

Student Equity in Higher Education: Perceptions of OER at a Hispanic-Serving Institution (HSI)

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ABSTRACT

Course material costs are an educational barrier for many college students, with a disproportionately negative impact on historically underserved populations. Colleges and universities have sought to alleviate this inequality through the use of Open Educational Resources (OER), yet there remains a dearth of research focusing on OER's perception among racial/ethnic minorities, low-income students, and first-generation college students. For each of these reasons, this study explored student perceptions of OER at a Hispanic-serving Institution (HSI) in Southern California. Qualitative results from over 500 undergraduate surveys revealed a vast majority of students preferred OER over traditional textbooks because of their cost savings and increased availability; however, students also disparaged OER because of issues regarding internet access, text quality, and site navigation. This study concludes with suggestions for how higher education might address OER's perceived shortcomings and capitalize on their perceived strengths to realize a more equitable college experience for all.

Keywords: Open Educational Resources, OER, social justice, first-generation, textbook costs, Hispanic-serving Institution, HSI, historically underserved populations

Equidad estudiantil en la educación superior: Percepciones de los REA en una institución que atiende a hispanos (HSI)

RESUMEN

El costo de los materiales de estudio representa una barrera educativa para muchos estudiantes universitarios, con un impacto desproporcionadamente negativo en poblaciones históricamente marginadas. Las universidades han buscado mitigar esta desigualdad mediante el uso de Recursos Educativos Abiertos (REA); sin embargo, aún existe una escasez de investigaciones centradas en la percepción de los REA entre minorías raciales/étnicas, estudiantes de bajos recursos y estudiantes universitarios de primera generación. Por cada una de estas razones, este estudio exploró las percepciones de los estudiantes sobre los REA en una Institución que atiende a hispanos (HSI) en el sur de California. Los resultados cualitativos de más de 500 encuestas a estudiantes de pregrado revelaron que la gran mayoría de los estudiantes preferían los REA a los libros de texto tradicionales debido a su ahorro en costos y mayor disponibilidad; sin embargo, los estudiantes también los menospreciaban debido a problemas de acceso a internet, calidad del texto y navegación en el sitio. Este estudio concluye con sugerencias sobre cómo la educación superior podría abordar las deficiencias percibidas de los REA y capitalizar sus fortalezas percibidas para lograr una experiencia universitaria más equitativa para todos.

Palabras clave: Recursos Educativos Abiertos (REA), justicia social, primera generación, costos de libros de texto, instituciones que atienden a hispanos, HSI, poblaciones históricamente desatendidas

高等教育中的学生公平：一所西班牙裔服务 务机构(HSI)对开放教育资源的看法

摘要

课程材料费用是许多大学生面临的教育障碍，尤其对历史上服务不足的群体造成了严重的负面影响。高校一直试图通过使用开放教育资源(OER)来缓解这种不平等现象，然而，目前针对“少数族裔、低收入学生和第一代大学生对OER的看

法”的研究仍然不足。鉴于此，本研究调查了南加州一所西班牙裔服务机构(HSI)的学生对OER的看法。对500多份本科生问卷的定性分析结果显示，绝大多数学生更倾向于使用OER而非传统教科书，因为OER价格更低且更容易获取；然而，学生也对OER存在一些不满，例如网络访问、文本质量和网站导航等方面的问题。本研究最后提出了一些建议，旨在帮助高等教育机构解决OER的不足之处，并充分利用其优势，从而为所有学生创造更加公平的大学体验。

关键词：开放教育资源，OER，社会公正，第一代大学生，教科书费用，西班牙裔服务机构，HIS，历史上服务不足的人群

Textbook costs in the United States have increased 130% since the early 2000s, outpacing rates of inflation four-to-one (Weisbaum, 2016). Consequently, college students today spend approximately \$1,250 per year on required course materials alone (Senack & Donoghue, 2016). The United States Government Accountability Office estimates this expenditure to equal nearly 75% of the total cost for tuition and fees at an average two-year institution, and over 25% of the total cost for tuition and fees at an average public four-year institution (USGAO 2005, 2013). Meanwhile, textbook prices have been found to approach or even exceed students' total cost of tuition at some universities (Fischer et al., 2015; Goodwin, 2011).

Such an acute increase in textbook pricing has resulted in significant hardship for today's students. Although 84% of college instructors believe students are unable to pass their course without first purchasing the required materials (Zogby, 2005), approximately 66% of students report avoiding the

purchase of those materials due to cost (Martin et al., 2017; see also Jenkins et al., 2018; Nagle & Vitez, 2021). A more recent study by Jenkins et al. (2020) revealed similar findings, with 65% of students reporting their decision to forego required course materials.

Jenkins and his colleagues also revealed statistically significant correlations between textbook pricing and students' increased stress levels, lack of first-day access, decreased academic performance, and prolonged time-to-graduation rates.

As indisputable as the burdens of course material costs have become for contemporary students, those burdens are even more salient among historically underserved populations (e.g., racial/ethnic minorities, low-income students, and first-generation college students). Provasnik and Plenty (2008) found low-income students were more likely to delay college enrollment due to educational expenses. Once enrolled, those same students further experienced delayed time-to-graduation rates because

of educational expenses (Buczynski, 2007). This is because these students will often put off purchasing the required text or will have to wait, often a few weeks into the semester, before they can use financial aid to help purchase the book; by that point they are already well behind their peers in their coursework (see Fischer et al., 2015; Jenkins et al., 2018; Lambert, 2018).

