

Affordable Learning Georgia Textbook Transformation Grants

Final Report

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Grant Number: 118

Institution Name(s): The University of Georgia

Team Members: Dr. C. Edward Watson, Director – Center for Teaching and Learning; Dr. Deanna Cozart, Coordinator of Open Educational Resources - Center for Teaching and Learning; Dr. Janet Frick, Associate Professor and Associate Department Head - Psychology; Dr. Kacy Welsh, Senior Lecturer – Psychology; Dr. Chase Hagood, Assistant Director for Faculty Development and Recognition - Center for Teaching and Learning; Dr. Sherry Clouser, Assistant Director of Learning Technologies - Center for Teaching and Learning; Dongho Kim, Graduate Assistant – Center for Teaching and Learning; Jiangmei May Yuan, Graduate Assistant – Center for Teaching and Learning.

Project Lead: Dr. C. Edward Watson

Course Name(s) and Course Numbers: PSYC 1101 – Introduction to Psychology

Semester Project Began: Spring 2015

Semester(s) of Implementation: Fall 2015

Average Number of Students Per Course Section: 300

Number of Course Sections Affected by Implementation: 2

Total Number of Students Affected by Implementation: 599

1. Narrative

The process of switching from a traditional textbook to the OER OpenStax Psychology textbook was proposed to us during Fall semester 2014. We had already been interested in the idea of providing lower cost textbook alternatives to our students, as we received regular complaints from students about the cost of the textbook and online supplemental programs we used in our courses. We had also observed the continuous rise in textbook costs and worried that the price increases were likely to continue each semester. For these reasons, we were very excited to participate in a project aimed at reducing the cost for our students. Changing textbooks also prompted us to consider a larger redesign of our courses, something that is easier to contemplate when other substantial changes are being considered, such as selecting a new book. So in addition to the change in textbook, we also worked with the Center for Teaching and Learning to redesign our traditional large

enrollment lecture courses into courses with a “flipped” classroom design. Although we (Dr. Frick and Dr. Welsh) both have taught the large enrollment section of Introductory Psychology many times, we have some differences in the way we lectured prior to this undertaking, and we implemented the flipped classroom design somewhat differently as well. However, we shared many of the same struggles and benefits through the process, which can be summarized here. The combined process of using an OER for the first time and redesigning our entire courses around a completely new way of teaching was certainly a challenge, but doing both simultaneously was useful in a couple of different ways.

First of all, it was through the necessity of changing our course to accommodate the new OER textbook that we were prompted to consider a course redesign at all. This was how using an OER was most transformative to us as instructors: without this motivation, we likely would not have made such major course revisions. Second, OpenStax offers multiple formats for their OER materials, including a web-based textbook. This was particularly helpful in that we were able to incorporate direct links to the relevant material for our students on our course page. This gave us much greater flexibility in how we used the text, how we arranged the topics, and how flexible we could be in presentation of materials. Because much of our course was designed and implemented through the use of checklists in our campus learning management software, being able to link directly to relevant sections of the textbook helped to provide a clear organizational structure for our students to follow. This was particularly important given the format of the class; because students were expected to read the material and take quizzes on it outside of class to be prepared for in-class activities and discussion, clear organization was essential to keep things running smoothly. Third, the multiple formats and the fact that the textbook was provided for free meant that we could be completely assured that every student in class had access to the course material from the very first day. No delay in getting started while waiting for financial aid to come in, etc. Again, given the structure of our course, it was essential that all students had access to the textbook as it was expected that they would familiarize themselves with the content outside of class instead of through class lectures. Because the textbook was free and always available, students were unable to use excuses of not having access to the book to explain why they were not prepared for in-class activities and discussions. Also, given the large number of formats that students could choose to use, we could typically expect a large portion of students to have access to the book during class which facilitated group activities that required the textbook as a reference. Finally, due to the fact that our students were not required to pay for a textbook, we felt more justified in asking them to purchase clickers or other course materials so that we could use a clicker response system in the classroom. Clickers were used extensively in Dr. Welsh’s course (and to a lesser extent in Dr. Frick’s course) and are a necessity for us in implementing active learning activities in our large enrollment courses. Because of the savings students experienced in not buying a traditional textbook, it was more feasible for us to require that they purchase a clicker and license for the semester.

