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Open Educational Resources in Business Law: Notes from the Field

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ABSTRACT

Open educational resources (OERs) are an alternative textbook to publisher materials used by colleges and universities. OER materials have a cost advantage for students; many are published as free or cost-reduced textbooks for students. The authors developed and piloted an OER textbook for Business Law I in the Management program of the School of Business, Technology and Law. Over 800 Community College of Baltimore County (CCBC) students enroll in this course each academic year. The authors evaluated the cost savings for students compared to traditional publisher materials, and also examined student success rates in OER courses compared to traditional publisher courses. The authors' assessment is that OER materials can save students substantial costs to attend college, and though there is some difference in student success between OER and traditional publisher courses, this variation is likely explained by other independent variables such as the course teaching modality. The process for receiving funding, developing OER-based materials on a publicly available and no-cost website, and distributing the materials to students is also discussed.

INTRODUCTION

Professors Donna Mandl and Tim Faith teach Business Law I, a 3-credit, 100-level course offered in the Business program as part of the degree requirements for students studying management, business administration and accounting. Historically, Business Law I has been taught using a publisher textbook. Costs for publisher textbooks continue to rise, and while the college has done what it can to negotiate these costs, the reality is that students have to pay more than \$130 to purchase the book to complete the course. Not having the book negatively impacts student learning; paying for the book negatively impacts student finances (Hilton, 2019). The cost of college education is acutely felt by community college students nationally and at CCBC. According to institutional data, 30% of all CCBC students are eligible for Pell grants and 33% of business administration majors were Pell-eligible in the fall 2020 semester (<https://www.ccbcmd.edu/About-CCBC/Administrative-Offices/Administrative-Services/Planning-Research-and-Evaluation/CCBC-Facts.aspx>).

In response to this growing problem, the authors applied for and received a small grant to develop an OER textbook which was piloted in several sections of Business Law I in fall 2017. This article

discusses the experiences of the authors in developing and using the OER book, and its impact on student learning outcomes in Business Law I.

METHODS

All faculty utilized an available edition of Miller's *Business Law Today*, (Miller, 2017) prior to the pilot of the OER textbook. Professors Mandl and Faith piloted the OER textbook for their enrolled students in the fall 2017 semester and the spring 2018 semester, and then all instructors used the OER textbook in subsequent semesters. The authors therefore looked at data available on courses taught in the fall and spring semesters from the fall of 2016 through spring of 2021. The dataset was limited to classes taught by an instructor that had used both the publisher textbook and subsequently used the OER text. During the period, there were a total of 1,956 enrollments in Business Law I that were included in this study based on these criteria.

The authors empirically compared the cost of the OER book for students in OER sections with the cost per student in publisher sections, where the cost for the publisher text was approximately \$133, while the cost for the OER was either free for online-only access, or approximately \$25 for a paper version of the OER textbook. There are numerous empirical studies of textbook cost reported in the literature and summarized in Colvard (2018).

With regards to student outcomes, the authors analyzed the data to compare OER use and final grades in the course. This methodology is reported in the literature reviewed by Colvard (2018) with several studies suggesting that OER use results in higher student grades, pass rates, or lower failing and withdrawal rates. Four other studies reviewed by Hilton (2019) suggest that OER students are slightly less likely to drop an OER-based course and 6% more likely to complete an OER class.

One of the methodology issues identified in the literature is a lack of control over teacher bias in OER usage analysis (Hilton, 2019). Hilton engaged in a meta-study of OER papers from 2015-2018, and identified 5 additional studies that effectively controlled for teacher bias (Hilton, 2019). One study involved the same professor for both OER and traditional publisher materials taking college algebra; another study reviewed by Hilton compared OER to traditional publisher use with the same faculty teaching an introductory physics course across 4 years and found no significant differences in grade distributions but a small, significant improvement in final exam scores for OER use (Hilton, 2019; Hendricks, 2017).

In this study, a total of 10 instructors taught at least one section during the semesters analyzed, with 6 having taught using the publisher text and the OER text during the period, 2 only using the OER, and 2 only using the publisher text. To control for teacher variables, sections were excluded where an instructor had taught with only the publisher text or only the OER text, following the methodology found in Colvard (2018) and discussed above in Hilton (2019). This left a total of 6 faculty whose sections during the full period were included in the study, totaling 1,956 student enrollments from fall 2016 through spring 2021.