As one of the first empirical studies to focus on textbook affordability through a social justice lens, Jenkins et al.'s (2020) aforementioned article revealed the disproportionately negative effects of course material costs even more explicitly. When compared to their white counterparts, Latinx students were statistically more likely to experience increased stress levels due to textbook costs, and to rate that stress higher on a Likert-type scale of 1-10. Latinx students were also more likely to fail class, not to enroll in class, and not to have their textbook on the first day of class due to textbook costs. Low-income students reported similar results regarding stress and first-day access, while also revealing a statistically significant likelihood for textbook costs to hinder their overall academic performance. Finally, first-generation college students echoed each aforementioned finding, as well as their likelihood to avoid purchasing required textbooks due to cost—even when they knew beforehand this decision would hinder their academic performance in the class. Jenkins et al. conclude by positing the inequitable burden created by course material costs as a redistributive social justice issue:

Educational institutions and academic publishers in the United States have created a systemic condition in which students' learning potential is limited by their purchasing power Accordingly, university staff, faculty, and administrators should include textbook affordability as part of their broader efforts to promote student equity. (p. 8, 9)

In light of the hardships that rising textbook costs place on today's increasingly diversified student body, many universities have begun initiatives to prioritize Open Education Resources (OER): openly-licensed materials that reside in the public domain or have been copyrighted using a Creative Commons license (Mishra, 2017; Hewlett Foundation, 2017). One of the first examples of such an initiative was the Massachusetts Institute of Technology's (MIT) OpenCourseWare. Launched in 2001, MIT describes OpenCourseWare as "a free and open publication of material from thousands of MIT courses, covering the entire MIT curriculum and used by millions of learners and educators around the world" (Massachusetts Institute of Technology, 2021a, para. 1). The goal of MIT's OpenCourseWare is to make all learning material published since 1800 freely available online. This goal seeks to provide free and easily accessible alternatives to traditional textbooks, while also offering additional learning opportunities for students in a variety of settings (Weller, 2014). Since publishing its first openly-licensed course online in 2002, OpenCourseWare now

boasts well over 2,000 unique courses, with approximately 500 million site visits and nearly two million subscribers to its YouTube channel (Massachusetts Institute of Technology, 2021b).

More recently, Tidewater Community College (TCC) introduced the nation's first zero- textbook-cost associate's degrees (a.k.a., "Z-degrees"), which circumvented rising course material costs through the coordinated use of OER (Wiley et al., 2016). In 2018, California State University Channel Islands (CSUCI) was the nation's first four-year institution to extend this effort to the undergraduate level via "Z-majors." CSUCI's first three Z-majors in Communication, Health Science, and Early Childhood Studies utilize OER and library resources to offer students a pathway through each major's required course load, without the required purchase of a single text (D'Angelo 2018; Gonzalez 2018; Kelly 2018).

Institutional-level initiatives like MIT's OpenCourseWare, TCC's Z-degrees, and CSUCI's Z-majors illustrate OER's potential to help realize a more equitable college experience (Jenkins et al., 2018, 2020). There remains a dearth of empirical research, however, examining OER's specific use and perception among those who are presumed to benefit most from such cost savings: historically underserved populations (Arbor 2011; Clinton & Khan 2019; Delgado, Delgado, & Hilton 2019). Ekowo (2017) laments this reality by writing: "Researchers are currently unable to tell us whether OER are working as well for ... students of color, low-income students

and other student populations.... This is a significant limitation in available research on OER" (para. 7-8). Thus, scholars have increasingly called for more qualitative research focused on racial/ethnic minorities, low-income students, and first-generation college students (Andrade et al., 2011; Colvard et al. 2018; Cooney, 2017; Figlio, Rush, & Yin, 2013). Serfiadis et al. (2024) provided a similar analysis as this study, exploring the impact of OER on students through an equity lense, but their sample was overwhelmingly White.

The present study responds to each of these realities—rising textbook costs, the subsequent rise of OER, and OER's potential (albeit, relatively unexamined) benefit for historically underserved populations—by exploring student perceptions at a Hispanic-serving Institution (HSI) in Southern California. This process began with a brief literature review of OER's perceived advantages and disadvantages. Second came outlining the methodology used in this study, including survey responses from over 500 undergraduate students. Finally, the detailed results followed, which revealed the vast majority of respondents to prefer OER over traditional course materials.

Qualitative analysis revealed that students preferred OER because of their cost savings and increased availability; however, students also disparaged OER because of issues regarding internet access, text quality, and site navigation. The study concluded with suggestions for how staff, faculty, and administrators might address OER's perceived

shortcomings, while capitalizing on their perceived strengths. This study will help highlight OER's potential role in realizing a more socially just experience throughout the United States' higher education system—and beyond.

Literature Review

As technology continues to expand, so does the use and influence of Open Educational Resources (OER). The term Open Educational Resources was first coined during UNESCO's Forum on Open Courseware in 2002. As a leading funder of OER's use and development, The William and Flora Hewlett Foundation (2013) later offered one of its most widely accepted definitions:

Open Educational Resources are teaching, learning and research materials in any medium—digital or otherwise—that reside in the public domain or have been released under an open license that permits no-cost access, use, adaptation and redistribution by others with no or limited restriction (para. 1).