While our experience using an OER was predominately positive, there were two major problems with the OER used. The OpenStax Psychology textbook was in its first edition when we adopted it for use in our course and like all first edition textbooks, it did contain a number of unfortunate errors. These errors were mainly in the review questions at the end of chapter sections and in supplemental materials (i.e. the test bank). Many questions had incorrect answers shown as correct or lacked correct answers as a part of the answer choices offered to students. There were also a few places that the text itself was incorrect, such as figures or graphs labeled incorrectly and examples that did not actually fit the concept they were describing. As we do not have a lot of experience using first editions of textbooks, we are not sure if the number of mistakes was comparable to new editions or traditional texts or if these mistakes are specifically due to the nature of OERs, but they were frustrating at times regardless, and required an additional investment of time as we had to read the textbook really carefully to make sure it was accurate. Also, while there was a user friendly place to report errors, the time frame for errors to be corrected (even in the web-based version of the text) was significant; only two of the errors we reported last fall have been corrected at this point. That being said, we were able to use the errors to our advantage by offering credit to students who were able to find all of the errors in a given section of material. This prompted our students to review the textbook with a more careful and critical eye and several students commented that doing this was a very useful way to review for exams. The other main issue we had with our chosen OER was the depth of the material included. We both felt that at times the material provided lacked the level of detail we are used to in traditional textbooks; at times it felt a bit more like “checklists and definitions” rather than a richly integrated text which provided a deeper framework for the material. Thus, we have found that supplementing the OpenStax textbook with other readings, videos, or lecture has been necessary on some of topics. We hope that future editions of the book will have fewer errors and include more depth material on some of the topics that are lacking in the first edition; it would be nice for there to be a better feedback system for developing and integrating these suggestions.

2. Quotes

- *“It is an extremely interesting read and provides me with the tools I need to engage and interact in class.”*
- *“It is free and I can easily take notes with it. I like to copy and paste important terms into a word document and study that document right before the test. It makes studying easier!”*
- *“There are many times where the textbook has false information and I have missed quiz questions due to their errors. I have hated the online version and would rather pay for the physical book.”*

3. Quantitative and Qualitative Measures

3a. Overall Measurements

Student Opinion of Materials

Was the overall student opinion about the materials used in the course positive, neutral, or negative?

Total number of students affected in this project: 600

- Positive: 42.15% (204) of 484 number of respondents
- Neutral: 46.49% (225) of 484 number of respondents
- Negative: 11.36% (55) of 484 number of respondents

Student Learning Outcomes and Grades

Was the overall comparative impact on student performance in terms of learning outcomes and grades in the semester(s) of implementation over previous semesters positive, neutral, or negative?

Choose One:

- Positive: Higher performance outcomes measured over previous semester(s)
- Neutral: Same performance outcomes over previous semester(s)
- Negative: Lower performance outcomes over previous semester(s)

Student Drop/Fail/Withdraw (DFW) Rates

Was the overall comparative impact on Drop/Fail/Withdraw (DFW) rates in the semester(s) of implementation over previous semesters positive, neutral, or negative?

Drop/Fail/Withdraw Rate:

2.83% (17) of students, out of a total 599 students affected, dropped/failed/withdrew from the course in the final semester of implementation.

Choose One:

- Positive: This is a lower percentage of students with D/F/W than previous semester(s)
- Neutral: This is the same percentage of students with D/F/W than previous semester(s)
- Negative: This is a higher percentage of students with D/F/W than previous semester(s)

3b. Narrative

One of the challenges with this particular implementation of the OpenStax Psychology text is that moving to an OER was not the only change implemented in the course; rather, the courses were put through a redesign process that included changing to an OER and adding a “flipping” component. The semester of implementation (Fall 2015) represented the first time both faculty members taught the course with the changes. Thus, we expected to see some variances in the quantitative historical comparisons, but we cannot attribute all of the differences in student performance and retention to OER use alone.

