

A Polling-at-Home Approach to Improving Students' Learning Performance

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ABSTRACT

Plenty-of-Time Teaching (PoTT) is a teaching strategy adopted by teachers to better understand students' learning status through pre-class activities in order to facilitate adjustments to teaching methods. Extending the concept of PoTT, the goal of this study is to explore the impact of Plenty-of-Time Learning (PoTL) on students' self-regulation, test anxiety, cognitive engagement, and learning performance. Participants were 167 students enrolled in an introductory educational psychology class in which the instructor used either PoTL or Just-in-Time Learning (JiTL) strategy. Students who adopted the PoTL strategy engaged in BlackBoard polling question-and-answer activities that helped teachers understand the overall learning status of the students. The study results indicated that the PoTL strategy enhanced student performance. We recommend that when using PoTL in the future, teachers can open up an online discussion platform to help students not only better understand their own learning situation but also improve their learning strategies.

KEYWORDS

Electronic Feedback Device, Engagement, Just-in-Time Learning, LMS, Polling

INTRODUCTION

In college learning tasks, students need to get involved proactively with self-discipline. Therefore, self-regulation is very important in learning (Bembenutty, 2011). Ferrari (2001) pointed out that the majority of students showed procrastination in their work. Steel (2007) showed that the more the self-regulatory behavior, the less procrastination happened. Due to lack of basic self-regulatory skills among freshmen, procrastination was commonly seen (Bembenutty, 2011). Therefore, promoting self-regulatory behavior of students as a part of teaching design is particularly important. In the argument of Zimmerman and Risemberg (1997), academic self-regulatory processes include goal-setting, strategy use, time planning and management, self-monitoring, environmental selection and structuring, and model selection. Immediate feedback can be offered to students to assist them in evaluating the appropriateness of the strategy adopted (Zimmerman & Risemberg, 1997). One way of gaining immediate feedback is by employing radio-frequency-based electronic feedback devices ("clickers") (Fortner-Wood, Armistead, Marchand, & Morris, 2013). Thus, immediate feedback

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tools can be used to offer students feedback related to their learning performance, facilitating self-monitoring by students and promoting their self-regulatory behavior.

However, monitoring, regulating, and controlling of cognition, emotions, and behavior requires an ample amount of time. Lasry (2008) put forward the concept of “Just in Time Teaching” (JiTt). It is a teaching strategy where instructors gain immediate feedback as to what students know or don’t know in order to quickly ascertain which concepts need to be re-examined. This teaching strategy did not consider the fact that instructors would need ample time to adjust their teaching method or content based on the learning status of the entire class. To resolve this issue, “Plenty of Time Teaching” (PoTT) (Sun, Martinez, & Seli, 2014) is a strategy for instructors to better understand students’ misunderstandings or misconceptions of the material in advance by reviewing student responses in pre-class activities. In addition, instructors have ample time to adjust teaching strategies or activities in class (Novak, Patterson, Gavrin, & Christian, 1999). Based on the same concept using the viewpoint of students, this study proposed that learning strategies can be divided into “Just in Time Learning” (JiTl) and “Plenty of Time Learning” (PoTL). Before class, if students can acquire immediate performance feedback from the polling Q&As, they can better master their own understanding of the learning content and have enough time to adjust their learning strategies. Therefore, a pre-class learning platform for polling activities enables students to learn using PoTL, which in turn promotes their self-regulatory skills.

Anxiety is a significant issue in college (Zeidner & Matthews, 2005). One characteristic of academically anxious students is inappropriate behaviors (e.g., procrastination) (Ottens, 1991). Therefore, anxiety was incorporated as a variable to be explored. Timed exams increase students’ anxiety (Zeidner & Matthews, 2005). Covington (1992) pointed out that when students view future exams as a threat, their anxiety is aroused (appraisal stage). This study adopted the PoTL strategy to provide pre-class polling activities considering the fact that under no threat of scoring, students may regard the activities as a challenge and may therefore be more effective and well prepared for the exam and learning the material. Hence, the anxiety of in-class timed tests may be reduced. In addition, online learning adopted various technology tools in recent years, helping students to get more involved in learning (Middlebrook & Sun, 2013; Sun & Rueda, 2012; Walsh, Sun, & Riconscente, 2011). Among the tools, cognitive engagement refers to an individual voluntarily exerting effort in order to understand and master challenging tasks and is related to self-regulation (Fredricks, Blumenfeld, & Paris, 2004). Procrastination in learning reflects the unwillingness of students to complete their tasks. Therefore, this study wanted to adopt the learning environment of pre-class online polling to explore cognitive engagement in order to understand whether PoTL could enhance student engagement in learning.

Sun et al. (2014) coined the term Plenty-of-Time Teaching (PoTT) to address the benefits of assessing students’ knowledge and increase their levels of engagement prior to class. Building on their concept, this study adopted the PoTL learning strategy and conducted pre-class polls in an online learning management system (LMS), BlackBoard, allowing students to monitor and evaluate their individual performance in order to enhance self-regulation and cognitive engagement and to reduce test anxiety. This study is different from Sun et al. (2014) in that the existing LMS was employed and students were not required to prepare for any specific tool in order to complete the pre-class polling activity. A brief conceptual model of the research question is shown in Figure 1. At the end of this study, we hope to provide not only theoretical insight about the use of pre-class polling, but also feasible strategies that would help create a more engaging experience for students involved in higher education learning environment. In summary, the purpose of this study was to examine the effects of PoTL on student self-regulation, test anxiety, cognitive engagement, and learning performance in comparison to JiTL.

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