

Use of Learning Analytics in Remedial Courses

Pedro J. Muñoz-Merino, Carlos Delgado Kloos, José A. Ruipérez-Valiente José A. Gascón-Pinedo

Department of Telematics Engineering
Universidad Carlos III de Madrid, Spain

Abstract— Incoming freshmen at universities have a lack of knowledge in STEM subjects such as Physics, Math, and Chemistry. To overcome these issues, Universidad Carlos III of Madrid (UC3M) introduced remedial courses in these subjects several years ago before 1st year at university. At the beginning, these courses were just face to face sessions.

In 2012, we moved to a flipped classroom methodology where students first take on-line lessons and then they take face to face lessons. We incorporated the Khan Academy platform as a support for these remedial courses. In 2015, we replaced the Khan Academy platform by Open edX.

The learning analytics support has been key in these experiences. We developed two visual analytics tools: ALAS-KA

for the Khan Academy platform and ANALYSE for Open edX. We present these learning analytics tools and how they can be used for remedial courses for the improvement of courses materials, the provision of personalized feedback or the improvement of the learning process.

In addition, different indicators of the learning process have been designed and analyzed in these remedial courses including video use, exercise interactions, gamification habits, effectiveness, efficiency, behaviors or emotions.

Keywords—component; formatting; style; styling; insert (key words)