

## Affordable Learning Georgia Textbook Transformation Grants

### Final Report

**Date:** 8/11/2017

**Grant Number:** 270

**Institution Name(s):** East Georgia State College

**Team Members (Name, Title, Department, Institutions if different, and email address for each):** Da'Mon Andrews, Assistant Professor of Mathematics, School of Mathematics and Natural Sciences, [dandrews@ega.edu](mailto:dandrews@ega.edu); Antre' Drummer, Assistant Professor of Mathematics, School of Mathematics and Natural Sciences; [amdrummer@ega.edu](mailto:amdrummer@ega.edu)

**Project Lead:** Da'Mon Andrews

**Course Name(s) and Course Numbers:** MATH 0989 – Foundations for College Algebra

**Semester Project Began:** Fall 2017

**Semester(s) of Implementation:** Spring 2017; Summer 2017

**Average Number of Students Per Course Section:** Spring and Summer 2017: 161 students by 11 sections across three campuses = 15 students/section

**Number of Course Sections Affected by Implementation:** 4

**Total Number of Students Affected by Implementation:** 60 (37.3%)

#### 1. Narrative

Overall the project was a success. Student outcomes were better than those of prior semesters and consistent with those of non-ALG courses during the implementation period. Based on this project, we have optimism that no-cost course materials can provide significant cost savings to students without diminishing course success rates. However, since our project took place during the spring and summer semesters the mathematics department must be aware of the challenges that may exist if the project was implemented at scale during a fall semester because of larger student enrollment in the course.

The major challenge was trying to integrate the MyOpenMath.com platform into D2L via Learning Tools Interoperability (LTI). Our initial goals were to use LTIs to provide students with a single sign-on experience and gradebook synchronization. This functionality would provide students with two major benefits: (1) they would not have to remember another set of username and password combinations; and (2) their D2L gradebooks would automatically update following the completion of assignments in the MyOpenMath.com platform providing real-time updates regarding their overall grade.

From an instructional perspective, this project allowed us the freedom to focus more on student learning and not become sidetracked by textbook coverage which is sometimes the case when dealing with textbook/software packages. We focused more on which textbook sections would supplement our instructional plan.

**B. Describe lessons learned, including any things you would do differently next time.**

The results on our data analysis indicate that MATH 0989 students benefited more from the free online course learning platform than from access to the open-access textbook. Additionally, the LTI integration was a major challenge as it is a laborious process as every assignment had to have its own link created. An additional complication arose when trying to make multiple copies of the course in the online learning platform for multiple sections as each section had to have its own set of links. A less frustrating alternative is just to provide students with the same username that use for D2L and allow them to log into MyOpenMath.com directly.

**2. Quotes**

*"The experience with using free course materials this semester was very relieving. Along with the knowledge of Mr. Andrews gaining the tools necessary to do the assignments came along pretty easily."*

*"A good experience overall"*

*"The free course materials were a great bonus to the class. I didn't have to worry about finding, ordering and purchasing a 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: 60

**Readability of the Textbook**

- Positive: 40.6% of 32 number of respondents
- Neutral: 50% of 32 number of respondents
- Negative: 9.4% of 32 number of respondents

**Utilization of the Textbook**

- Consistent Use: 18.8% of 32 number of respondents
- Some Use: 31.2% of 32 number of respondents

- Did not Use: 50% of 32 number of respondents

#### **Usefulness of Online Homework Platform for Course Assessments**

- Positive: 90.6% of 32 number of respondents
- Neutral: 3.1% of 32 number of respondents
- Negative: 6.3 % of 32 number of respondents

#### **Cost Comparison to Similar Credit Hours Course Materials**

- Less Expensive: 68.8% of 32 number of respondents
- Similar: 18.8% of 32 number of respondents
- More Expensive: 12.5% of 32 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?**

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

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:**

38.3% of students, out of a total 60 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**

The supporting data file includes student survey results for Spring 2017 and Summer 2017 and MATH 0989 course grade outcomes from Spring 2015 to Summer 2017 where a success in Foundations of College Algebra is defined as a student earning a grade of A, B, or C. Students can additionally earn grades of IP, F, W, or WF which all constitute an unsuccessful attempt.

During semesters prior to implementation of the ALG project 836 students enrolled in MATH 0989. 458 (54.8%) students passed the course and 378 (45.2%) did not pass the course.

During the semesters of the project, 60 students were enrolled in the ALG project sections of whom 37 (61.7%) students passed the course and 23 (38.3%) did not. Additionally, there were 102 students enrolled in non-ALG project sections of whom 63 (61.8%) students passed the course and 39 (38.2%) did not. The results indicate that students performed just as well in ALG courses and non-ALG courses.

Survey results indicated that 65 percent of students enrolled in MATH 0989 prior to ALG project implementation accessed an e-text whereas 56.25 percent of students who participated in the ALG project used an e-text. However, there were large percentages, 31.25% and 22.50% respectively, of ALG and non-ALG students that did not access the textbook.

Also, the results indicate that most ALG and non-ALG students do not use the utilize the textbooks, 53.13% and 42.50%, respectively. This results could be skewed because of the large number of students who left the question blank which could indicate that wording of the questions was confusing (we had similar results regarding the readability of the textbook).

Results from both the ALG and non-ALG groups, 90.63% and 77.50% respectively, indicated that students feel MyOpenMath.com and MyMathLab.com adequately prepares them for course assessments. One potential reason for this difference is that ALG students had access to course materials at the start of the course and did not have to purchase an access code.

With respect to the cost of course materials, 87.50% of ALG students versus 42.50% of non-ALG groups indicated that the course materials cost the same amount or less than materials for a course of similar credit.

Mathematics faculty teaching MATH 0989 were invited to participating in a survey to determine faculty members' willingness to use open-source resources, quality of current software and textbook package, and suitability of current textbook to meet established

departmental course objectives. However, only two faculty members participated in the survey including the principal investigator of this study. Thus, those results were excluded from analysis to eliminate bias with respect to faculty perceptions, but are included in the attached data file.

#### **4. Sustainability Plan**

The open access textbook will continue to serve as an option for the MATH 0989 course. This will allow mathematics faculty a solid textbook that can be remixed to meet our department's needs in response to course level assessment data. Additionally, the MyOpenMath.com website will continue to be monitored as it currently serves as a free version of Lumen's Learning paid version of the same platform. Assuming the free version continues as an option for the foreseeable future, mathematics faculty can offer students no-cost course materials options.

#### **5. Future Plans**

This project has served as a catalyst to the investigation of no-cost course materials for other courses. However, it would be prudent to thoroughly investigate the course materials. Specifically, in cases where online assessment platforms are used. We would not recommend trying to implement advanced features such as Learning Tools Interoperability (LTI) to sync grades between the online platform and learning management system (D2L in our case) because there is a learning curve and the process can be extremely cumbersome and frustrating particularly when there is no technical support provided.

We currently do not have any plans to publish or present our findings at a state or national level. However, we are very interested in collaborating with colleagues who are interested in implementing no-cost materials in their courses.

#### **6. Description of Photograph**

- *(left-right) Antre' Drummer, Assistant Professor of Mathematics; Da'Mon Andrews, Assistant Professor of Mathematics*