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## Empirical assessment of e-learning on performance in principles of economics



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### ABSTRACT

This research assessed the effectiveness of online assignments in principles of macroeconomics classes. Students were divided into two groups where the first was required to submit online assignments (treatment) while the other was not (control). Standardized examinations were used as Pretest and Posttest to quantify the online assignments' impact on students' performance. Results showed no significant difference in performance between treatment and control groups. Furthermore, when looking closely at students' performance within the treatment group, results indicate that neither the use of online assignments, nor the degree or intensity of their use tends to have significant impact on students' performance.

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## 1. Introduction

Technology continues to change modern-day education and has become an integral part of the learning environment. Undoubtedly, the Web and all of its peripheries have paved the way for unprecedented possibilities and opportunities. One of those strongly-emerging opportunities is e-learning, which has been transforming traditional formal instruction, in terms of quality, quantity, access, cost and method of delivery. Academics were quick to embrace this trend and harness the many benefits of vastly changing technology to improve instruction delivery in terms of quality and efficiency. Among the widespread e-learning platforms is Aplia, which offers interactive assignments customized for economics textbooks. Although it was first developed for economics courses, it was soon expanded to business and then ventured into other areas such as biology, humanities, and social sciences. The Aplia website claims that its users have thus far submitted more than a billion web-based answers, which is more than a threefold increase since 2008. This growth is a testament to the widespread acceptance and success of e-learning and its tools.

e-Learning has been widely used in North America and Western Europe, but it is relatively new to the Middle East region. As the number of Western-style higher education institutions in this region continues to grow, so does the use of e-learning. However, it remains unknown whether it will have the same impact it has had in the West. The objective of this empirical study is to evaluate the effectiveness of an e-learning tool, namely, the online assignments, on students' performance in Principles of Macroeconomics' classes offered at the American University of Kuwait.

The rest of the paper is organized as follows. Section 2 reviews the literature relating to e-learning. Section 3 presents the data and methodology and Section 4 presents results and discussion of the empirical model. Finally, the conclusion is presented in Section 5.

## 2. Literature review

Institutions of higher education have steadily been integrating e-learning tools to optimize the pedagogical quantity and quality. As early as 2000, the Internet was perceived to provide a markedly different and interesting possibilities for computer-mediated communication and learning compared to other forms of educational technologies (Weller, 2002: 34). It is not surprising; therefore, that a substantial amount of research has focused on assessing the potential benefits of e-learning in higher educational institutions. This allowed institutions to assess the growing needs of this recent instructional strategy to evaluate the improvement of the students' learning experiences and style. This research is driven by a strong need to facilitate the delivery of pedagogically effective e-learning environments, due partly to the gaps identified between the bodies of knowledge relating to learning theories, instructional design principles, and student learning (Siragusa and Dixon, 2005).

Macgregor and Turner (2009) identified a number of potential benefits of e-learning to both student and educational institutions. These include: possible flexibility in terms of time and location; cost and time savings for educational institutions; fostering self-directed and self-paced learning by enabling learner-centered activities; creating a collaborative learning environment by linking each learner with physically dispersed experts and peers; allowing unlimited access to electronic learning material; and allowing knowledge to be updated and maintained in a more timely and efficient manner. It should be noted that some of these refer to benefits that accrue to the institution, and some refer to benefits that accrue to the student. Generally, it has been clear for some time that e-learning strategies based mainly on the organization's desire for cost savings or mass markets, or both, did not work very well (e.g., Folkers, 2005; Pratt, 2005; Ennew and Fernandez-Young, 2006). On the other hand, student-oriented e-learning can be effective, in which case key issues are mostly related to quality of course content, ease of using the systems, and quality of instructor, as well as various learner characteristics (e.g., Lin et al., 2011; Bhuasiri et al., 2012; Arbaugh, 2014).

In assessing the state of research of online and blended learning in business disciplines, Arbaugh et al. (2009) found that learning outcomes in classroom-based learning tend to be comparable to those achieved in online courses. This is consistent with decades of research on distance education that show no significant difference in learning outcomes between traditional class-room courses and distance formats, controlling, of course, for quality of content and instructor (US Department of

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