More recently still, Wiley (2014) offered a complimentary understanding of OER that has become known as the 5R's: retain, reuse, revise, remix, and redistribute:

- *Retain* is one's ability to possess OER material.
- *Reuse* refers to the ability to use that material for a wide range of educational purposes.
- *Revise* is the ability to edit OER material.
- *Remix* refers to the ability to combine original or edited material with other OER.
- *Redistribute* reflects one's ability to freely disseminate the original, edited, or combined material with a broader audience.

With their ability to be retained, reused, revised, remixed, and redistributed without cost or copyright restriction, OER's adoption has continued to increase at the undergraduate and graduate levels alike (Feldstein et al., 2012; Straumsheim, 2016). Seaman and Seaman's (2017) survey of nearly 3,000 college faculty found OER's adoption had nearly doubled between 2016 and 2017, with this figure projected to triple by year 2021 (Cengage, 2016). Meanwhile, OER's use in introductory college courses has already begun to rival that of traditionally published textbooks (Straumsheim, 2016; Allen & Seaman, 2016).

The increased adoption rates of OER offer several benefits for today's college students: increased savings, expanded access, and enhanced learning. Despite these advantages, however, OER are not without their share of potential limitations as well—namely limited awareness, restricted choice, and reduced quality. The present section discusses each of these perceived advantages and disadvantages of OER in more detail.

Perceived Advantages of OER

Increased Savings. The soaring cost of college course materials has been well established (Fischer et al., 2015; Goodwin, 2011; Jenkins et al., 2020; Senack & Donoghue, 2016; Weisbaum, 2016). Since the late 1970s, rising textbook prices have outpaced increases in college tuition, housing costs, and even medical expenses (Kingcade, 2017). These high costs have made textbooks a barrier for many students to obtain the information that they need to be successful. The fact that only five corporations' control 80% of the United States' \$8.8 billion publishing market has been highlighted as one primary reason for such absorbent pricing. In the words of Senack (2014): "In the textbook industry, no ... system of checks and balances exist. The professor chooses the book, but the student is forced to pay the price. Because of this, the student is, in essence, a captive market" (p. 6). This oligopoly has arguably shielded certain publishers from market competition, allowing them to engage in business practices that intentionally increase costs—from the rapid and superfluous release of new editions to the bundling of supplementary materials that increase a textbook's retail price by hundreds of dollars (Senack 2015; Senack & Donoghue, 2016). Indeed, the average textbook price increases 12% with each new edition (Hanson, 2022), with new editions released on average every 2-3 years (Echevarria & Bowman, 2021).

Due to rising textbook costs, one of the most commonly cited advantages of OER is increased savings (Beile,

deNoyelles, & Raible, 2020; Clinton & Khan, 2019; Fialkowski et al., 2020). Indeed, OER is estimated to have saved college students of over \$1 billion dollars between 2013–2018 (Allen, 2018; Nyamweya, 2018), with the potential to save an additional \$1.4 billion each year in the United States alone (Senack, 2015). This reality is especially salient considering today's ballooning student loan debt (Song, 2022), and the fact that 30% of students rely on federal aid to pay for their course materials (Hanson, 2022). This reality is also salient in light of recent findings from The Hope Center for College, Community, and Justice (Goldrick-Rab et al., 2019), which found that 45% of today's college students experienced food insecurity in the past 30 days, and 56% experienced housing insecurity in the past year (n = 86,000).

Improved Availability. In addition to increased savings, OER also serves to improve the availability of required course materials. Numerous studies have shown that students forego the purchase of their required course materials due to cost (Jenkins et al., 2020; Martin et al., 2017). Even for those students who choose to purchase the required materials, however, costs often delay their decision to do so (Clements & Braman, 2021). The negative ramifications of not having a required text on the first day of class—or never at all—is easily apparent in light of instructors' aforementioned belief that students are unable to pass their courses without said materials (Zogby, 2005). In addition, research by Agnihotri, Essa, and Baker (2017) found that high-per-

forming students accessed their course materials within the first few days of the semester. Jhangiani and Jhangiani (2017) found 70% of students rated the immediate availability of course materials as being “very important” or “absolutely essential.” Meanwhile, Baker et al. (2015) found that simply opening the required text before class was a major predictor of success.

Beyond first-day access alone, OER also improves the availability of required course materials by making them readily accessible through a variety of electronic devices: tablets, laptops, desktops, smartphones, and so on. Feldstein et al. (2012) found that 72% of students who used an online text via Flat World Knowledge preferred it over traditional textbooks because of its increased portability. Relatedly, Petrides et al. (2011) found mobility to be the deciding factor for 30% of students when considering whether to use the assigned OER in their courses. Such increased levels of access afforded by OER are especially significant for nontraditional students, an increasingly outdated terminology that now constitutes a full 74% of undergraduate students in the United States (US Department of Education, 2015). As more and more college students juggle the demands of course work alongside their careers, family obligations, and other extracurricular activities, many find it helpful to access required readings through a single device—such as their smartphone—which they are likely to already be carrying with them (Cooney, 2017).

