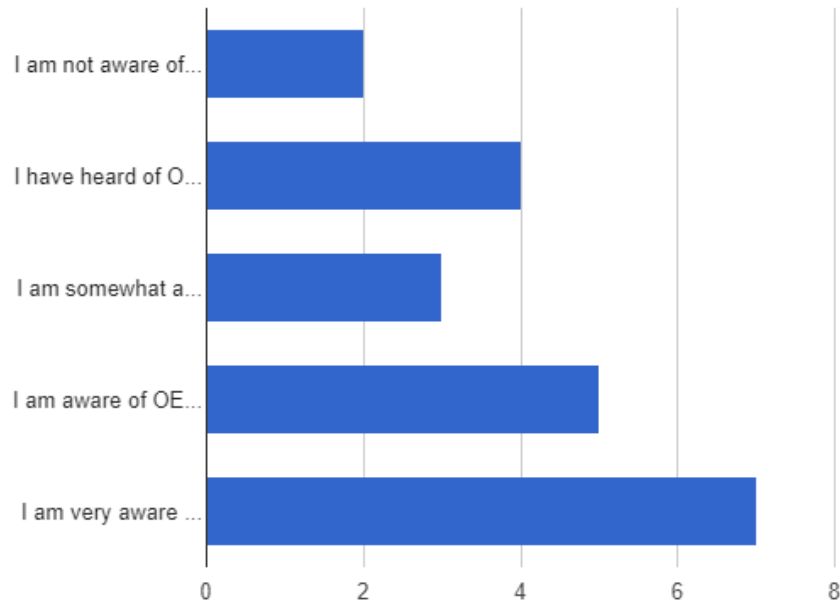
I have used OER as primary course material (main class material used by teacher and students).
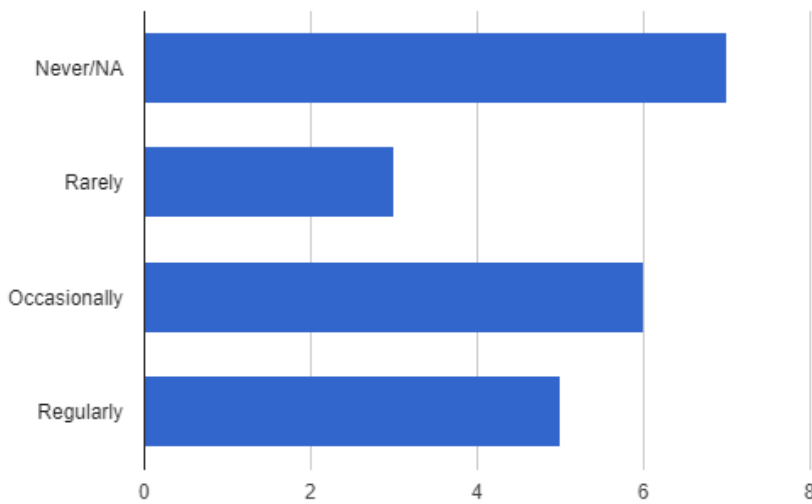
I have used OER as supplementary course material (supporting material to enhance teaching or as further reference for students).
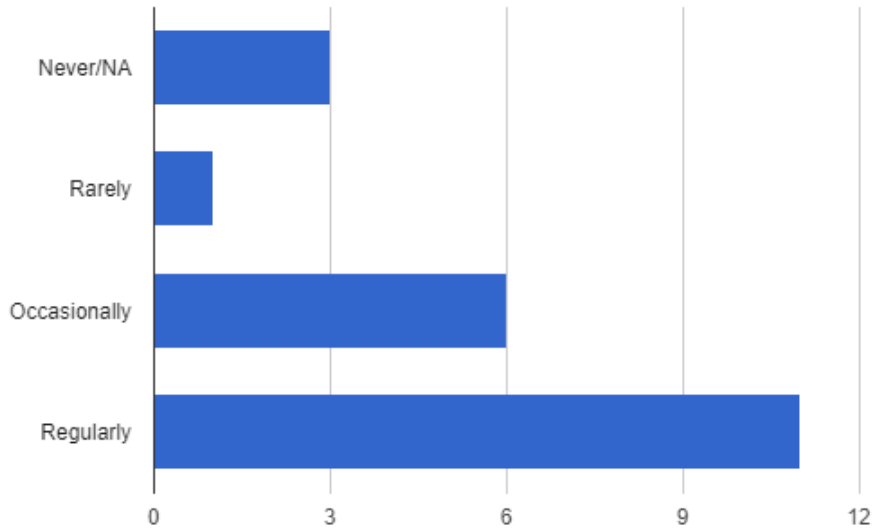
How would you compare the quality of open resources to that of traditional resources on the following dimensions?

