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Take your lessons up a level with Super Mario

Teachers can't compete with addictive video games, but they can use the same principles to make their classes just as gripping

I am currently ranked 334,596th in the world at a computer game called Resogun. This does not mark me out as a high achiever and I know it. The game is demanding, frustrating and difficult. Progress, when it comes, is in small steps, and I will never excel at it. However, like countless games throughout my life, it has its hooks in me.

I want to get better, I want to learn. I have researched how to improve my technique, I have a new strategy and I want another go at it. I am determined to improve.

So I am not as baffled as some teachers that a child who struggles to apply themselves for five minutes in class can spend hours at a time devoted to making progress in a computer game. I taught a student recently whose reading ability was low and whose engagement with reading in class was non-existent, yet he had spent the weekend working through *The Legend of Zelda*, an adventure where the dialogue and instructions are presented solely as text.

I do not make the mistake, as some teachers do, of believing that examples like this mean we need to compete with technology or use educational games to create engagement. This is pointless: educational games have infinitesimally small budgets in comparison with real games. It's like bringing in your home movies and hoping they will be more popular than the latest Hollywood blockbuster. After all, they're both films, right?

Teachers don't need to compete. Instead they can learn a lot from the underlying psychology that powers many games. Developers have spent decades refining the core principles that generate engagement, create motivation and foster that elusive "if at first you don't succeed" mindset. These can be applied in the classroom without a screen in sight.

Let's start with challenge. If games were too easy, players would lose interest. Imagine Super Mario with no obstacles to overcome. Simply walk from left to right and you are on the next level. It wouldn't be long before boredom set in.

Just like teachers, games need to differentiate. They sometimes ask players to choose between easy, medium or hard settings. The problem with this is that the choice you make may not suit every situation. If you've picked a difficult setting and hit a tough level, you can become disengaged. If it gets too easy, the same thing happens. Some games solve this problem by letting players swap difficulty settings. Halfway through a tricky task you can

step down a level until you feel more secure in your skills, then step back up again to keep things interesting.

Power boost

A lot of games aimed at children use a more sophisticated technique called "rubber banding". Racing game Mario Kart constantly monitors data about the players' performances and, if they are falling behind, it subtly boosts them by giving additional help in the form of power-ups. Conversely, if a player is getting too far ahead, it throws a few more obstacles their way until they can feel the pack nipping at their heels. The game does this because the best motivation comes when you have no chance to take your foot off the accelerator but feel you are still in the race and have every reason to press on. I call this flexible differentiation, and here's how it can look in the classroom.

Don't predetermine a child's challenge level by keeping them in a fixed group (or one that requires weeks of success or failure to qualify for change). When teaching a maths lesson, ask students to choose which level of work they will attempt based on their understanding of the concept being covered. Those feeling insecure may opt for work almost identical to that just demonstrated. Children with more confidence may choose a harder level with trickier numbers, and children champing at the bit may choose the toughest work from the get-go. Those who don't know where to begin form a fourth group. I shepherd these lost lambs together on the basis that my teaching method has obviously not suited them, so a different approach is needed.

The real flexibility comes from managing students' choices - steering those who are coasting up to the higher levels and asking those who have overreached to tackle a selection of safer questions before moving back up to the trickier ones.

That brings us to failure - a routine part of playing computer games. We don't want defeat to discourage children but instead to teach them that failure is an important part of learning. Many young people fear losing and this can be demotivating.

Modern computer games handle failure in an interesting way. Although your success is published far and wide (by automatically emailing friends, for example), they keep failure a private affair. Games don't publish the statistics about how many times you failed. They don't call your mum or threaten to make you move down a level. They don't point out that you are not as good as your early progress suggested you should be, or make you start again from the beginning.

Instead, they gently encourage you to try again, often by letting you rewind 20 seconds to have another run at the tricky bit. No pressure. You can do it. And if you don't, just take another go. In fact, some really difficult games actually give rewards for perseverance. And if you get stuck on a particular challenge, many will offer you the chance to skip that bit and move on to more fun stuff once you have had a few tries. There's no reason this approach could not work in the classroom.

Feedback is another area where teachers can learn from the excellent work of video games. These create a feedback loop that gives a sense of progress while simultaneously setting new challenges to keep the player progressing. Some games achieve this by setting multiple targets that can be achieved in any order, and with progress marked in stages. Each time an

achievement is unlocked a new one gets added to the list, and sometimes the player gets to choose from a selection.

Another component of games feedback is that the language used is uniformly positive and encourages small steps that get progressively bigger: level up, mission accomplished, new challenge unlocked, gold medal awarded. Quite often there are levels of success - you can scrape a bronze or go all-out for platinum. It's all good, but look how close you were to even greater success...

Finally, the social side of gaming is essential. Games frequently tap into our sociability with multi-player options, which have traditionally taken the form of a competition. Increasingly, however, games now feature cooperative play where participants collaborate to achieve goals, creating more engagement. Sometimes games allow players working together to have different roles, allowing individuals to play to their strengths while simultaneously learning from the skills of others. In classroom terms, this might involve students working together on creative writing, where one has a strong storytelling role and the other focuses on the writing itself.

All the above factors combine to create a high level of motivation and engagement called "flow". This sense of complete absorption in a task brings its own rewards, and once it has been created games are careful not to interrupt it. In the classroom, too, we should be careful not to break "flow" with too many interruptions.

By focusing on the psychological hooks of computer games, then, we can tweak our practice to create motivation, engagement and ambition, without competing in a technological arms race. Attempting the latter, we will always lose. But by attempting the former, we can beat lack of engagement and ensure that every student progresses up the levels.

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