Chapter 119
Do Student–Written Responses to Reflection Questions Predict Persistence and Performance in Online Courses?
A Text Analysis Approach

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ABSTRACT

Online learning has been recognized as a promising approach to improve learning outcomes in developing countries where high-quality learning resources are limited. Concomitant with the boom in online learning, there are escalating concerns about academic accountability, specifically student outcomes as measured by persistence and success. This chapter examines whether evidence of reflection found in student written responses to a series of skill-building videos predicts success in online courses. Using a text analysis approach, this study analyzed 1,871 student responses to four reflection questions at a large online university in Panama. A binary logistic regression analysis was conducted to explore whether student persistence was affected by evidence of words associated with significant learning found in student written responses to a set of reflection questions. The results suggest that evidence of words associated with significant learning found in student written responses to reflection questions significantly predicts student persistence in online courses. A Kruskal-Wallis test found median final course grade differences

between students who showed no evidence of significant learning in their written responses, and those using 1-13 words associated with significant learning. These results strongly suggest that persistence and performance in online courses are affected by evidence of reflection found in student written responses to reflection questions. These results suggest that a set of reflection tasks assigned early in the course may prove effective in identifying at-risk students.

INTRODUCTION

Over the last decade, online course offerings have become a standard at most colleges and universities (Cohen & Soffer, 2015; Lee, 2016). The growth in online enrollments is more than ten times higher than the growth in overall higher education enrollments, and this trend is expected to continue (Seaman, Allen & Seaman, 2018). Concomitant with the boom in online learning, there are escalating concerns about academic accountability, specifically student outcomes as measured by persistence and success (Boston & Ice, 2011; Hachey, Conway & Wladis, 2013; Jaggars & Xu, 2016). This arises from research that indicates that attrition rates in online courses are significantly higher in comparison with face-to-face courses (Hachey et al., 2013; Jaggars & Xu, 2016; Patterson & McFadden, 2009). A growing body of research suggests that the high online dropout rate is the result of lack of certain personal attributes and self-regulation skills, which are essential for success in online courses (Glick, Cohen, Festinger, Xu, & Warschauer, 2019; Jaggars & Xu, 2016). Self-regulation plays a particularly important role in virtual learning environments, where students are required to take greater responsibility to control and regulate their own learning (Appana, 2008; Duffy & Kirkley, 2003). It is important, therefore, to be able to identify early in the course students who lack self-regulation skills in order to improve retention and graduation.

A growing body of research is seeking to respond to this challenge by employing learning analytics techniques to analyze student online learning behavior, log files, and clickstream data. Such analysis may include flow analysis to view students' learning journey, analysis of number of video views, or number of minutes' views (Cohen, Shimony, Nachmias, & Soffer, 2019). However, research examining whether other types of analytics – such as text analysis techniques – can help predict persistence and performance in online courses, is scarce. Therefore, the purpose of this study is to employ text analysis techniques to analyze student reflective responses to a series of skill-building videos incorporated into online courses. Specifically, this study aims to examine whether persistence and performance of online Latin American students may be predicted by evidence of significant learning found in student written responses to post-video reflection questions.

This study contributes to the literature on persistence in online learning in several important ways. First, this study performs what appears to be the first attempt to use text analysis techniques to examine whether persistence is affected by evidence of significant learning found in student written responses. By answering this question, university leaders and online course administrators will be able to identify at-risk students using a more holistic approach, which integrates learning analytics with text analysis techniques, thus improving graduation by targeting individual students in meaningful ways. Second, course administrators often use midterm scores to predict success in online courses (Glick et al., 2019). Although midterm scores prove to be a strong predictor of students' final grades, they are collected at a point when students have already finished a significant amount of the coursework. Therefore, more

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