

Importance of Gamification in Increasing Learning

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abstract

Gamification is being used in the business industry as a way to engage employees into achieving organizational goals, as well as incentivize customers to use their products. More recently, gamification has become a powerful instructional method in K-12 education, as well as top colleges and universities. Health care is still in the early stages of embracing gamification in education; however, some of this may be due to a knowledge deficit related to what gamification is and how it could be applied in the health care setting. This article describes the theory, components, applications, and benefits of gamification for educators who are interested in embarking on a new and innovative way of teaching.

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Health care is changing every day. Health care organizations are required to be more innovative in an effort to decrease costs, improve quality, and increase efficiency. Education and training needs to be just as inventive, fluid, and flexible to meet the demands of today's workforce and tomorrow's health care challenges. Yet, some educators are still using traditional classroom training and voice over PowerPoint® presentations to teach. These methods can be expensive, lack user convenience, and tend to be boring for the younger generation.

Gamification has been described as one strategy to increase knowledge retention while engaging learners in an immersive learning environment (Randel, Morris, Wetzel, & Whitehill, 1992). Gamification provides learners the ability to learn when they are ready, as opposed to when the educator is ready (Kapp, 2012). Gamification is also interactive, is engaging, and provides a venue of

experimentation for learners. With the use of technology as a primary venue of communication, health care educators need innovative ways to attract and engage staff in learning critical information.

WHAT IS GAMIFICATION?

Kapp (2012) defined a game as “a system in which players engage in an abstract challenge, defined by rules, interactivity, and feedback, that results in a quantifiable outcome often eliciting an emotional reaction” (p. 23). Therefore, gamification is defined by many as a way of using gaming principles (i.e., challenges, feedback, interactivity) in nongame contexts (Attali & Arieli-Attali, 2014; Werbach & Hunter, 2012).

However, play and fun are often not associated with learning and can be seen by some as not serious enough for effective teaching (Bogost, 2008). To combat this myth, educators who are already introducing gamification in the K-12 school system have seen an increase in engagement and knowledge retention (Bruder, 2015). With game sales reaching over 21 billion dollars in 2013, beating out both the movie and music industry, one can see the huge appeal gaming has to the public. The public comprises not only teenagers, as the average gamers are now women in their mid-40s (Tsukayama,

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2014). Bruder (2015) stated by the time a learner is 21 years old, he or she will have played 10,000 hours of video games. These statistics support the movement of highly prestigious universities such as Massachusetts Institute of Technology, University of Pennsylvania, and University of Wisconsin investing in curriculum and social platforms for people interested in the field of gamification (Squire & Steinkuehler, 2005; Klopfer, Osterweil, Groff, & Haas, 2009; Werbach & Hunter, 2012). Because the average nurse is a 44-year-old woman, the implications for use of gamification in continuing education are clear (U.S. Department Health and Human Services, 2013).

WHAT IS THE THEORY BEHIND GAMIFICATION?

Some gaming experts use the self-determination theory as a reason why gamification works in education. Self-determination theory is often associated with motivation and has three key elements, which include autonomy, competence, and relatedness (Werbach and Hunter, 2012; Ryan and Deci, 2000).

Motivation is defined as being moved to do something (Ryan & Deci, 2000). Therefore, a person who does not try to move forward is described as unmotivated. A person performing a task to attain an outcome is described as being extrinsically motivated, whereas a person performing a task for the pure enjoyment or interest is intrinsically motivated (Chen, Burton, Vorvoreanu, & Whittinghill, 2015; Ryan & Deci, 2000; Werbach & Hunter, 2012).

Extrinsic Motivation

Traditional teaching styles use a teach-stop-test cycle with the goal of helping the learner to retain the content because they have to pass the test (Shute & Ventura, 2013). Yet, after the test, the same learners may have trouble recalling the information. Experts in extrinsic motivation state the reason for this is because the learner is only motivated to learn the content to pass the test (Werbach & Hunter, 2012). In health care, one could compare this with the traditional mandatory education staff is required to have for regulatory and accountability purposes. When staff are seen just clicking through the content to finish the assignment, educators can see how this could be perceived as ineffective.

Intrinsic Motivation

Gamification focuses more effort on meeting the intrinsic needs of learners by providing immediate feedback, providing control over the material, and inspiring curiosity (Kapp, 2012). Because learners want to participate, knowledge improves, as do learning and develop-

ment (Cook, 2013). Research has proven that the quality of an experience can vary depending on whether the person is intrinsically or extrinsically motivated (Ryan & Deci, 2000).

WHY DOES GAMIFICATION WORK IN EDUCATION?

Gamification helps people learn by doing, which ultimately improves processes and outcomes (Shute & Ventura, 2013). Gamification provides learners with the ability to learn on their own time and at their own pace. Gamification also allows learners to follow their progress, providing autonomous learning (Klopfer et al., 2009). Participants enjoy the freedom to fail while experimenting in a nonthreatening environment (Cook, 2013; Lazzaro, 2004). Learners can experience emotions such as frustration, wonder, mystery, and amusement, each providing a personal connection to the game or others playing the game (Lazzaro, 2004).

