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Open Source Physics learning analytics of on-line simulations.\textsuperscript{1}
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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 inclu-
sion 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 man-
agement 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 develop-
ment 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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