



The Impact of Fulfilling a Desire for Idealism on Task Engagement and Enjoyment in Digital Games

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Abstract. For practitioners and researchers who want to design for enjoyment, empirical research on what makes digital games enjoyable is critical. This is true for Game Design, Gamification of non-game applications, and Serious Games with a purpose beyond enjoyment. But existing theories are incomplete or lacking empirical support. A Desire Fulfillment Theory of digital game enjoyment is proposed, building on three established theories: Expectancy Disconfirmation Theory, Basic Human Desires Theory, and Flow Theory. Desire Fulfillment Theory suggests systems that fulfill users' basic human desires will maximize enjoyment. An online survey of 315 game players was conducted, focusing on the last digital game they played. Idealism, a desire to improve society, stood out as having the greatest impact (highest R^2) on the Task Engagement (flow not including enjoyment) factors Concentration and Sense of Control among the factors tested, and greater Task Engagement in turn increased Enjoyment. Multiple linear regression results support the proposed model with minor revisions. The revised model shows how Clear Proximal Goals, Immediate Progress Feedback, and Desire Fulfillment: Idealism lead to Task Engagement and Enjoyment. This is the first empirical evidence the authors are aware of that fulfilling a desire for Idealism leads to Task Engagement and Enjoyment in digital games. Implications for theory and practice are discussed.

Keywords: Enjoyment · Desire fulfillment · Idealism · Task engagement · Flow · Intrinsic motivation · Game design · Gamification · Serious games · Computer games · Digital games

1 Introduction and Related Work

The US video game industry reached record revenues of \$43.4 billion in 2018, up 20.5% from the year before [1]. Digital games are interactive, computer-based systems that present users with a series of goal-directed, challenging tasks to complete for the enjoyment the tasks provide. Digital games are games played on a computerized device,

such as a video game console, Personal Computer (PC), smartphone, or on the Internet. Enjoyment is the extent to which people positively evaluate their experience.

But there is little to no scientific consensus about what leads to that positive experience of enjoyment when people play digital games. Research on digital game enjoyment is still in its infancy, with scattered and incomplete theories that are either not supported by empirical research showing they lead to enjoyment such as Cailliois's categories of games [2], Bartle's four player types [3], and Lazarro's Four Keys to Fun [4, 5], or do not provide a comprehensive model of what leads to enjoyment such as Self-Determination Theory [6], Player Experience of Needs Satisfaction (PENS) [7], Flow Theory [8], the Game Engagement Questionnaire [9], Yee's model of motivations to play online games [10, 11], Malone's model of intrinsically motivating educational games [12, 13], the Player Experience (PLEX) Framework [14], and the taxonomy of gameplay enjoyment from Quick et al. [15]. The proposed research aims to fill that gap in the literature.

A more extensive review of the literature on what makes games enjoyable has been conducted by the authors, summarizing 61 relevant peer-reviewed research articles and papers and categorizing them into 12 topic areas [16].

Understanding what makes digital games enjoyable is important not only for video and computer game designers, but also for practitioners of Gamification and designers of Serious Games as well. Gamification is "the use of game design elements in non-game contexts" [17], such as to make non-game systems more game-like and enjoyable. Serious games are "full-fledged games for non-entertainment purposes" [17], such as education, exercise, or persuasion.

When users experience more enjoyment, which is by definition a more positive experience, it follows logically that they will be more likely to come back for more of that positive experience. This user behavior of coming back for more could translate into more sales, repeat sales, expanded market share, employee retention for a gamified business system, successful behavior change for a persuasive game, or better learning outcomes for an educational game. This is why design for enjoyment is so important.

Design for enjoyment is the common thread across Game Design, Gamification, and Serious Games. To engineer enjoyable systems, practitioners need empirical research on what makes digital games enjoyable. The present study will advance our knowledge of how to design for enjoyment, which is important to practitioners in the fields of Game Design, Human-Computer Interaction, and Information Systems.