Cost
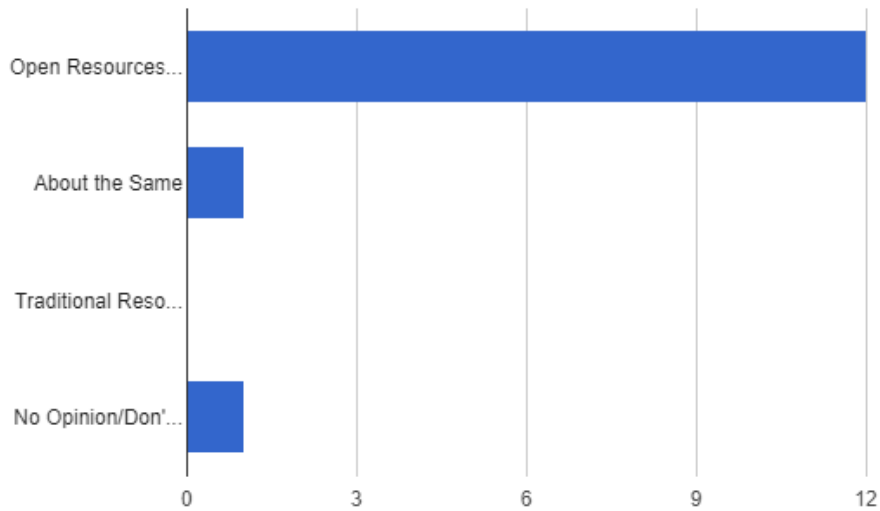
Proven to improve student performance
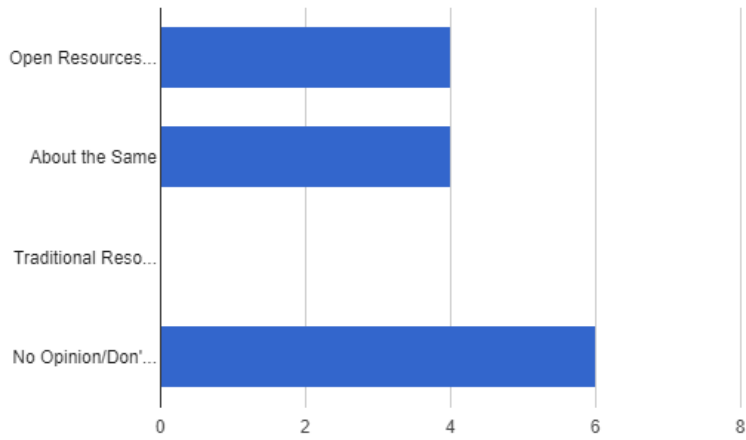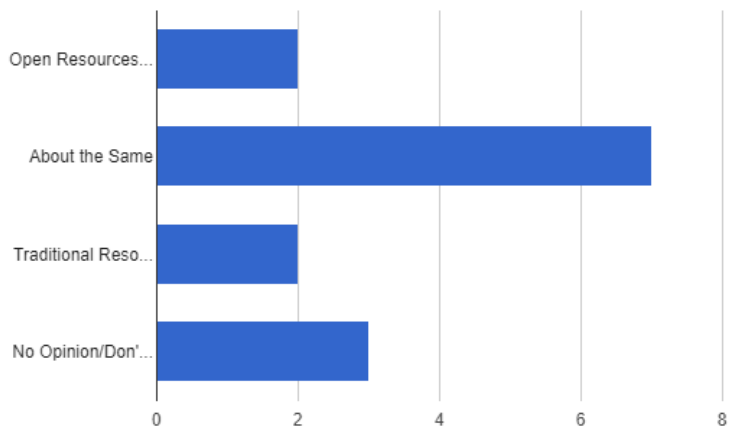
Easy to find

