

# EVALUATING SCIENCE AND TECHNOLOGY LEARNING MATERIALS

## THE CASE OF THE MODELING CURRICULUM

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### ABSTRACT

Evaluation of learning materials is an integral part of curriculum development in science and technology education (STE). It is not an end by itself, and it does not mark the end of curriculum development. Evaluation of STE materials is carried out for continuous curriculum regulation. Regulation may extend from minor refinements of some materials and other curriculum components to curriculum reform on entirely new grounds. For reliable outcomes and sustainable impact, evaluation of learning materials needs to be normative. Normative evaluation is conducted with a battery of instruments selected according to a well-defined taxonomy of the sort of knowledge, skills and worldviews students are expected to develop with materials being evaluated. It comes out with quantitative indicators ascertaining in terms of pre-established criteria to what extent students have actually met original expectations. In order to steer curriculum regulation in the right direction, normative evaluation also bears on teacher practice in the classroom and the impact of such practice on student achievement. Normative evaluation is resorted to in the development of the modeling curriculum in physics and other STE fields, at the secondary school and university levels. Respective data are presented and discussed in the context of Newtonian mechanics courses so as to illustrate with practical examples how normative evaluation of learning materials may be conducted in a way to contribute to sustainable reform and meaningful and equitable learning in STE.



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