**Affordable Learning Georgia  
Open Mathematics in Action**

**Final Report**

*Instructions:*

*A. Your final report submission must include three 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. *Syllabus with learning outcomes and links to the materials as used per day, week, or unit, organized chronologically.* 
   1. *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.)*

*B. Go to* [*http://affordablelearninggeorgia.org/site/final\_report\_mathematics*](http://affordablelearninggeorgia.org/site/final_report_mathematics) *to submit these 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 award. ALG may follow up with additional questions or to request your participation in a publication, presentation, or other event.*

**Date:** *05/26/2017*

**Grant Number:** *231.e*

**Institution Name:** *Georgia Gwinnett College*

**Participant:** *Alvina J. Atkinson*

**Course Name(s) and Course Number(s):** *College Algebra, MATH 1111*

**Average Number of Students Per Course Section:** *20*

**Number of Course Sections Affected by Implementation:** *2*

**Total Number of Students Affected by Implementation:** *40*

**1. Narrative**

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

* Summary of your transformation experience, including challenges and accomplishments
* Transformative impacts on your instruction
* Transformative impacts on your students and their performance

*Overall my project experience was a good one. I am very happy to report that I received a pilot for WebAssign for both semesters. Therefore, my students experienced a true “no-cost” option for obtaining their course materials. Generally, I use my own notes for lectures and I use the textbook as a reference. I did notice that some students got the impression that no textbook was required for our course, although I did refer to it. Many of the “In-Class Assignments” (ICAs) were pulled from the problem sets in the textbook. I would imagine that this could be frustrating for students who paid hundreds of dollars for a textbook only to find that the instructor only uses it as a reference. This experience has caused me to reflect on how I use materials that are required for the course and how I make use of other online resources that are available for free.*

*While my students were appreciative of not having to pay for their course materials, it’s difficult to know whether they valued the materials they received for free. Only 30% of the students included in the survey report responded positively to using the textbook. When I compare the grades of my students who used open source materials to my students who did not use the open source materials, the students who did not use the open source materials performed better in the course overall.*

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

*I would require the students to use the textbook more in class and out of class. My assumption has been that students will refer to the textbook when they have questions or require additional explanations, but many students did not.*

*Going forward, I will create video resources for students to use and keep a catalog of these resources to refer students to when they need more assistance. Although, I have always offered tutoring outside of class, some students to do not take me up on the offer. Having additional resources to help them when they are studying may be more beneficial.*

*Finally, although the textbook and MyMathLab are required materials for the course, oftentimes, students delay in getting the materials. This usually results in poor student performance in the course because they get delayed in getting started. I plan to create an alternate path for students who are delayed in purchasing class materials, that keeps them engaged in the content we are covering for no cost.*

**2. Quotes**

* Provide three quotes from students evaluating their experience with the no-cost learning materials.

*The quotes below are in response to the question, “Overall, how do you feel about the no-cost option for our class materials.”*

*Student Quotes:*

*“It is a great opportunity for students who require financial assistance.”*

*“Before I came to this class (section), I was in a different college algebra class that required us to purchase a text book that cost over $300 for one book. (That) book wasn’t helpful at all. I was relieved to come to this class…”*

*“Very useful… especially because a lot of the information needed can be found online for free.”*

*“It was great. I really do wish all classes were like this.”*

**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:  *40*

* Positive:  *80*  % of  *10* number of respondents
* Neutral:  *10*  % of  *10* number of respondents
* Negative:  *10*  % of  *10* 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)
* X 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:**

60 % of students, out of a total 20 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)
* X Negative: This is a higher percentage of students with D/F/W than previous semester(s)

**3b. Narrative**

* *In this section, summarize the supporting impact data that you are submitting, including all quantitative and qualitative measures of impact on student success and experience. Include all measures as described in your proposal, along with any measures developed after the proposal submission.*
* *Include measures such as:*
  + *Drop, fail, withdraw (DFW) delta rates*
  + *Course retention and completion rates*
  + *Average GPA*
  + *Pre-and post-transformation DFW comparison*
  + *Student success in learning objectives*
  + *Surveys, interviews, and other qualitative measures*
* *Indicate any co-factors that might have influenced the outcomes for better or worse.*
* *When submitting your final report, as noted above, you will also need to provide the separate file of supporting data on the impact of your Textbook Transformation (surveys, analyzed data collected, etc.)*

*Students in my section of the co-requisite college algebra course in the fall and spring semesters were not required to purchase required class materials. This generated a cost savings to students in the range between $5,280.00 (for students who purchased MyMathLab with access to the e-textbook) and $11,906.00 (for students who purchased the textbook with MyMathLab). This savings is significant and only represents 1 section of the course over 2 semesters with a reduced enrollment (co-requisite sections enroll a maximum of 20 students). Georgia Gwinnett College usually offers about 35 to 45 sections of college algebra each semester.*

