Dynamic Difficulty: A Player Perspective

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INTRODUCTION

Video games are becoming more popular than ever. This multi-million-dollar industry has worked its way into the lives of most people. As of April 11, 2019, the most subscribed YouTube channel is a gaming channel, showing that even those who do not play video games themselves will watch others play. Video games are pervasive in the lives of so many people. The development of these games, for the player's enjoyment, is complex and difficult, with one of, arguably, the most important aspects being the difficulty of the game. Difficulty can make or break a game's success. If this is true, then why have researchers and developers ignored the true feelings of the players they are creating for?

This study was created to explore the player perspective on difficulty in video games. The general public is full of opinions many of which have not been tapped into to find the greatest potential for success when developing these games. Ultimately, a video game is meant to be entertainment for the people playing the game and there are many aspects of video game development which the players, or viewers, cannot speak to. Difficulty is one of a few aspects that the player directly feels the effects of the choices made by the developer. *Dark Souls III* is a game famous, or rather infamous, for its extremely high difficulty settings, sparking many players working harder than they had ever done before to finish in spite of the extreme difficulty found in the game.

LITERATURE REVIEW

There have been many studies conducted exploring the topic of dynamic difficulty adjustment as a form of difficulty algorithm. One study, conducted by Justin T. Alexander and two of his colleagues, created a game for participants to play and report back their feelings about playing that game. From these results, Alexander and his colleagues analyzed how the players performed versus how well they thought they performed and correlated those results to the difficulty the players experienced. Through statistical data and scientific findings Alexander and his colleagues found that "the results indicate that players enjoy a game more, if the difficulty provided is reflective of their gaming experience, rather than their actual gaming ability" (2013). All this means is that casual players will want difficulties that they enjoy playing, rather than difficulties that fit with their ability to play the game, while experienced players will want a challenging experience. This study

also suggests a game that is challenging but will consider the previous experiences of the player to decide how to best proceed with difficulty management (Alexander et al., 2013). Robin Hunicke studied the potential of dynamic difficulty adjustment and its effects on the performance of the player, while not making them feel cheated by the adjustment. Hunicke found that some adjustment algorithm is better than no algorithm for player performance and does not impede on the player's sense of agency (2005).

Other studies more closely study player experience at a subconscious level. One study explores the relationship between playability and player experience, specifically using biometrics. In their preliminary research, they found that it is best to analyze player experience through both reflective and reflexive methods, or using both player feedback and subconscious bodily responses, to fully see the correlation between those biometrics and the player's experience (2009). Using physiological markers to analyze player experience as well as feedback directly from the player is important to eliminate those false responses given by players who want to seem like they enjoyed the game more or any player that would give false feedback for any reason. Guillaume Chanel and his colleagues investigated a similar subject in analyzing a player's physiological responses as indicators of adaptation to the difficulty found in games, by studying boredom, engagement, and anxiety as experienced by the player. They found that the player's engagement can decrease when using static difficulty and that emotion assessment is a good measure of how to adjust the difficulty to maintain engagement (2008). This shows that emotion and the player's feelings toward the game or their performance can be detected physiologically. This also shows that physiological readings are useful to understanding player experience and enjoyment. Alexander Baldwin, Dr. Daniel Johnson, and Dr. Peta Wyeth went a slightly different route and focused on multiplayer dynamic difficulty adjustment and its effects on player experience as well as how the player's awareness of its presence affects their experience. They found that players felt reduced autonomy when they knew they were being assisted by the program, and that the players felt more anxiety and frustration when they were being assisted because they knew they were not doing as well as other players (2014). This is important to understand how much dynamic difficulty adjustment influences players and how this adjustment is different in multiplayer games. These three studies work together to show the complexity of relationship between difficulty and player experience.

A study conducted by Jesper Juul, investigates the stance that players do not always want to win when they are playing a video game. Juul explores the nuances of how players attribute their failures to themselves, the game, or outside forces. He also speaks of the theory of flow and that challenge should increase as skill does as to not induce anxiety or boredom. Ultimately, Juul argues that failure is essential

to player enjoyment and that it is necessary that a game is neither too easy nor too hard (2009). Juul's exploration was particularly important to the development of this study because it shows so many reasons that dynamic difficulty adjustment is necessary for player enjoyment.

