

19squared: A Collaborative Authoring Tool with Learning Analytics for Immersive 360° Educational Experiences

Matthias Ehlenz

RWTH Aachen University
ehlenz@lbz.rwth-aachen.de

Frederic Maquet

RWTH Aachen University
maquet@lbz.rwth-aachen.de

Birte Heinemann

RWTH Aachen University
heinemann@cs.rwth-aachen.de

ABSTRACT: In this demonstration, we present an authoring tool called 19squared for immersive educational experiences based on 360° media. This web-based tool, unlike many existing ones, is implemented with education as the primary focus and comes with several built-in learning analytics features. 19squared is intended not only to be used by teachers to create content but also to focus on the constructive process, allowing students to collaborate on (own) projects. We have implemented appropriate user-management, real-time collaboration features, an easy-to-use web interface, and xAPI data collection for user interactions to achieve this. In the long term, we hope to gain insights e.g. into learning processes involved in creating immersive experiences or the cognitive processes in exploring 360° environments. Beyond the research perspective, our data collection can provide added value to educators by monitoring students' progress and gaining a deeper understanding of collaborative design processes, especially when individual feedback (and grading) is required. Several dashboards and visualizations were implemented and bundled for this purpose.

19squared has been used in teacher training, school workshops and thesis projects, ranging from the humanities to STE(A)M subjects and vocational training. We are committed to open source and open science and release our work as such.

Keywords: Immersive learning, learning analytics, collaborative learning, authoring tool

1 LINKS TO ONLINE RESOURCES

The video is to be found at <https://www.youtube.com/watch?v=ZCX-NqcSRrA>

A public instance is hosted at <https://19squared.de/>

The source code is available at <https://git.rwth-aachen.de/medialab/interactive360vr>