Enhanced Learning. A third commonly cited advantage of OER is enhanced learning outcomes. To date, a small sample of studies have found OER to be negatively correlated with student performance (Gurung 2017; Robinson 2015), while others have yielded inconclusive results (Delgado et al. 2019; Griggs & Jackson 2017). Yet the clear consensus within OER literature shows a positive relationship between OER and improved student learning outcomes. One prominently cited article by Hilton (2016), for example, included a metaanalysis of sixteen previous OER studies. Results revealed no negative effects from OER’s use, with a majority of studies showing a positive correlation between OER and student efficacy. A follow-up study of 36 previously published articles involving 121,000 students revealed similar or improved learning outcomes with OER (Hilton, 2020). Hilton concluded this second metaanalysis by writing:

The facts that (1) more than 95% of published research indicates OER does *not* lead to lower student learning outcomes, and (2) the vast majority of students and faculty who have used both OER and [commercial textbooks] believe OER are of equal or higher quality make it increasingly challenging to justify the high price of textbooks. (p. 873, emphasis original).

Additional studies have explored this issue on a class-by-class basis by comparing two analogous course offerings. After implementing OER in an undergraduate math class, Pawlyshyn et al. (2013) saw student pass rates increase from 48% to 69%. In an introductory psychology course, Hilton and Laman (2012) saw students finish with higher grades than those who had used traditional textbooks in earlier semesters. An even more methodologically rigorous study by Clobes et al. (2021) compared two identical courses, which were offered at the same time and taught by the same instructor—the only difference being that one section used no-cost course materials, while the other used a traditional textbook. Students using no-cost materials finished with statistically significant higher grades. Additionally, Clobes and his colleagues found fewer students withdrew from the no-cost class, as compared to its traditional counterpart. Dempsey (2021) also concluded that end-of-semester grades did not vary between OER-using courses and courses using traditional textbooks, though there were some racial and ethnic differences in final grades and withdrawal rates, further supporting the need for equitable approaches to implementing OER.

Perceived Disadvantages of OER

Limited Awareness. Despite each of OER's aforementioned benefits, higher education's limited awareness of OER remains one of its primary shortcomings (Christoforidou & Georgiadou, 2022). As recently as 2016, Allen and Seaman found 58% of uni-

versity faculty to be “unaware” of OER, with only a quarter of respondents describing themselves as “aware” or “very aware.” Beyond name recognition alone, their research also revealed confusion around what constitutes as OER to begin with:

Many academics have only a vague understanding of the details of what constitutes open educational resources. Many confuse “open” with “free,” and assume all free resources are OER. Still others will confuse “open resources” with “open source,” and assume OER refers only to open source software. (Allen & Seaman, 2016, p. 11)

A similar level of confusion seems to exist among college students as well (Christoforidou & Georgiadou, 2022; Ozdemir & Hendricks, 2017). Hurt (2013) found 67% of undergraduate students reported not knowing what the term “open education resources” referred to. This was the case despite each of Hurt's research participants having already used OER in their college coursework. A study by Onaifo (2016) revealed similar results: students' limited awareness of OER, in spite of their frequent use in the classroom. Each of these estimates has improved in recent years—especially within the United States, and especially since the COVID-19 pandemic (Seaman & Seaman, 2021). Recent data shows faculty awareness of OER to have risen to from 50% to 57% since the start of the pandemic, prompting Seaman and Seaman (2022) characterize it as a poten-

tial turning point for higher education. As Spilovoy, Seaman, and Ralph (2020) point out, however, any recent increases in OER's awareness have yet to result in their increased use in the classroom.

Restricted Choice. While many academic disciplines boast a large number of OER offerings, others still have a restricted library of choices. Disciplines such as art, business, engineering, psychology, and computer science have broadly incorporated OER into their curriculum; however, disciplines such as economics, humanities, literature, and mathematics have yet to do so on a similar scale (Allen et al., 2015; deNoyelles & Raible, 2017; Hilton et al., 2013; Millar & Schrier, 2015; Nicholas et al, 2010). These latter disciplines may have more challenges with implementation because of the extent to which students need to engage in the content, or with the length of the content not being readily available as OER.

Reduced Comprehension. Students' reduced reading comprehension is one final, potential disadvantage of OER. Mangen et al. (2013) evaluated the reading comprehension of high school students who read two printed texts, versus those who read the same texts via computer screen. Their multiple regression analysis revealed that students using paper scored significantly higher on a reading comprehension test, as compared to those using computer screens. Researchers have theorized a tactical connection to physical texts as one possible explanation for this variance in comprehension, as well as the ability to more easily highlight

and comment within a traditionally printed text (Millar & Schrier, 2015). As aforementioned, however, the potential for reduced reading comprehension has not shown to have an impact on students' overall learning outcomes (see Clobes, et al, 2021; Fischer et al., 2015; Hilton, 2016; Hilton & Laman, 2012; Pawlyshyn et al., 2013). Indeed, 73% of students surveyed by Ross, et al. (2018) rated the OER they were assigned as being either "excellent" or "above average." Bliss et al. (2013) found this percentage to be even higher, with 89% of educators and 94% of students rated their open course materials as being equal or better in quality than their previously used textbooks.

Methodology

In effort to more closely examine student perceptions of OER, this was a secondary qualitative exploration of Jenkins et al. (2020) work surveying undergraduates attending a four-year, Hispanic Serving Institution (HSI) in Southern California. As a Department of Education designated HSI campus, student body demographics consisted of 56% Latinx, 25% white, 6% Asian American, and 2% African American. Sixty-four percent (64%) of students self-identified as female; 36% as male. Approximately 70% of students were dependent on financial aid for college, and 60% were first-generation college students (i.e., student whose parent(s) or legal guardian(s) have not completed a bachelor's degree; see Fernandez, 2018). In recent years, the research context used for this study was a coordinat-

ed a campus-wide OER effort. That effort resulted in an increased awareness and appreciation of OER, with approximately 33% of faculty members redesigning one or more of their courses using no/low-cost course materials.

