

Build Through Play: How Engaging Mechanics Benefit Productivity

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ABSTRACT

Sandbox and educational games are often developed with a similar approach. In both, the game mechanics must be engaging to maintain player interest. However, when giving the player the freedom to do as they please, there must still be constraints to the experience. Some of the most successful serious games that have been utilised in education and training found their success in straight forward, intuitive and most importantly fun mechanics for players. Games such as *Minecraft* (Mojang 2009) have helped enhance education by showing that when users are given enjoyment as part of their learning, they can be taught complex concepts and design incredible creations (Levin 2016). This abstract explores the hypothesis that providing an engaging toolset that people enjoy, increases the user's ability to create. The research outlined will explore various toolsets that encourage the player to be productive and generate content whilst still providing an entertaining experience. Finally, this paper will explore the notion of 'fun' improving performance, taking examples from the games discussed, to produce theories that are further investigated through a Virtual Reality drawing prototype. The prototype will be developed through this research to explore building through play.

Individuals in the real and game worlds perform similar tasks. Building ideas, constructing items and planning events being examples of everyday life that have been represented in digital counterparts. Over the years there have been various attempts to make such tasks simpler whilst furthering their entertainment value. Thus, making it less of a chore for those carrying out the tasks to achieve their goal. As part of this research, a closer examination was undertaken at how game mechanics help increase a player's creative output. Three popular examples of designing through play have been chosen from popular games on the market for analysis.

Game mechanics can "play a significant role in improving users' concentration and enjoyment" (Wang et al. 2017). To retain a player's interest, game mechanics need to engage players in accomplishing the game's goals. Kalinauskas (2014) discusses how

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mechanics can position people into a “*flow*”, manipulating their self-determination in order to accomplish a task. When this is applied to a game that encourages player expression and creativity, no matter the result, users are determined to generate ideas as they complete the game. This idea of being encouraged to complete something entices the player to press onwards and succeed. This could greatly assist in careers where people are required to be creative in order to be productive in their roles. When challenges arise, the player has a goal, making them more motivated towards success.

Games also allow people to apply their knowledge constructively, generating outputs as a direct result of their own inputs of knowledge. Serious games have been utilised to do this for decades by military personnel through a “*combination of war games, computer sciences, and operations research*”. Another group benefiting from their use are engineering students, with serious games “[*showing*] a positive effect on the students’ abilities to apply the theoretical gained knowledge” they have obtained (Hauge et al. 2013).

By building an experience that allows people to be expressive and making them want to explore, often incredible output is achieved as a result. *Minecraft*’s block building mechanics have allowed it to become one of the most widely adopted and impactful educational games of the past decade. To date, over 115 countries have integrated the game as part of classroom teaching (Valentine 2019). *Minecraft*’s in-game toolsets have been adopted to explore mathematics, geography, science and art (Abrams 2017). The game even provides its own spin on electronic circuits. Similarly, Forge mode in *Halo 5* (343 Industries 2015) began as a simple level editor in previous editions of the franchise and has provided tools that have generated millions of pieces of user content (Postums 2019). Today’s editor allows for scripted events and triggers that allow entire scenarios and sequences to be planned out whilst also providing an insight into games programming. Finally, *Trials Evolution* (RedLynx 2012) featured a level editor that has been utilised to build entirely new games. By doing so, players were able to create content that further pushed the scope of the original experience whilst engaging players in building new experiences. Its sequel *Trials Fusion* (RedLynx 2014) has a marketplace featuring over one hundred and eighty thousand user created tracks (RedLynx 2019), highlighting the widespread appeal of building through play.

People are more willing to carry out work and construct ideas when given a fun environment or context to do it within. Past research suggests “*workplace fun positively relates to employees’ job performance*” (Tang et al. 2017), a topic that has been researched in detail over the years. Woolf (2014) further explored this, detailing that “*individuals having fun at work were also more likely to be more engaged in their work, and consequently exhibit greater creative performance*”. By applying this concept to other industries there is the chance that more complex challenges can be solved through the entertaining prospect of play. The philosophy behind this has led past researchers to believe play provides meaning and therefore a willingness to accomplish tasks (Rodriguez 2006), with serious games designers able to take advantage of these aspects if they “*exploit and highlight*” the ludic elements of work. Finding fun through necessity provides the user with a more entertaining method of solving complex problems or achieving long standing goals. Game mechanics provide a solution to these complex problems and: “*in good video games, the problems players face are ordered so that the earlier ones are well built to lead players to form hypotheses that work well for later, harder problems*” (Gee 2007). Game mechanics build upon past experiences, much alike career progression or the natural order of education.

The ability to build mechanics in a way that benefits productivity is showcased here as a concept explored by games for several years. A key part of this research was applying

the discussed philosophy into the development of a VR sketch prototype titled *Reality Works*. Designing in this format provided the ability for more freedom in the creation of 3D designs, making it easier for creators to express their ideas by utilizing mechanics that are fun to develop with.

Level editors, construction mechanics and designing worlds are all features that provide an engaging way for concepts to be explored. The key philosophy behind this research has begun to see this as a reason as to why complex tasks can be more easily conquered as the enjoyment factor plays a large role in people's willingness to solve problems. Further research is underway into the specific mechanics that provide benefits to further define the best way to stimulate productivity using games. By solving the challenge of designing game mechanics that benefit workers, it is the goal of this research to develop recommendations on how best to use games technology to improve the working world.

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