Another methodology issue identified in Hilton relates to a lack of control over student variables, such as gender, age, race, financial status (such as Pell eligibility), grade point average (GPA), full- or part-time student status, mother's education, and/or ACT scores (Hilton, 2019). Winitzky-Stephens (2017) identified a further issue of controlling for whether courses were taught in-person or online, suggesting that the teaching modality could be an explanation for differences in student outcomes.

The authors collected course modality and OER usage as independent variables, and final grades as the main dependent variable, from institutional sources available through the college's data warehouse, Argos. Also collected were gender (which was coded as 1 for female and 0 for male), age (which was coded as 1 if the student was under 25, 0 if they were 26 or older), and whether the student was a business major (coded as 1 if the student major was Business Management or Business Administration, and 0 if any other major) as additional independent variables. Each course's section code was used to determine whether the class modality was online or in-person and coded the data as 1 if the course was offered asynchronously online, and 0 if it was in-person or taught remotely with a synchronous meeting component.

To complete the regression analysis of student success, final grades were coded so that an A was coded as 4, B as 3, C as 2, D as 1, and F and W as 0. Two additional fields were also created to identify if a student withdrew from the class or not, and whether the student earned an A, B, or C to indicate that the student had passed the course. These alternative measures of student success are reported elsewhere in some of the literature surveyed by Hilton (2019). These alternative outcomes are used as additional dependent variables in this analysis.

To conduct the analysis of student outcomes, data was exported from Argos into a MySQL database, and Excel's data analysis tools were used to conduct a linear regression analysis of variables based on views of the data from the database, with one view of all Business Law I student enrollments for the study period, and 2 additional views that divided these enrollments into online and in-person/remote synchronous cohorts.

RESULTS

The cost of the Miller textbook to students, which includes a software license for the semester to Cengage's MindTap software, is \$133.35 at the campus bookstore. If all 1,956 students that took the course in the study period had to purchase the publisher text, the total cost to students would be \$260,832. As the online version of the text is available at no cost to enrolled students, implementing an OER would save the above amount for students during the study period.

Some of these savings may be reduced for students that choose to obtain a printed version of the OER book, but the savings would remain substantial. The cost for a printed version of the OER textbook is approximately \$25 from the campus bookstore, which is substantially less than the cost of the publisher text. In addition, students are not required to purchase the paper version of the textbook and not all students will elect to invest in the book. The bookstore advised that approximately 40 students purchase the paper version of the OER textbook each semester, which would reduce the above textbook savings above by approximately \$2,000 per academic year. Over the 10 semesters of the study, students electing to purchase the paper version of the OER would reduce the above savings by approximately \$10,000. Nonetheless, savings to students over the publisher textbook appear substantial for the course, consistent with the literature that has studied cost savings (Colvard, 2018).

Table 1 summarizes the student grade distribution comparing student grades enrolled in OER sections with those in non-OER sections from the fall 2016 through spring 2021 semesters. As noted in Table 1, student success (calculated as those students that earned a D or better and did not withdraw from the course) was 74% for OER and 79% for non-OER students without controlling for other student demographic variables. Both rates are consistent, though slightly lower, with the overall success rate in fall 2017 business courses taught in the Management Department of the School of Business, Education, Justice and Law (80% for 3,142 students) (Cramer, 2018). In addition, the difference in grade distributions appears to be significant ($F = 15.413, p < 0.01$) when comparing OER to publisher textbook use by grade distribution. Alternately, examining the pass rate (calculated as those students that earned an A, B, or C grade), Table 1 shows that 65% of students passed the OER-based course, which is significantly 5% lower than the pass rate in the publisher-based course, without controlling for student demographic variables ($F = 6.679, p < 0.01$). Table 1 also describes the overall withdraw rate and shows that the withdraw rate for publisher materials is not significantly ($F = 1.579, p = 0.21$) 1.6% lower compared to the OER, without controlling for other student demographic variables.