Together, each of these realities offered a particularly well-suited context for answering the aforementioned calls to explore OER's impact on historically underserved populations (see Andrade et al., 2011; Arbor 2011; Clinton & Khan, 2019; Colvard et al., 2018; Cooney, 2017; Delgado, Delgado, & Hilton, 2019; Ekowo, 2017; Figlio, et al. 2013). This section further details our study's (1) research participants, (2) student surveys, and (3) analytic process.

Research Participants

Participants were recruited for this study using convenience and snowball sampling. The study's survey was first shared by a limited number of faculty members who were directly involved in its creation and development. Using Canvas—the university's learning management software—instructors began by providing a link for their students to access the survey online.

Student responses were anonymous and voluntary, with no extra credit given for their participation. The survey remained open to students for one week. It was then shared with additional faculty across campus to garner a more accurate representation of the university's overall student demographics. Participants were again given one week to respond, at which time the response rate reached 10% of the entire student

population ($n = 705$). From the 705 students who responded, 540 participants were deemed eligible for analysis. Eligibility criteria included answering each of the three questions regarding student perceptions of OER (#33, #42, and #43), without any of those responses being contradictory.

A majority of student participants (45%) self-identified as Latinx, 27% white, 7% multiracial, 6% Asian, 4% black, and 2% other. Sixty-nine percent (69%) self-identified as female, 29% male, and 2% other. Approximately 70% of participants were dependent on financial aid to attend college, and 60% self-identified as first-generation college students. Ages ranged from 17 to 63, with a mean, median, and mode of 23, 21, and 22, respectively. In total, 23 different undergraduate majors were represented, with the most common being Communication (18%), Business (17%), and Psychology (12%). Students were currently enrolled in an average of 15 units, and their median grade point average was 3.2/4.0. Given that each of these demographics were proportionate to the university's larger student population; we were able to generalize our findings for its entire study body.

Participants acknowledged an electronic informed consent prior to commencing the survey. This study was approved by the Institutional Review Board at California State University Channel Islands.

Student Surveys

The surveys used in this study consisted of 43 questions in total, divided into

six distinct sections. Students were first asked (1) demographic questions, followed by questions about their (2) current semester, (3) textbook purchasing habits, (4) personal study habits, (5) course material preferences, and finally their (6) best and worst experiences with OER. In order to help prevent any potential confusion, the term “free/online resources” was used in lieu of “OER” throughout (Jenkins et al., 2020).¹

For the specific purpose of this study, there was attention given specifically focused on survey questions #33, #42, and #43 (Jenkins, 2020). Question #33 asked, “When professors use free/online course resources, do you find yourself more or less satisfied with the overall class experience?” In response, students used a Likert-type scale to rate their satisfaction from 1-10, with 1 = much less satisfied and 10 = much more satisfied. Question #42 asked, “As a college student, what has been your worst experience with free/online course resources?” and question #43 asked, “As a college student, what has been your best experience with free/online course resources?” Both of these questions were open-ended, allowing students to freely describe their experiences in as much detail as they desired.

Analytic Process

The process began by analyzing responses to question #33, which measured student satisfaction of OER using the Likert-type scale which was men-

tioned above. Responses were first sorted into three analytic groupings based on whether students reported being less satisfied, equally satisfied, or more satisfied regarding their professors’ use of OER in the classroom. Participants who rated their satisfaction as 7-10 on a Likert-type scale from 1-10 were categorized as being “more satisfied.” Those who rated their satisfaction as 4-6 were categorized as being “equally satisfied,” and those who rated their satisfaction as 1-3 were categorized as being “less satisfied.”

Next, attention turned to questions #42 and #43, which asked students about their best and worst experiences with OER respectively. This began by completing several intensive readings of the participants’ open-ended responses in search of any potential patterns. Next, the team abbreviated, coded, and categorized each response according to our initial themes. Following this the team reread, recoded, and re-clumped our initial categorizations until a series of large-order and small-order themes emerged from the data (Lindlof & Taylor, 2017). The results of this analytic process are discussed more fully in the following section.

Results

In review, this study examined perceptions of OER among historically underserved college students at a Hispanic-Serving Institution in southern California. Eligible responses from

1 A copy of the study’s complete survey can be found at: <https://docs.google.com/forms/d/1WvlayFUgxuGEOY7HW9nHlDa2qUebzn60-Hzr5UXIyOQ/edit> (licensed CC BY).

540 participants found that 338 students (63%) reported higher rates of satisfaction when OER was used in the classroom. A total of 175 students (32%) reported being equally satisfied, and 27 students (5%) reported being less satisfied by their professors' use of OER. Furthermore, when asked to rate their experience with OER—as compared to traditional course materials—student ratings averaged 7.7 on a Likert-type scale from 1-10. Beyond quantitative enumeration alone, however, our qualitative analyses also revealed a rich insight into students' specific reasons for feeling (1) more satisfied, (2) equally satisfied, or (3) less satisfied with OER. This section details the thematic results from each of these three student categories in turn.