The central research question guiding this research is: what leads to digital game enjoyment? A theory of desire fulfillment is proposed, hypothesizing that digital game enjoyment is a function of individual differences in desire to fulfill 16 basic human desires and how well the experience of playing the game fulfills each of those basic human desires. The more a game fulfills the basic human desires of players, the more that players will experience enjoyment. This Desire Fulfillment Theory is based on three established theories, Oliver's Expectancy Disconfirmation Theory [18, 19], Reiss's Basic Human Desires Theory [20], and Csikszentmihalyi's Flow Theory [8, 21]. A Desire Fulfillment Model of Digital Game Enjoyment is presented based on the proposed Desire Fulfillment Theory (see Fig. 1 below).

While all 16 of the basic desires Reiss proposed were investigated, the survey used in this study asked participants to indicate with checkboxes which desires were relevant to

their experience and then answer only questions about the relevant desires. As a result, there was not enough overlap in the data to allow the desires to be analyzed together, and the desires had to be analyzed one at a time. Given the length limit, we chose to address one desire in detail in this paper.

This paper focuses on the desire for Idealism, the desire to improve society (including public service, altruism, and social justice), the desire that had the greatest impact (highest R^2) on the Task Engagement factors Concentration and Sense of Control, which in turn had the greatest impact on Enjoyment. Giving people a sense they are having a positive impact on society or making the world a better place leads to greater Concentration and Sense of Control, which in turn leads to greater Enjoyment. Fulfilling the Idealism desire had not only a statistically significant impact, but the greatest impact on Task Engagement among the factors tested. This suggests that a basic human desire for Idealism is rarely fulfilled when people play games, but when it is that desire fulfillment leads to more Task Engagement and thereby more Enjoyment. The present research contributes both to the theory and practice of designing interactive systems for enjoyment.

2 Framework, Model, and Hypotheses

Desire Fulfillment Theory is presented as a new theory to explain enjoyment of digital games, integrating concepts from Oliver's Expectancy Disconfirmation Theory [18, 19], Reiss's Basic Human Desires Theory [20], and Csikszentmihalyi's Flow Theory [8, 21]. The premise of Desire Fulfillment Theory is that human enjoyment results from the fulfillment of basic human desires. As a result, enjoyment is a function of individual desire or motivation and the experience of desire fulfillment for each basic human desire.

Expectancy Disconfirmation Theory states that Expectations and Disconfirmation of Expectations (which ranges from the experience being worse than expected to better than expected) are two separate independent factors, both positively related to Satisfaction. Satisfaction is synonymous with Enjoyment, with both terms meaning how positively a person evaluates their experience.

The relationships of Expectancy Disconfirmation Theory (EDT) were adapted to each of Reiss's 16 desires, and this was expanded on to create a Desire Fulfillment Model of Digital Game Enjoyment [22]. The version of the Desire Fulfillment Model as it is applied to the desire for Idealism is shown in Fig. 1 below.

Desire and Desire Fulfillment were hypothesized to have independent effects on Enjoyment, just as Expectation and Disconfirmation of Expectations have independent effects on Satisfaction.

Task Engagement is defined as all flow indicators (factors that indicate a person is in flow) not including Enjoyment. This was done to avoid the circular logic of Enjoyment leading to Enjoyment.

When Usability is high, there are less usability problems getting in the way of the user smoothly going from one task to the next, which is necessary to experience Task Engagement. So, it was hypothesized that users who perceive greater system Usability will be more likely to report greater Task Engagement. Flow Theory suggests that flow will be higher when Clear Proximal Goals and Immediate Progress Feedback are higher, and these were hypothesized to be sub-dimensions of Usability.

