

Abstract Submitted  
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**Open Source Physics learning analytics of on-line simulations.**<sup>1</sup>

FRANCISCO ESQUEMBRE, FELIX JESUS GARCIA-CLEMENTE, RAFAEL CHICON, Universidad de Murcia, Spain , LAWRENCE WEE, LEON TZE KWANG, DARREN TAN, Ministry of Education, Singapore — A large number of the educational simulations in the Open Source Physics digital library were created with the Easy JavaScript Simulation (EJS) authoring tool and are suitable for inclusion on online courses for supervised or unsupervised student learning. We describe the current and planned features of EJS that allow teachers to collect data from students' interactions with our simulations in a customizable, instructional-aware format, so that teachers can automatically obtain valuable pedagogic information by applying either Learning Analytics or Educational Data Mining techniques to these data. Simulations created with EJS can be embedded in popular learning management systems via a plugin that serves the simulation and collects the interaction data desired by the teacher. The data can then be mined to elicit information on the student's behavior, performance, or learning strategies to help teachers improve their materials, detect disconnection of the student with the course, predict potential failure and provide timely assistance. We describe the current state of our development and architecture and describe future directions for our work and our plans to use these features for research in physics students' on-line learning.

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