Students More Satisfied with OER

Among the 338 students who self-reported as being more satisfied with OER's use in the classroom, four prevailing reasons emerged: cost savings, resource availability, course relevance, and supplemental tools (Table 1). These students most commonly referred to OER's no-cost status as their favorite aspect, accounting for 37% of responses ($n = 124$). In the words of one student, "I had a class that only used free course resources and it was a huge relief" (White female). Another student responded similarly by saying, "Getting a free textbook that would've broke the bank is great! Helped me out big time!" (Native American male). When asked about their most positive experience with OER, other respondents were more direct about the benefit of

cost savings: "Freeeeeeeeeeeeeeeeeeee" (Latinx male), "More money in my wallet" (Black male), "Not having to buy a huge book for an even bigger price" (White female), and "It's free ... Duh" (Latinx female). Still other students lauded OER's ability to reduce stress levels (White female), printer expenses (Latinx male), and even student loan debt: "More money to go to my student loans!" (White female). In one final example, a student highlighted her ability to buy basic needs like food because of OER's no-cost status. "It's saved me a lot of stress by not using money I don't really have and by not having to compromise other important things like groceries in order to buy all the books I needed" (Black female).

In addition to cost savings, 29% ($n = 97$) of participants in this group referred to resource availability as being their best experience with OER, while 14% ($n = 47$) referred to course relevance, and 4% ($n = 15$) to supplemental tools. In regard to OER's availability, students routinely used the word "easy" to characterize their experience: "Sooo much easier" (Latinx female), "Easy to use and download" (Latinx male), and "It was easy to find and easy to always obtain and have" (Latinx female). Students found this ease of availability to be "The best part" (Filipino female), "Beyond helpful" (Latinx female), and "A gamechanger" (White male). One student elaborated by writing, "I can view my textbooks on my phone while I'm traveling. If I need to look up information I can get accurate information straight from my textbook on my cell phone" (Latinx female). In regard to

Table 1. *Students more satisfied with OER (n = 338)*

Best Experience with OER	# of Students	% of Students
Cost Savings	124	37%
Resource Availability	97	29%
Course Relevance	47	14%
Supplemental Tools	15	4%
Worst Experience with OER	# of Students	% of Students
None/Nothing	77	23%
Internet Accessibility	88	26%
Text Quality	24	7%
Site Navigation	21	6%

course relevance, students described OER as being more timely (White male), engaging (White male), relatable (Asian female), interesting (Latinx female), and applicable (White female). As one student put it, “If the professor picked the article or whatever the website maybe it’s because we actually will use information from it!” (Latinx female). Other students referred to course relevance by highlighting OER’s tendency to more clearly “align with the syllabus and be more easy to follow” (Latinx female), while still others alluded to their professors’ increased engagement with the text: “The professor actually talks about the readings” (White female). As the final theme, supplemental tools included search functions (Latinx female), online tutorials (Latinx male), annotation capabilities (Latinx female), and even the ability to “download an audiobook and listen to it during my commute or while exercising” (White female). Several students went as far as to credit OER’s supplemental tools as having a significant impact on their academic performance in the class:

Interactive resources were very helpful. I had a human anatomy class that would’ve been difficult to comprehend if it were only text. Some classes need demonstrations in order to grasp the concept. (Asian male)

In response to their worst encounter with OER, “none/nothing” was the single most frequent response (23%; n = 77), with one student reminding readers that, “Free is always good” (Latinx female). The following three most common responses included internet accessibility, text quality, and site navigation. In total, 26% (n = 88) of students referred to a lack of internet access, with 8% (n = 26) citing specific connectivity issues at home. As one student put it, “If the internet is down then you typically can’t access [OER] unless they’re already downloaded” (Black female). Another student described the inability to access required course readings in light her demanding work schedule:

During a really windy season one of the power lines by my house

went down. I did not have internet for two days, and I missed an online quiz because with work I didn't have time to find another option. (Persian female)

OER's reliance on internet access can also pose equity concerns, while further exasperating the inequalities faced by historically underserved populations (Jenkins et al., 2021). One participant alluded to this issue by commenting, "[OER] requires a laptop, WiFi, and a power source. Not everyone has access to all of them" (Latinx male).

Poor text quality was reported by 7% of students (n = 24), and problems with site navigation was identified by 6% (n = 21). References to poor text quality included readings that were blurry (White female), faded (Latinx female), crooked (White female), illegible (White female), sideways (White female), cut off (Latinx female), upside down (White male), and too small (Latinx female). Such poor quality was subsequently cited as cause for eyestrain (Latinxfemale), migraines (White female), and even reading glasses (White female). As one student succinctly put it: "Sometimes [it is] impossible to read the damn things" (White male).

Meanwhile, problems with site navigation tended to correlate with careless organization and/or broken weblinks. One participant commented on an instructor's poor organization and its impact in her learning by saying, "Sometimes the way professors organize free/online materials is confusing. I'm often not as sure what I'm supposed to get from each of the readings, or how

each connects to one another" (White male). Broken weblinks were also pointed to as negatively influencing students' academic experience. In the words of another student:

There was a time when I had a class where NONE of the links for the class worked. So much of the class was dependent upon the reading materials and I couldn't get access to them. I ended up having to buy the book to get access. It was very frustrating. (White female)

Students Equally Satisfied with OER

A total of 175 student participants reported being equally satisfied with OER, as compared traditional course materials. In response to their best experience with OER, the four most common responses included: cost savings, resource availability, none/nothing, and web tools (Table 2). Thirty-seven percent (37%; n = 64) of these students cited free access to required course materials as being their best experience with OER. For example, a student said, "relevant info that is scanned by professor is useful. Increased availability of OER was the second most common answer to this question, with 14% (n = 24) responding accordingly. Since students can easily find OERs easily available some say they "can work from anywhere" and "using the library and not caring a book around" was the most commented by students. Seven percent (7%; n = 13) of students stated they had no specific experience to report, and 3% (n = 6) pointed to web tools as

their most beneficial experience with OER. Consequently, students that did not have any comment would say “no answer” or “none.” Students who found

web tools as their best experience expressed “Always accessible and easy to look up information or “find function.”

