Video games and education: Five steps for choosing the perfect classroom game

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Minecraft is officially the most played video game in history. Despite been 12 years old, the public does not seem to have lost interest: over 175 million people play Minecraft at least once a month. The number of

players of this open-world or sandbox building game, which provides virtually unlimited possibilities for creation, keeps growing, and this is to a great extent thanks to its educational potential. According to Microsoft data, Minecraft Education Edition has over 35 million game licenses. And this is just one of the many ways in which it can be used for learning.

But what is the true educational potential of commercial video games? And how can they be used as tools at the service of teachers? This is the background on which the thesis written by Ferran Adell, a researcher and member of the Faculty of Computer Science, Multimedia and Telecommunications of the Universitat Oberta de Catalunya (UOC) and head of the YouTube Video Games and Education project, is based.

The thesis, which is supervised by David Casacuberta, a faculty member at the Universitat Autònoma de Barcelona, and Javier Melenchón, who is also a member of the UOC's Faculty of Computer Science, Multimedia and Telecommunications, has developed a method to help teaching staff establish which video games can help them achieve their aims in the classroom.

The challenge of using video games for education

The idea of using video games in educational contexts is not a new one. However, their popularity has shot up in the last decade thanks to their educational potential, their high acceptance by students and the increasing number of teachers who are gamers themselves. But, in spite of this growing interest, teaching staff still encounter many problems when it comes to using video games in the classroom. These challenges relate mainly to choosing which video game to use based on their aims and the educational context.

"The main hindrances are usually related to a lack of knowledge about

this medium. Taking a video game out of its natural environment, which is that of leisure, and using it in an educational environment requires in-depth knowledge of the medium," explained Ferran Adell.

"If a teacher can't spend the time playing and experimenting with a video game before using it in the classroom, they may come across technical problems or unforeseen issues that they hadn't planned for. The other great challenge is knowing which video game is most suitable for each context."

A method for finding the most suitable video game for the classroom

With this background in mind, the research carried out by Ferran Adell for his thesis led to the development of a method for identifying the educational potential of commercial video games. This method is based on five filters of characteristics that games must go through before they can be chosen for use in the classroom:

1. **Difficulty level**. This is an exclusion criterion. Very complex video games or those with very sharp learning curves are very unlikely to be useful in the classroom.
2. **Flexible mechanics**. This filter relates to the extent to which the game can be manipulated based on what the developer is offering. Some games, such as shooting games, provide very little flexibility. Others, on the other hand, are more flexible. An example of this latter type is City Skylines, a city construction game in which players can edit scenarios and set new goals. In this game, for example, your goal could be to build a completely sustainable and pollution-free city.
3. **Creative freedom**. The more things you can develop in the video game, the greater its educational potential. "This criterion

can be applied in very different ways but, when you have full freedom to modify the environment, you can use the video game to work on many concepts," said Ferran Adell.

4. **Community power**. In cases such as Minecraft, which has millions of people playing and creating tools, the customization options increase manyfold. In this UOC expert's opinion, the community also provides learning resources, such as YouTube tutorials or forums and wikis with detailed information about the game.

5. **Immersiveness**. This criterion relates to the video game's ability to make players feel disconnected from the real world and involved in the character's story, the process of identification between a player and their character.

"Immersiveness is related to psychologist Mihaly Csikszentmihalyi's flow theory, which talks about the ideal state of focus, attention and disconnectedness from one's surroundings, an increasingly elusive goal in the classroom," said Ferran Adell. "You need an attractive environment with challenges that are somewhere between too easy—and therefore potentially boring—and too complex—which can lead to frustration. This helps you work in a state of flow that is very interesting from an educational point of view."

"Playing is in our nature: it's inside us. Playing is key on a social level, and it's part of our culture," he concluded. "By using play, you can make education fun, a concept that is not new and has been more than proven to work. It also has the advantage of fixing some of the problems facing education today: students' perception that what they're learning is pointless, and a lack of both interest and attention."

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