

INTRODUCTION

A Visual Learning Environment (VLE) is a digital platform designed to facilitate visual learning and enhance students' understanding of concepts using multimedia elements. It is based on the principle that visual representations can effectively convey information, aiding comprehension, and retention in educational settings. VLEs provide an interactive and immersive experience by incorporating images, videos, diagrams, and other visual aids to support the learning process. VLEs are also utilized in online learning environments, allowing for remote and self-paced education. In this context, learners can access multimedia resources, participate in interactive exercises, and collaborate with peers, fostering a dynamic and inclusive learning experience. Moreover, VLEs can be tailored to cater to different learning styles and accommodate students with diverse needs, promoting inclusive education.

Learning analytics as suggested by the Society for Learning Analytics refers to "*the measurement, collection, analysis and reporting of data about learners and their contexts, for purposes of understanding and optimising learning and the environments in which it occurs*" (Siemens 2011).

It deals with analysing the interaction of students with the VLE to assess their performance. Learning analytics is important at different levels.

- lecturers and institutions can make use of Learning Analytics to monitor learning behaviours of students, predict their academic performance and offer timely interventions for students in need.
- Students may also use it for assessments, to get feedback from lecturers or as a means of self-reflection (Almosallam and Ouertani, 2014).

With the ICT revolution in the twenty-first century, there has been an increased use of VLEs to support teaching and learning. Various universities have merged VLE with on-campus courses and some have even fully adopted offering courses online (Bates, 2005). Through VLEs, educational components are delivered online, assignments and exams are also undertaken online.

This widespread use of Virtual Learning Environments (VLEs) in higher education has created a new opportunity to study how students learn and engage with course materials. Learning analytics is an emerging field (Avella *et al.*, 2016) that uses data mining, machine learning, and other analytical methods to study student behaviour in VLEs and other digital learning environments. Learning analytics is focused on improving learning experiences and materials, informed through collection and analysis of student learning data. Digital learning environments can be an important way to engage young students as many will be accustomed to using online and digital devices in their day to day lives than any other tools.

This project has significant implications for improving student success in higher education. By understanding how students interact with VLEs and how these interactions relate to their academic performance, we can develop more effective teaching strategies and provide targeted support to students who may be struggling. This project also contributes to the growing field of learning analytics, which has the potential to transform the way we think about education and student learning.

Problem Statement

Despite significant investments in technology and digital learning environments, many students still struggle to perform and, in some cases, complete their courses. Learning analytics is an emerging field that seeks to use data-driven insights to improve student outcomes, but there is still much to be learned about how students engage with digital learning environments and how this engagement affects their academic performance.

The goal of this project is to explore student interactions with VLE and how it relates to their results using data from the Open University.

PROJECT OBJECTIVES

The objective of this project will focus on the following.

1. To analyse student interaction data from a Virtual Learning Environment (VLE) and identify patterns and trends in student engagement.
2. To explore correlations between student VLE interactions and result using the data from the Open University
3. To identify factors that contributes to student engagement with VLEs and develop recommendations for educators and institutions to improve student outcomes.