Table 2. *Students equally satisfied with OER (n = 175)*

Best Experience with OER	# of Students	% of Students
Cost Savings	64	37%
Resource Availability	24	14%
None/Nothing	13	7%
Web Tools	6	3%
Worst Experience with OER	# of Students	% of Students
None/Nothing	33	19%
Internet Accessibility	32	18%
Eye Strain	15	9%
Online Distractions	3	2%

When asked about their worst experience with OER, 19% (n = 33) once again offered the most common response of “none/nothing.” Eighteen percent (18%; n = 32) of students referred to a lack of internet access as their worst experience with OER, with nearly half of these participants (n = 15) once again citing specific connectivity issues at home. Additionally, a student that accounted for a connectivity issue at home said, “During a really windy season one of the power lines by my house went down and I did not have internet for two days and missed an online quiz, because with work I didn’t have time to find another option” (Persian Female). Eye strain from excessive screen time was identified by 9% of students (n = 15), and an increase of online distractions while using OER was mentioned by 2% (n = 3). Evidently, multiple students revealed that their OER class were “hard to focus,” “confusing,” “hard to understand” and “easily distracting.”

Students Less Satisfied with OER

From a total of 540 eligible responses, 27 (5%) of participants reported being less satisfied by their professors’ use of OER. Despite these students’ dissatisfaction, three prevailing themes still emerged when asked about their best experiences with OER: cost savings, none/nothing, and resource availability (Table 3). OER’s no-cost price point was identified by 30% (n = 8) of student respondents. Despite the disapproval of OERs, most students commented that “free” and “free etext” material was their best experience with online classes. Meanwhile, 19% (n = 5) responded as having no positive experiences with OER to report, and 15% (n = 4) of students from this modest group listed resource availability as their answer. Ultimately, students who did list resource availability as a positive outcome commented: “easy access” and “accessibility” or “always available.”

Table 3. *Students less satisfied with OER (n = 27)*

Best Experience with OER	# of Students	% of Students
Cost Savings	8	30%
None/Nothing	5	19%
Resource Availability	4	15%
Worst Experience with OER	# of Students	% of Students
Internet Accessibility	4	15%
Course Irrelevance	3	11%
Eye Strain	3	11%
Site Navigation	2	7%

In regard to their worst experience with OER, student responses included issues of internet accessibility, course irrelevance, eye strain, and site navigation. Internet accessibility—or a lack thereof—was the most commonly cited issue among this group, accounting for 15% of responses (n = 4). For instance, a student had a difficult time accessing certain sites due to computer issues: “Computer crashing or taking long to update so requiring the use of online resources to complete assignment become difficult due to technical difficulties” (Hispanic Female). Approximately 11% (n = 3) of students disparaged the instructors’ use of OER as being irrelevant to course content, and the same number of students (11%; n = 3) lamented eye strain from electronic screen use. In particular, students who reported eye strain as an issue noted that “Reading from a computer is straining and, in most cases, not useful for me” (White Male). Among students who reported being less satisfied with OER, 7% (n = 2) identified navigation issues as their primary cause for dissatisfaction. In particular, a student

expressed they could not navigate the site more than once and, “it takes a long time for them to load sometimes or it is available one day and the next day it isn’t” (Hispanic Female).

Combined Themes

Several specific themes also emerged across all three student categories—regardless of whether students reported being more, equally, or less satisfied with OER (Table 4). In reference to students’ best experience with OER, cost savings emerged as the most prevalent answer in each student group, accounting for 36% of their combined responses (n = 196). Resource availability was the second most common reply to this question, constituting one of the top three themes within each subgroup and 25% of overall student responses (n = 125). OER’s course relevance characterized students’ third best experience with OER (n = 47), with its counterpart also surfacing as one of students’ worst experiences with OER—albeit, by far fewer respondents (n = 3).

The most commonly cited response across all three categories as stu-

dents' worst experience with OER was a lack of internet access, with a particular focus on connectivity issues at home ($n = 124$). Meanwhile, a combined 14% of participants reported no negative experiences in regard to OER ($n = 77$), with "none/nothing" being the second most common response to this ques-

tion overall. Altogether, inadequacies in text quality ($n = 24$) and site navigation ($n = 23$) were each cited by 4% of all respondents. Eye strain, online distractions, and the aforementioned issue of course irrelevance accounted for 3%, 1%, and 1% of total student responses respectively.

Table 4. *Students combined experience with OER ($n = 540$)*

Best Experience with OER	# of Students	% of Students
Cost Savings	196	36%
Resource Availability	125	23%
Course Relevance	47	9%
Web Tools	21	4%
Worst Experience with OER	# of Students	% of Students
Internet Accessibility	124	23%
None/Nothing	77	14%
Text Quality	24	4%
Site Navigation	23	4%
Eye Strain	18	3%
Course Irrelevance	3	1%
Online Distractions	3	1%

Discussion

An overwhelming majority of students in this study preferred OER to traditional course materials. When professors used OER, a staggering 95% of participants reported being either "more satisfied" or "equally satisfied" with their overall class experience ($n = 513$). Only 5% of participants reported being "less satisfied" ($n = 27$). When asked about their worst experiences with OER, "none/nothing" was the second most common response overall, as well as the most common response from students who reported being more/equally satisfied with OER.