Table 1.
Student Grade Distribution for Select
Instructors in Business Law I,
Fall 2016 through Spring 2021

| | OER | Non-OER |
|---------------------|-------|---------|
| A | 12% | 19% |
| B | 29% | 30% |
| C | 24% | 22% |
| D | 9% | 8% |
| F/W | 26% | 21% |
| N | 1,312 | 644 |
| Success* | 74% | 79% |
| Pass rate** | 65% | 70% |
| W rate [†] | 7.5% | 5.9% |

Abbreviation: OER = open educational resource.

Notes: *Success is defined as sum of students earning a D or better, divided into all students. **Pass rate is defined as sum of students earning an A, B, or C, divided into all students. [†]W rate is defined as the sum of students that withdrew from the course, divided into all students.

One concern, however, with this analysis is that the Multiple R and R squared values (0.088 and 0.007 respectively) are relatively small, suggesting that this simple model of predicting final grades in the course by OER use alone is incomplete. The authors, therefore, conducted a multivariable analysis, and included gender (coded as 1 for female and 0 for male), major (coded as 1 for a business major and 0 for all other majors), age (coded as 1 if the student was under 25, 0 if 26 or older), and whether the course was conducted as an online or in-person/remote synchronous course (asynchronous remote was coded as 1, while in-person/remote synchronous was coded as 0), and then completed a regression analysis of the data. The result here showed that the variation in final grades was significant ($F = 20.945$, $p < 0.01$) and the Multiple R and R Squared values were higher (0.225 and 0.050, respectively) suggesting that this multivariable model is more predictive of final grades than a model of just OER use alone.

Interestingly, in looking at the relative p values for each independent variable, whether the course was online had the smallest probability ($p < 0.0001$), compared with student age ($p < 0.0001$), business major ($p < 0.03$), OER use ($p < 0.07$) and gender ($p < 0.14$), suggesting that the modality of the course had a greater impact on the grade distribution than any of the other independent variables in this latter analysis and also that OER use was the second least predictive of these variables (and not significant, relative to these other variables). A comparison of final grades by these independent variables is summarized in Table 2, and the overall test for significance was $p < 0.0001$, suggesting that textbook selection was not a significant contributor ($p < 0.07$) to grade distribution of students in the course.

Table 2.
Student Grade Distributions by Select Independent Variables

| | Female | Under 25 | Business Major | Asynchronous Online |
|-----------|---------------|-----------------|-----------------------|----------------------------|
| A | 15% | 12% | 11% | 12% |
| B | 29% | 28% | 29% | 25% |
| C | 22% | 24% | 24% | 20% |
| D | 9% | 10% | 10% | 8% |
| F/W | 25% | 25% | 26% | 35% |
| N | 1,032 | 1,299 | 1,026 | 849 |
| Success* | 75% | 76% | 74% | 65% |
| p value** | 0.14 | 0.0001 | 0.03 | 0.0001 |

Notes: *Success is defined as sum of students earning a D or better, divided into all students. **p value is based on multi-variable regression analysis where the above independent variables were analyzed and where R = 0.22.

Historically, colleges have struggled with lower success rates for online learners (Angelino et al., 2007; Patterson, 2009). Consistent with the literature, Table 3 shows that success rates for in-person and remote-synchronous courses are significantly ($F = 62.608, p < 0.01$) 19% higher compared to success for online asynchronous courses (in-person success rates are 84% where success rates for online are 65%) ($N = 1,956$) when controlling for instructors but not student demographic variables. Table 3 also shows a significant gap in pass rates ($F = 62.663, p < 0.01$) between in-person and online and a significant gap in withdraw rates by the same comparison ($F = 11.747, p < 0.01$).

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Table 3.
Success Rates for In-Person/RS and Online Learning Combined

| | Online | In-person/RS |
|---------------------|---------------|---------------------|
| A | 12% | 16% |
| B | 25% | 32% |
| C | 20% | 26% |
| D | 8% | 9% |
| F/W | 35% | 16% |
| N | 849 | 1,107 |
| Success* | 65% | 84% |
| Pass rate** | 57% | 74% |
| W rate [†] | 9.2% | 5.2% |

Abbreviation: RS = remote synchronous.
Notes: *Success is defined as sum of students earning a D or better, divided into all students. **Pass rate is defined as sum of students earning an A, B, or C, divided into all students. [†]W rate is defined as the sum of students that withdrew from the course, divided into all students.

