Visual Analytics: Design Study for Exploratory Analytics on Peer Profiles, Activity and Learning Performance for MOOC Forum Activity Assessment

ABSTRACT

The massively open online course (MOOC) has become an increasingly popular alternative platform for education due to its open concept and free features. Due to its features that allow enrolment on a massive scale and participation across the globe, it presented new analytic challenges. The vast amount and variety of data generated pose challenges for the learning analytics community to analyse especially concerning peer presence and peer learning. Forum activity data offers the opportunity to assess the relationship between forum activities and user backgrounds with the learner’s progression and retention rate. Furthermore, there are several challenges in implementing data visualization in real-world scenarios such as different task characterisation compared to the existing analytics, along with varied factors on the usability of visualization among the domain analysts. Despite many research on learning analytics, most of the approaches were data-driven and there were only a handful of studies that were focused on interactive visualization design to facilitate MOOC forum user activity assessment using real-world scenarios and educational theories-driven. Our design study aims to investigate and formulate a visual analytic design to facilitate enriched visual analysis towards assessing forum activity in Malaysian MOOC, particularly in pattern and relationship exploration on the user diverse background and activities with the learning performance. This paper presents our review on visual learning analytics and current MOOC practice in Malaysia, our design study methodology and proposed conceptual visual analytics design on visualizing forum activity data.