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# Cheating in online courses: Evidence from online proctoring

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ABSTRACT

This study revives the unsettled debate on the extent of academic dishonesty in online courses. It takes advantage of a quasi experiment in which online proctoring using a webcam recording software was introduced for high-stakes exams in two online courses. Each course remained the same in its structure, content and assessments before and after the introduction of online proctoring. Analysis of exam scores shows that online proctoring was associated with a decrease in average performance in both courses. Furthermore, the decrease in scores persists when accounting for potential confounding factors in a regression framework. Finally, in separate regressions of exam performance on student characteristics, the regression explanatory power was higher for scores under proctoring. We interpret these results as evidence that cheating took place in the online courses prior to proctoring. The results also imply that online proctoring is an effective tool to mitigate academic dishonesty in online courses.

## 1. Introduction

In the past two decades, higher education institutions have experienced unprecedented growth in online learning. In the U.S., where this study took place, enrollment in distance higher education grew steadily between 2002 and 2016. Since 2012, whereas overall enrollment in higher education has been declining, growth in distance education has in fact been rising. As of 2016, the latest year for which data are published, close to a third of all college students were taking at least one distance course (Seaman et al., 2018).

More than half of these distance learners were students that were combining non-distance (face-to-face, F2F) learning with distance learning. Accordingly, today many "traditional" institutions offer a menu of online courses as well as fully online programs. This is prompted by sustained demand for such courses and programs – in 2016, for example, about 30 percent of students in public and private non-profit institutions in the U.S. enrolled in at least one distance learning course (*source*: own calculation using data in Seaman et al., 2018). It also appears that educators in all types of institutions have recognized that a structural shift has occurred, and that online delivery and learning will be a mainstay of higher education in the future.

Therefore, the dialogue surrounding online education has turned to how best to deliver online courses. Various aspects of online courses, such as modality (fully online versus hybrid; synchronous versus asynchronous), technology platform, assessment and accessibility are considered and debated. The goal of such dialogue, ultimately, is to design and deliver online courses in which student learning and experience are at least on par with traditional (F2F) courses. Given this goal, the question of how much learning takes place in online courses (relative to the traditional/F2F mode) has become a critical point of contention (see, among others, Cavanaugh & Jacquemin, 2015; Alpert et al., 2016; Dendir, 2019; Paul & Jefferson, 2019).

A particularly pertinent issue in this regard is academic dishonesty (McCabe et al., 2012). Some argue that even the measures that are used to gauge learning in online courses, such as scores on formative or summative assessments, do not truly reflect learning because they are possibly tainted by cheating that occurs during these assessments (Harmon et al., 2010; Arnold, 2016). If, for example, exam score distributions turn out to be comparable in an online course and its F2F counterpart, it does not mean that comparable learning takes place in the two modes simply because the online scores are likely inflated by cheating.[1] Such arguments are predicated on the assumption that academic dishonesty is more prevalent in online courses than F2F ones (Kennedy et al., 2000; Young, 2012).

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[1] There is a tangential discussion on whether high-stakes assessments measure learning regardless of the mode of delivery. For example, Wunder et al. (2013) argue that sometimes assessments may be gauging learning outcomes rather than learning.

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