Table 4 divides up into cohorts those students that enrolled in a course using an OER textbook and those students using a publisher textbook, and then compares success rates of each cohort by teaching modality (in-person or remote synchronous compared to asynchronous online). Dividing further to examine OER and publisher in online and in-person or remote synchronous courses, the analysis showed success rates in-person with the OER are not significantly 3% higher compared to classes that utilized the publisher materials (85% to 82%) ($F=0.044, p = 0.83$), but success rates are significantly 3% lower comparing OER to publisher materials in online courses (66% to 69%) ($F = 11.549, p < 0.01$) when controlled for instructors but not for other student demographic variables. One explanation for this outcome may be that the publisher textbook was bundled with MindTap software that students used in those courses for homework, and that the use of this software resulted in improved outcomes for online students, but its benefit was diminished for in-person courses for an unknown reason.

Table 4.
Success Rates for In-Person/RS and Online Learning
Using an OER or Publisher Materials

| | Online [†] OER | In Person/RS OER | Online Publisher | In Person/RS Publisher |
|---------------------|----------------------------|---------------------|---------------------|---------------------------|
| A | 9% | 14% | 22% | 18% |
| B | 24% | 34% | 30% | 30% |
| C | 121% | 27% | 15% | 24% |
| D | 10% | 19% | 3% | 10% |
| F/W | 35% | 15% | 31% | 18% |
| N | 684 | 628 | 165 | 479 |
| Success* | 66% | 85% | 69% | 82% |
| Pass rate** | 55% | 76% | 66% | 72% |
| W rate [†] | 9.6% | 5.1% | 7.0% | 5.4% |

Abbreviations: OER = open educational resource, RS = remote synchronous.
Notes: *Success is defined as sum of students earning a D or better, divided into all students. **Pass rate is defined as sum of students earning an A, B, or C, divided into all students. [†]W rate is defined as the sum of students that withdrew from the course, divided into all students.

In addition, the analysis found a non-significant ($F = 0.756, p = 0.38$) difference in withdraw rates between online students that used the OER and those that used the publisher materials, with 66 OER students online or 9.6% withdrawing from the course, compared with 12 or 7.8% of students online that used the publisher materials.

Tables 5 and 6 summarize an estimate of the textbook's utilization by students, based on access statistics collated by the Wordpress website. This data is derived from IP addresses that access one or more pages of content on the textbook's website.

| Week | Users* |
|---|---------------|
| 1 | 170 |
| 2 | 147 |
| 3 | 122 |
| 4 | 129 |
| 5 | 139 |
| 6 | 135 |
| 7 | 131 |
| 8 | 151 |
| 9 | 128 |
| 10 | 92 |
| 11 | 128 |
| 12 | 122 |
| 13** | 49 |
| 14 | 52 |
| 15 | 68 |
| 16† | 110 |
| Abbreviation: OER = open educational resource. Notes: *Total OER-enrolled students in fall 2017 was 129. **Thanksgiving break. †Final exam week. | |

| Week | Users* |
|---|---------------|
| 1 | 151 |
| 2 | 151 |
| 3 | 134 |
| 4 | 113 |
| 5 | 161 |
| 6 | 143 |
| 7 | 122 |
| 8 | 135 |
| 9 | 116 |
| 10 | 113 |
| 11** | 44 |
| 12 | 85 |
| 13 | 121 |
| 14 | 104 |
| 15 | 71 |
| 16 | 106 |
| 17† | 77 |
| Abbreviation: OER = open educational resource. Notes: *Total OER-enrolled students in spring 2018 was 132. **Spring break. †Final exam week. | |

