

“Free is My Favorite Flavor!
Using OER Course Materials in GenEd Courses”*

By

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ABSTRACT

Faculty and students have long complained about the prohibitive costs of textbooks. The National Bureau of Labor Statistics has found that the price of textbooks has risen more than 1000 percent since the 1970s and a study by Public Research Interest Group found that of all students have skipped purchasing a textbook because of the cost. This problem is acute at Prairie View A&M University (PVAMU), an HBCU located northwest of Houston, TX. This study uses survey and grade distribution data to examine the effectiveness a pilot program designed to increase student accessibility to textbooks as well as improve students’ academic performance. We found statistically significant impacts on early assignments and positive increases in student attitudes towards their classes.

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INTRODUCTION: TRACKING THE RISING COST OF TEXTBOOKS

Quality instructional materials are essential at all levels of education, not least among students in higher education programs. Textbooks, laboratory equipment, and other materials not only help leaven and strengthen a professor's lectures, but they can also help deepen a student's knowledge and retention of critical information. Few university-level courses are offered without instructional materials. Unfortunately, the cost of such instructional materials has risen so high and so fast in recent decades that it has become a serious obstacle for many college students as they struggle with ways to pay for their education.

While different government agencies report slight differences in their account of price increases, there is an unmistakable trend in rapid price increases. The US Government Accountability Office found that textbook prices rose by 82 percent between 2006 and 2016, while the overall consumer price index (CPI) rose by only 21 percent for the same period, less than one-third the rate (US Government Accountability Office 2013, 6). And the US Bureau of Labor Statistics reported a slightly higher rate of increase for textbooks during the same period: while tuition and fees rose 66 percent, prices for textbooks rose even faster, at 88 percent, more than 4 times the rate of the CPI (US Bureau of Labor Statistics 2016). Moreover, the average student spends approximately \$1,200 per year on course materials, which can be as much as 39 percent of tuition and fees at a junior college (Senack 2014, 6). The cost for textbooks and other instructional materials have risen so fast that they have become a major cost-factor in paying for a quality education, one that cannot be ignored.

EXPLANATIONS FOR THE RISING COST OF TEXTBOOKS

Multiple variables help explain the continuing rise in textbook costs, but all of them pertain to the overall structure of the market in one way or another. One such variable is

somewhat akin to the healthcare market insofar as students and patients share similar characteristics vis-à-vis two other powerful, key parties who play an outsized role in their respective industries. For instance, in the healthcare industry, the two key parties—physicians and insurance companies—have great influence on what treatment patients receive. Similarly, in higher education, instructors and publishing companies have great influence on what materials students must purchase or otherwise obtain. Both student and patient have limited input in, and control over, ultimate consumption decisions, so their interests in controlling costs may not be secondary to the interests of the other two parties. Much like medical patients, students do not have perfect information nor can they easily shop around for alternative textbooks, since most professors require a specific text. In the textbook industry, the first party – the instructors – choose a textbook that is “required” for the students to purchase: traditionally, faculty have not considered cost or expense when making such choices; rather they are more concerned with the textbook’s “fit” in their course or curriculum. The second party, the publishing company, often sells products that are of convenience to the instructor: they provide ancillaries such as lecture outlines, PowerPoint presentations, resource manuals and test banks, all of which add to the cost of the textbook the student is required to buy but from which the student may not receive any direct or indirect benefit. The third party, the student, has little choice but to purchase the textbook assigned by the professor. According to Senack, “the student is, in essence, a captive market” (Senack 2014, 6). Popken, on the other hand, likens the textbook market to the drug industry: just as how pharmaceutical companies convince doctors to prescribe their drugs to the doctors’ patients, publishing companies convince professors to adopt their textbooks in the professors’ courses. The main difference, however, is that there is no insurance coverage or copay to help students defray textbook expenses (Popken 2015).

Another explanation, again pertaining to other overall structure of the textbook market, lays blame squarely at the feet of the major publishing companies. For starters, publishing companies continually issue new editions that invariably costing more than previous editions, even though nearly three fourths of professors surveyed said they found the new editions unnecessary (Zomer 2007, 5). In some academic disciplines, such as Political Science, publishers and faculty alike argue that updated editions are necessary to keep current in the field. However, the revision cycle for issuing new editions has shortened: where once publishers issued new editions every 4 or 5 years, by the early 2000s, new editions were cycled every 3 or 4 years (US Government Accountability Office 2005, 3). In Political Science, the cycle is even shorter. For instance:

- *By the People*, a standard American government text, was issued in 2014, 2016 and then again in 2018, with the 2020 renewal scheduled for May, 2020.
- *Governing Texas*, a popular text adopted widely throughout Texas universities and colleges, was issued in 2013, 2015, 2017 and 2019.
- *International Relations* was issued in 2013, 2014, 2017 and 2020.

