

USING GAMES IN THE CLASSROOM

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Many games purport to teach, practice, or encourage interest in STEM subjects; however, many fail to do so in approaches that can be statistically shown to be effective. The possible benefits of such games are often overstated. All parties should be extra cognizant of realistically achievable outcomes. Designers and educators have to establish parameters to decide what constitutes a successful sport journey and diagram usability assessments that measure the diploma of improvement in students' aptitude and performance following engagement with STEM games. Progress is being made each in constructing STEM video games and assessing their e facts. Analysis of some successful video games is beneficial in deciding how to include video games in curricula and demonstrating how they aid educational goals. Should games be used in the classroom? Despite the remarkable educational power and chance for game-based learning, this question has had a polarized history. Game-based learning, as an method and as a field, is at an all-time high, with extra educators than ever the use of video games for studying in their classrooms. Unfortunately though, games nonetheless carry a stigma for some educators and the thought of "games in the classroom" is frowned upon in some schools. Even for those educators who favor to leverage game-based learning, they can face a high number of barriers, including insufficient get entry to technology, educators' lack of typical grasp and experience with games for learning, and the lack of data and assessment remarks from video games Digital games first entered the classroom in the 1980s during the CD-ROM era. Adoption was slow, but growing steadily. However, in the 1990s a number of factors led to a tarnished image of the market, and ultimately to its consolidation to just a few key players, which prevented rapid adaptation in schools. Over the past decade, we have seen a growing number of teachers who have demonstrated outstanding and powerful learning experiences with students by leveraging digital games, demonstrating deeper learning and engagement of students, proving to others that games can have a place in the classroom. In a recent survey conducted by the Joan Ganz Cooney Center, 32% of the K-12 educators sampled reported they use digital games 2-4 times per week in their classrooms, with 18% reportedly using them every day. A majority of this usage is with educational games, with just 18% reporting the use and adaption of commercial games for classroom instruction. But with all of the available games, and all of the different types of classrooms and learning goals, what exactly does it look like to

use games effectively in the classroom? Targeted games are designed for a specific topic or concept, such as adding fractions or photosynthesis. These types of games are more easily integrated into the classroom because they more easily align with curricula and fit into class timescales. Linear games can be short or long, but generally include a storyline and pathway through the game. For example, Lure of the Labyrinth is a digital game for middle-school pre-algebra students that includes a wealth of intriguing math-based puzzles wrapped into an exciting narrative game in which students work to find their lost pet and save the world from monsters. Open-ended or sandbox games, which offer tools and a context to construct items and/or outcomes in the game, are gaining popularity in the classroom, as they offer a rich context in which to target specific learning objectives. For example, Civilization V is a commercial game that leads the player through the growth of a civilization and empire; there are many examples of the use of this game in the classroom to target numerous learning goals, including trade routes and ethical thinking. Making History is offers a similar open-ended world to explore dynamics in history that was built specifically for education. Short-form games include the previously defined targeted games and some linear games, such as Angry Birds or Mario Kart. Games in this category are easier to integrate into the classroom than long-form games, and are seeing a surge in numbers due to the growth of apps and purchases of mobile devices in education. The Ward Game is a pervasive educational game designed to teach Ken Kesey's classic novel, One Flew Over The Cuckoo's Nest to high school seniors. The Ward Game has been played twice at Royal St. George's College, and each iteration lasted 30 days and involved about 60 students. A pervasive game employs communications platforms such as mobile devices, desktops and laptops to carry out gameplay in physical spaces in the real world. In the case of The Ward Game, the school was transformed into a psychiatric hospital, and each senior English classroom became a ward analogous to the one in the novel. The game echoes the novel's critique of post-industrial institutions and students assume the roles of patients who are subjected to systems that playfully induce conformity and control that mirror those used by the tyrannical Nurse in One Flew Over the Cuckoo's Nest. An atmosphere of mock-oppression and mild paranoia pervaded but, paradoxically, players were conferred a high degree of choice, flexibility, and self-determination. Game mechanics such as missions, role-play, mini-games, lotteries, surveillance, points and achievement were employed extensively to engage players and externalize some of the novel's key narrative features. QR codes, propaganda videos, Twitter feeds, Facebook pages, and a host of other online tools all contributed to creating an immersive environment. Evidence gathered during gameplay and post-game surveys indicated that the majority of players reported being

engaged, interested, and productive, with many observed instances of intrinsic motivation. Notable examples include: players who requested more work after they had already achieved the maximum allowable points; students with a history of apathy who came alive and worked tirelessly to complete tasks; and groups of players who organized themselves to creatively challenge the game's authority. Many of the artifacts created through self-selected tasks emerged as some of the best work produced all year, even though they were not graded. Finally, players quickly realized that progress in the game was hastened by knowledge of the novel's content, which encouraged higher book completion rates than in previous units. There were a few students who were observed behaving disengaged during the game, but most participants reported enjoying themselves, and, in many cases.