METHODS

For my study, I wanted to focus on the players and their opinions. I found a gap in knowledge when it came to the generalized opinions of the players themselves. Other studies focused on a specific game or game type or included physiological aspects to their analysis rather than just asking the players what they wanted.

I determined that the best way to obtain the information I was looking for would be a survey that was distributed both within Bowling Green State University and outside of the college to obtain a wider range of opinions (Appendix). I also alerted potential participants that this survey was anonymous and that it would have no effect on them. The questions vary from what types of games are being played and how often to what difficulty the participant usually chooses to play on and their views on game difficulty and adaptability to the difficulty of a multiplayer game. The questions and answer choices given on the survey are meant to gauge the preferences of the participants when it comes to how the difficulty of a game changes over time or stays the same. It may also be useful to see a correlation between the types of games being played and how often those people play games.

RESULTS

My survey got a total of twenty-three responses from people of varying age and people both within Bowling Green State University and outside of the university. As these participants did not provide any identifying characteristics, I will be referring to them as Participant 1 and continuing to Participant 23 in the order that they finished the survey.

Twenty-two of twenty-three (95.7%) participants reported playing video games while one participant said that they did not. Sixteen of the twenty-three (69.6%) participants reported playing video games fairly consistently through the options of monthly, weekly, or daily (Fig. 1).

If so, how often do you play?

Monthly
4.3%
Other
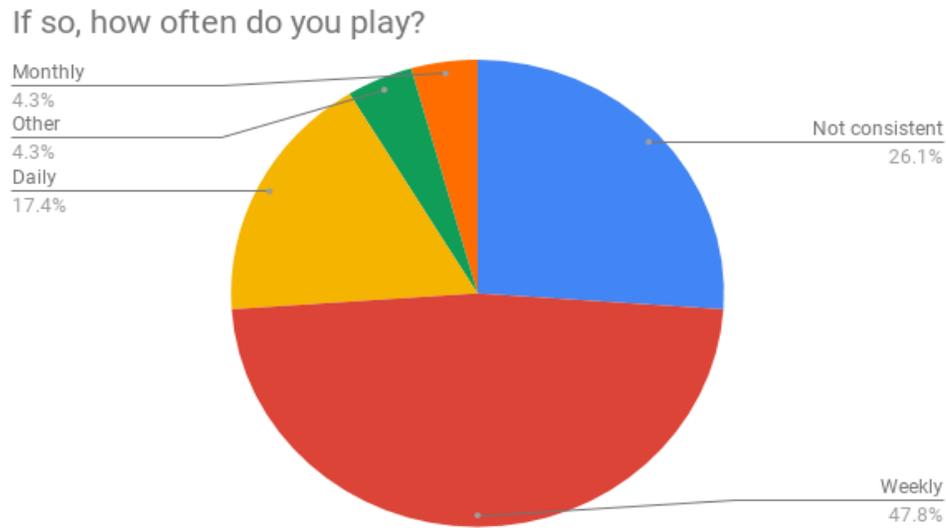4.3%
Daily
17.4%

Not consistent
26.1%

Weekly
47.8%

Figure 1: Breakdown of the responses for Question 2: If so, how often do you play?

Role-Playing Games and Platformers were the two most played types of games reported among participants (Fig. 2). Role-Playing Games and Platformers typically require building certain skills to progress through the game adding different combinations of moves and strategies throughout the game.

What kinds of video games do you play? Select all that apply.

23 responses

RPG (Role-Playing Games) — 17 (73.9%)
Battle Royale/ Multiplayer/ Competitive — 12 (52.2%)
FPS (First-Person Shooter) — 10 (43.5%)
Traditional/Platformer — 13 (56.5%)
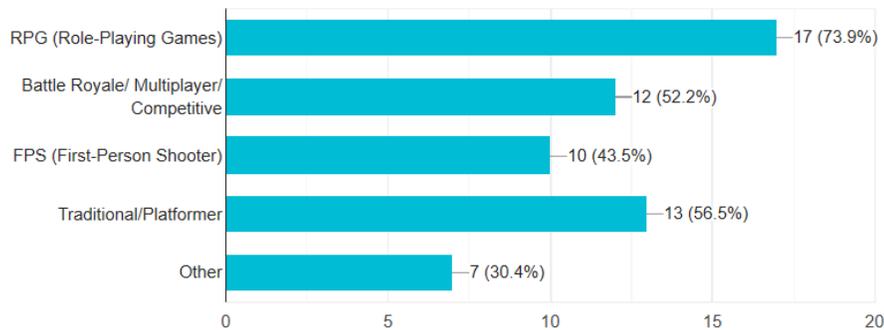Other — 7 (30.4%)

0   5   10   15   20

Figure 2: Results of Question 3: What kinds of video games do you play?