The University of Georgia does not keep track of how many students drop a course in initial enrollment period, but we were able to collect data on the grade distribution for the class, as well as withdrawal data. The total number of students withdrawing for both instructors in Fall 2015 was 15 students out of 599 compared to 8 students out of 601 in Fall 2014 and 16 students out of 596 students in Fall 2012. (Comparable data was only available for both instructors teaching PSYC 1101 at similar times for Fall 2014 and Fall 2012.) There was not a statistically significant difference comparing the number of withdrawals from Fall 2012 to Fall 2015, however, a statistically significant difference ($p < .01$) did appear in withdrawal rates from Fall 2014 to Fall 2015, with more students withdrawing in 2015. (p values and analyses are included in the supplemental documentation.) In Fall 2015, 2.5% of students withdrew from the course, while 1.3% of students withdrew in Fall 2014. While statistically significant, given the broader course changes and low incidence, we would argue this does not actually represent practical significance regarding the implementation of the OpenStax text.

In addition to withdrawal rates, we also wanted to examine overall grade distributions and how they have changed over time. This examination included comparing the grade distributions across instructors (Dr. Frick versus Dr. Welsh) and across time (Fall 2015 versus Fall 2014 versus Fall 2012). Using a Chi-square analysis, we found that statistically significant differences where $p < .01$ did appear between Dr. Frick and Dr. Welsh’s grade distributions (examining students who received a C or better) in Fall 2015 and Fall 2012, while there was no difference in Fall 2014. Similar analysis was used to compare grade distributions for individual faculty members over time. For Dr. Frick, grade distributions were statistically significant where $p < .01$ in comparisons of Fall 2015 versus Fall 2014, Fall 2014 versus Fall 2012, and Fall 2015 versus Fall 2012. For Dr. Welsh, grade distributions were statistically significant only for Fall 2015 versus Fall 2014 and Fall 2014 versus Fall 2012. (Graphs and specific p values are included in the supplemental materials.)

Even though statistical significance was found in many of these comparisons with students in Fall 2015 performing at a slightly lower rate, it is difficult to determine the practical significance of these results. As previously mentioned, the course redesign in Fall 2015 included many components, so we could not determine if the change in grades is attributed to use of the OER, “flipping” components, instructor comfort with the new design, etc. Thus, further study of the courses, such as collecting similar grade data in Fall 2016, could offer additional insight into how students are actually performing in the course using an OER as opposed to a traditional textbook.

Another consideration is that the Introduction to Psychology course has a research participation requirement. In addition to regular course assignments, students must also complete 6.5 hours of research participation. Students who do not complete this portion of the course receive an Incomplete, and have two additional semesters to complete the work. Thus, there are currently 31 students out of 599 who received Incompletes and have not had these change over to official final course grades. Therefore, a larger number of students appear to have not completed the course who will ultimately receive grades, which could also be impacting the grade distribution analysis. Even though performance appears to have decreased with the implementation of the OER, this could certainly change as final grades are ultimately resolved.

Not only did we want to examine student retention and performance measures, but we also wanted to determine how students perceived the quality of the OpenStax text. Students were offered the opportunity to earn bonus participation points in the class for completing an additional survey collecting such data. Of the 599 students originally enrolled in the course, 484 students completed the additional survey. (The survey used is attached with the supplemental materials.) Students across both sections with different instructors rated the OpenStax psychology text high in terms of quality. 88% of respondents found the OpenStax text to be as good or better in quality than traditionally published textbooks. There was not a difference in the quality ratings when broken out by instructor of record.

We also wanted to investigate how other factors, such as ethnicity, gender, class standing, expected course grade, and student loan status (students’ self-reporting regarding how they are funding their college education) predicted students’ quality perceptions and ratings of the OpenStax. When we controlled for instructor, using regression analysis, we found the only difference occurs between male and female perceptions of quality. (Note: Students were given the option to select Male, Female, Transgender, or Other on the survey. All submitted responses were either Male or Female.) The regression model showed that males were more likely than females to rate the OpenStax text lower in terms of both quality and readability at a statistically

significant level. This finding is one area where we plan to continue analysis for future manuscripts and presentations. The male/female perception difference is particularly interesting given other OER perception studies have not found a gender difference. Also, the majority of the students in these courses were female with female instructors, so it would be interesting to see if this difference was also found in classes with male instructors.