A total of 129 students were enrolled in the OER version of Business Law I during the fall 2017 term. A range of 49-170 unique IP addresses accessed the course materials during each week of the semester for an average of 117 per week, which suggests that a substantial percentage of enrolled students accessed the materials, up through Thanksgiving break, with a significant drop off in use until finals week. Similar activity was observed for the 132 OER-enrolled students in the spring 2018 term, where an average of 114 unique IP addresses accessed the course materials each week of that semester. It should also be noted that unique IP addresses are not equivalent to unique users, as students may access the materials from both college IP addresses and from home or other locations, therefore it is possible that several unique IP addresses are a single student. The website housing the text is publicly accessible, and because students may access the site with multiple IP addresses, it is not possible to know the exact percentage of enrolled students that were using the materials each week. In addition, because the Wordpress site is publicly available, a few users accessing the content are not enrolled in CCBC courses each week. However, the data suggest that a significant number of students were accessing the course materials for most of the semester. This compares favorably with student use of traditional publisher textbooks, though specific data on student use of the Miller text in pre-OER Business Law I courses is not available. The literature suggests that as many as two thirds of students enrolled in a non-OER course may decide not to purchase the assigned textbook (Senack, 2014).

DISCUSSION AND CONCLUSION

OER is shorthand for materials that are not subject to traditional copyright restrictions. OER materials are materials either in the public domain and not subject to any copyright restrictions, or are

subject to a license such as Creative Commons (<https://creativecommons.org/about/cclicenses/>).

Copyright is an intangible property right of the authors of an original work of authorship that essentially grants a monopoly to the author to copy, distribute, prepare derivatives, publicly perform, or publicly display the work for the lifetime of the author plus 70 years after he/she dies (17 U.S.C. § 106).

Textbook authors generally enjoy these same copyright rights and therefore insist that students pay a fee to obtain a copy of the textbook (whether the book is rented for a semester, or purchased outright). Over time, textbooks have incorporated other copyright protected materials such as online software packages; the software and its content may or may not be included in the cost of buying the physical textbook itself. Also, over time, the cost of these books has increased with some studies suggesting that students spend an average of \$900 annually on textbooks, and the cost of these books from 1990-2010 increased at 4 times the annual inflation rate (Hilton et al., 2014).

The “Law,” however, is predominantly not a work subject to these copyright limitations. A person with internet access may obtain a copy of any state or federal statute or regulation, and through a service like Google Scholar, almost any recent state or federal published court opinion is available without cost and without copyright concern. Some secondary law materials, like restatements, digests, or law journals may be less readily available for free or remain otherwise subject to copyright, but by and large the content ultimately taught is already in the public domain for any student. Why must there be a textbook at all?

The basic problem for college students in a 100-level course to learn about business law is 3-part: (1) materials need to be at an appropriate reading and comprehension level, (2) the extent of the reading must be reasonable in relation to the time available to the student to take the course, and (3) the background and explanation for present law (the history of the law) is necessary to provide context to the student on the content presented.

Court opinions and statutes meet none of these requirements. Any given week of substantive content in this course would require students to read a significant number of court opinions and/or statutes to cover the basics of the topic. U.S. Supreme Court opinions alone can run over 100 pages. Court opinions in general include technical and usually undefined (within the opinion) legal terms. Some court opinions are intentionally obtuse, and all are written for an audience assumed to have graduate degrees (lawyers and other judges). And while statutes may be shorter, they are no easier to understand without assistance. Few statutes or court opinions provide much explanation for why the legal principles applied by the author exist in the first place.

Therefore, a textbook of some sort is generally required to help summarize and further explain the primary sources of the law to students in a 100-level course. The authors approached this issue by starting with textbook materials that are available subject to a Creative Commons copyright license, published by Saylor.org (<https://creativecommons.org/licenses/by-nc-sa/4.0/>). This license permits an author to copy, revise, and adapt the materials, while only requiring that attribution to the original author be given, that the materials are used for a non-commercial use, and that adapted or modified materials are made available on the same license to others.

The authors supplemented the Saylor.org materials with content that the authors curated and edited, and with original contributions written by the authors where needed. The resulting textbook was then published online (<https://ccbclegalstudiesbusinesslaw.wordpress.com>) using a free, wordpress.com domain. Beginning in the fall 2018 semester, a PDF version of the book was made available for students that wished to obtain a paper copy of the materials that is also available for purchase from the college bookstore for a nominal fee (approximately \$25 to cover the cost of printing the 327 pages of the textbook to paper). What follows is a discussion of expectations and student learning outcomes as a result of switching to OER.