Twelve out of twenty-three (52.2%) participants considered themselves casual gamers (Fig. 3) and twelve participants (52.2%) also reported that they choose an intermediate difficulty when playing games (Fig. 4). This shows that most often players of any experience level will choose an intermediate level of

difficulty to start indicating that they want a challenge while not necessarily wanting it to be too hard to progress. More experienced gamers may opt for a harder difficulty while some more casual players may opt for a beginner level, however intermediate levels of difficulty are chosen most often.

Do you consider yourself an experienced gamer or a casual gamer?
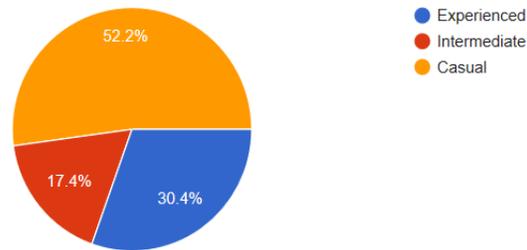
23 responses

Figure 3: Responses to Question 4: Do you consider yourself an experienced gamer or a casual gamer?

When selecting a set game difficulty, which would you choose?
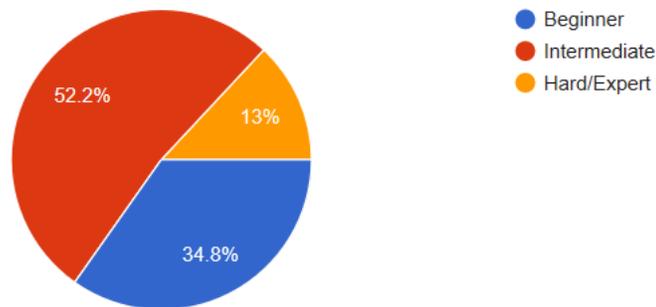
23 responses

Figure 4: Responses to Question 5: When selecting a set game difficulty, which would you choose?

Twelve participants (52.2%) reported feeling that it was easy to adapt to multiplayer environments in video games (Fig. 5). This question refers to online multiplayer games signaling that the pairing and the dynamic difficulty adjustments being made by the game's algorithm, if one is in place. It shows that while it may not be a linear progression of difficulty, the groups made by the game tend to fall in line with similarly skilled players.

In multiplayer games, do you find it easy to adapt to the average skill set of the players involved?

23 responses

Agree
Somewhat agree
Neutral
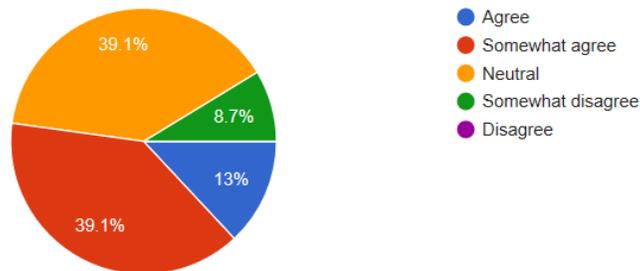Somewhat disagree
Disagree

39.1%
8.7%
13%
39.1%

Figure 5: Response to Question 7: In multiplayer games, do you find it easy to adapt to the average skill set of the players involved?

Twelve participants (52.2%) said that they preferred a game that was too difficult while nine (39.1%) prefer a game that is too easy and two (8.7%) said it depends on the type of game/somewhere in the middle. However, all twenty-three participants responded that they would want a game that gets more difficult as they play as opposed to staying at the same difficulty throughout the game.