Furthermore, lack of competition within the textbook marketplace helps explain the rising costs of textbooks. Four major publishing houses, Pearson, Cengage, Wiley and McGraw-Hill account for more than 80 percent of the college textbook market (Del Valle 2019). In recent decades, these publishers have adopted a marketing strategy referred to as bundling, which is when a textbook comes wrapped with loads of instructional supplements, such as CD-ROMS, passcodes, workbooks, and so forth. Despite the fact that these extras add considerable cost to the price of a textbook, only half of professors surveyed indicated that they used the additional materials often (Zomer 2007, 5). Moreover, a 2005 GAO study found that, from 1986 – 2004, the practice of bundling instructional supplements, such as CD-ROMs, “best explained” the

tripling of textbook prices (US Government Accountability Office 2005). Eight years later, another GAO study reached the same conclusion, i.e., that bundling “best explained price increases” (US Government Accountability Office 2013, 1) although by 2013, bundled product delivery involved far more web-based digital products, such as online study guides, quizzes, and interactive exercises, rather than CD-ROMs or hard copies of workbooks.

Indeed, although digitally provided textbook resources were heralded as a cost-saving technique—sticker prices for online textbooks generally run cheaper than bound, hard copy versions—it turns out that purchasing, or *renting*, material online may not be the cost-saver it was purported to be. With digital texts, students usually purchase a subscription from the publisher, which often involves an access code, which then is used to grant students online access to digital copies of the text and supplemental materials. In many such cases, the subscription expires after several months, leaving the student no way to recover costs by selling a “used copy” on the after-market. Even when student purchases allow a download of the textbook in, say, PDF format, selling such an item on the after-market is not easy to do, given constant updates and changes to the product. Publishers argue that they are compelled to offer these expensive add-ons for several reasons: 1) they must keep up with competitors’ offerings; 2) faculty demand them as aids in leveling off unprepared students; 3) the reduction in teaching assistants, combined with the increase employment of part-time adjunct faculty means faculty need them because they are stretched thin for time (US Government Accountability Office 2005, 14-15).

IMPACTS

Continuing increases in textbook prices have forced students into making some difficult choices. Some go into ever greater debt as they take out loans to pay for tuition, fees and books.

Many choose to forego purchasing the textbook altogether, which undermines academic performance. Some have actually missed meals or forsaken purchasing other necessities in order to cover the expense of books. Some purchase older, cheaper versions of the text, share with a classmate, use library copies if available or get part-time jobs. In an extensive 2013 study by the Student Public Research Interest Group (Student PIRG), 65 percent of the more than 2,000 students surveyed reported that they chose not to purchase a textbook due to cost concerns and 94 percent of those students did so with the knowledge that eschewing a course text would risk lowering their performance in the course (Senack 2014, 14). The PIRG study also acknowledged that high textbook costs have a “ripple effect” on student decisions, such as reducing the number of courses they register for each semester (Senack 2014, 5). Writing in *Inside Higher Ed*, Emma Whitford reports on a 2018 survey of students showing that “43 percent skipped meals, 31 percent registered for fewer classes and 69 percent worked a job during the school year, all to save money for books” (Whitford 2018). And VitalSource, a digital textbook provider, commissioned a study by Wakefield Research, which found that 85 percent of college students either postponed buying or never purchased a textbook at all, largely due to prices (VitalSource 2018).

Congress responded to the ever-increasing prices of textbooks by passing the 2008 Higher Education Opportunity Act, which requires publishers to disclose textbook pricing options. It also requires publishers to allow consumers to purchase items individually instead of in higher-priced all-inclusive bundles. However, although faculty report that they are more aware of affordability issues than previously, these efforts have done little to influence faculty textbook adoption decisions (US General Accountability Office 2013, 11). For the most part, instructors choose course materials for their “quality and relevance” (US General Accountability

Office 2013, 14), i.e., professors assign texts that they judge are most suited to the learning outcomes of their courses. Herein lies an important discrepancy, while faculty *adoption* decisions focus on a textbook's academic suitability, i.e., they are relatively price-insensitive, student *purchase* decisions focus mostly on cost considerations, meaning they are almost entirely price-sensitive (US General Accountability Office 2013, 21).

OER AS AN ALTERNATIVE

Given the above-discussion on price increases and negative impacts on students, that is why open educational resources (OER) have become an increasingly vital component of higher education. They have the potential of satisfying both faculty preferences for academic rigor and student preferences for cost-savings. Myriad definitions of OER exist. The United Nations Educational, Scientific and Cultural Organization (UNESCO) first coined the term “open educational resources” at its 2002 Forum on the Impact of Open Courseware for Higher Education in Developing Countries. UNESCO defines OER as

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 restrictions (UNESCO, n.d.).

Other definitions reflect UNESCO's early work. For instance, according to Starks,

Open educational resources are materials for teaching or learning that are either in the public domain or have been released under a license that allows them to be freely used, changed, or shared with others (Starks 2017).