The authors found, consistent with the literature, that an OER represents a substantial savings to students compared to traditional publisher materials and textbook. Hilton’s study of students enrolled in 5 courses suggests that the zero-cost implementation of an OER saved 1,727 students approximately \$104,254 compared to the average textbook cost in similar courses using commercial publisher materials (an average of \$65.93 per student, with a range of \$37-102 for textbooks in these courses) (Hilton et al., 2014). Hilton also discusses 5 other OER implementations suggesting students enrolled in OER courses were able to save between \$5,500-210,000 in textbook costs, acknowledging some important limitations

on their estimates (for example, that not all students will purchase but instead will rent a textbook for the semester). The authors' experience with implementing an OER textbook in Business Law I is similar to Hilton's estimates for cost savings, if extended to all students enrolled each academic year in the course as noted above.

The authors found that there were differences in student outcomes, some of which are statistically significant, when comparing OER-based and publisher-based courses. A meta-study of student outcomes compared students in courses using an OER textbook with those that used a traditional publisher's textbook (Fischer, 2015). Fischer's analysis looked at a total of 15 different courses with a total enrollment of 16,727 students; 4,909 students were enrolled in OER courses and 11,818 were enrolled in non-OER courses. The results in comparing student success rates showed that in 9 of the courses, no significant difference resulted from implementing an OER, in 5 of the courses OER courses had a better success rate, and in one course, the non-OER students fared better than the OER students. Lovett's study (Lovett, 2008), summarized in Fischer (2015), utilized the same tests (3 midterms and one final exam) between OER- and non-OER-based sections of an introduction to statistics course, where students were randomly assigned to a section that utilized either an OER or non-OER text, and found no significant difference in student performance across 2 semesters of the course. Hilton and Laman's study (Hilton & Laman, 2012), also summarized in Fischer (2015), compared students in an introduction to psychology class where some used an OER text and others used a traditional textbook. Their finding was that students in the OER course had better overall grades in the course, a lower withdraw rate, and scored better on the final exam in the class. Allen's study (Allen, 2015), also summarized in Fischer (2015), found no significant differences between an OER-based and traditional publisher-based experimental class outcomes on exams, and comparing semester pre-tests with final exams.

Hilton's more recent meta-study of OER papers show a variety of ways that OER use is evaluated, including drop rates, success defined as those students earning an A, B, or C grade in the course, specific exam grades, grade distribution, and GPA, among others, with mixed results and some studies with significant differences between OER- and publisher-based courses (Hilton, 2019). Winitzky-Stephens and Pickavance (2017) particularly noted that a limitation of their study at Salt Lake Community College is that their analysis did not take into account teaching modality (online compared to in-person), though they concluded that there was no significant difference in course grade, success, or withdraw rates for continuing students, and that student demographics and educational experience have a "far greater impact on course grade and likelihood of passing or withdrawing than an instructor's use of an OER text."

The authors' experience with implementing an OER textbook in Business Law I shows that there is a statistically significant 5% difference in student success (earning a D or better) and a significant 5% difference in student pass rates (earning an A, B, or C) and a non-significant difference in withdraw rates, where publisher-based sections outperformed OER courses, without controlling for student demographics or instructional modality. However, the authors also found that modality has a significant impact on student performance; students that took in-person or remote synchronous courses were more likely to succeed, more likely to pass, and less likely to withdraw compared to asynchronous online courses. Interestingly, when students were divided by modality OER use, student success rates in-person or remote synchronous with the OER were better compared to the publisher text, but the difference in success rates was not statistically significant. On the other hand, asynchronous sections using the publisher-based sections showed a 3% statistically significant higher success rate compared to OER-based sections.

The effort to obtain and implement an OER text is a significant one that involves a number of steps to complete. First, the authors participated in applying for a grant from the Maryland Open Source Textbook (MOST) Initiative, led by the University of Maryland's William E. Kirwin Center for Academic Innovation in 2017. At the time, UM provided 2 tiers of grants: an adopt/adapt grant for up to \$1,500, and a scaling OER grant for up to \$2,500. The authors applied and received an adopt/adapt grant. The grant requirements included that the authors would attend a conference hosted by UM on OER, would implement a pilot of the OER materials and then present the results of the pilot at a subsequent conference.

