

Factors influencing students' attitudes and readiness towards active online learning in physics

ABSTRACT

Many factors can influence students' attitudes and their readiness to learn, especially with respect to learning physics online. Traditional online learning, where the teacher is the sole speaker, is inappropriate for learning physics because there must be live demonstrations and activities connecting theories with real world experiences. Online learning for physics must be active and engaging. Students would find the traditional form of online instruction difficult, because there is no physical social interaction between teacher and students. In our teaching work, we have found that factors such as computer skills/ICT skills, learning preferences, prior knowledge and motivation are important for students' learning. What are the perceptions and attitudes of learners regarding these factors? The aim of this paper is to investigate the attitudes of students' responses to computer/ICT skills, learning preferences, prior knowledge, and motivation pre-online learning and post-online learning in a case study. The research used a hierarchical regression for data analysis across a sample of young respondents who studied physics at Labuan Matriculation College, i.e., pre-university, in year one of their enrolment. The study involved two phases. A survey was conducted to assess the attitudes of the students prior to the implementation of active online learning. The pre-survey results showed that students considered learning preference and motivation to be important factors that would influence their active online learning. Post-survey responses and views communicated after completion of the learning revealed that all four factors have positive influence in their learning. Principles from neuroscience were used to explain why these four factors were important. The paper also provides guidelines on how teachers can use principles from neuroscience to help students to improve active online learning based on these four factors.