What lessons can universities learn from video games such as Minecraft to help geology students prepare for their first fieldtrip? How can institutions make field trips accessible to those who would not otherwise be able to take part?

These were the challenges tackled by the Virtual Landscapes Project, an interdisciplinary collaboration between the University of Leeds and Leeds College of Art.

The initiative enables students to navigate a virtual landscape within a first-person computer game to simulate aspects of geological fieldwork.

The worlds they explore are open-ended and allow students to interact with virtual outcrops to collect, plot and interpret geological data in order to develop skills for conducting field geological surveys. It provides the same intellectual challenges as real-world mapping, but with the flexibility of online delivery.

It runs via a browser plug-in or stand-alone app, so can be accessed from anywhere with an internet connection, and has also been adapted for students who cannot undertake fieldwork because of illness or injury.

About 70 per cent of second-year structural geology students who took part in the exercise consistently reported increased confidence about how to map boundaries after using the tool.

Other departments at the University of Leeds are considering introducing similar virtual-world learning approaches, while geoscience departments at other universities in the UK, the US and Guyana are looking at implementing the model.

The judges said the project "set a very high bar in showing how serious gaming can make a positive difference to learning".