In 2012, Paris hosted the 1st UNESCO World OER Congress, which issued a declaration recommending that countries foster awareness, research and development of OER (UNESCO 2012). In 2017, UNESCO's 2nd World OER Congress, held in Ljubljana, Slovenia, adopted an action plan that focused on building and sharing OER that were globally accessible and inclusive (UNESCO 2017).

Perhaps the most common example of an OER is a course textbook, which is published at all levels of education and which is the primary focus of this study. But other forms of OER include teaching supplementals, openly shared instructors' resources, best practices teacher blogs, and videos. OER appear in digital as well as hard copy formats.

Hilton (2016) conducted an analysis of published studies on the efficacy of OER regarding learning outcomes as well as the perceptions college students and faculty hold regarding OER. His research covered nine peer-reviewed studies that examined student performance indicators, such as final exam test scores, course grades and withdrawal rates. Overall, four of those studies showed no significant increase in student performance using OER, four showed significant increase and one showed a decrease in student's performance regarding learning outcomes, leading Hilton to conclude that "utilizing OER does not appear to decrease student learning" (Hilton 2016, 586). Hilton concludes with a poignant question:

If the average college student spends approximately \$1000 per year on textbooks and yet performs scholastically no better than the student who utilizes free OER, what exactly is being purchased with that \$1000? (Hilton 2016, 588).

In 2019, Hilton published a follow-up article to his 2016 study, using the same methodology but covering any new OER studies from 2015 – 2018. While he noticed a marked increase in the frequency of studies on the efficacy and student/faculty perceptions of OER, his findings in the follow-up study are consistent with his first study:

A consistent trend . . . is that OER does not harm student learning. . . . While the impact of OER on student learning appears to be small, it is positive. Given that students save substantial amounts of money when OER is utilized, this is a particularly important pattern (Hilton 2019).

Moreover, the cost-savings on texts can have spillover effects on everything ranging from nutrition to less need for part-time jobs to increased quality of life. Wong and Li's 2018-2019 review of 59 published case studies on the use of OER in higher education found "no significant

difference” in academic performance for students using OER compared to those using traditional textbooks, but they concluded that students experienced other forms of improvement, such as confidence and satisfaction (Wong and Li 2019, 187). While Wong and Li (2019, 187) contend that the lack of support for developing OER at the national and institutional level is a marked limitation (among others) of OER, James finds in a survey of minority serving institutions that nearly two-thirds of those surveyed reported that their institution provides myriad forms of support, such as teaching with technology research initiatives and funding and technical support for OER course development initiatives (James 2018, 6).

PVAMU’S PILOT PROGRAMS

To date, there is a dearth of research and case studies that specifically focus on the efficacy of OER adoption or development at Historically Black Colleges and Universities (HBCUs). Although Colvard, Watson and Smith argue that OER improve the academic performance of historically underserved populations, they acknowledge the need for “disaggregated research” on the effectiveness of OER at HBCUs (2018, 273). To be sure, faculty and staff at HBCUs are acutely aware of the financial barriers many of their students confront in higher education. Indeed, there is a trend at HBCUs not only to implement OER in their curricula but to also adopt what is called an “inclusive access strategy” (Diack 2019), whereby universities contract with publishing companies to provide books across the curriculum for a fixed, reduced price, and which is tied into the student’s tuition and fees. This study presents an early attempt to assess the impact of these tools on student learning and attitudes at Prairie View A&M University, an HBCU near Houston, Texas.

Prairie View A&M University (PVAMU), an HBCU, is a part of the Texas A&M University System and is the second oldest public institution in the state of Texas. Around

9,500 students are enrolled, and 8,524 students are undergraduate (PVAMU 2019). Around 38 percent of the students are first-generation and over 80 percent of the students are African American. *US News and World Report* highlights that 85 percent of the students receive some form of “need-based” financial aid, but only 75 percent of the need is met by traditional forms of financial aid (2019). Due to this factor, many PVAMU students have to work part-time or full-time jobs. In 2018, Mitchell, Hairston-Green, and Junious conducted a study on student poverty, food insecurity, and housing insecurity among PVAMU students and found that 47 percent of the students were employed, and 24 percent of those students were working more than 30 hours a week¹. Additionally, the researchers found that 38 percent of the students in the study reported having to make choices between focusing on academics and focusing on work to make ends meet (2018). Around 13 percent of the respondents reported having at least once instance of housing insecurity during their time at PVAMU and 67 percent of the respondents reported at least one instance of food insecurity (Mitchell, Hairston-Green, and Junious 2018). This means that our students are working many hours outside of the classroom, have limited support networks from family members, and are having to make some tough choices related to their education.

