Chapter 30
Leveling up the Classroom: A Theoretical Approach to Education Gamification

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ABSTRACT
Gamification continues to grow in popularity, and has significant application to education and student motivation. Because gamification is a large, encompassing concept it may be best to assess its effects by breaking down its composite features and assessing the positive and negative effects of these features. This chapter takes features including immediate feedback, use of narrative, tailored challenges, and displays of progress, and discusses popular current theories in communication and psychology to discuss the potential benefits and drawbacks of each feature, placing a focus on student motivation, comparison, and self-perception. This moves to discuss practical ways to best employ gamification features, and discusses the impact of digital technology on gamification in the classroom and should be useful for researchers interested in the topic and for teachers considering how to best gamify their classrooms.

INTRODUCTION
In a gamified classroom, students can go on quests instead of do homework. They can gain experience points instead of grades, and they can pick anonymous avatars and usernames to represent their progress on a leaderboard with their peers. They can work with, or compete against, their classmates in a system that is set up to pull them out of the traditional classroom narrative of going to class, listening to lectures, and taking tests and putting them into something that feels new, interesting, and makes them motivated to learn.

Gamification is the process of taking mechanics and features traditionally used in games and applying them to traditionally non-gaming contexts (Deterding, Sicart, Nacke, O’Hara, & Dixon, 2011).

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Educators have become increasingly interested in bringing game elements to the classroom in the hopes of shaking up the traditional style and making things more interesting. The interest in gamification is growing. Gamification is appealing beyond the classroom, as 50% of companies are predicted to gamify at least one aspect of their workplace by 2015 (Gartner, 2011). Jane McGonigal, in her book *Reality is Broken*, writes extensively about the benefits of using gamification to harness the motivation, attention, and energy of large groups of people to create lasting and positive change.

On the surface, gamification is appealing. We know students like games, because they play them on their phones, computers, and consoles for tens of thousands of collective hours each year, and their popularity continues to increase year by year as gaming shifts upwards in entertainment dominance, recently surpassing the movie industry (Chatfield, 2009). For some reason, games have the ability to capture our interest for long periods of time. If we could make students as interested in their homework as they are in games, we would create lifelong learners.

Much has been written extolling the benefits of gamification (Cronk, 2012; Hellwege & Robertson, 2012; McGonigal, 2011; Muntean, 2011). It has great potential. Unfortunately, due to the recent and speedy movement towards gamification its effects have yet to be fully explored, and the mechanisms behind the positive benefits for gamification have yet to be academically isolated and studied. There are a variety of theories from psychology, communication, human-computer interaction, and evolutionary biology that we can draw from to better understand the effects of gamification. Using these as theoretical backgrounds can give a strong start to research on gamification, and can go a long way towards better understanding how gamification can help or hinder the learning process. This chapter is an attempt to collate a variety of theories from a variety of fields that explain the mechanisms behind gamification. These are theories and concepts that have extensive bodies of research to support and develop them, and our goal with the chapter is not to go into a detailed examination of any particular theory or concept. Instead, this will present an overview of these relevant theories and how they might be used to give researchers a lens to understand the benefits of gamification and offer teachers tools to better design gamification systems in the classroom.

**Chapter Overview**

We will begin with a discussion of commonly used features that are borrowed from games and used to gamify classrooms. Then we will examine theories that explain why these features may be beneficial, and suggest effective ways to use these features in a gamified classroom. First, we will look into research on need satisfaction using self-determination theory and the benefits of games, and shift into a discussion on intrinsic and extrinsic motivation and how reward systems often used in gamification affect motivation. Next, we will examine how badges, avatars, methods of self-representation, and visual displays of achievement can affect individual self-perception and shape identity through warranting and signaling theory. Following that, we will discuss the effects of engagement and transportation into narratives, and how being able to absorb students into a story surrounding their learning can make them more interested. Then we will examine how theories revolving around cooperation, competition, and social comparison can be useful for understanding how gamification works when we pit students together or against each other. Finally, we will spend some time examining how gamification in virtual classrooms (or worlds) might be done, and how students’ understanding of their presence in that world can positively affect their learning. These theories are very different, but taken together they should help paint a broad picture of all the key aspects of gamification, and should offer potential researchers or game designers areas to explore.
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