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Online or On-Site, Does It Matter? Behavioural and Cognitive Engagement with Large Groups of Students

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Abstract. The rise of videoconference lectures has sparked concerns about their potential negative impact on college and university student engagement. In this study, we review prior research on engagement, focusing on its behavioral and cognitive dimensions, which we investigate empirically using a novel methodology. Our analysis centers on active-learning approaches in large-group teaching settings. Contrary to concerns about potential harm, our findings reveal no evidence supporting the alleged detrimental effects. On the contrary, our results indicate that neither behavioral engagement nor course cognitive engagement is higher for in-class students, and levels of engagement may even be greater with virtual live lectures. If taken at face value, these findings carry significant pedagogical and policy implications.

Keywords: online learning, in-class learning, behavioural engagement, cognitive engagement.

1. Introduction

Research shows that learners in online settings often face challenges such as higher attrition rates, lower academic performance, and reduced overall success and progress. Specifically, university students in online environments tend to perform worse academically than their in-person counterparts and exhibit lower retention and degree completion rates (Cavinato et al., 2021; Francescucci & Rohani, 2019; Whalen, 2020; Yang & Ghislandi, 2024). A key factor contributing to this underperformance is likely a lack of student engagement, as more engaged students are generally more successful learners (Chi, 2009; Martin & Borup, 2022). This issue is especially pronounced within large groups, which pose additional challenges for fostering engagement, particularly in online settings where meaningful interaction is often difficult to achieve (Agogue and Robinson 2021; Wurdinger & Allison 2017). Futhermore, higher-education institutions

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frequently rely on lectures as the primary teaching method in large-class environments (Lund, Dean & Wright, 2017), a practice that may be exacerbated in online formats (Agogue & Robinson 2021; Wurdinger & Allison 2017).

Accordingly, matters of student engagement during lectures is of critical interest for business administration, management and finance university programs, given their traditionally large cohorts. In particular, an understanding of how engagement in online lectures compares to their in-class counterpart, especially if we consider the lower costs of the former, becomes paramount. Such a comparison is even more relevant in the wake of the COVID-19 pandemic. We observe that higher-education institutions worldwide removed their in-classroom teaching during that period and many chose to simply replace face-to-face lectures with live sessions online. Hence, a different breed of online learning has proliferated, where synchronous interaction is present to the same degree of a conventional course. This is in strong contrast to how such online learning was often implemented earlier, with such learning taking place in a largely asynchronous way. Also, before the pandemic most standard teaching had already embraced digital platforms for the delivery of course material. Hence, the only distinguishable feature of the dichotomy when this new format is considered, is that the online student sits behind a screen to attend the lectures, whereas their counterpart sits in a classroom in the company of a teacher and peers. We observe that this practice has continued after the pandemic and a challenge remains for business administration programs to leverage quality interaction and learning for students in online learning settings (Estelami & Bezzone, 2022).

To date, there is a lack of robust empirical evidence to support the negative and positive claims about student engagement in large class online contexts (Venn et al., 2023). While recent work suggests that online learning facilitates students' cognitive, behavioural and emotional engagement (Yang & Ghislandi, 2024), we argue it falls short of comparing different modalities of teaching, namely on-site and online, a comparison that we consider necessary to determine if the latter can deliver teaching that is, at least, on par with the former. The goal of this paper is to put the above claims to the test by examining the afore mentioned modalities of teaching with a novel methodology for the levels of engagement, properly defined and proxied for, under both on-campus and on-site lectures.

This paper is structured as follows: First, we review a selection of research on engagement, with a particular focus on recent studies relevant to learning in business education contexts. Next, we outline our research model and hypotheses, followed by a description of the teaching implementation, highlighting how it unfolds in both classroom and online settings. We then present a detailed discussion of our methodology, data, and empirical approach. The results section follows, where we share our empirical findings and analysis of their possible drivers, and the final section provides a discussion of these results along with our conclusions.