

Affordable Learning Georgia Textbook Transformation Grants

Proposal 183 Final Report

Instructions:

A. *Your final report submission must include four separate component files:*

1. *Completed report form. Please complete per inline instructions. The italicized text is provided for your assistance; please delete the italicized text before submitting your report.*
2. *Course Outline document with links to the materials as used per day, week, or unit, organized chronologically. [View Course Outline Example](#)*
 - a. *For each resource, give the title, author, Creative Commons licenses (if appropriate), and freely accessible URL to the material. Include all open-access links to all adopted, adapted, and newly created course materials.*
3. *Supporting data on the impact of your Textbook Transformation (survey, analyzed data collected, etc.)*
4. *A photograph of your team and/or your students for use in ALG website and materials.*
 - a. *Photograph must be 800x600 pixels at minimum (length x height).*
 - b. *Photograph must be taken together: individual team member photographs and website headshots not accepted.*

B. Go to http://affordablelearninggeorgia.org/site/final_report_submission to submit these four components of your final report. Follow the instructions on the webpage for uploading your documents. You will receive a confirmation email. Based on receipt of this report, ALG will process the final payment for your grant. ALG may follow up with additional questions or to request your participation in a publication, presentation, or other event.

Date: 5/20/2016

Grant Number: 183

Institution Name(s): Armstrong State University

Team Members (Name, Title, Department, Institutions if different, and email address for each): Dr. Jared Schlieper, Assistant Professor, jared.schlieper@armstrong.edu; Dr. Greg Knofczynski, Associate Professor, greg.knofczynski@armstrong.edu; Dr. Michael Tiemeyer, Assistant Professor, michael.tiemeyer@armstrong.edu

Project Lead: Dr. Jared Schlieper

Course Name(s) and Course Numbers: Math 2200 Elementary Statistics

Semester Project Began: Fall 2015

Semester(s) of Implementation: Fall 2015 and Spring 2016

Average Number of Students Per Course Section: 28.3

Number of Course Sections Affected by Implementation: 3

Total Number of Students Affected by Implementation: 85

1. Narrative

A. Describe the key outcomes, whether positive, negative, or interesting, of your project. Include:

Our project started by considering open statistics textbooks for Math 2200. The choice was between OpenIntro Statistics and OpenStax statistics books. The OpenStax book is similar to the old book our department uses, while the OpenIntro book fit better with our teaching styles. We chose the OpenIntro Statistics book that is available at [OpenIntro.org](https://openintro.org). Dr. Schlieper used the OpenIntro book in two sections of Math 2200 in Fall 2015. The lecture slides were edited to include clicker questions. WebWork, an open source online homework delivery system, was also selected and implemented. Dr. Knofczynski implemented the textbook in his online section for Spring 2016. Due to the course releases provided by the grant, Dr. Knofczynski's course was the only course where the book was used in Spring 2016. This limited the data that was collected regarding the text. The students appreciated the low cost of the textbook and other materials (ebook is free, hardcopy is approximately \$10). For the upcoming summer and fall semesters, the text will be available in the bookstore as well as available through Amazon.

The biggest challenge was finding or creating "good" homework questions in WeBWork. The main issue being that questions in WeBWork did not always follow the same methods as we do as instructors. For example, some problems used z-scores to find probabilities while others did not. This causes confusion for students. Correcting these problem and writing new ones was done throughout the spring semester. Our WeBWork server will be updated this summer and will now include our updated problems. Before next semester, we need to create even more problems that better match the problems in the textbook. It would also be beneficial to have better training with problem authoring in WeBWork.

Our department has decided to adopt an open source textbook for Math 2200. We have provided our course outline for others to use as well as creating an outline for the OpenStax book as well. The department is recommending to use either with OpenStax being the option for those instructors who prefer WebAssign for online homework.

Student performance seems to be the same or slightly better based on Dr. Schlieper's courses but more data is needed. As listed below, DFW rate in Dr. Schlieper's sections went down from 56.8% with previous textbook to 30.1% with the OpenIntro book. More data is needed in order to rule out other possible reasons for the decline.

2. Quotes

The following are quotes from students in Dr. Knofczynski's online section Spring 2016.

- I purchased the book because I thought it'd be easier for me to use than the E-Text, but it has not been very helpful at all.
- I find that reading the chapters that are assigned combined with watching the videos posted on d2l are the most helpful resources.
- I don't really find the textbook or homework to be helpful in understanding the material. I'm glad and very grateful it was free! The textbook reads like a technical manual - there's a lot of jargon to sift through, I often feel that the book assumes I have some innate knowledge of the subject at hand and glosses over material.

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: 12

- Positive: 3 % of 12 number of respondents
- Neutral: 0 % of 12 number of respondents
- Negative: 9 % of 12 number of respondents

Students portrayed an overall gratitude of not having to pay for a textbook, however, the textbook selected may not have been the best fit for an online course.

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?

Student outcomes should be described in detail in Section 3b.

Choose One:

- Positive: Higher performance outcomes measured over previous semester(s)
- XX 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:

30.1% of students, out of a total 73 students affected, dropped/failed/withdrew from the course in the final semester of implementation.

Choose One:

- XX 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

Student performance seems to be the same or slightly better based on Dr. Schlieper's courses but more data is needed. The DFW rate in Dr. Schlieper's sections went down from 56.8% with previous textbook to 30.1% with the OpenIntro book. More data is needed in order to rule out other possible reasons for the decline. Some possibilities besides the book change could be the composition of students in the courses as well as the time of the courses. The sections included in the numbers above occur at different times and may include students who were repeating the course.

4. Sustainability Plan

All materials used in the transformation are available on openintro.org. The edited slides and homework sets will be posted on a department webpage. We will submit our created homework problems to the Open Problem Library so that others may use them in the future. Our department has decided to adopt an open source textbook for Math 2200. We have provided our course outline for others to use as well as creating an outline for the OpenStax book as well. The department is recommending to use either with OpenStax being the option for those instructors who prefer WebAssign for online homework. Instructors using the OpenStax book will be referred to the OpenStax webpage.

5. Future Plans

We will continue to find and use open educational resources in our courses. We will continue to adjust the materials in Math 2200 to better serve our students. One avenue to further improve Math 2200 would be to develop activities that allow students to apply concepts from class on real data sets or other items of interest to students.

6. Description of Photograph

(left-right) Dr. Jared Schlieper, team lead and instructor of record; Dr. Greg Knofczynski, subject matter expert and instructor of record; Dr. Michael Tiemeyer, subject matter expert;