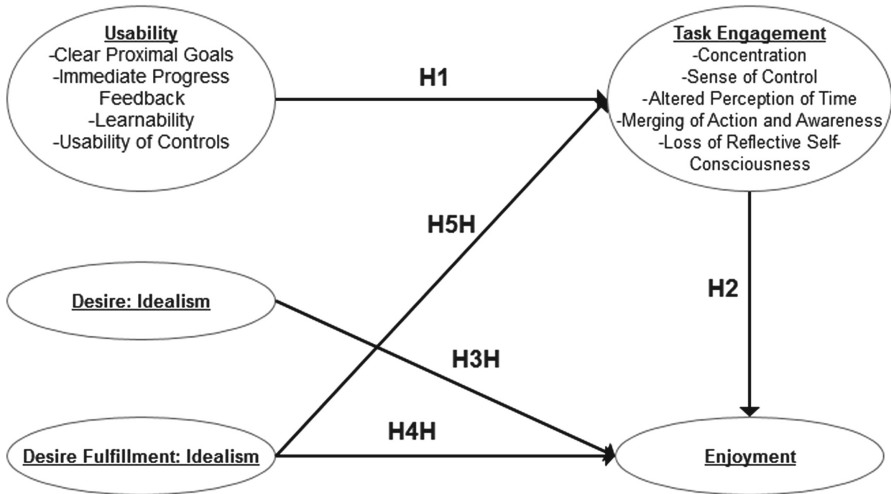


Fig. 1. Desire Fulfillment Model for Idealism showing hypothesized relationships.

Based on the above Desire Fulfillment Model for Idealism (Fig. 1), the following five hypotheses were proposed:

- H1: Usability is positively associated with Task Engagement
- H2: Task Engagement is positively associated with Enjoyment
- H3H: Desire for Idealism is positively associated with Enjoyment
- H4H: Fulfillment of Desire for Idealism is positively associated with Enjoyment
- H5H: Fulfillment of Desire for Idealism is positively associated with Task Engagement.

3 Method

An online survey of digital game players was conducted to test the proposed hypotheses. Previously validated Likert scale measures were adapted to test these hypotheses. Multiple linear regression was used to analyze the data.

3.1 Measures

The questionnaire measures used in this study ask participants about their experience playing the game they named as the last digital game they played for longer than thirty minutes. Participants were asked how much they agree with each statement on a seven-point Likert scale ranging from “Strongly Disagree” to “Strongly Agree” with each scale point labeled.

An 11-item *Enjoyment Questionnaire* was adapted from the authors’ previous study of flow in games [23]. This measure includes five items adapted from the Interest-Enjoyment subscale of the Intrinsic Motivation Inventory (IMI), a previously validated measure of enjoyment [24]. Sample items include, “I enjoyed this game very much”,

“Playing this game was rewarding in itself”, and the reverse-scored “I wished I was doing something else”.

A 33-item *Task Engagement Questionnaire* was adapted from the author’s previous study of flow in games [23]. In that previous study, the factors that lead to flow, or the flow conditions, were separated from the factors that indicate how much a person is in flow, or the flow indicators. Task Engagement includes all flow indicators except for Autotelic Experience, which is synonymous with Enjoyment. This was done to avoid the circular logic of Enjoyment leading to Enjoyment. In addition, Task Engagement includes only flow indicators; it does not include any flow conditions, or the factors that lead to flow. This measure is made up of five sub-dimensions: Effortless Concentration, Altered Perception of Time, Loss of Self-Consciousness, Merging of Action & Awareness, and Sense of Control. Sample items include, “My attention was focused entirely on the game that I was playing”, “It felt like time went by quickly”, “I was not concerned with what others may have been thinking of me”, “I played the game without thinking about trying to do so”, and “I felt that I had everything under control”.

A 25-item *Usability Questionnaire* was made up of three measures drawn from the literature and two measures from a previous study the author conducted. The factor structure and reliability of each of these measures has been validated by previous research. The 10-item System Usability Scale [25–27] was adapted to the context of digital games. The 4-item measure of Perceived Ease of Use was adapted from the Technology Acceptance Model [28]. The 3-item measure of Intuitive Controls was adapted from the Player Experience of Needs Satisfaction measure [7]. A 4-item measure of Clear Proximal Goals and a 4-item measure of Immediate Progress Feedback were adapted from the author’s previous study on flow in games [23]. These two Flow Conditions are specific aspects of system usability that lead to flow or Task Engagement [8, 23]. Specifically, Clear Proximal Goals refers to how well players know what to do next throughout the game, and Immediate Progress Feedback is how much players know how well they are playing the game. Sample items from the 25-item Usability measure include, “I thought the controls of the game were easy to use” “I found it easy to get the game to do what I wanted it to do using the controls of the game” “My next steps were clearly defined” and “It was really clear to me how I was doing in the game.”