Includes all the materials I need

How would you rate the quality (factually correct, up-to-date, well-written, organized, effective) of traditional publishers?
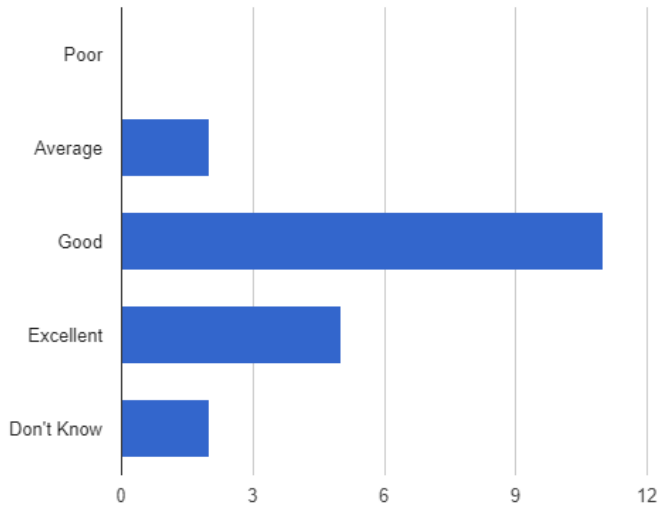
How would you rate the quality (factually