

Efficacy Study of InQuizitive for American Government

Overview

A within subjects efficacy study shows that InQuizitive boosts quiz performance by a full letter grade or more.

InQuizitive Product Introduction

InQuizitive is a formative, adaptive learning tool that supports select W. W. Norton textbooks. Instructors most often assign InQuizitive as pre-lecture assignments to ensure students come prepared to lectures, quizzes, and exams.

InQuizitive's functional design was shaped by psychological research on learning and memory (e.g., Roediger and Karpicke, 2006; Craik and Lockhart, 1972; Morris et al., 1977; Kapur et al., 1994; Naceur and Schiefele, 2005; McTighe and O'Connor, 2005). **Based on the cognitive principles revealed in these studies, InQuizitive should have a positive effect on student's ability to grasp and retain information and concepts covered in each InQuizitive activity.** The efficacy study described here was designed to directly measure whether or not InQuizitive does in fact improve performance on a summative quiz testing students' knowledge of the material covered in each activity.

Efficacy Study Design

The study was designed in consultation with Dustin Tingley, Professor of Government at Harvard University, and utilized a within subjects design with the following structure:

- The sample size for the study was N=190.
- Students engaged in two chapters' worth of content from *We the People*, Tenth Edition (Chapter 12, "Congress," and Chapter 13, "The Presidency").
- In whichever chapter the professor assigned first, students were randomly assigned either to take a quiz first and then complete the InQuizitive activity, or vice versa.
- Then in the second chapter this was reversed for each student.
- Special attention was paid to balancing the difficulties of the quizzes for each chapter.

The *InQuizitive effect* for each student was calculated using the following:
[Quiz score when student used InQuizitive first] - [Quiz score when student used InQuizitive second]

The *InQuizitive effect* is considered to be positive if InQuizitive improves a student's quiz performance—that is, if the result from the equation above is a positive number.

Results

- The average *InQuizitive* effect was **8.4 points** (N=190, $p < .001$, 95% confidence interval 5.4, 11.9) on a scale from 0 to 100. **This is an improvement of nearly an entire letter grade.** (See “All Courses” in Figure 1.)
- The average *InQuizitive* effect was even higher, **13.1 points** (N=72, $p < .001$, 95% confidence interval 8,18.2), for the two classes where InQuizitive was assigned as part of students’ overall course grade throughout the semester. (See “Adopted” in Figure 1.)
- The *InQuizitive* effect tended to be stronger for students who scored lower on the quiz taken prior to completing InQuizitive. (See Figure 2.) This finding indicates that InQuizitive provides more help for underperforming students, who need this help the most.

Figure 1.
Average InQuizitive Effects

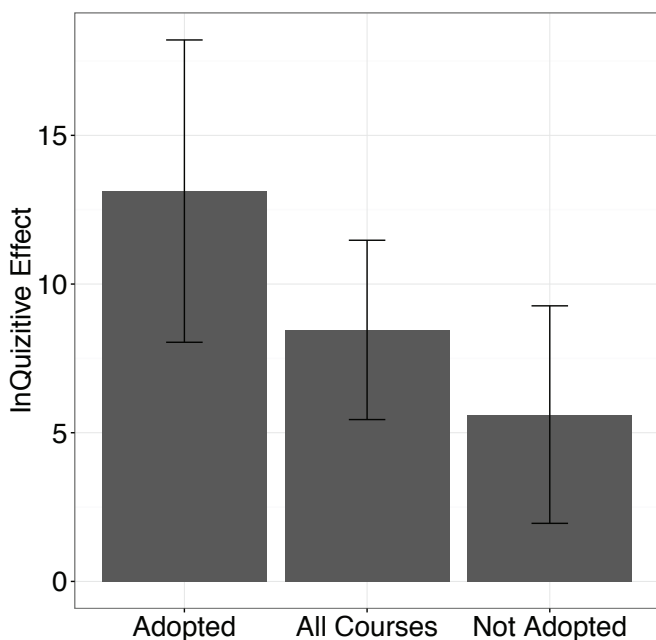
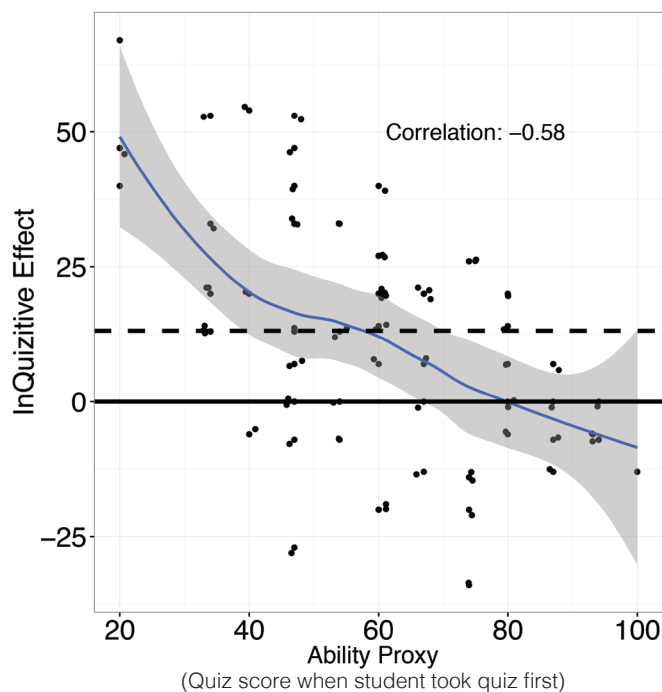


Figure 2. Student Ability versus InQuizitive Effect in Courses with InQuizitive Adopted



References

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