A *Desire Fulfillment Questionnaire* and a *Desire Questionnaire*, each with 132 items, were adapted from the *Reiss Profile of Fundamental Goals and Motivation Sensitivities* [29]. Reiss and Havercamp [29, 30] validated the factor structure and reliability of Reiss’s Profile. Sample items include, “Making the world a better place is one of my most important life goals”. (Desire: Idealism) and, “Playing this game more than fulfilled my desire to feel like I was serving the public”. (Desire Fulfillment: Idealism). To avoid fatigue, participants were only asked to fill out the desire questions for the desires that they indicated were relevant or applicable to their experience (see Procedure subsection below). The full measures are presented in the Appendices A-G of the first author’s dissertation [22].

3.2 Instrument Validation

As described in the *Measures* subsection above, these measures were adapted from previously validated measures. No new measures or scales were constructed for this

study. Instead, previously validated measures were adapted to fit the context of digital games and aims of this study. Factor analysis and reliability analysis were conducted to ensure and double-check the construct validity and internal consistency of the measures used since that the measures were adapted in this way.

Factor analysis was conducted with PROMAX rotation and Maximum Likelihood extraction using IBM SPSS. Items that did not load onto a single factor or that were split across multiple factors were dropped one at a time until a stable factor structure was found. The retained items had factor loadings above .4 and any cross-loadings were at least .2 less than the main factor loading.

In the factor analysis, four of the System Usability Scale items, two Ease of Use items, and three Intuitive Controls items converged into a single factor which was labeled Usability of Controls because these items measured the usability of the controls of the game. Two items from the System Usability Scale loaded onto their own factor which was labeled Learnability because they were about how easy it was to learn to play the game. Rather than converging with Usability of Controls or Learnability, the items for Immediate Progress Feedback and Clear Proximal Goals loaded onto their own separate factors.

In a previous study the authors conducted [23], items that represented Ease of Concentration had converged with Concentration to form Effortless Concentration. But in the present study, these Ease of Concentration items did not meet the criteria described above to survive instrument validation. So, Effortless Concentration was renamed to Concentration to reflect the meaning of the retained items. In addition to Learnability, two of the Task Engagement factors only retained two items each: Merging of Action and Awareness and Loss of Reflective Self-Consciousness. These two constructs from Flow Theory are difficult to capture, and many of the items intended to measure them were splitting into their own factors or loading onto unintended factors.

The factors that made up Task Engagement and Usability failed to converge into second-order factors, so the first-order factors that made up these higher-level, more abstract constructs were used in the analysis.

After identifying items for the non-desire factors, separate factor analyses were conducted with all of the non-desire variables and the Desire and Desire Fulfillment items for one desire at a time. In this way, items for each desire with sufficient construct validity were identified.

To test the internal consistency reliability of the measures, the Cronbach's Alpha was calculated for the items for each factor. Each scale had Alpha levels above .7 with two exceptions, Learnability and Loss of Reflective Self-Consciousness, which each had Alpha levels above .6 and only had two items. Most of the scales had Cronbach's Alpha levels above .8, indicating a high degree of internal consistency reliability. The factor loadings for each retained item and Cronbach's Alpha levels for each scale are presented in the Appendix H of the first author's dissertation [22].

3.3 Participants

Participants were recruited both online through social media and through fliers distributed on the campus of a Midwestern university with a diverse student body. There

were 315 total valid responses to the online survey. The demographics and gameplay habits of the participants are summarized in Table 1 below.

Table 1. Summary of participant demographics and background

Total valid N	315 participants (100%)
Female	86 (27.35%)
Male	222 (70.5%),
Other (e.g. “Non-Binary”, “undecided”, etc.)	7 (2.2%)
Mean average age	24.07 years
Age range	18–49 years
English as only first language learned	220 (69.84%)
Other languages as first language learned	93 (29.52%)
Played digital games at least once per week	291 (92.38%)
Played digital games once per month or less frequently	24 (7.62%)
Played digital games every day or more frequently	141 (44.76%)
Mean average years playing digital games	15.59 years
Range of years played digital games	1–38 years

3.4 Procedure

An online survey of digital game players was conducted. Participants were presented with an information sheet on informed consent at the top of the survey.

