

Original Article (Quantified)

Investigating the effects of e-learning environment on collaborative learning and academic self-efficacy in Payame Noor University students

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Abstract

The aim of this study is to investigate the effects of electronic learning environment on collaborative learning and academic self-efficacy in students of Payame Noor University. The research method is applicable in terms of its purpose, quantitative in terms of its implementation method, and descriptive-correlational in terms of its nature and method. The statistical population of the study includes all students of Payame Noor University in Kermanshah in the academic year 2023-2024, of which 250 people were selected and studied by purposive sampling. To collect data, the participatory learning questionnaire (Stephen Cho and Bowley, 2007), the academic self-efficacy questionnaire (Jinks and Morgan, 1999), and Watkins et al. (2004) e-learning were used. SPSS and Smart PLS software were used to analyze the data. The results show that the e-learning environment has a significant relationship with collaborative learning ($0.05, P\text{-Value} \leq 9.69, t = 0.572\beta =$), academic self-efficacy ($0.05, P\text{-Value} \leq 9.45, t = 0.555\beta =$); and the e-learning environment improves collaborative learning and academic self-efficacy. The e-learning environment, with the opportunities and resources it provides to students, enables them to improve their learning by using these components, form broader relationships and interactions, and have greater satisfaction with education.

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Extended abstract

Introduction

The development of information technology has led to many changes in various fields, including education. Under the influence of these conditions, education and technology have merged, and e-learning has emerged as a powerful tool for teaching and learning, and with a variety of modern smart technologies, it has expanded to access learning resources and has had an impact on learning and teaching methods (Al-Fraihat et al., 2020), which has led to changes in teaching and learning approaches and, consequently, changes in teaching and learning methods (Luka, 2018). Accordingly, educational organizations play an important role in the growth and expansion of e-learning. Given that most universities and higher education institutions use e-learning, the development of information technology in educational systems, especially e-learning, is not just a choice, but an inevitable necessity that is considered an effective factor in the reform of educational systems (Khorasani et al., 2012).

In today's world of teaching and learning, there is more emphasis on active and learner-centered learning rather than subject-centered or instructor-centered methods. One type of active learning method is collaborative learning. In this method, small heterogeneous groups work together to achieve a goal. In the group process, the interaction of group members creates opportunities for important experiences, including the ability to ask, explain, criticize, and give examples. Members of collaborative learning groups grow both in terms of knowledge and learning skills and in terms of establishing interaction and social skills during the learning process (Day & Salsali, 2010). In a collaborative learning environment, students have opportunities to interact with each other to achieve their common goals and to progress both academically and socially. Through interactions, students learn to ask for clarification on issues, present their ideas, clarify disagreements, and generate new understandings and inferences (Ke & Carafano, 2016).

Zimmerman (2000) points out that the construct of self-efficacy is multidimensional; therefore, its effect size varies according to the domain of demands. Accordingly, some researchers have emphasized that the assessment of the construct of self-efficacy should be done in a context-dependent manner; therefore, some researchers emphasize that in academic situations, measuring academic self-efficacy is more important than general self-efficacy. Academic self-efficacy refers to the ability of a student to successfully complete academic tasks. Some studies have shown that in academic situations, academic self-efficacy has a greater impact on academic outcomes than more general measures of self-efficacy (Nezhadasadi & Porshafei, 2012). Considering the above, in this study we seek to answer the question: What are the effects of the e-learning environment on collaborative learning and academic self-efficacy in Payam Noor University students?

Theoretical Framework

E-Learning Environment

E-learning environment refers to a space in which digital technologies are used to deliver and manage learning processes. These environments can include websites, online learning platforms, educational software, and other digital tools that allow learners to access educational content, interact with the teacher and other learners, and track their progress (Tarkhan & Mostafavi, 2020).

Collaborative Learning

Collaborative learning is an educational approach in which students work together in groups and interact with each other to learn new concepts and solve problems. In this method, group members achieve more effective and deeper learning by sharing their knowledge and experiences (Ghorbani et al., 2024).

Academic self-efficacy

Self-efficacy, as one of the motivational variables, causes an individual to spontaneously strive in the environment and achieve their efficacy beliefs through intrinsic motivation (Afangideh, 2022).

Nezhad Asadi & Safarzadeh (2023) studied the design of a desirable virtual learning model based on academic self-efficacy and self-regulated learning strategies mediated by academic adaptation. In a study, they showed that in order to increase academic self-efficacy and self-regulated learning strategies on students' desired e-learning, it is possible to focus on strengthening academic adaptation.

Wei et al., (2023) studied the identification of the role of motivation, perceived learning support, learning participation, and self-regulated learning strategies. They reported that self-regulated learning strategies have a positive and significant effect on learners' perceived learning outcomes from online courses.

Research Methodology

The research method is applicable in terms of its purpose, quantitative in terms of implementation, and descriptive-correlational in terms of nature and method. The statistical population of the study includes all students of Payam Noor University of Kermanshah in the academic year 2023-2024, of which 250 people were selected and studied by purposive sampling. To collect data, the participatory learning questionnaire (Stephen Cho and Bowley, 2007), the academic self-efficacy questionnaire (Jinks and Morgan, 1999), and Watkins et al. (2004) e-learning were used.

Research findings

SPSS and Smart PLS software were used to analyze the data. The results obtained show that the e-learning environment has a significant relationship with participatory learning ($0.05, P - \text{Value} \leq 9.69, t = 0.572\beta =$) and academic self-efficacy, ($0.05, P - \text{Value} \leq 9.45, t = 0.555\beta =$); and the e-learning environment improves participatory learning and academic self-efficacy. The e-learning environment, with the opportunities and resources it provides to students, allows them to improve their learning by using these components, form broader relationships and interactions, and have greater satisfaction with education.

Conclusion

The present study aimed to investigate the effects of the e-learning environment on collaborative learning and academic self-efficacy in Payam Noor University students. The results of this study are consistent with the results of Nezhad Asadi & Safarzadeh (2023), Wei et al. (2023), Babaei parsheh & Mosadeghi Nik (2022), Alamolhoda & Zeinali (2022), Khodamoradi et al. (2022), Firuzi et al. (2021), Portokoli et al. (2020), and Tarkhan & Mostafavi (2020). Portokoli et al. (2020) showed that factors such as content, interaction, technology, instructor, service quality, design, perceived ease of use, personalization, perceived usefulness, learner, perceived value, and self-efficacy were the most important factors affecting e-learner satisfaction. In the interview section, content design principles, learner, implicit consequences, attention to learning-related approaches, and the role of the instructor had the greatest role on e-learner satisfaction, respectively. Educational technologies eliminate geographical and educational limitations and bring learners and instructors closer to each other over time and space. Therefore, by reducing time and space limitations, the e-learning environment increases educational and social ties which can increase the field for elevating collaborative learning.