

# Implementation of OER in College Algebra

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## INTRODUCTION

In 2019 the Department of Mathematics began transitioning Plane Trigonometry and the Calculus sequence to open resources. Soon after we decided to use OER in all our introductory courses.

Here I provide an account of my work in transitioning MATH 126 College Algebra to OER. I describe how I created a library of online homework questions in MyOpenMath and taught a section of MATH 126 using OER. I then provide some data from this transition.

## OPEN RESOURCES USED

- *Algebra and Trigonometry* by Jay Abramson
  - Algebra topics include properties of real numbers; equations and inequalities; polynomial, rational, exponential, and logarithmic functions; and systems of equations.
  - <https://openstax.org/details/books/algebra-and-trigonometry>
- MyOpenMath
  - A free and open homework platform comparable to paid platforms popular with many commercial publishers
  - <https://www.myopenmath.com/>

## ACKNOWLEDGEMENTS

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I would like to thank Susan Barton, Brian Leary, and Diana Powers for assisting with the surveys, and Charles Amey for providing the grades data.

## ACCOUNT OF WORK

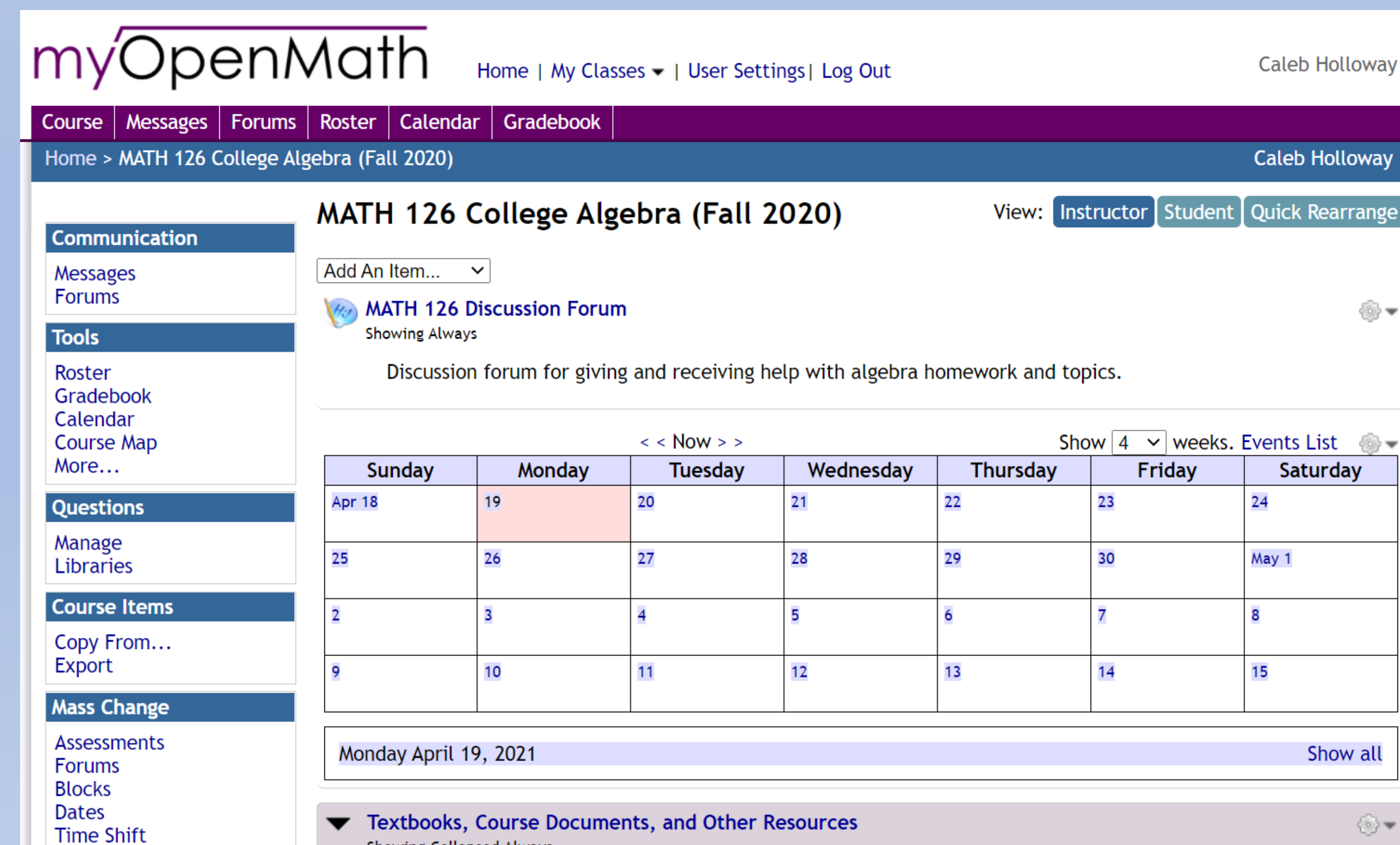
I created a library of homework exercises, after our new textbook, in MyOpenMath. I filled it with exercises curated from existing problems, as well as problems I wrote myself. I held to four tenets:

- Conceptual development
- Applicability
- Novelty
- Basis in research

These libraries were made available to the department and used in the design of all sections of MATH 126 for fall 2020.

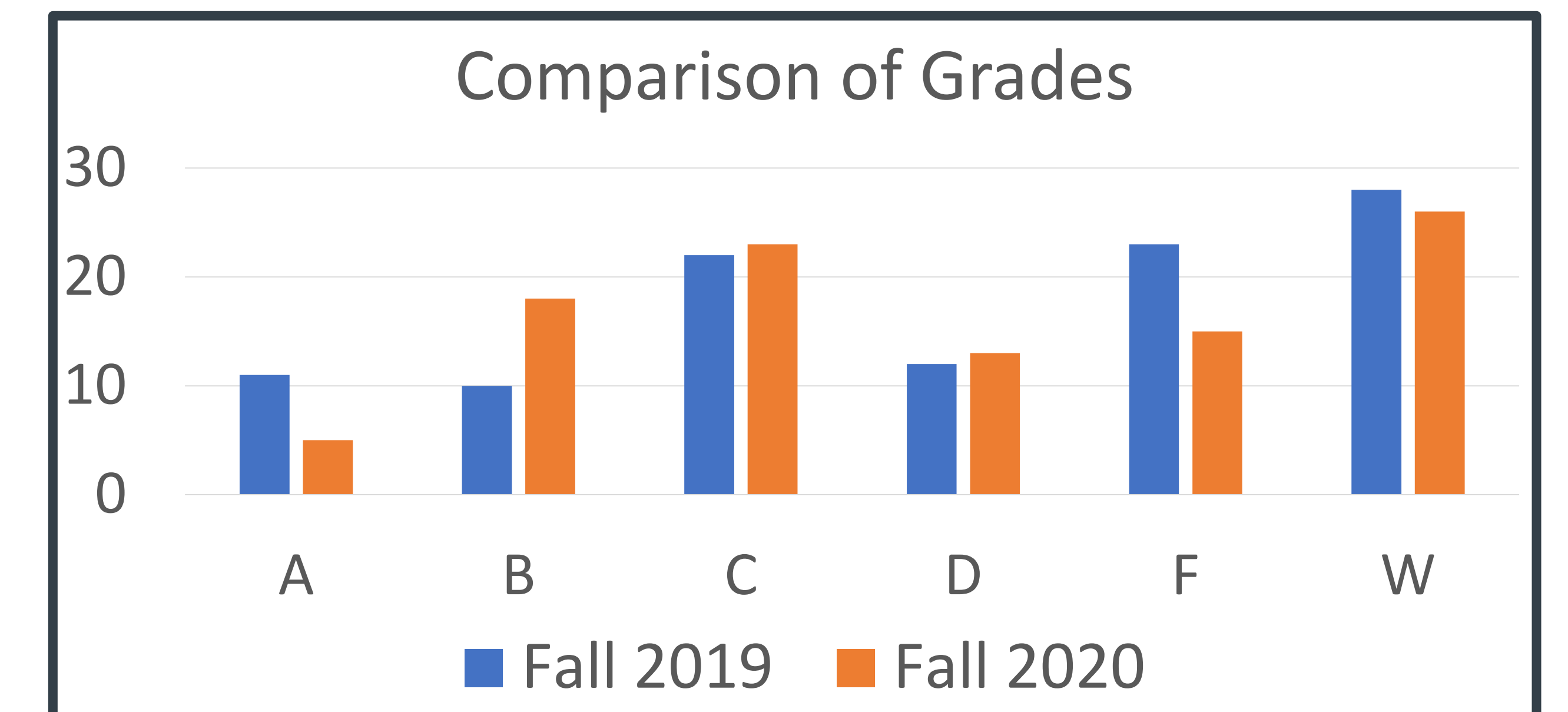
I created a MATH 126 course in MyOpenMath. I created homework assignments for the semester using the new question library, and linked various resources including lectures slides, exam reviews, and a discussion forum.