In addition to quantitative data, we were also interested in collecting qualitative data via open-ended survey questions to determine students' favorite and least favorite aspects of using the OpenStax psychology text. Student responses were coded using Nvivo software for major themes. The major ideas from students' favorite things about using the OpenStax were that it was free and easily accessible. Of the 456 students who responded to this question, 231 mentioned appreciating the cost savings, which is over 50% of respondents. The next most frequent response focused on how easy it was to access and use. Here, 208 students had comments that mentioned this aspect of their experience representing 45.61% of all students who completed the survey. Both of these answers are consistent with prior studies on OER that have shown the low cost and accessibility for all students are some of the most compelling reasons to consider using OER in more courses moving forward.

Qualitative coding was also used to evaluate the student responses regarding their least favorite aspects of the OpenStax psychology text. There was much more variety in the responses regarding students' least favorite aspects of the text, however, two areas of feedback appeared more frequently than any others. First, the most common theme focused on aspects of the text and review questions that included errors, typos, and mistakes. There were 136 comments focused on these issues out of 432 total comments (31.48%). Students certainly found this frustrating, as they often depend on the book to have correct information to help them study and prepare for assessments. Thus, an unreliable book can become an unfavorable one. When the team encountered errors, we did send the errata to OpenStax, and given the psychology text is new for their library, hopefully, these issues will be resolved in the coming semesters on their end. The other main issue for students was that they did not care for the online readings. 80 students (18.52%) who responded to the question mentioned they would have preferred reading a printed copy and did not enjoy reading in an online format. This was also interesting as the UGA bookstore did stock hard copies of the text, and about 20% of students purchased the hard copy of the OpenStax psychology book. It is unclear if students who were frustrated by the web view or pdf view were simply unaware of the hard copy option, elected not to purchase it, or motivated by something else. It would be interesting to compare quality perceptions of the book in the future between groups of students who purchased the hard copy versus reading online to explore any statistically significant differences.

4. Sustainability Plan

We (Dr. Frick and Dr. Welsh) both plan to continue to use the OpenStax Psychology textbook in our large enrollment Elementary Psychology courses. We have also recommended the book to our colleagues who teach this course. We feel that with future improvements to the book, as well as (hopefully) opportunities for regular users to contribute to edits and improvements (perhaps through conferences or working conference calls?) it will improve even more.

5. Future Plans

We (Dr. Frick and Dr. Welsh) both feel that the availability of this OER gave us the freedom to consider a large-scale course redesign, and as explained above, the web-based format of the textbook made it much easier to assign specific, highly tailored reading sections that could then be incorporated creatively into quizzes and other out-of-class assignments so that in-class time could be devoted to more hands-on, active learning activities.

For our students, the ability to have access to the course at all times, including on their laptops and even on their phone, meant that they could refer to the text material in class much more easily, without having to lug a heavy textbook around. This resulted, overall, in much more regular, varied, and specialized interaction with the course material, which we believe resulted in students having a better mastery of the material than in previous semesters (where they were likely to only skim through the reading material the night before the test, if at all!)

The main things we both plan to do as we continue to improve our class (after diving in head first with a new textbook, a new format, and a new course design!) are continued use of quizzes and other out-of-class mastery checks, improved and more creative in-class learning activities, and incorporation of better supplemental materials to complement the textbook. Of course, one clear lesson learned is that switching to an entirely new textbook is a lot of work! And a first edition of any text is likely to have some bugs to work out. However, we both embrace the philosophy of OER, and appreciate the access it provides to all students, and hope to be able to continue to contribute to this important educational movement.

It is also important to note that this project has produced a good bit of student data and preliminary results that should offer much to the broader landscape of empirical research on OER implementation. We have submitted a proposal to present our data at Open Education Conference 2016 and have a least one manuscript that will be written based on this project as well. Additional presentations could potentially be forthcoming, in particular at the University System Teaching and Learning Conference and the Conference on Higher Education Pedagogy in 2017.

6. Description of Photograph

Back row (left – right): Dr. C. Edward Watson, Principal Investigator – Center for Teaching and Learning; Dr. Janet Frick, Instructor of Record; Dr. Chase Hagood, Center for Teaching and Learning; Dongho Kim, Graduate Assistant – Center for Teaching and Learning

Front Row (left – right): Jiangmei May Yuan, Graduate Assistant – Center for Teaching and Learning; Dr. Kacy Welsh, Instructor of Record; Dr. Sherry Clouser, Center for Teaching and Learning; Dr. Deanna Cozart, Center for Teaching and Learning.