Respondents were presented the following definition of a digital game: “A digital game is any game that you play on a computerized device, like a video game console, Personal Computer (PC), smartphone, or on the Internet”. Then respondents were asked to name the last digital game they played for longer than thirty minutes. They were asked what genre the game is in, and then asked how long ago they played the game. Only respondents who played the game for longer than thirty minutes within the last six months were recruited to participate in the study. The question asking them to name the game asked about the last game they played for longer than thirty minutes, so only participants who go on to indicate that experience playing the game they named was within the last six months were recruited to participate. This screening was done to ensure that all participants had recently had the relevant experience to answer the survey questions.

Next, participants filled out a series of Likert scale questionnaires. Most of these questionnaires assessed their experience playing the game they identified as the last digital game they played for longer than thirty minutes, which will be referred to here as the game. The game that participant named and typed in as their answer to that initial question was inserted into the questions to ensure that participants knew that the questions were asking about their experience playing that particular game that they indicated they had played for longer than 30 min within the last six months.

The questionnaires assessed their Enjoyment and Task Engagement, then the perceived Usability of the game. Participants were then asked which of the 16 basic human desires were fulfilled or satisfied by their experience playing the game, with checkboxes to select all desires that apply and short definitions of each desire. Then the questionnaires assessed how much playing the game provided Desire Fulfillment for each Desire the participant checked, then their level of Desire for each Desire the participant checked. Separate analyses were conducted for each basic human desire with the subset of participants who checked that desire. All of these questionnaires focused on their experience playing the game they identified except for the questionnaire about their individual level of Desire, which is about the participants themselves. The order of these questionnaires was chosen to ask about dependent or endogenous variables before independent or exogenous variables, to avoid the experience of answering questions about the independent variables priming or biasing their answers about the dependent variables.

Participants then filled out a demographics and digital game playing habits questionnaires. This questionnaire asks participants how many years they have been playing video or computer games, how often they play video games or computer games, and what genres of video games they typically play, with checkboxes allowing them to check all genres that they typically play. This information was collected to ensure a diverse sample of participants are recruited in terms of their experience playing digital games and their game-playing habits. Next, the questionnaire asked the first language participants learned or their native language, their age, and their gender. These questions were asked to ensure a diverse sample of participants were recruited in terms of their demographics and background.

Finally, participants provided their email address if they wish to be entered into a drawing to receive a prize. As an incentive to participate, eight participants who complete the study were randomly selected to receive either a gaming console system bundled with a game or a tablet computer (from \$237.99 to \$464.98 in value).

The time participants took to complete the survey was tracked. To reduce participant fatigue, a message at the top of each page of the survey told participants how they could complete the survey in multiple sessions.

The questionnaire data was analyzed using multiple linear regression, testing each part of the hypothesized model one dependent variable at a time.

4 Results

4.1 Hypothesis Testing: Idealism

Idealism is the desire to improve society (including public service, altruism, and social justice). Idealism was the desire twelfth most frequently checked as fulfilled or satisfied by participants, with 39/315 (12.4%) checking the box for Idealism and therefore answering the Desire and Desire Fulfillment Questionnaires for Idealism. However, Idealism showed the greatest significant impact (the highest R^2 among the factors tested) on Sense of Control and Concentration, the Task Engagement factors that in turn had a significant impact on Enjoyment (see Table 3 below). This means that it is uncommon

for playing digital games to fulfill the desire for Idealism, but when Idealism is fulfilled it tends to make playing the game more engaging, and thereby more enjoyable.

Figure 1 above shows the proposed Desire Fulfillment Model for Idealism and its hypothesized relationships.

The analysis for Idealism began with stepwise multiple linear regression by testing each hypothesized relationship in the proposed model with separate analyses for one dependent variable at time. Mean average scores on each measurement scale were used for all regression analyses rather than weighting them by factor loadings so that each item was evenly weighted. The results of this analysis are shown in Table 2 below, with the separate analysis for each dependent variable in separate boxes.

Table 2. Results of stepwise multiple linear regression analysis of the Desire Fulfillment Model for Idealism.

