We Are(n't) the Champions: Gamer Identity and Failure

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Introduction

Failure is a key to innovation and discovery (Dunbar, 1999; Schank, 1977). In his studies, Dunbar found that many (if not most) scientific innovations occurred when experiments failed to go as planned. It makes sense that new knowledge would come from behaviors and models that we do not completely understand. In educational settings, aversion to failure may hinder discovery learning (Author, 2012).

In contrast, games celebrate failure. Games often feature low stakes situations in which failure is a necessary part of success. Players must often fail a great deal before becoming proficient in most games. For example, in the *Lego* series (TT Games, 2005) and *Kirby's Epic Yarn* (Good-Feel & HAL Laboratory, 2010), there are many ways to fail, but that failure is explicitly designed to be an enjoyable part of the overall experience. In cases such as these, failure often leads to "recursive play" in which players reflect and hypothesize ways to improve (Gee 2005; Juul 2013; Squire, 2011).

We do not fully understand the effect of failure on gameplay. In this study, we explored how self-efficacy and feelings about failure predicted gamer self-identification. Educational data mining were used to discover a valid connection between self-efficacy and gamer identity Educational data mining includes a variety of techniques that are otherwise known as knowledge discovery, or the process of discovering novel information from a great deal of data (Baker & Yacef, 2009). The data show a statistically significant correlation between the statement that "people are expected to fail the first time they try something new" and self reported gamer identity. Due to this correlation, we speculate that gamers perceive failure in a different way than non-gamers and suggest further investigation.

Methods

A survey consisting of 30 Likert scale and free-response questions regarding failure and General Self-Efficacy (Schwarzer & Jerusalem, 1995) was posted to the Reddit community r/samplesize. The surveys received 65 participants in total with 33 self-identifying as Gamers and 32 identifying as Non-Gamers. Survey data regarding self-efficacy and beliefs about failure was cleaned and normalized in order to reduce redundancy and improve our ability to identify outliers in the dataset. To classify respondents, we considered a score of 3-4 to the likert question "Do you consider yourself a gamer?" to be a Gamer and a score of 1-2 to be a Non-Gamer.

To determine significant connections among identity, failure, and self-efficacy, we ran the J48 decision tree algorithm in WEKA (Hall, 2005). The J48 algorithm is a greedy data mining technique which finds the attributes to split corpora into best-fit subsets (Quinlan, 1993). The J48 algorithm is commonly used among researchers for its ability to visualize statistical boundaries in a human-readable way. For our purposes, a human readable representation of our data is useful because it allows us to both identify and understand the connections between survey responses and gamer identity. By using the self-reported identity of Gamer or Non-Gamer as our classes, J48 evaluates which survey questions hold the most information gain while reducing the likelihood that the resulting classification is simply due to chance.

Initial Findings

Three models were produced by WEKA after running J48 on raw survey data. The first model produced indicated that responses to "If you play video Games, how many hours do you game per week?" and "What is your tolerance for failure?" were sufficient to classify the data with 80% accuracy. Because the correlation between number of hours gaming per week and Gamer/Non-game was expected, we removed the item and re ran the algorithm. This model correctly classified 75% of the data correctly when all data was used as a training set. The model indicated that "People are expected to fail the first time they try something new" and "What is your gender?" were the two best predictors for determining whether a participant was a Gamer or a Non-Gamer. Exact binomial tests were conducted on the male and female populations to see if there was a bias to identify as a gamers due to gender. There was a significant number of males who self identified as gamers ($N = 23$, $P < 0.05$). There was no significant difference for the female exact test ($N = 41$, $P > 0.05$). One participant listed their gender as Ninja and was not included.

To discover other salient features, we decided to remove "What is your gender" from the data and re-ran the algo-

rithm. The resulting model, indicated that the best predictors of Gamer or Non-Gamer were “People are expected to fail the first time they try something new”, “Is Gamer a bad label”, and “What is your tolerance for failure”. This model predicted 72% of the data correctly. A Mann-Whitney U test was run to determine if the Gamer population differed from the Non-Gamer population when it came to the question “People are expected to fail the first time they try something new”. The test was significant ($N = 65$, $P < 0.05$). GSE scores, “Is Gamer a bad label”, and “What is your tolerance for failure” failed to be a significant factor in determining gamer identity.

Discussion

From our initial analysis, the response to the question “People are expected to fail the first time they try something new” provides the greatest information when predicting if the respondent self identifies as a gamer. Given that gamers expect initial failure, replicating this mindset in a classroom, or another environment where failure is avoided, may lead to gains in learning (Gee, 2005; Squire, 2011; Vygostky 1978). Ways to encourage this mindset include generating a game-based curriculum that would encourage student to attempt things outside of their expertise while allowing for failure (Squire, 2011; Author in press).

The question “Is Gamer is a bad label” was determined to provide the second largest source of information gain, which supports the notion that gamer is a divisive label. Only those who denoted the highest possible approval of the label Gamer were immediately classified as a Gamer by the algorithm. There is also evidence that players may identify as a gamer, but do not appreciate the negative implications associated with it. Overall, the inclusion of gender as a factor in determining gamer identity provides a better model; this has potentially provocative or problematic implications for the use of the term ‘Gamer’.

Our initial work provides a foundation for future exploration between failure and gamer identity. Future studies should investigate the link between a stated tolerance of in-game failure and verifiable accounts of gameplay. Evaluating the transferability of in-game failure tolerance to other contexts is appropriate. We hope to add to the growing corpus of research that supports gameful pedagogy in the classroom and beyond.

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