The Effect of Self-Regulated Learning in Online Professional Training

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ABSTRACT

With the rapid expansion of mobile, blended, and seamless learning, researchers claim two factors, lack of self-discipline and poor time management, adversely impact learning performance. In online educational environments, reduced social interactions and low engagement levels generate high dropout rates. Self-regulated learning (SRL), the individual ability to check progress toward a goal and manage learning behavior, appears critical to adult online learning success. Clickstream data can observe, record, and evaluate patterns of users' real-time learning behavior in an online learning environment. Linking clickstream data with performance outcomes allows researchers to assess online learning behaviors and academic performance. The guiding research question was: Are students who apply SLR strategies more likely to demonstrate mastery of knowledge and skills in a self-directed e-learning context? Clickstream data and performance measures were analyzed to explore whether task and cognitive conditions influence how SLR strategies are applied in online training.

KEYWORDS

Adult Learning, Asynchronous Online Learning, eLearning, Self-Regulated Learning (SRL)

INTRODUCTION

Accompanying the rapid expansion of blended and online learning in professional and educational environments, researchers claim two factors adversely impact formal and informal learning processes and typically lower performance: (1) lack of academic motivation, and (2) poor time management for task completion (Berestova et al., 2022). Looking specifically at self-directed e-learning (SDEL) for job training, two effects - reduced social interactions and lower levels of engagement - generate higher dropout rates (Kim et al., 2012; Muilenburg & deBerge, 2007; de Freitas et al., 2015; Macfadyen & Dawson, 2010). To meet performance goals, adults who engage with online learning should monitor and control their learning processes by creating, monitoring, and adjusting their learning behaviors (Dabbagh & Kitsantas, 2004; Roll & Winne, 2015). Self-regulated learning (SRL) strategies can assist learners to check their progress toward a goal and manage their learning to achieve higher performance (Broadbent & Poon, 2015). Over the past decade, researchers have relied on data from

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self-report surveys to identify students with low SRL skills (Broadbent & Poon, 2015; Winne, 2010), while acknowledging limitations such as inaccuracy, subjectivity (Brown, 2017; Miller, 2016) and bias (Ganda & Boruchovitch, 2018).

Over the past 20 years, limited scholarship has synthesized how adults select SRL strategies to monitor and enhance their online performance or how SRL influences their learning experience in the context of self-directed e-learning (SDEL) (Kim & Frick, 2011; Kim et al., 2019). More recently, a few scholars have explored SRL strategies that a user may apply to promote their academic performance in computer-based learning environments (Leggett et al., 2013; Zheng, 2016). For example, some instructors deliberately modified a course design to assist students to manage their time more effectively. Others allowed students to set their own deadlines and suggested that students schedule their study time. Yet others encouraged students to plan a specific process to efficiently complete activities (Baker et al., 2019; Baker et al., 2016; Sitzmann and Johnson, 2012). In all, inconsistent findings suggest that individual circumstances beyond the learning environment may influence whether facilitating time management skills enhances performance across an entire course (Ariely & Wertenbroch, 2002; Burger et al., 2011; Levy & Ramim, 2013). Conflicting recommendations from these studies may be attributed to biases from self-reported data or contextual variations across programs and students.

In response to these constraints, we selected an innovative methodology to ascertain how individuals apply self-regulated learning strategies for improved task performance in a self-directed e-learning context. Clickstream data are information collected about a user that can be applied to observe, measure, and analyze recorded and real-time learning behaviors in a learning management system (LMS). Linking click-stream data with performance outcomes means researchers can create a more comprehensive assessment of learning behaviors and determine how this may impact academic performance in an online learning experience. We asked the following research question: Are students who apply SRL strategies more likely to demonstrate mastery in knowledge and skills in a self-directed e-Learning context?

While there is a growing number of studies that rely on clickstream data to trace and analyze learning behaviors in an LMS, typically researchers still apply improved algorithms to evaluate the performance of predictive models. Rarely do these studies provide details about the influence of contextual factors that are required to interpret clickstream data in meaningful ways (Baker et al., 2020). In this current study, clickstream data were linked to each participant and tracked to analyze how patterns of learning behavior influenced task completion for professional training in a self-directed e-learning environment where there were no peer learners or a regularly available instructor. The 16-week asynchronous online training, known as the Intensive Pedagogical Training Institute (IPTI), provided the context to investigate the use of self-regulated learning strategies by adult learners to master professional knowledge and skills. The training is designed as the first step to prepare teachers by attaining an Ohio Alternative Resident Educator License.

BACKGROUND

Professionals operate in settings where profound social and technological changes are fundamentally altering the nature of work (Dall'Alba, 2009). Conventional approaches for delivering professional training are less impactful, particularly in situations where they do not target dimensions of professional learning considered essential for productivity in a contemporary workplace (Littlejohn & Margaryan, 2013). For example, in the field of education, professional learning can grow educators' pedagogical content knowledge and skills when sustained over time through in person, blended, or virtual learning communities (Darling-Hammond et al., 2009). In this context, an adult learner takes responsibility for their learning by determining their needs, setting goals, identifying resources, implementing a plan to meet their goals, and evaluating the outcomes.

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