Relationship	R ² Change	Significance for this relationship (<i>p</i> -value from coefficients table <i>t</i> -tests)	Significance for the overall model (<i>p</i> -value from ANOVA table <i>F</i> test)
Sense of Control -> Enjoyment	.189	.006	.006
Concentration -> Enjoyment	.104	.027	.002
Desire Fulfillment: Idealism -> Sense of Control	.196	.005	.005
Immediate Progress Feedback -> Sense of Control	.121	.016	.001
Desire Fulfillment: Idealism -> Concentration	.190	.006	.006
Immediate Progress Feedback -> Concentration	.079	.056 (n.s.)	.004

Looking at the results of the stepwise multiple linear regression, Sense of Control and Concentration both had significant impacts on Enjoyment ($p < .05$). This supports H2, that Task Engagement has a positive impact on Enjoyment. Desire Fulfillment: Idealism and Desire: Idealism did not have significant direct impacts on Enjoyment while controlling for effects of Sense of Control and Concentration on Enjoyment, meaning that H3H and H4H were not supported by the available evidence.

Desire Fulfillment: Idealism had significant impacts on both Sense of Control and Concentration, the two Task Engagement sub-dimensions that significantly impacted Enjoyment. This supports H5H, that Desire Fulfillment: Idealism has a positive impact on Task Engagement.

Immediate Progress Feedback had a significant impact on Sense of Control. This support H1, that Usability has a positive impact on Task Engagement. The impact of Immediate Progress Feedback on Concentration was nearly but not quite significant ($p = .056$).

Finally, the impact of Desire: Idealism on Desire Fulfillment: Idealism was not significant ($p = .278$). This result did not support the new relationship between Desire and Desire Fulfillment which was found significant for most of the other desires examined that had significant effects with the exception of Honor (see [22], Table 13, p. 167–168). This could mean that fulfilling desires for Idealism and Honor increase Task Engagement regardless of individual differences in Desire, or how much players wanted to experience fulfillment of Idealism and Honor.

It is possible that the relationships that were not significant could be found significant if a larger sample size was collected, as the sample size for this analysis consists of the 39 participants who checked the box to indicate that their recent experience playing the digital game they named satisfied or fulfilled a desire for Idealism. These results do not rule out these non-significant relationships, but the available evidence was not enough to support them.

Figure 2 shows the conceptual model visualizing the findings from the multiple linear regression analysis.

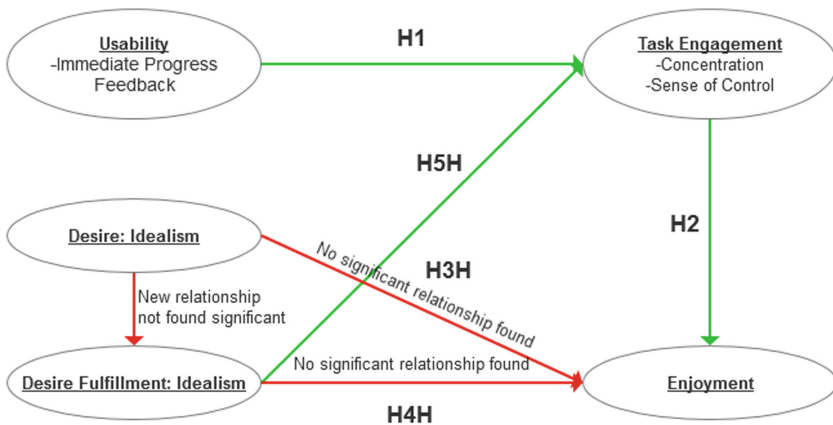


Fig. 2. Conceptual Desire Fulfillment Model for Idealism showing findings from multiple linear regression.

4.2 Comparing the Impact of Fulfilling Idealism to Other Desires

Fulfilling a desire for Idealism had a greater impact on the Task Engagement factors Concentration and Sense of Control than fulfilling any of the other desires examined, meaning the stepwise multiple linear regression analysis run separately for each desire on each dependent factor showed Desire Fulfillment: Idealism had the highest R^2 of any factor. Table 3 below compares the significant impacts of Desire and Desire Fulfillment

on Enjoyment, Sense of Control, and Concentration from the separate analyses conducted for each desire.

Table 3. Significant impacts of desire and desire fulfillment on enjoyment, concentration, and sense of control from separate multiple linear regression analyses.

