CAPSTONE PROJECT SUMMARY: DO PLAYER BACKGROUNDS AND OUT-OF-GAME CHOICES AFFECT IN-GAME OUTCOMES?

By

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Introduction

This capstone project was conducted in partnership with ALEAS Hungary Kft, an e-learning company that has created the FLIGBY management and leadership simulator. FLIGBY stands for "Flow is Good Business for You," and the game is an interactive movie that aims to teach leaders and managers how to implement the theory of positive psychology and flow. The implementation of flow theory in the office is believed to help make workplaces more fulfilling and more productive.

The goal of the capstone project was to determine whether player backgrounds and player outof-game choices have an effect on in-game outcomes. An example of this effect would be whether users who spent time viewing the entries in the game's supplementary media library are more likely to win the game.

The FLIGBY database contains data from over 3400 game sessions and 3100 users. There were over 2.4 million database entries that tracked various points of gameplay. There were also over 67,000 tracked interactions with the FLIGBY media library. After removing players who did not finish the game and other rows of data with only partial entries, 2689 users' gameplay data was usable for the purposes of this project.

FLIGBY is based on the ideas of Psychologist Mihály Csíkszentmihályi. Csíkszentmihályi is often considered the father of positive psychology and he popularized the name for "flow" to describe the psychological state that is sometimes called "being in the zone." Flow involves high concentration, productivity and a feeling of well-being.¹ People are likely to enter the mental state of flow when they face challenges that correctly match their skills with their ability to meet a challenge.² That is to say, flow is a feeling of contentment that comes from doing tasks that are neither too easy nor too hard.

FLIGBY works as a training tool by putting users in the role of the General Manager of a fictional family-owned winery during a time of transition for the business. The staff at Turul Winery are found at the beginning of the game to have various complaints and conflicts and they are each at different stages of accomplishing flow. The player must navigate key decision-points in order to help the staff reach their fullest potential. The gameplay is like an interactive movie where the player is prompted to make important interpersonal and business decisions. The player must also balance environmental sustainability, staff preferences and profitability. Ultimately, players who are successful at managing employees and improving the success of the business are able to win the "Spirit of the Wine" award, which is the winning point of the game. There are several ways to win the Spirit of the Wine award and the game was designed and calibrated so that roughly 40 percent of all players should win the award.³

³ Ibid. 82.

¹ Marer, Paul, et al. *Missing Link Discovered*. ALEAS Simulations Inc., 2015. 19.

² Ibid. 23.

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Process

In order to answer the question about each variable's effect on gameplay outcomes, this project defined some variables as in-game variables and some variables as out-of-game variables. In-game variables are the result of user decisions in the game that are part of the game's logic. Out-of-game variables include user demographic information that is collected before the beginning of the game and also include variables that are the result of the tracking of user actions that happen outside of the game logic. An example of an out-of-game variable is the amount of time spent in the FLIGBY app. Another example of an out-of-game variable is the tracking that is generated when a user clicks on a media item in the library.

For the purposes of this study, the achievement of winning the Spirit of the Wine award was used to determine user success in the game. Out-of-game user profile variables and user tracking variables were tested against the award variable to see if there was a correlation between each variable and winning at FLIGBY.

Analysis of the connections between user profiles, gameplay results and media library interactions showed statistically significant relationships for in-game and out-of-game variables.

- There is no relationship between user age, gender or years in management roles and winning the Spirit of the Wine Award in FLIGBY
- There is some relationship between user language and user's company category and winning FLIGBY
- There is a great range in how often users use the media library and how they use it
- The most significant variables for winning FLIGBY are hours played and media items viewed

Conclusion and recommendations for further research

In the book "Missing Link Discovered," by Paul Marer, Zoltan Buzady and Zad Vecsey, the potential of the FLIGBY dataset as a tool for leadership research is described: "The large and uniquely unbiased leadership-skill databank generated by FLIGBY's players is a tool for supporting new types of both academic and practice-oriented research on leadership."⁴ This project has demonstrated that meaningful user behaviors can be extrapolated from FLIGBY's dataset.

There are many correlations between dependent and independent variables in the FLIGBY dataset. Specifically, there is strong evidence that out-of-game and user profile variables have

⁴ Marer, Paul, et al. *Missing Link Discovered*. ALEAS Simulations Inc., 2015. 3.

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significant effects on gameplay behavior and outcome. Also promising is that FLIGBY's game design gives equal opportunity to win without bias with regard to gender, age or nationality.

There was a negative correlation found between non-English and non-native English speakers and winning FLIGBY, which is understandable due to the difficult interpersonal plot points that may not translate perfectly. As FLIGBY is further developed for non-English audiences, this issue may be resolved.

Dramatically, the most significant out-of-game predictors for whether a player won FLIGBY or not were the number of hours played and the number of media items viewed. This important finding can be interpreted to mean that FLIGBY is meeting its goal of getting players interested in flow theory and that more motivated and curious players are more likely to be successful at the game.

There are several possible future avenues of research with regard to FLIGBY, such as:

- What does the FLIGBY dataset tell us about women's careers and the glass ceiling?
- More in-depth study of media item themes and their effect on user behavior
- Analysis of users who do not finish FLIGBY
- Randomized control testing between blended learning players and purely online players
- Conduct a study checking for longitudinal effects by surveying players who played years ago and checking up on their career paths

The knowledge that there is are clear correlations between in-game and out-of-game variables is a hopeful sign that further research into the FLIGBY dataset will yield promising insights. As a result, future development of e-learning tools may benefit from FLIGBY's pioneering example.