The authors attended the MOST Initiative OER conference in May, 2017, and met primarily with representatives of Lumen Learning, a private OER publisher. Lumen provides direct access to a variety of

OER-friendly materials, including modified versions of the Saylor.org content that also was used as the base for the OER textbook. Lumen also is a developer of certain software, including Candela and Waymaker, which are used to curate and host OER content on a subscription fee basis. After the conference, the authors decided to develop a freestanding OER book. This decision was in part because there was not an off-the-shelf OER textbook that would meet Business Law I's course objectives, and also out of concern that Business Law I students would need to subscribe to Lumen's Waymaker software. In addition, the Lumen text had eliminated much of the contracts materials from the Saylor OER textbook in its implementation of the textbook, however, approximately a third of the Business Law I course materials are directly related to contracts.

The authors then collaborated to develop an outline of the major topics to be covered with the OER textbook, based on current teaching of Business Law I. The authors developed a 4-unit course design, with certain introductory materials on sources of law, the civil court system, torts, and criminal law in unit 1; common law contract principles in unit 2; UCC and product liability principles in unit 3; and business ethics, intellectual property, employment and agency law in unit 4.

The authors then decided on a method for both contributing content to the textbook, and further editing and organizing that content. The authors elected to implement a free Wordpress website to house the current edition of the textbook for use in the fall semester. Professor Faith developed a menu on that site that would house the textbook content for each of the 4 units of materials, and the authors collaborated to contribute content within each unit. Once the initial menu of materials was established on the site, the authors edited individual pages of content. Approximately 80% of the initial text was derived from the Saylor materials. The authors sourced the remaining materials from summarized case law, academic journals, government websites, and other public domain or OER-friendly sources. Professor Burke also contributed outside content that could be integrated into the Business Law I course implementation from library and other available internet sources, starting with an OER research guide that was developed by the CCBC Online Learning Librarian. Her search of those sources turned up the original Saylor text, among others sourced for use in the OER text.

Wordpress' basic website is free to use and is hosted by Wordpress, so there are no ongoing hosting or maintenance costs. Improvements such as hosting on a dedicated or customized domain name do add some expense annually for acquiring the domain name and then implementing it with Wordpress through a business-class subscription. For example, a premium subscription would cost \$96 per year presently through Wordpress; domain names can be registered for as little as a few dollars per year through a Registrar such as godaddy.com (<https://wordpress.com/pricing/>).

Following the initial draft, the authors went back and compared the course outline with the content available from Saylor and identified materials that remained missing from the textbook. The authors conducted additional research to find OER-friendly materials that could be integrated into the textbook, based on the specific subject matter. For example, the original gap analysis showed a need for additional materials on worker's compensation, which was sourced from a governmental website, and additional content on business ethics that was sourced from a separate OER-friendly academic article.

The final textbook was then implemented into fall 2017 courses taught by Professors Mandl and Faith for 121 total students enrolled in Business Law I. The finished materials by content section were then linked into the Blackboard course materials so students could follow a link to the assigned reading for upcoming class meetings. Configuration to display links in Brightspace is similar to Blackboard, as an instructor can "upload/create" a new object in the Table of Contents of Brightspace, and then select "create a link" from the menu to create a link for students to a particular article on the Wordpress site as assigned reading. Alternately, an instructor using the PDF version of the OER text described below could simply assign page numbers from the PDF as assigned reading by clicking "create a file" and indicating the assigned reading in the textbox. At the end of the fall semester, the authors engaged in another round of editing of the course content to eliminate unnecessary materials and clarify other materials that were found to be difficult to use by students.

The efforts of the authors in preparing an initial draft, revising, and editing the materials represented a substantial time commitment. Others that have implemented an OER textbook have potentially spent less time on this part of the project as some courses have more ready-to-use OER textbooks. For example, there are several Waymaker titles available from Lumen Learning for

introduction to business, management, and marketing that may be suited for the course objectives of comparable courses (<https://www.lumenlearning.com/courses>). There are also other OER materials available from other sources, such as OpenStax (<https://openstax.org/subjects>), that may contain more complete college-level OER textbooks.