In 2019 PVAMU launched several initiatives designed to provide select student groups with OER and then evaluate their efficacy. The first pilot involved PVAMU purchasing the subscription fee so that students in all sections of HIST 1313, *U.S. History to 1876*, obtained a free copy of the text, and on the first day of class. This program occurred for only those students registered in HIST 1313 during spring 2019 semester, which was approximately 751 students spread across 17 sections (one of which was online) and seven faculty. PVAMU also

¹ 539 students were interviewed during the Fall of 2017 using a survey instrument. All students, who were over the age of 18 years old were invited to participate. The survey was open for about a month.

implemented a support program for faculty to promote development and use of OER, focusing in particular on general educational courses in the core curriculum. A total of \$14,500 was awarded to 14 faculty across all disciplines. Seven \$500 awards were given to faculty to adopt an OER text or lab manual in the spring 2020 semester. Five faculty were awarded \$1,000 grants to adopt an OER text and create an online course shell that includes textbook adoption, OER-based activities, homework assignments and lecture notes. Two \$2,500 grants were awarded to faculty to develop an OER text or supplemental course reader.

Finally, two different academic programs, both of which teach critical general education courses, adopted an OER textbook in 2019. For its summer and fall SOCG 2043 Social Problems sections (18 students in one summer section and 53 students in two fall sections) the Sociology Program adopted and assigned a sociology OER text called *Social Problems: Continuity and Change*². In spring 2019, the Political Science Program formed an exploratory committee which was charged with researching and evaluating available OER for its two core courses, Texas Government and American Government, both of which are required for all students in Texas's public institutions of higher education. While the Committee concluded that no sufficient OER was available for Texas Government it did recommend an OER for adoption in all American Government sections. Thus, the Political Science Program did adopt *American Government* for all of its fall 2019 POSC 1113 American Government sections (655 students over 17 sections—two online—and eight instructors). This book, already in its second edition, is a peer-reviewed text, published by OpenStax.

² The University of Minnesota's Open Textbook Library houses this text and many others. See <https://open.lib.umn.edu/socialproblems/>.

HYPOTHESES AND EXPECTATIONS

As mentioned above, students have three major concerns at HBCUs when they relate to course materials – *being able to afford the course materials, getting access to the materials in a timely fashion, and needing resources that are portable, so they can study anywhere*. Access to OER resources should impact these three core issues. OER resources reduce the anxiety and frustration related to not being able to purchase course materials or having to make tough choices between academics and basic needs. As mentioned before, many of our students are working a lot and face housing and food security issues. Having the text provided is one less thing our students will have to worry about. Secondly, OER resources allow students to have access to course materials more quickly. Often students have to wait for refunds for financial aid to be able to purchase their texts and this often comes during the third week of class. Students can start class “ahead” instead of having to catch up with missed readings or assignments. The third thing that OER resources do for students is that they meet them where they are. They are portable and can be accessed from most any device or even printed out. These three expectations lead to two hypotheses.

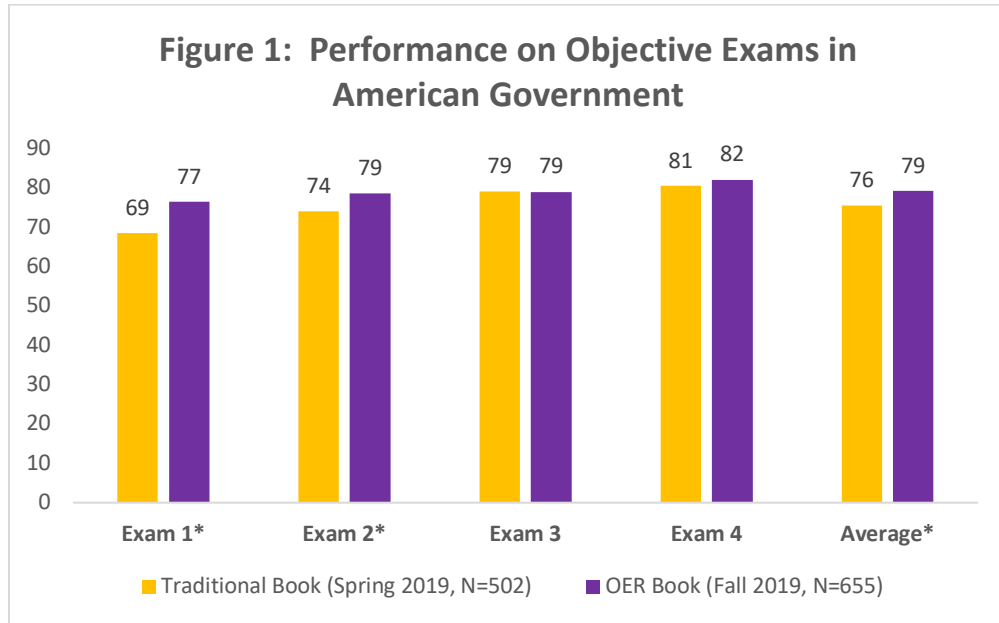
H1: Students enrolled in courses that use OER resources will have higher success (ABC) rates than students enrolled in courses that do not.

