



# Games and formal education: one size doesn't fit all

*“my boys always engage more with the commercial games. And they didn't always like the Maths games or Science games, because it just didn't feel like real games to them [...]. But the girls, they did, and the puzzle problems on Nintendos and things, they liked them, my girls” – quote from an interview with an educator.*

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**Keywords:** [competition](#), [Formal education](#), [Game-based learning](#), [learning design](#), [Many diverse games](#), [serious games](#)

**Who will find this scenario particularly interesting?** [Educators](#), [Policy makers](#), [Researchers](#), [Teacher trainers](#)

## Description

Drawing from the experiences of the educators and players we interviewed, we envisage a very creative and informed use of games for learning at school, with a wide range of games used by educators and a similarly wide range of uses. Game choice – as with all choices in the learning design process – should be driven by learning objectives, contextual constraints, and educator experience, and ought to take student preference into consideration. For example, in some cases teachers may choose short entertainment games that can be played episodically to stimulate discussion. In others, they may prefer to propose longer playful activities requiring authentic problem solving performed by participants in an online environment. In yet others, teachers might choose a serious game because it helps to achieve specific objectives. In any case, teachers will need to be aware of the risks of making gaming compulsory or using games in which the

playful/gameful dimension is a mere cosmetic layer added to instructional interactions.

Most importantly, teachers will need to embed game-based activities into a broader pedagogical design, where game choice is not the only choice to be made in view of desired outcomes. Other aspects to be considered concern how to manage competition (exploiting its engagement potential while avoiding stress), respecting students' preferences for different types of games but also using games to overcome personal barriers and counter social stereotypes, as well as dealing with digital divide issues. Last but not least, teachers will be aware that the motivating power of games is a double-edged sword, sometimes fostering motivation to win rather than motivation to learn, unless the two are effectively integrated.

**Meet Robert, a secondary school teacher, and his students Mary and Paul (aged 16)**

Robert is a secondary school science and technology teacher. He is a strong supporter of game-based learning, since he believes that games can successfully support inquiry learning in STEM and positively engage his 16-year-old students. Robert's teaching with games is informed and fuelled both by his personal experience as a player and by his

professional training. This grounding allows him to consider a variety of different games for use with his students and several ways to use them.

When implementing purposeful gaming in his classroom, Robert usually couples it with other learning activities, and spreads gameplay over multiple sessions rather than limiting it to a single block. Sometimes he includes metagames and purposely-designed assessments.

What Robert always does is seek to calibrate gaming activities to his students' knowledge, needs, abilities and – last but not least – preferences. He's noticed that there are significant differences between his students' preferred game types, preferred mode of gameplay (alone or in groups), and of course, abilities. In contrast with some of his colleagues, Robert's particularly alert to the problem of the digital divide when it comes to gaming. For example, the students with limited access to different consoles and devices at home tend to take longer to get acquainted with the controls.

Robert's school has access to a substantial repository of quality digital games to choose from, and this makes it easier for him to select the right game for different students and for different objectives. . This repository can be accessed through an online catalogue listing achievable learning objectives for each game and comments from other users, both students and teachers, and it can be accessed from home too. In this way, students can do their homework by playing in a similar fashion to the 'flipped classroom' approach. Each student is free to choose from the set of games Robert proposes, without feeling forced to play or getting bored by games they don't particularly like.

Mary and Paul (aged 16) are two junior students in Robert's science class. Although Paul is a player (or perhaps precisely *because* he is) he really doesn't like serious games. He feels they're mostly sugar-coated school exercises. That's why he and some of the other guys in the class prefer to play more creative games ([Minecraft](#) and [Portal](#) are his favourites) and maker-oriented activities with design kits like [Arduino](#). Mary isn't much of a player and is more enthusiastic than Paul about playing applied games (especially puzzles) because she sees them as a playful alternative to the usual homework activities. She also likes creating wearable computing gadgets, which is something that many girls in Robert's class tend to like. For a while now, Robert has been wondering how to get the girls more interested in the Arduino kits in order to broaden their skills in STEM.

At school, however, Robert usually gets them all to play the same game, otherwise handling the class would be too complicated. In cases like these, he gets them to form teams and play as a group. In this way they develop collaboration skills, and it also avoids the better performing players predominating.

## In a nutshell

One game certainly *does not* fit all. Students have individual preferences and teachers should try to respect these as far as practicable. However, schools are generally not designed, equipped or run to cater for variation. One way to tackle this is by moving towards more open classrooms, where one or more teachers can follow different teams of students doing different activities. To facilitate teachers' game choice, individual schools or school networks could create repositories of games offering a rich game choice.

Students' acceptance of game-based learning can be improved by avoiding mandatory play activities or games where the playful/gameful dimension is a mere cosmetic layer added to instructional interactions. It is also important to take into account students' individual differences when designing game-based learning activities. Particular attention should be paid to social and gender differences in order to avoid demotivation and frustration.

The European Commission could play a key part by supporting teacher education and professional development initiatives devoted to game-based learning. In this case, priorities should be placed on fostering virtual communities of teachers for the exchange of know-how and experience, and on supporting the establishment of repositories, in order to broaden access to effective games and lesson plans.

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## Resources

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- Tseklevs, E., Cosmas, J., & Aggoun, A. (2016). Benefits, barriers and guideline recommendations for the implementation of serious games in education for stakeholders and policymakers. *British Journal of Educational Technology*, 47(1), 164–183.
- Wouters, P., & Van Oostendorp, H. (2013). A meta-analytic review of the role of instructional support in game-based learning. *Computers & Education*, 60(1), 412-425
- [Minecraft](#)
- [Portal](#)
- [Arduino](#)
- [Gravity simulator](#)



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## Partners