GAMIFICATION MECHANICS

In order for gamification to work, the literature suggests that specific game mechanics need to be in place. Game mechanics include badges, points, challenges, rewards, leaderboards, and levels (Hamari, Koivisto, & Sarsa, 2014; Hanus & Fox, 2015). Using game mechanics and other types of gaming strategies allows learners to solve problems in an engaging and fun way (Bruder, 2015). Using game mechanics can increase the average retention rate of information up to 10 times higher than that resulting from lecture (Cook, 2013). Experts in gamification caution educators to not merely add a gaming mechanic to a course and expect positive outcomes (Farber, 2015). Game mechanics need to be combined with achievable goals, rules, voluntary participation, and feedback to work (McGonigal, 2011). Below are brief descriptions of four of the more popular mechanics seen in gamification.

Points

Points can be used in many ways to make learning more engaging. Points provide immediate feedback and can be displayed externally to show others how well (or not well) a player is doing (Werbach & Hunter, 2012; Zepeda, 2014). Points also show progress easily and provide data to the educator to indicate how well the learner understands the material.

Badges

A badge signifies a visual cue to the player that he or she has achieved something (Bruder, 2015). Many exercise programs give exercisers badges when they finish 10,000 steps or when they run 3 miles, for example.

TABLE

CASE STUDY: USING GAMIFICATION ELEMENTS WHEN TEACHING WOUND CARE MANAGEMENT

To educate staff on the use of negative pressure wound therapy, a game called Wound VAC Island was developed. The game consisted of 4 islands that the learner had to go to in order to learn the essentials of negative pressure wound therapy (NPWT). Each island had specific information. For example, in Sponge Island, the nurse learns about the differences between the four sponges when caring for a patient with NPWT. In The Island of Equipment, the nurse learns the correct order in which to place equipment when setting up NPWT. To finish the game, the nurse must go to each island and pass a quiz. The information provided in the game hits on the most critical information needed to perform NPWT safely.

A pilot group of 18 nurses were asked to play the game to gauge accessibility, retention of information, and interest in material. The same group was then provided with a traditional PowerPoint® presentation with the same information and same questions as the game. Eighty percent of the participants preferred gaming to the traditional PowerPoint presentation. Eighty percent also felt they actually understood and were able to retain the information using a gamified approach, whereas only 53% felt that way using the PowerPoint approach.

Badges are flexible and can be given for just about any type of activity. They also provide a social component and can be used expressively on social media platforms showcasing accomplishments.

Leveling Up

Using levels helps participants know how they are progressing within the content (Bruder, 2015; Reeves & Read, 2009; Werbach & Hunter, 2012). Educators use leveling to require learners to advance by completing missions, achieving points, or collecting things. Leveling up is easy to do and can be used when the educator is attempting to differentiate certain groups from other groups.

Leaderboards

Leaderboards show approximately how many people are playing a game and how the gamer is doing comparatively. Many leaderboards show only the top players. Leaderboards provide a bit of competition and can be a fun way to motivate players to continue learning the content (i.e., to get higher on the leaderboard).

BENEFITS OF GAMING IN NURSING EDUCATION

As simulation has become abundantly necessary to teach nursing skills to students, one downfall is that it is an in-person activity. Gamification is able to fill that void because the learner can access a game through multiple venues (e.g., computers, tablets, or smartphones). Adult learners are used to using computers, tablets, and smartphones as a means for communication and information gathering at work and at home. Gamification capitalizes on the assumption that the adult learner will be intrinsically motivated to learn when provided with the flexibility and convenience to do so at his or her own pace. Another reason gamification is needed in nursing education is that the younger generations have grown up with it.

The idea of sitting in a classroom to learn essential information not only is cost prohibitive but doesn't provide a delivery format needed to keep the younger generation engaged (Schoech, Boyas, Black, & Elias-Lambert, 2013). Games are also appealing due to their application to all types of learning styles, from auditory to visual and kinesthetic (Pettit, McCoy, Kinney, & Schwartz, 2014)).

In addition, gaming provides a safe environment for failure. A player can go into an unsafe environment (e.g., a code) and practice scenarios without harming the patient. If the patient dies, the student can reboot and start again with an increased knowledge of what to do or not to do the next time. Having the ability to use trial and error without the concern of putting a patient in danger or receiving an unacceptable grade frees students to explore how to use critical thinking (Bruder, 2015).

Methods to introduce gamification into educational programming are endless. One of the easiest ways to begin is by using premade games (Table). Another way would be to use one or two of the gamification elements within a current curriculum. Nurses could receive organization-specific badges for certain accomplishments or achievements. An organization could use gamification elements with other requirements, such as competencies. Instead of having an all-skills day, the educator could put together a leveling-up system. Various activities could be associated with points. These points would demonstrate the nurse's competence with certain skills.

CONCLUSION

Realizing that traditional classrooms and voiceover presentations are days of the past, educators need to change the way they teach. Whether we like it or not, employees love their smartphones, apps, and games. Providing education using gaming techniques provides an innovative platform for educators to use when de-

veloping curricula. As educators, we must explore how we can use gamification in health care so our staff is intrinsically motivated to learn. Skiba (2014) stated that in the connected age, educators need to provide connected learning in a connected learning environment to support collaboration and accomplish improved outcomes. Taking the first step can be the hardest; however, utilizing gaming templates or premade games can help educators to take the first leap into gamification.

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