

3 - Science Teaching Processes | Empirical

SP - (15875) - USING LOCAL INSTRUCTION THEORIES FROM INTRODUCTORY OPTICS TO DEVELOP A COURSE ON ELECTROMAGNETIC RADIATION

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Short Abstract

Although electromagnetic radiation is omnipresent in modern-day society, it is typically only part of higher school education. We are developing a teaching-learning sequence that gives students at the middle school level a basic understanding about electromagnetic radiation. The development builds on results from a research project on introductory optics. Guided by the design-based research paradigm, we refined our initial design in four research circles. The implementation and evaluation of our design was realised in form of one-on-one teaching experiments ($n = 37$). In this paper we focus on the design principles we adapted from research on learning introductory optics and the results from our evaluations regarding those principles. Our findings demonstrate that this "optics approach" to teaching electromagnetic radiation is advisable.