

Green gaming for the environment

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Christian A. Klöckner and Kristoffer S. Fjällingsdal from the Norwegian University of Science and Technology are researching whether games with environmental themes can have an impact on students' attitudes towards and knowledge of the environment. Credit: from the environmental game ECO/www.strangeloopgames.com

Can computer games influence us to make better environmental choices? Researchers at the Norwegian University of Science and Technology (NTNU) are hunting for the answer – and for what kind of games can have a positive impact on our attitudes, habits and environmental choices.

Entertainment first

The success of this goal depends most of all on the game's design and content.

"The entertainment value has to be high for the games to catch players' interest. They can't be perceived as green propaganda," says Professor Christian A. Klöckner in NTNU's Department of Psychology.

"The games can't come across as a digital lecture, either," says Kristoffer S. Fjællingsdal, a PhD candidate in the same department. "Games are a separate medium with their own requirements. They can be more complicated and more involved than regular lectures," he adds.

One of the first commercial games with an environmental theme was Fate of the World. It came out in 2011 and received relatively good reviews. In the game you can influence the fate of the world in different ways – by focusing on oil or climate, for example. Players can also choose to concentrate their play within various regions.

Bridging game design and education

Some environmental games are made by people who don't know anything about game design. And people who design games often don't know anything about pedagogy. This is the dilemma that Klöckner and Fjællingsdal's are addressing in their research. The researchers want to build a kind of interdisciplinary bridge – or model – between game design and learning so that the games can be designed in a way that makes them both entertaining and educational. This model, to be used in future studies, is called ENED-GEM (ENvironmental EDucational Game Enjoyment Model).

High school students test games

Klößner and Fjällingsdal have collaborated with a number of Trondheim schools, and will research whether games with environmental themes can influence students' attitudes and knowledge about the environment. This study is scheduled to start this autumn.

"We use a classroom package with the environmental game ECO from Strange Loop Games, which is a virtual world with an ecosystem where balance needs to be maintained to achieve success. The [game](#) provides direct experience with environmental issues in a virtual space: everything the player does affects the ecosystem. Often negatively. The player also has to propose and vote on laws about how resources and the environment should be managed to avoid destruction," says Fjällingsdal.

Green gaming for master's students

The researchers aren't only focusing on digital games. Green board games interest them too. Fjällingsdal is conducting an interdisciplinary course as part of NTNU's Experts in Teamwork (EiT) program. The theme of the EiT–Villages 2018 course is green gaming. Here master's students are developing board games with environmental themes. EiT–Villages is collaborating with NTNU Sustainability, one of the university's thematic focus areas.

More information: Kristoffer S. Fjällingsdal et al. ENED-GEM: A Conceptual Framework Model for Psychological Enjoyment Factors and Learning Mechanisms in Educational Games about the Environment, *Frontiers in Psychology* (2017). [DOI: 10.3389/fpsyg.2017.01085](https://doi.org/10.3389/fpsyg.2017.01085)

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