correct, up-to-date, well-written, organized, effective) of Open Educational Resources?
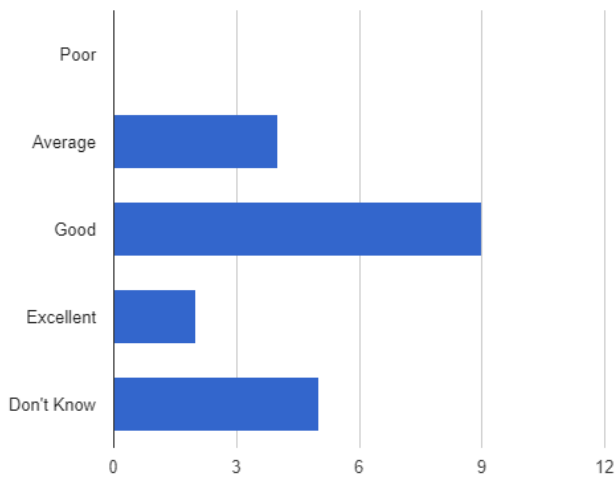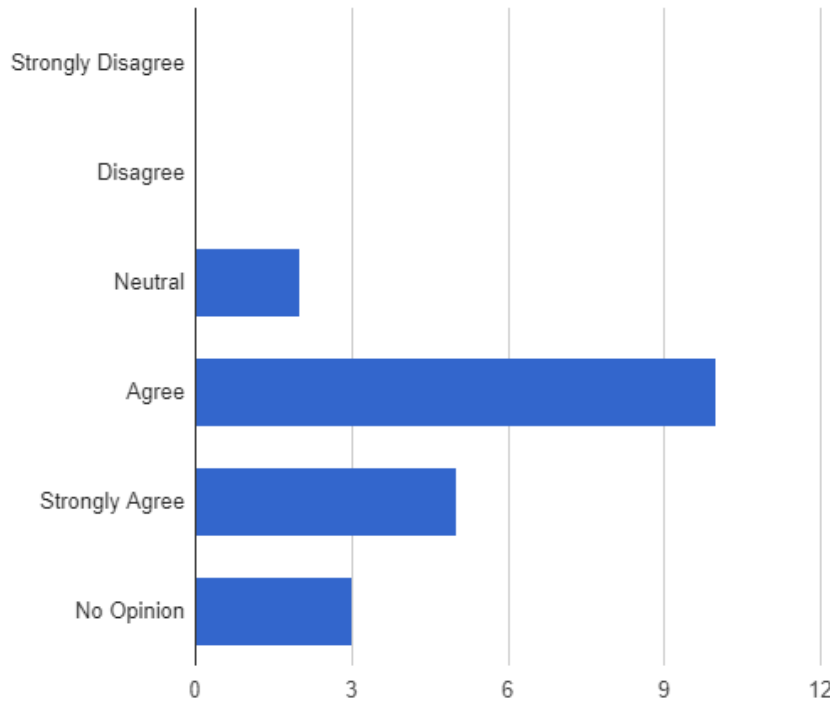
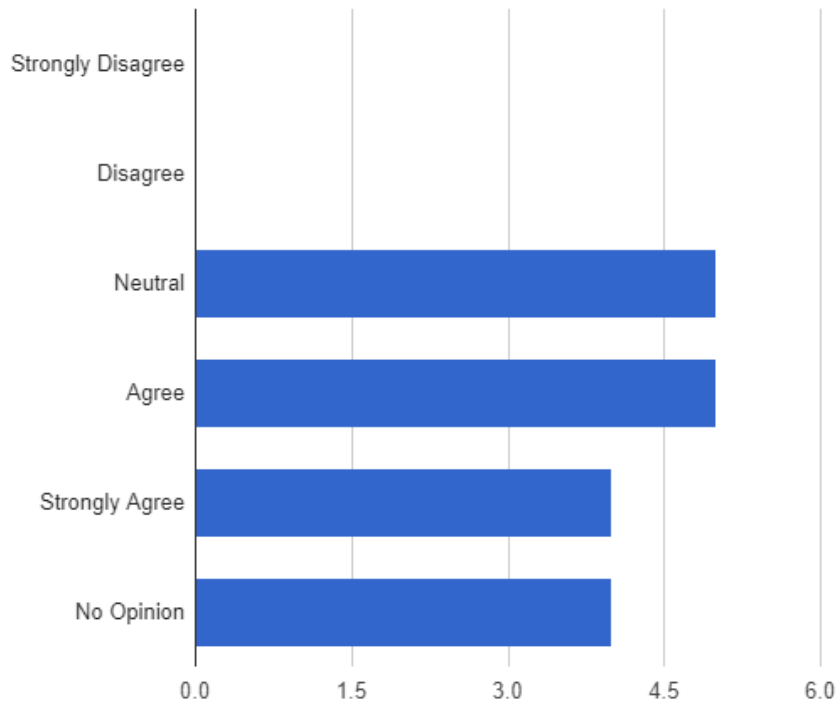Do you believe the following statements about OER are true?