H2: Students will report higher satisfaction and engagement in courses that use OER resources.

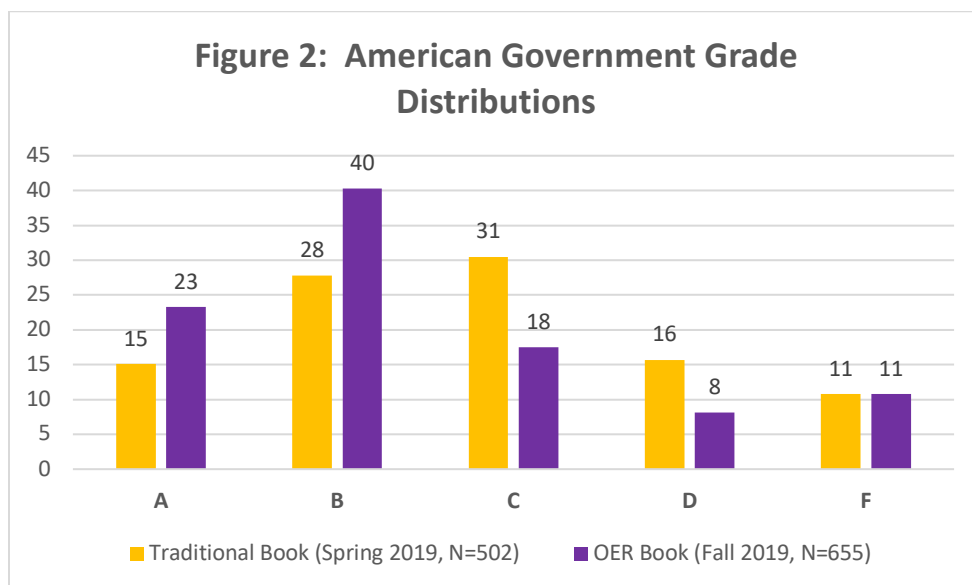
RESULTS OF THE STUDY

This study will focus on the adoption of an OER textbook in the American Government and Social Problems courses. To assess the impact of these adoptions on student success, we examine grade distributions of students enrolled in the courses during the Spring 2019 semester before the OER adoption and the grade distributions of students enrolled in courses in the Fall 2019 semester after the adoption. Both courses have common syllabi that require the same types of examinations and a similar course schedule. We collected de-identified gradebooks from all instructors who taught American Government and Social Problems from both semesters and evaluated objective performance on exams with a difference of means t-test.

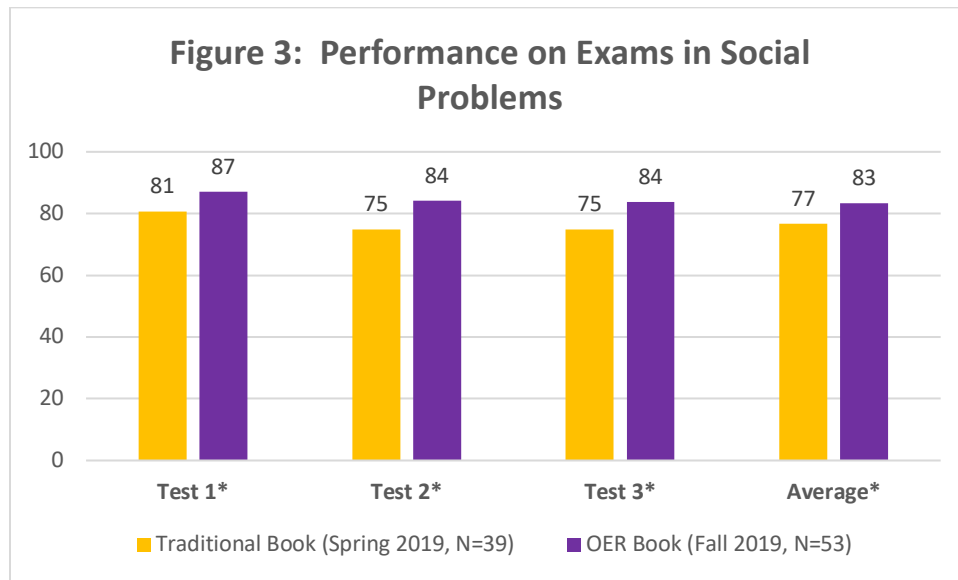
Adopting an OER text for the American Government course led to some interesting results. Around 502 students were evaluated in the Spring of 2019 and 655 students were evaluated in the Fall of 2019. The exam average for students using a traditional text was 76 percent and 79 percent for students using an OER text. This difference is statistically significant at $\Pr(T > t) = 0.001$, with a t-statistic of 3.99. Figure 1 below highlights the average performance on the objective exams. The data show that students performed statistically better with the OER text on the first and second exams, but did not perform better or worse on the third and fourth exams. Students in classes using a traditional text scored 69 percent on the first exam, while students in the sections using an OER text scored 77 percent. The difference of means test indicated a t-statistic of 5.95, which is significant at $\Pr(T > t) = 0.001$. Test two showed a similar result. The students in the OER sections scored about five percentage points higher than students enrolled in courses that used a traditional text. The difference of means test indicated a t-statistic of 3.98, which is significant at $\Pr(T > t) = 0.001$.



