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Project title: Implementation of 360°-Virtual Reality to support meaningful chemistry education at secondary school level

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PhD Research: ESoE

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In the Netherlands students have little interest in choosing chemistry in upper secondary education. Making chemistry education more meaningful in the only year in lower secondary that all students properly encounter chemistry (3rd grade HAVO/VWO), might stimulate interest. A promising tool seems 360°-Virtual Reality (VR), enabling students to interactively visualize chemical concepts in daily life contexts; making connections between these brings (more) meaning into chemistry education. In this design research study 360°-VR chemistry lessons will be designed in a teacher design team, evaluated by the team in their own classrooms, then redesigned and tested in several 3rd grade HAVO/VWO chemistry classrooms. The aim of this study is: (1) to generate and validate relevant characteristics to guide the design of 360°-VR lessons to support meaningful chemistry education; (2) to educate and study teachers and their professional development when designing meaningful 360°-VR chemistry lessons; and (3) to evaluate whether such lessons are experienced by students as meaningful chemistry education. Results of this study provides guidance to design 360°-VR lessons to support meaningful chemistry education, feed into the body of knowledge on teacher professional development in VR in education, and on the design of VR for education as a tool to achieve meaningful chemistry education.