Use of OER leaders to improvement in student satisfaction.
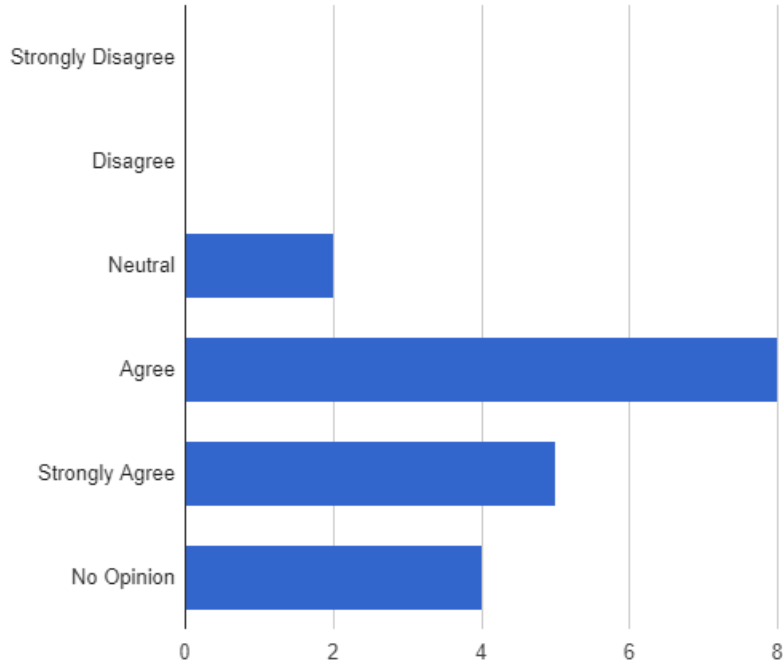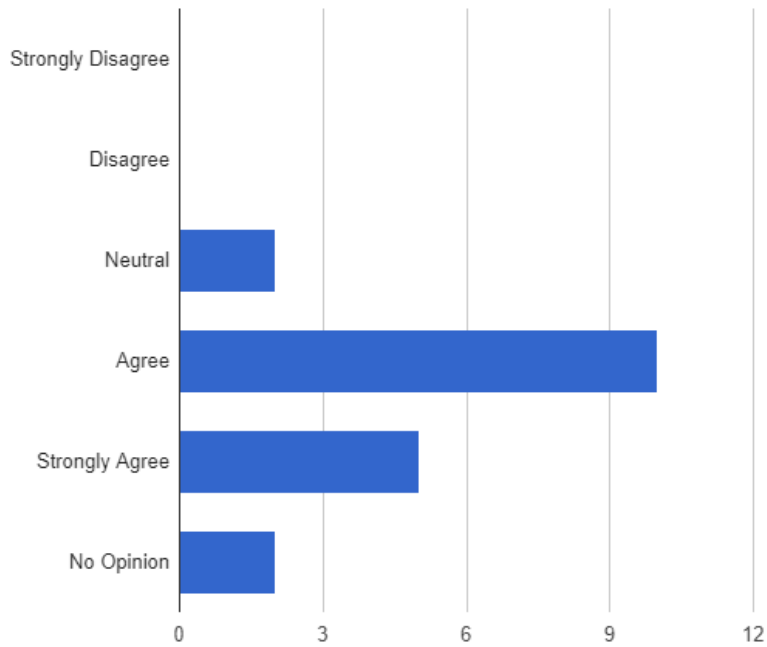
Open educational models lead to more equitable access to education, serving a broader base of learners that traditional education.
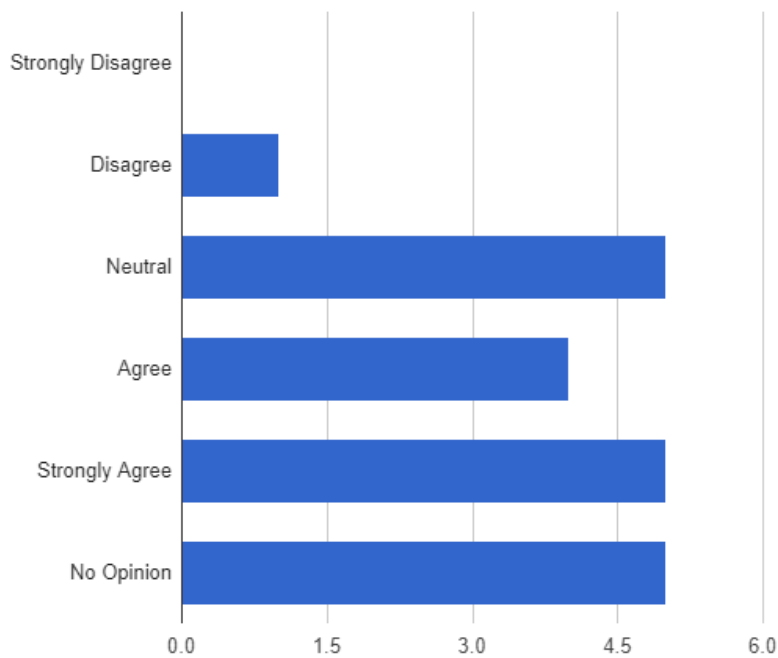

Use of OER is an effective method for improving retention for at-risk students.

OER adoption at an institution level leads to financial benefits for students and/or institutions.

Use of OER leads to critical reflection by educators, with evidence of improvement in their practice.

Write-in response: Please provide some examples of OER that you are aware of:

- Physics books
- I have used and adapted materials from the public domain (short stories) as well as resources from websites such as OER commons and educational websites that have open licenses.
- Streaming videos, literary resources (essays, short stories, etc.) and open access journals.
- YouTube with selective teaching topics, articles that can be share with students, and some PowerPoints with modifications.
- HCCC Library Database readings that are accessible to students with Library Privileges.
- Elsevier Open Access, Oxford Open Journals, Worldhistory.org, UNESCO
- Streams videos, not sure!
- OpenStax, OER Commons, College Libguides