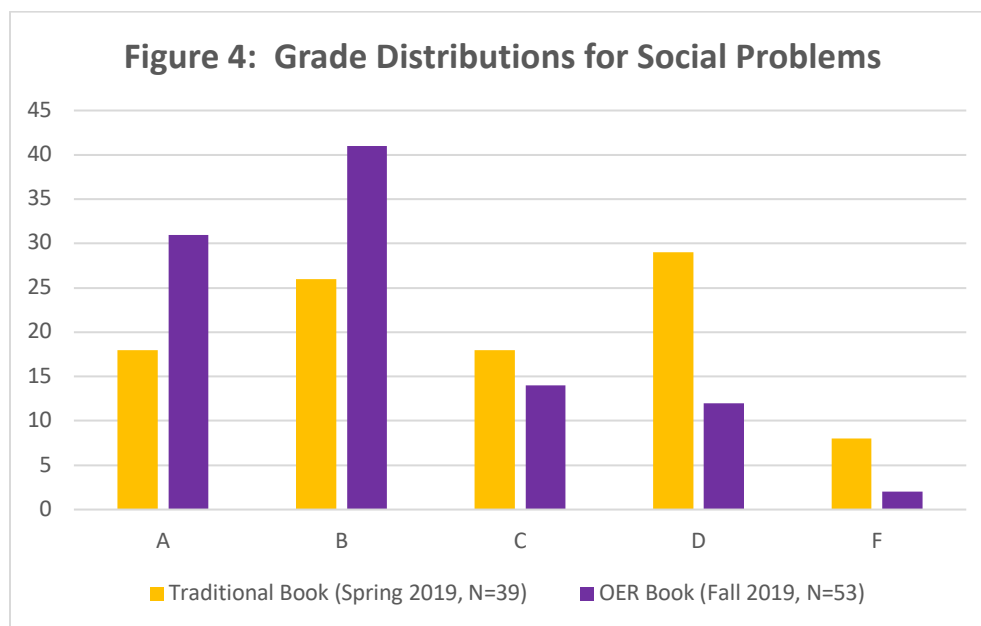
While performance on objective measures indicated that students performed as well or even better with the OER text, the grade distributions are also important to note. Figure 2, below, highlights the distributions of A/F grades for the course using the final averages. Particularly telling, is that the number of A's and B's increased in the sections using the OER resource. The overall success rate for the courses with the traditional text was 73 percent and the success rate for the courses with the OER text was 81 percent.



The grade data from the Social Problems course showed similar results. Figure 3 highlights the performance on the objective exams. The average score for the students enrolled in the OER section was 83 percent and the average score for the traditional textbook was 77 percent. This produced a t-statistic of 2.59, which is statistically significant at $\Pr(T > t) = 0.001$. Across each objective test, students performed better in the course with an OER resource. Difference of means tests indicated that the observed differences between the average performance in the OER versus the traditional text are statistically different from zero at the $\Pr(T > t) = 0.001$ level or better. Students with the OER text performed objectively better.



The success rate for Social Problems also increased. Around 86 percent of the students enrolled in the section with an OER text received an A, B, or C, while only 68 percent received similar grades in sections using traditional texts. Figure 4, below, highlights the grade distributions and shows that far more A's and B's were achieved in the sections with OER resources.



Student Attitudes

To determine any changes in attitudes related to the implementation of the OER adoption, a web survey was sent out to all students who were enrolled in either course during the Fall 2019 semester.³ The survey was sent out to 708 students enrolled in American Government and Social Problems, with 232 students responding, indicating a 33 percent response rate. Most students had completed about three semesters at PVAMU, indicating that they were taking these courses in their sophomore year. Seventy percent of the students were female, which mirrors the general population of students at the university.

Students report high satisfaction with the course. Table 1 below, highlights some of the findings from the survey. Over 90 percent of the students thought that the inclusion of OER resources increased their participation, satisfaction, academic performance, and engagement with the course. In addition, 93 percent of the respondents were satisfied or very satisfied with the

³ The survey instrument is available in Appendix 1. The study was approved by the PVAMU IRB Human Subjects Committee. The approved IRB protocol number for this study is 2019-063.

resource and 73 percent of the respondents to the survey thought the text was more useful than a traditional textbook.

