

# Improving Course Assessment via Web-based Homework

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## ABSTRACT

Higher education increasingly relies on course assessment; however, it is challenging to cover all course and assessed content. Homework has been linked to increased student performance and may be a solution to covering or reinforcing key course and assessed concepts. Instructor time and resources are limited, making additional grading challenging. Moreover, using feedback on homework to improve student performance is time sensitive with many faculty, challenged to timely return homework feedback. Web-based tools may assist with the aforementioned issues; however, research on the effects of homework, paper-based versus web-based homework, and online learning tools is inconsistent. The goal of this research is to improve assessment via web-based homework while requiring minimal instructor effort and time. The hypothesis is stated as employing web-based homework will improve scores on student performance as measured by a university course assessment. The web-based homework occurs via the implementation of discussion boards in multiple undergraduate courses in the college of business of a mid-size regional university. Results indicate discussion boards can be used to effectively improve student performance as measured by assessment.

## KEYWORDS

Course Assessment, Online Discussion, Online Homework, Online Learning

## INTRODUCTION

Course assessment is becoming increasingly common in higher education often driven by accreditations such as The Association to Advance Collegiate Schools of Business (AACSB), Association of Accreditation of Business Schools & Program (AABSP), and Accreditation Board for Engineering and Technology (ABET). Adequately covering all course content compounded with additional assessed concepts is difficult within the constraints of in-class time; therefore, homework becomes a necessary compliment to in-class activities. Assigning and grading homework places additional encumbrances on faculty time which is already at a premium. Instructors have difficulty grading and providing feedback due to time constraints (Brewer & Becker, 2010). Offering courses in a hybrid format requires more instructor resources than a traditional face to face model and are perceived as more difficult by students (Senn, 2008).

DOI: 10.4018/IJOPCD.2017040101

One such solution to covering course content is homework. According to Cooper (2007), homework is defined as tasks assigned by teachers to be completed during non-school hours. While this definition is well-suited to primary and secondary education, it lacks generalizability to higher education. In primary and secondary education, school is typically conducted during specific hours of the day (i.e. 7am-3pm); therefore, homework is completed by students in the evening. In higher education, there are no set class times, schedules, or school hours. Each student maintains a customized schedule with the possibilities for variety such as evening classes, weekend classes, and more recently online courses. Based on the aforementioned gap in the definition of homework, it is necessary to extend the definition to higher education; therefore, the definition will be extended to state that homework consists of tasks assigned by instructors to be completed outside of class.

Research on homework's effects on student performance vary with studies reporting no effects, positive effects, or complex effects (Cooper, Lindsay, Nye, & Greathouse, 1998). Homework may be presented in a more traditional paper-based method or in a web-based and online format. Regardless of medium, homework assignments and their time and effort to complete them has demonstrated improvements in student performance (Dillard-Eggers, Wooten, Childs, & Coker, 2011; Natriello & McDill, 1986; Rayburn & Rayburn, 1999; Wooten & Dillard-Eggers, 2013).

Research is inconclusive on the effects of online learning and tools. Kulik (1994) found that student performance improved with computer based instruction. Incorporating technology into the classroom was shown to enhance student performance (Krentler & Willis-Flurry, 2005). One example of technology in the classroom is online discussions which encourage additional participation among reticent students (Citera, 1998); however, Davies and Graff (2005) demonstrated that increased online interaction did not lead to higher scores but students that interacted less had lower scores.

Similarly, studies are inconclusive whether online versus traditional paper-based assignments have a higher effect on student performance. Bonham, Beichner, and Deardorff (2001) found that while scores were higher when using web-based tools, the differences between paper-based and web-based were not significant. Similar results were found by Allain and Williams (2006); however, administered surveys revealed that students completing web-based homework spend more time than paper based homework. Wong and Fong (2014) suggest that students who prefer online learning find face to face learning less effective.

This research examines the efficacy of web-based homework measured by student performance on standardized university course assessments. The goal of this research is to improve assessment via web-based homework while requiring minimal instructor effort and time. The hypothesis is stated as employing web-based homework will improve scores on university course assessments. The remainder of this paper is structured as follows: section 3 provides background and literature review, section 4 states the methodology and results, section 5 provides discussion and limitations, and section 6 delivers conclusions and future directions.

## **BACKGROUND**

### **Course Assessment**

Assessment can be a useful tool to measure knowledge in both general education and major courses. Capstone assessment during a student's senior year is helpful in indicating which learning objectives have been achieved and which goals must still be addressed. Many schools assess freshman-level courses over several years in order to determine the change of their students' population (Banta, 2002; Shermis & Daniels, 2002). Assessment information and accreditation share a powerful link and have strengthened the importance of both arenas. The growth in the importance of assessment has led accreditation bodies to place more emphasis on assessment and make changes to their procedures and processes. In turn, this has a positive effect on accreditation bodies by increasing their credibility and importance (Banta, 2002; Wright, 2002).

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