

Teaching and Iterative Improvement: The Impact of Instructor Implementation of Courseware on Student Outcomes

This is an overview of the research paper presented at the 7th IAFOR International Conference on Education in January, 2022. You can read the full paper here:

<https://doi.org/10.22492/issn.2189-1036.2022.19>

INTRODUCTION

The primary learning method of the SmartStart courseware is to embed formative practice with textbook content to give students the benefit of the Doer Effect—the proven learning science principle that doing practice causes better learning. In this research project, Dr. Hubertz used SmartStart courseware for an online Psychology of Sex and Gender course at the University of Central Florida in the spring of 2020 and 2021. Her implementation of the courseware changed between semesters, so this effect on student engagement and learning outcomes on exams could be compared.

The research questions in this study were:

- How did changing the grading policy impact student engagement with the formative practice?
- How did the change in engagement with formative practice impact exam scores?

INSTRUCTOR IMPLEMENTATION

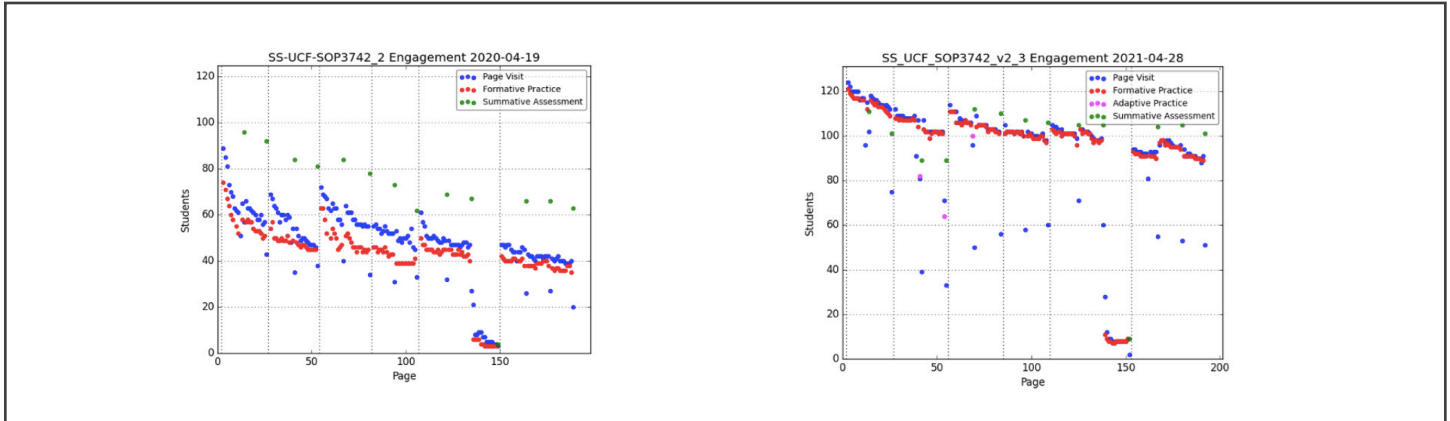
Dr. Hubertz used the courseware as the primary learning resource in an online, flipped blended teaching model.

- In the spring 2020 semester, she put weekly assignments and reminders in the LMS, reminded students in class, and put 2% of the students' grade on completing 85% of the formative practice.
- In the spring 2021 semester, Dr. Hubertz did those same practices, but changed the percentage of the students' grade to 20%.

ENGAGEMENT

The spring 2020 engagement graph shows typical engagement patterns: most students completed the summative assessments, fewer students read the lesson pages, fewer also did the practice on those pages, and there was overall attrition as the course progressed.

Comparatively, the spring 2021 engagement graph shows that nearly all students read the pages and did the formative practice consistently throughout the course.



EXAM SCORES

Dr. Hubertz compared mean exam scores from each semester, in addition to scores from the 2019 semester wherein only the etextbook was used. Results showed that mean scores increased from 2019 to 2020 when the SmartStart courseware was used for the first time. However, students had even higher mean scores in the spring 2021 semester, with consistently higher low-scores across all exams as well.

		Exam 1	Exam 2	Exam 3
Fall 2019	Mean Score	60%	63%	71%
	Score Range	39–101%	12–104%	19–104%
	n Students	97	78	71
Spring 2020	Mean Score	70%	68%	78%
	Score Range	23–98%	24–104%	39–104%
	n Students	98	86	71
Spring 2021	Mean Score	77%	78%	79%
	Score Range	43–102%	42–102%	42–99%
	n Students	106	105	104

SUMMARY

Instructors can directly influence student engagement with learning resources through their implementation practices and course policies. In this case, Dr. Hubertz was able to maximize student engagement with the formative practice in the courseware with a very simple change: incentivizing it with points for completion. This resulted in increased mean exam scores compared to previous years. The Doer Effect research furthers the learning science foundation of doing practice while reading, but the implementation of this method in natural learning contexts reveals the practical impact on student grades. By combining this effective learning method with instructor implementation practices, student engagement with formative practice can be maximized and learning outcomes increased.

Hubertz, M. & Van Campenhout, R. (2022). Teaching and Iterative Improvement: The Impact of Instructor Implementation of Courseware on Student Outcomes.

The IAFOR International Conference on Education – Hawaii 2022 Official Conference Proceedings. ISSN: 2189-1036, pp. 201–210. Honolulu, Hawaii.

<https://doi.org/10.22492/issn.2189-1036.2022.19>