Table 1: Attitudes Toward OER Resources

<i>Using the free textbook and course materials...</i>	<i>Yes</i>	<i>No</i>	<i>Total</i>
Improved my participation in the classroom.	90.55%	9.45%	201
Increased my interest in the subject.	88.56%	11.44%	201
Increased my satisfaction with the class.	92.54%	7.46%	201
Increased my academic performance (grades) in the class.	94.53%	5.47%	201
Increased my confidence as a student or learner.	91.54%	8.46%	201
Increased my engagement with the course content.	93.50%	6.50%	200
Increased my engagement with my professor or instructor.	91.54%	8.46%	201
Increased my collaboration with my peers.	87.56%	12.44%	201
Increased my likelihood to take another class in the subject.	88.06%	11.94%	201
Increased the likelihood that I would study for the class.	92.50%	7.50%	200

136 participants answered the question “how did having access to free course materials impact your mastery of course contents?” Content analysis of those responses resulted in two main themes regarding the use of OER: impact on mental health and improving course success.

Impact on Mental Health: Less Stress, More Confidence and Improved Attention/Participation

The first theme concerns students’ mental health as it relates to stress, worry, financial burden, confidence and intellectual ability. In fact, 28 participants mentioned the term “worry” or “stress,” for example, one student stated:

It made me much more comfortable learning the material because I did not have to worry about how I would obtain the materials in the first place because it was already being provided. [L]ife is much easier when you aren’t thinking ab[ou]t all the things you have to b[uy] that you don’t have the money for.

Many students expressed similar sentiments regarding the impact OER had on reducing worry and stress related to the financial aspects of buying course textbooks. Faculty and administrators may often overlook how the financial burden of required course materials negatively impacts students’ mental health. A dangerous cycle begins where stressed out students may have a

lowered attention span due to the constant distraction of not having the required book. This in turn can lead to an inability to keep up with course work which may lower student confidence in their abilities to successfully complete the course.

In addition to the above student's statement, another student said that having access to free course materials "made me actually want to learn due to the fact that I didn't have to stress about money for a book! I paid attention more due to the fact that I did have the book." This student is an example of how OER helps in breaking this hazardous cycle. Yet another student expressed similar sentiments: "If the course material wasn't free, I possibly might've not been able to get the textbook at all, which would sever[e]ly impact my grade, gpa, and confidence in my intellectual capability."

Having the course textbook is an important component to a student's overall mental health and confidence in their abilities within a course. As one student stated, "having access to free course material increase[d] my confidence to pass the class knowing I had less of a financial burden." If faculty and administrators make the effort to lower the cost of course materials by utilizing OER then the results may extend beyond improved course grades and drop/withdrawal rates. Several students indicated that OER use helped to reduce worry and stress related to the financial burden of course materials, while also improving their attention, participation in the course and confidence in their abilities to successfully complete the course.

Mastering Course Material and Improving Interest in the Subject

The second theme found within the open-ended questions concerns student perceptions that OER improved their mastery of course material and improved their interest in the subject matter. Several students indicated that use of OER made it easier to access the course material. Many OER are available via a laptop and even cellular phones so students can open the course

textbook on their phone in class. As one student stated: “[b]eing able to access my textbook anywhere and not have to carry a backpack with me wherever I go made it easier for me to study whenever and wherever.” Many students in 2020 are digital natives: they use their cellphone for many aspects of their life, such as communicating, gaming, shopping, and dating. It is reasonable for them to expect to access their education through their smart phones as well. Many OER textbooks are mobile-friendly and easy to access and navigate during class or on the go.

Students also found that ease of accessibility also contributed to improving their interest in the topic. “[OER] made it a lot easier to study because it’s online and accessible wherever I go so it made the topics very interesting.” Not having to worry about the financial burden of textbook costs, students can be open to learning the course material from day one. In fact, one student stated: “I learn better on my computer because it allows me to highlight and make notes on my computer and it’s better technology learning for me.” For some students, OER use correlates to a willingness to take notes and engage in course material as a result of the ease of access and lack of worry related to the financial cost of textbooks.

Class participation can improve as a result of OER. One student stated “[i]t greatly impacted the class engagement for me because in order for me to participate, it was essential to read the textbook.” In addition, several students commented on how the OER textbook made it “easier to study,” “easier to understand things discussed in the course,” “easier to learn,” and OER made it “easier to engage in the class.” Faculty constantly try to find ways to increase class participation and engagement so adopting OER course material can aid in improving this outcome.

Lastly, several students commented on their own successes that they perceived to be the direct result of OER use. One student stated, “with free access to books I got A[‘s] in all my

classes' [...] midterm exams something not usual [for] me." Yet another student mentioned OER "materials improved my understanding of the subject and helped me rethink a lot about the subject." Several students said using OER "helped me pass" and that OER "made it easier to study." Overall, OER use resulted in students' perception that their grades, classroom participation and engagement, study skills, ability to complete assignments and even interest in the subject improved.