I taught one section of MATH 126 in the fall and collaborated with the other MATH 126 instructors as we implemented and refined our open resources.

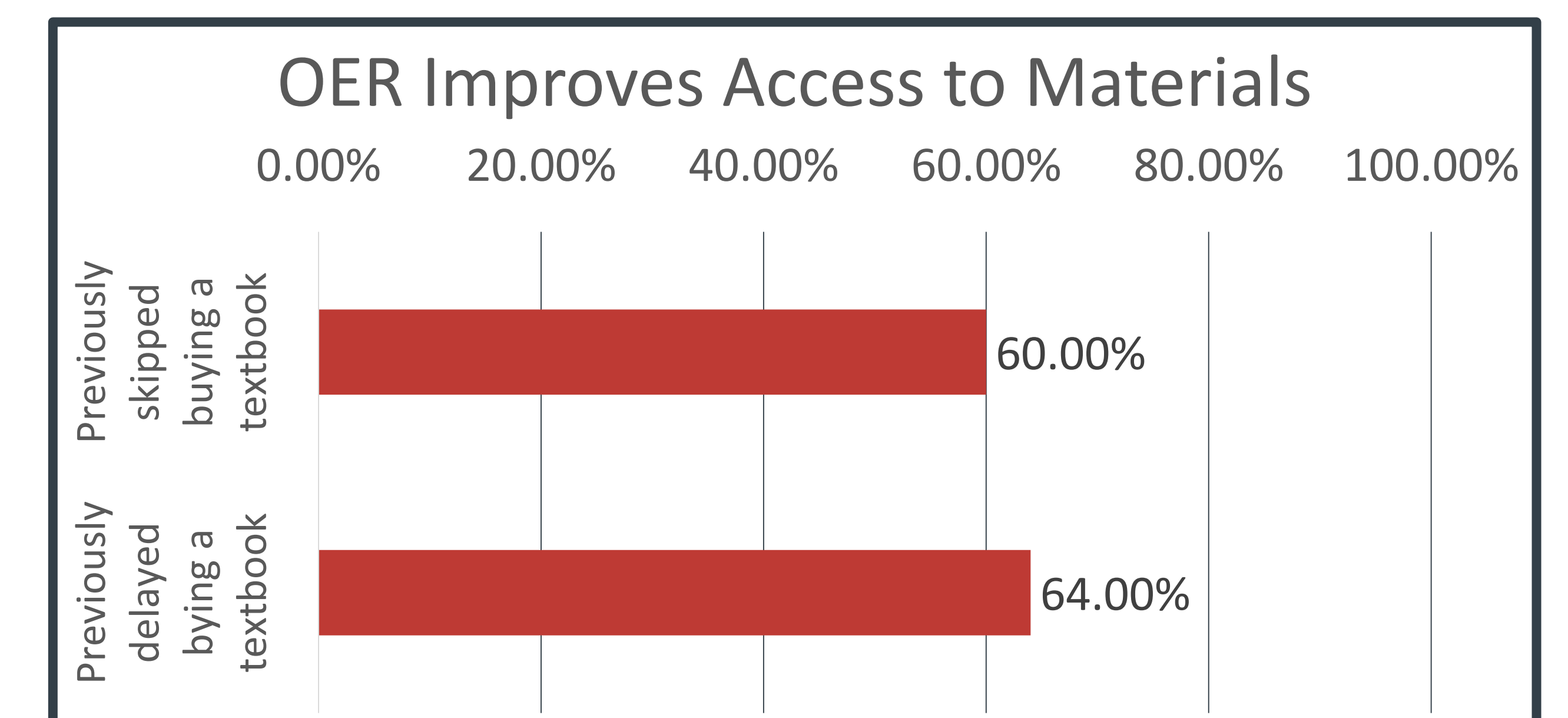


## RESULTS

The MATH 126 ABC rate for Fall 2020 was 46.0%, compared with a rate of 40.6% for Fall 2019.



When students in Spring 2021 were asked if they had either delayed or skipped purchasing a required textbook in the past, most answered “yes.”



Additionally, assessment of the quality of the OER used was overwhelmingly positive.

## CONCLUSION

OER provided comparable results in MATH 126 to those seen using traditional materials. Survey results and student comments indicated that OER increased access to resources while saving students money.