*Positive aspects of the project include the following:*

1. *All students could have and maintain access to the textbook from the first day of class. This is important because, if students can request temporary access, that access is often not maintained because the access expires after two weeks.*
2. *All students received free access to WebAssign. This is not typical, but it allowed me to pilot the program while giving the students complete access to Internet homework delivery at no cost.*
3. *Participating in the project gave me insight into using more websites as a reference for students to further their study of mathematics content.*
4. *Participating in the project gave me more insight into the growing costs of textbooks for students, and how students struggle to be successful when they lack the financial resources to acquire course materials.*

*Negative aspect of the project:*

1. *The students were not as successful using the open source materials.*

*Below, I have included the MATH 1111 grade data across all reporting sections from Spring 2016. Of the students who completed the course 59% of them were successful.*

***Spring 2016 MATH 1111 Grade Data***

|  |  |
| --- | --- |
| **Grade** | **Percent** |
| A | 15 |
| B | 19 |
| C | 25 |
| D | 11 |
| F | 20 |
| FN | 10 |
| **Total** | 100 |

*During the Fall 2016 semester, I taught a regular (non-MIA) section of the course using the traditional required textbook. As shown in the table below, 75% of the students in that course were successful. The DWF rate for that course was 25%.*

***Fall 2016 MATH 1111 (Atkinson-Non MIA Section) Grade Data***

|  |  |
| --- | --- |
| **Grade** | **Percent** |
| A | 20 |
| B | 25 |
| C | 30 |
| D | 0 |
| F | 15 |
| FN | 5 |
| W | 5 |
| **Total** | 100 |

*During that same semester, I taught the first section of MATH 1111 using the open source textbook (MIA Section). In the table below, it is shown that only 35% of the students in that course were successful. The DWF rate was 65%.*

***Fall 2016 MATH 1111 (Atkinson-MIA Section) Grade Data***

|  |  |
| --- | --- |
| **Grade** | **Percent** |
| A | 5 |
| B | 20 |
| C | 10 |
| D | 35 |
| F | 20 |
| FN | 5 |
| W | 5 |
| **Total** | 100 |

*During the Spring 2017 semester, I taught one section of MATH 1111 using the open source textbook. Only 40% of the students were successful in this course, as shown in the table below. The DWF rate in this course was 60%.*

***Spring 2017 MATH 1111 (Atkinson-MIA Section) Grade Data***

|  |  |
| --- | --- |
| **Grade** | **Percent** |
| A | 10 |
| B | 0 |
| C | 30 |
| D | 15 |
| F | 5 |
| FN | 20 |
| W | 20 |
| **Total** | 100 |

*At this point, it is difficult for me to pinpoint what exactly played the biggest role in the students lack of success in the project overall. Of course, the timing of the course and the individual students play a role in whether they will be successful or not. I do wonder if my comfort level with the materials also played a part. I have used the Pearson materials for many years, and I am quite comfortable with where things are located and how they work. Initially, I did have some trouble finding content in the new text and in WebAssign. I spoke to support frequently during the fall semester. But I re-used what I took time to create in the fall during the spring semester. I also received additional training on using WebAssign, so I felt much more comfortable in the spring.*

*I have worked to incorporate the use of the Openstax text as a reference for my courses going forward. I hope to become more familiar with free resources available for all my students.*

**4. Sustainability Plan**

* *Describe how you will offer the materials in the course(s) in the future, including the maintenance and updating of new ancillary materials.*

*I will begin creating videos of a few of my unique approaches to instructing students. I will also begin a running catalog of resources that are available to students online. I have also mapped sections of the Pearson text we use, to comparable sections in the Openstax textbook. This will be particularly useful for those students who are not able to purchase textbooks at the start of the class.*

**5. Future Plans**

* *Describe any impacts or influences this project has had on your thinking about or selection of learning materials in this and other courses that you will teach in the future.*
* *Describe any planned or actual papers, presentations, publications, or other professional activities that you expect to produce that reflect your work on this project.*

*This project has influenced the way I think about course materials. Usually, there are only a few students who don’t get or are delayed in getting the required course materials. There is usually nothing that I formally provide as a resource for those students other than directing them to the library (because we do keep reserved copies of the text there). But I plan on making a better effort to equip those students (and all my students) with additional free resources that are available. Also, because I teach mostly incoming freshman, I will create a study skills assignment requiring students to search the web for useful materials as well. I have always assumed that students knew how to find adequate resources, but this project has shown me that some students need to be taught how to find mathematics resources online.*

*Also, I would like to follow-up with my students who were unsuccessful in this model. It appeared that some students who were not successful in the course may not have valued the materials that were provided, because they did not use them. I would like to know why the materials were not used. The students who used the materials, seemed to appreciate not having to pay for them, and they were successful.*

*Although, I have no planned presentations yet, I do want to share my findings with my colleagues at a state or national conference.*