Students also had some helpful critiques of the OER textbooks and how their professors used it. When asked what improvements they would make to the textbook, the students recommended ensuring that exam question phrasing more closely matched the language of the text.. Since the text was new for many instructors, they were slower to transition their notes/slides and exams to the new text. To deal with this, both the Political Science and Sociology program developed some common test bank questions. The next biggest concern was that the OER textbooks were not as in depth as the students wanted on certain concepts. The last comment that students made dealt with the need for hard cover textbooks. While some students appreciated the portability, others craved a physical copy of the text. It is worth noting that some OER publishers have already responded to this need by offering print versions at cut-rate prices, e.g., OpenStax offers a print version of its American government book for \$48.50 and its sociology text for \$28.00.

CONCLUSIONS

This study presents one of the first case studies on OER implementation at an HBCU. Given the data presented above, we find that OER texts are as good or better than traditional texts for HBCU students. HBCUs are unique institutions that provide educational opportunities to African American, first generation, and underserved populations. These populations are

sensitive to the costs of higher education and many students choose to forgo purchasing required course materials in favor of other essential needs. To combat these issues, PVAMU's Political Science and Sociology Programs have implemented an OER text in their gateway American Government and Social Problems courses, which are a part of the required general studies/core curriculum. Our research design evaluated whether or not the inclusion of an OER text improved student success and found that it did. Data suggest that having access to the free text earlier, helped students to perform better on earlier exams, therefore improving overall success in the class. The percentages of students achieving an A or B also increased in sections of the courses that used the OER resource.

A second issue was whether or not student's attitudes about their course would be impacted by the inclusion of an OER resource. We found that students were highly satisfied with the cost and the resource's usefulness. Survey frequencies suggest that students felt more confident to participate in the class, by asking questions and engaging with the material. Anecdotal data from the open-ended questions, suggest that students appreciated that the professor tried to find something that was free for them to use. They also appreciated a portable resource that they could use across multiple devices.

As we are aware that previous case studies on OER efficacy involve thousands of students, we hope to extend and improve this research design. Our survey instrument was recently adopted by our university's OER committee. We will be able to continue gathering data as more programs adopt OER resources and hopefully get more varied feedback from students. We also hope to gather more mature data as professors get more experience with the new text. Even though we found very positive effects in support of OER, students know and appreciate good teaching. They could tell when a professor was not as engaged or as familiar with the new

text. Open educational resources are just tools. It is up to instructors to figure out how to best use the tool for the success of their students. In general, we are pleased with the results of our OER adoption and will continue to seek out opportunities to help support our students.

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Appendix 1: Survey Instrument

Prairie View A&M University is conducting a study to determine how effective free or “no cost” textbooks are at improving the success of our students. You are receiving this survey, because your instructor provided you with a free copy of the course materials for this course. Your answers are anonymous and the survey will take 5 to 10 minutes to complete. Your answers will help us to improve and expand this program. Your answers will not impact your grade.

How many semesters have you been at Prairie View A&M University?

1 2 3 4 5 6+

Which gender do you most identify with?

Male Female Other: _____

In thinking about this course, how often did you use the book to complete assignments or to study for exams?

I did not use it Not too often Somewhat often Very often

If you answered that you did not use the textbook or did not use use the book as often, briefly discuss why.

Did your instructor assign readings or assignments from the textbook?

Yes No

In thinking about your preparation for this class, how many hours a week did you study?

0 to 1 hours 1 to 2 hours 3 to 4 hours 4 or more hours

How did you access your course textbook? (You may choose more than one.)

Personal Computer	Tablet
Phone	Library or University Computer Lab
Friend’s Computer	Publisher’s Gateway/Website
PDF or Word	

Please indicate if any of the following statements fit your situation? Using the free textbook and course materials....

Improved my participation in the classroom.	Yes	No
Increased my interest in the subject.	Yes	No
Increased my satisfaction with the class.	Yes	No
Increased my academic performance (grades) in the class.	Yes	No
Increased my confidence as a student or learner.	Yes	No
Increased my engagement with the course content.	Yes	No
Increased my engagement with my professor or instructor.	Yes	No
Increased my collaboration with my peers.	Yes	No
Increased my likelihood to take another class in the subject.	Yes	No
Increased the likelihood that I would study for the class.	Yes	No

How did having access to free course materials impact your mastery of course concepts?

Please respond with the answer that best fits your experience with the textbook and course materials.

Overall, I was _____ with this book.

Very satisfied Somewhat satisfied Somewhat dissatisfied Very dissatisfied

The textbook and course materials were _____ than books I have purchased for other classes.

more useful as useful as less useful

What would you change about the book or materials that were chosen for your class?

This program should be expanded for other students. Yes No