After the pilot of the OER text, the authors surveyed students for feedback on the content in the fall 2017 and spring 2018 semesters. A total of 75 students responded to the anonymous survey on the content, with most reporting that they did not have issues using the online textbook and none reporting technology issues that precluded use of the textbook. One point of feedback received from students was a desire for a printed version of the textbook. Professor Faith investigated the page count to simply print the Wordpress content and determined that this would exceed 500 pages. Therefore, to help manage the print volume, Professor Faith developed a print version of the textbook in Microsoft Word utilizing Word styles to manage font size, type, and spacing. A printable version of the book became available in PDF format in the spring 2018 semester. Professor Mandl also worked with the CCBC bookstore to make the book available for purchase at the cost of printing for under \$25. As noted above, approximately 40 students purchase a copy of this paper textbook each semester.

Any materials for a course will require updating over time. Some aspects of the law do not change dramatically from year to year, but other areas see changes on a regular basis. The OER textbook will require ongoing maintenance to keep the materials updated as the law develops. In 2021, Professors Mandl and Faith applied for a grant for revising the materials in the textbook, and engaged in extensive revisions over the summer of 2021. Professors Mandl and Faith reviewed all primary source materials cited in the original textbook to identify updated cases, and included more recent case decisions in areas of the text where the law has changed. Authors of OER materials can expect updates will be needed on an ongoing basis to most textbooks developed in this manner.

In addition, the authors have discussed developing other materials for instructors, such as PowerPoint slide presentations for the course material, sample exam questions, student discussion questions, and other instructional supports to help other faculty utilize the OER textbook. One way to host these materials within the college would be to create a learning management system course shell that instructors could copy and utilize for their specific teaching assignments. Another could be to house these in a password-protected area of the Wordpress site that is only available to instructors.

Any such materials will need to be integrated into a backup plan so that copies of the materials are available in the event of a system failure or data loss. At present, one of the authors manually maintains backups of the Wordpress content (Wordpress itself has a backup feature for content). CCBC maintains backups of the learning management system course content.

The move of Business Law I to an OER resulted in a slightly, though statistically significant, lower overall success rate compared to sections that used the publisher textbook, though course teaching modality seems to have a much more significant impact on student success than the choice of textbook. Empirically, the use of OER materials results in a substantial savings for students enrolled in the OER-based courses. Significant effort is required for instructors to develop and implement an OER-based text that includes content needed for meeting the learning objectives of the course. The authors' experience illustrated the need for more than one resource, and significant adaptation of the main open license source used for development of the course. In addition, the burden of maintaining the content and updating it falls back on the course instructors rather than a publisher. Overall, however, the benefit to students likely outweighs the cost to develop and maintain the materials. Subsequent to the trial run of the OER text, the program adopted this text for all sections of Business Law I, realizing a substantial savings for students in textbook costs in subsequent semesters.

There are several important limitations on the results of the current study, based on its design. First, the authors were unable to control for all variation that may be observed in students. The authors did not engage in a multi-variable statistical analysis that would control for all student variables based on a lack of funding and resources, though such an analysis may be of interest for a follow-up analysis of OERs at CCBC, particularly for variables such as race (which was substantially incomplete in the available dataset), Pell-eligibility, and overall student GPA at the time of enrollment in the business law course. Second, the study is not a controlled experiment where students were randomly assigned to an OER or publisher textbook-based course. Third, the authors used overall grade distributions, final

success, pass rate, and withdraw rate in the analysis of outcomes, but were unable to evaluate individual assignments or unit exams as the department has not standardized these more granular graded activities across sections of the course. Fourth, the authors did not distinguish between teaching in a physical classroom or teaching remotely with a synchronous component (such as regular class meetings on Zoom or Microsoft Teams), as this modality distinction was not available from the institutional data source, though this distinction could also contribute to differences in student outcomes while using the OER text as remote synchronous instruction was not available when the course was taught using publisher materials. Finally, additional data would be needed to evaluate whether students are more effectively retained by the use of OER textbooks, or whether students that attend OER courses use textbook cost savings to take additional credits or complete at a faster rate compared to publisher textbooks.

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