These results are not only consistent with previous findings on OER's broad appeal among contemporary college students (e.g., Jenkins et al., 2020; Martin et al., 2017; Millar & Schrier, 2015; Weisberg, 2011), but also highlight their potential for helping to create a more just educational experience. As noted by Hilton (2016), even the 5% of students in this study who reported being less satisfied with OER are still beneficiaries of their cost savings, increased availability, additional web tools, etc. Thus, any tradeoffs accrued from using OER result in a net benefit for the vast majority of students (Dempsey, 2021). This reality is especially salient

among historically underserved students—a population that is shown to be disproportionately affected by the negative impact of high textbook costs (Dempsey, 2021; Jenkins et al., 2018, 2020). Said differently: While 5% of students might prefer traditional course materials, it is presumed that 100% of students will benefit from OER's use in some way. Furthermore, historically underserved students will especially benefit their use, thus, serving to create a more equitable educational experience for all (Buczynski, 2007; Fischer et al., 2015; Lambert, 2018; Provasnik & Plenty, 2008). For the ever-diminishing number of educators who are still reluctant to use OER (Seaman & Seaman, 2019), this reality should help alleviate any concerns regarding their implementation.

This study's results also offer empirically informed insight into how staff, faculty, and administrators can best increase OER use in the classroom. In this study, the most commonly reported issue with OER related to internet connectivity problems. Indeed, Xu and Guo (2018) determined the quality of campus internet was a widespread problem for numerous college students. Their research offered budget-friendly solutions to upgrade networks, connectivity speed, and improve overall internet quality. Consequently, universities can help address this issue by ensuring reliable internet access for students living in campus housing and/or attempting to access OER while on campus. Institutions might consider increasing bandwidth, eliminating dead zones, creating more commuter-friend-

ly lounges and access points, and offering loaner laptops or portable hotspots for off-campus use.

Although this study was conducted in California, the challenges and solutions it identifies are by no means geographically unique. Colleges and universities across the United States—especially those serving rural, commuter, or under-resourced student populations—can benefit from similar investments in digital infrastructure to support equitable OER adoption. With higher education's growing reliance on digital content, the need to strengthen technological access will only become more pressing in the years ahead (see Feldstein et al., 2012). Two of the other most commonly cited drawbacks of OER in this study were issues with text quality and site navigation—each of which can readily be addressed by individual faculty members. To this end, it is recommended that faculty members thoroughly check all the resources they are providing to students at the beginning of each academic term and periodically throughout the course to ensure the intended content is still available. It would also be advisable to offer a quick feedback option for students to easily communicate to faculty if there is a link that seems to not be working. This can help students access the information they need quickly and help busy faculty members various OER's stay continually updated. For OER that include more complicated websites and/or multiple sublinks, faculty could consider including instructional videos demonstrating how to navigate the site, which areas the students need to explore, and what

content they will be responsible for. The impact to the students, however, having a student resource to explain course material, rather than simply being provided with a link, would significantly help to alleviate the common student complaints regarding OER. These videos could then be reused over multiple semesters, assuming no substantial updates or revisions have been made to the chosen OER and/or their accompanying website(s). Together, these simple, yet intentional steps would help address complaints that were expressed by a large number of respondents in all three categories and improve the OER experience for all.

There were some limitations of this work worthy of noting. As a secondary analysis, the original survey was not designed to specifically evaluate students' perceptions of OER. Nonetheless, this data was collected and appropriate for this analysis. For this secondary work, there were no statistical analyses as it was outside of the scope of the available data. Further research could collect data appropriate for statistical analysis on student perceptions.

Conclusion

The drastic increase in course material costs has created a financial hardship for today's college students, with a disproportionate burden placed upon the shoulders of historically underserved populations (Jenkins et al., 2018, 2020; Sergiadis, 2024). Individual and institutional efforts have sought to alleviate this social inequality via OER—such as MIT's aforemen-

tioned OpenCourseWare, TCC's Z-degrees, and CSUCI's Z-majors. Yet few studies have specifically examined this issue among those who are presumed to benefit most from OER's use: racial/ethnic minorities, low-income students, and first-generation college students.

This study explored student perceptions of OER at a Hispanic-serving Institution (HSI) in Southern California. Results revealed the vast majority of college students prefer OER over traditional course materials. Qualitative analysis revealed that students preferred OER because of their cost savings and increased availability; however, students also disparaged OER because of issues regarding internet access, text quality, and site navigation. These findings support the recent increase of institutional efforts—such as MIT's aforementioned OpenCourseWare, TCC's Z-degrees, and CSUCI's Z-majors—to provide students with cost effective and socially just course materials. Nonetheless, additional research is still needed to measure the impacts of these institutional efforts on student learning, satisfaction, retention rates, and time-to-graduation rates. Future research should also be conducted after implementing some of the suggestions in this study's discussion section. By doing so, it is our hope that higher education will learn to address OER's perceived shortcomings and capitalize on their perceived strengths in order to realize a more social just college experience for all.

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