

# Bringing general relativity to secondary schools: Design and evaluation of a digital learning environment

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Einstein's general theory of relativity is our current best description of gravity. The first direct detection of gravitational waves in 2015 has led to a new interest in topics of gravity and gravitational astronomy. This interest leads to new opportunities for teachers and educators to engage students and the general public [4]. Indeed, topics of GR and astronomy seem to motivate students to a great extent [1, 2]. However, physics teachers and educators face the challenge of finding suitable instructional approaches to an abstract and often counter-intuitive theory. This work responds to the challenge of educating and engaging secondary school students in topics of GR.

Specifically, this work takes GR as a learning domain to present physics education research that has contributed to the world of school and teacher practice and to the world of research and scholarship: The first contribution is a digital learning environment about GR that was developed for physics students in upper secondary schools in Norway [2]. Design-based research methods guided the development of the learning resources that are freely available at [www.viten.no/relativity](http://www.viten.no/relativity). The second contribution is educational research that has produced new insights into student learning processes and students' conceptual understanding in GR [3]. Findings indicate that upper secondary students can obtain a qualitative understanding of GR when provided with appropriately designed learning resources and sufficient scaffolding through interaction with teacher and peers.

## References

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