

# Engaging Elements in a Commercial Game

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## Keywords

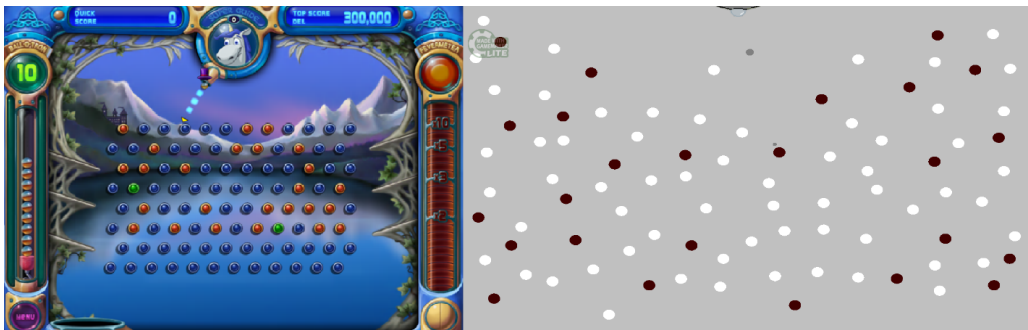
Engagement, Transfer, Commercial Games

## INTRODUCTION

For years, educational game designers, researchers, and educators have been searching for ways that the engagement that often comes with video games can be harnessed to improve learning. These attempts have been less promising than designers had hoped, as players often become disengaged and lose their motivation to play (Bruckman, 1999). Commercial games, on the other hand, excel at raising a player's excitement level, and keeping it there for hours (Nielson, 2015). Commercial games, just as these educational-aimed games, promote the player to practice the skills needed to progress through the game, and have been theorized to do so in a number of ways (Gee, 2003; McGonigal, 2011). However, to date, there have yet to be any concrete studies that demonstrate which features in games keep the attention of the player. In response, this study attempts to address this need by comparing a popular commercial game, Peggle, to an “engagement-stripped” version, dubbed Mockle.

## METHODS

52 participants recruited from an undergraduate class, “Videogames and Learning” at a large MidWestern university were randomly assigned to one of two groups: the Peggle group, and the Mockle group. The Peggle group played the popular commercial game, Peggle Delux (PopCap games 2007), while the Mockle group played a stripped-down version of the game created in GameMaker Lite (Figure 1).



**Figure 1: Peggle (left) and Mockle (right)**

Both groups completed entry questionnaires, gauging previous game experience and demographics; pre/post assessment created and executed in the same environment as

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Mockle, gauging game-relevant skill levels; and exit questionnaires gauging self-assessed ability and enjoyment of experience.

## RESULTS

Participants in the Peggle group showed higher enjoyment measures, including total amount of time played ( $t=2.58, p=0.02$ ), average time per session ( $u=2.94, p<0.01$ ), self-reported enjoyment ( $t=3.60, p<0.01$ ), and self-reported desire to continue playing ( $t=2.40, p=0.02$ ). Skill level measures showed the Peggle group scored higher in average number of targets hit ( $t=5.83, p<0.01$ ) and self-reported finishing skill level ( $t=2.72, p<0.01$ ), but lower posttest scores ( $t=-2.04, p<0.05$ ).

## DISCUSSION

Although Peggle players show higher levels of enjoyment in playing, it is unclear from these data what effect it had on their skill level. Peggle players hit more targets on average than Mockle players, however, this difference is seen from the early turns of play, suggesting that it is simply easier to hit more targets in the Peggle environment than the Mockle environment. Further muddling the interpretation, players in both conditions show a variety of skill levels, but do not significantly change in number of targets hit over time in either environment. Mockle players do show higher ability to hit multiple targets in posttest than Peggle players, although this may be due to the pre-posttest being created in the same environment that Mockle players played in, giving them more familiarity with the slight differences in the physics of the environments. Thus, despite the increase to exposure of the core skill as shown by the increased amount of play, we see greater performance gains coming from familiarity of the environment. This may have implications for near-transfer of skill (Perkins & Salomon, 1992), suggesting that players are more likely to see transfer in an environment similar to the training environment than an environment that is made to be more engaging. However, Peggle players did report significantly higher skill levels at the end of the allotted time, suggesting that although Peggle players did not show any increases in skill level, they did increase confidence levels in their ability. These data warrant further investigation for a full understanding of how the increased exposure and enjoyment of the game affected the players' skill levels in the two environments. Although it is clear that removing engaging features from Peggle decreased desire to play, it is unclear what consequence this has on players' ability to learn the embedded skills.

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