DISCUSSION

The results obtained from my survey highlight a few good points. First, there seems to be no correlation between the level of experience of the player and their preference of whether a game is harder or easier in relation to their skill level, but their reasons for their preferences are common among that group. There are players at all skill levels who prefer easier games and there are players at all skill levels who prefer harder games. However, those who prefer easier games cite the story as a reason for avoiding overly difficult games while others try to avoid frustration. Those who prefer harder games enjoy the challenge that the game presents and the effort that is required to do well in the game. Therefore, it is important for the developers to decide what they want the players to focus on when playing their game: the story and experience or building skill and getting better at playing the game.

Second, more players would choose an intermediate difficulty while most would consider themselves casual gamers. This shows that even though most people would not consider themselves to be very experienced gamers, they will choose a higher level of difficulty than their experience level would suggest. This highlights the importance of the challenge provided by a game, but is an initial challenge the only thing that players are looking for?

Lastly, every participant reported that they wanted games to get more difficult as they progress through the game. This is dynamic difficulty adjustment being requested by the players. Games that start hard but never get harder will lose the interest of the players because there is no challenge and no chance for failure. There was not a single survey participant that did not want some sort of dynamic difficulty and while the sample size of the survey is small, the participants were random so seeing this level of agreement is surprising.

However, Participant 23 brought up an interesting point. They said, "video games are progressively getting easier" and that they "require players to induce difficulty on themselves" which is an interesting perspective. Games can target younger audiences and be generally easier to play and understand but still be enjoyed by older, more experienced audiences. This, in a way, is a form of player-induced dynamic difficulty adjustment. Even where the base level of difficulty is lower, dynamic difficulty is important to the experience and the engagement of the players.

These findings suggest that when making a video game, the best way to go about the difficulty setting that are being provided is to make them progressive. Start easier and work your way up to being more difficult to push players to hone their skills. The players have spoken, and they all seem to say the same thing: games should get more difficult as they progress regardless of where they start. Make the game harder as the player has more experience and the players will have more fun and will feel more rewarded for their hard work.

Appendix – Survey Questions

- Do you play video games?
  - Yes/No
- If so, how often do you play?
  - Daily, weekly, monthly, not consistent, other
- What kinds of video games do you play? Select all that apply.
  - RPG (Role-Playing Games)
  - Battle Royale/ Multiplayer/ Competitive
  - FPS (First-Person Shooter)
  - Traditional/ Platformer
  - Other
- Do you consider yourself an experienced gamer or a casual gamer?
  - Experienced
  - Intermediate
  - Casual
- When selecting a set game difficulty, which would you choose?
  - Beginner
  - Intermediate
  - Hard/Expert
- Would you rather have a game be too hard or too easy and why?
- In multiplayer games, do you find it easy to adapt to the average skill set of the players involved?
  - Agree
  - Somewhat agree
  - Neutral
  - Somewhat disagree
  - Disagree
- Would you rather have a game get harder as you play or stay at a constant difficulty no matter how far you have progressed and why?
- Any other comments on game difficulty?

References

Alexander, J. T., Sear, J., & Oikonomou, A. (2013). An investigation of the effects of game difficulty on player enjoyment. *Entertainment Computing, 4*(1), 53-62. doi:10.1016/j.entcom.2012.09.001

Baldwin, A., Johnson, D., & Wyeth, D. (2014). Balancing act : The effect of dynamic difficulty adjustment in competitive multiplayer video games. 1489-1494. doi:10.5204/thesis.eprints.102669

Chanel, G., Rebetez, C., Bétrancourt, M., & Pun, T. (2008). Boredom, engagement and anxiety as indicators for adaptation to difficulty in games. *Proceedings of the 12th International Conference on Entertainment and Media in the Ubiquitous Era - MindTrek 08.* doi:10.1145/1457199.1457203

Hunicke, R. (n.d.). The Case for Dynamic Difficulty Adjustment in Games. *International Conference on Advances in Computer Entertainment Technology* (pp. 429-433).

Juul, J. (2009). Fear of Failing? The Many Meanings of Difficulty in Video Games. *The Video Game Theory Reader,* 237-252.

Nacke, L. E., Drachen, A., Kuikkaniemi, K., Niesenhaus, J., Korhonen, H. J., Van den Hoogen, W. M., . . . De Kort, Y. A. (2009). Playability and Player Experience Research.