

# Serious Games! Seriously?

by [Gian-Marco Rignanesi](#)

abstract:

*Though digital (computer and video) games are mainly used for entertainment, they can also be used for education. This has led to the coining of the term serious games [1]. Their proponents claim that they hold a lot of potential for learning, by incorporating different pedagogical strategies. The general underlying idea is that digital games can provide virtual environments in which players can become absorbed and engaged in the embedded learning activities, such that they carry out the tasks with considerable enjoyment and fulfillment.*

*Interest in developing such serious games has increased in many fields, including science education. In this talk, I will first present a few selected examples of serious games related to science. Then, I will highlight the advantages and the difficulties of this approach.*

*[1] Michael, D. R. and Chen, S. L., Serious Games: Games That Educate, Train, and Inform, 2006, Boston, MA: Thomson Course Technology*

## participant's summary

Serious games are games that have another purpose besides entertainment. The power of serious games is that they are entertaining, engaging and immersive. They are designed to solve problems in several areas and involve challenges and rewards, using the entertainment and engagement components provided when the user is playing games.

### Advantages:

- Higher engagement and immersion
- A safe space to experiment:

You can fail several times without any consequences...

- Fun!

Studies have shown that students who use games to learn, experience more positive emotions. This leads to an improved learning experience when compared to traditional and video learning methods.

- Social aspect: multiplayer

Learning in groups is more effective than learning alone.

## Inconveniences:

- Time consuming
- Not easy to address complicated topics

## Talk resources:

<https://itystudio.com> (used for creating the main game)

<http://learnqm.gatech.edu> (two quantum mechanics games)

<https://fold.it/portal/> (foldit@home)

<https://store.steampowered.com/app/263120/Ludwig/> (physics game)

## Q&A

Q (or not so Q): RWTH Aachen had to make a serious game (on programming) compulsory to ensure that every student took part. And always think of the novelty effect: Fascination by (costly!) technology wears off quickly.

Q: Serious games are very time-consuming to produce. Can they be developed by faculty or do we need professionals to create them? Would it be practical for us to create a community to reduce the workload?

A: (Brian) - everyone feel free to join the Labs for Remote Learners LinkedIn community - <https://www.linkedin.com/groups/12072791/> - I would consider Serious Games to be a subset of the solutions for practical and experimental learning.

Q: it is certainly immersive (hard to look away!), but perhaps distracting - the integration is more automatic, but requires even more scripting etc...

(Aside - Brian - The first physics "game" I ever played was "Asteroids" in the 1970s. Jörn: I have that as a programming exercise; that also made for a rather successful YouTube video (<https://youtu.be/VzXwD5zo-GA>). - Brian - Yes I did it with students in Logo in the eighties - 1 minute search and here it is online <http://www.kevs3d.co.uk/dev/asteroids/> - for physics students building it would illustrate the concepts better than playing it. Jörn: YES!!!)

[www.wooclap.com/DLBSSG](http://www.wooclap.com/DLBSSG)

Q: Would you learn about quantum mechanics or about how to maneuver funny-looking robots?

Q. did you know about this: <https://prisonnier-quantique.fr/index.html> ??

Q. can you share the details of the software you used to create the 'games' and situations?