Relationship	R ² Change	Significance for this relationship (<i>p</i> -value from coefficients table <i>t</i> -tests)	N
Desire Fulfillment: Curiosity -> Enjoyment	.117	<.001	200
Desire: Order -> Enjoyment	.037	.041	82
Desire Fulfillment: Independence -> Enjoyment	.018	.046	158
Desire Fulfillment: Idealism -> Concentration	.190	.006	39
Desire Fulfillment: Curiosity -> Concentration	.123	<.001	200
Desire Fulfillment: Order -> Concentration	.081	.007	82
Desire Fulfillment: Independence -> Concentration	.053	.002	158
Desire Fulfillment: Power -> Concentration	.040	.018	127
Desire Fulfillment: Tranquility -> Concentration	.039	.008	163
Desire Fulfillment: Saving -> Concentration	.029	.043	129
Desire Fulfillment: Idealism -> Sense of Control	.196	.005	39
Desire Fulfillment: Honor -> Sense of Control	.154	<.001	78
Desire Fulfillment: Independence -> Sense of Control	.035	.012	158
Desire Fulfillment: Tranquility -> Sense of Control	.033	.013	163
Desire Fulfillment: Curiosity -> Sense of Control	.031	.008	200

5 Discussion

Overall, the results from the online survey of digital game players supported the proposed model of Desire Fulfillment Theory for Idealism, with some revisions. The revised model based on the results from the analysis is presented in this section, and the implications of these findings are discussed.

The lower-level, first order factors intended to make up Usability and Task Engagement did not converge well onto higher-level, second-order factors, so the lower-level, first order factors were used for the analysis. When these lower-level factors were used, a consistent pattern emerged from the analysis. Clear Proximal Goals led to Concentration, which led to Enjoyment. Immediate Progress Feedback led to Concentration, which led to Enjoyment. Immediate Progress Feedback led to Sense of Control, which led to Enjoyment. Desire Fulfillment: Idealism led to Concentration, which led to Enjoyment. These relationships are shown in Fig. 3 below.

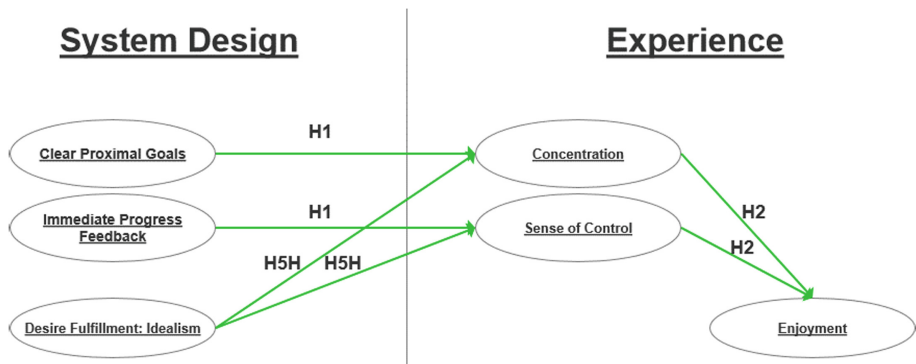


Fig. 3. Revised model of Desire Fulfillment Theory for Idealism.

Figure 3 above separates the factors into characteristics of the system or game design and the experience that results from the user using the system or the experience of the player playing the game.

This separation is useful because game designers and user experience professionals will have the most control over the system design factors. While the System Design factors have an impact on the Experience factors, designers do not directly control the Experience factors. Perhaps a design could distract players and decrease their Concentration, or take away control from players such as during a cinematic cut-scene and decrease their Sense of Control, but it is less tangible and useful to tell a designer to design for Concentration or a Sense of Control than to design for the System Design factors.

This means the primary focus for practitioners interested in designing for Enjoyment must be on three paths to game enjoyment: 1) Clear Proximal Goals: Clearly communicating the goal of the current next step throughout each step of the activity, 2) Immediate Progress Feedback: Clearly communicating how well the user is doing throughout the activity, and 3) Desire Fulfillment: Ensuring the activity fulfills the basic human desires of the user.

6 Implications

The present paper focuses on fulfillment of the desire for Idealism. Fulfilling a desire for Idealism involves improving society, advancing a social cause, or making things better for humankind. It is important to note that none of the games the participants listed were serious games with a pro-social purpose beyond enjoyment, so it appears that the fulfillment of the desire for Idealism was entirely within the fictional world of the digital game.

Saving the world or saving humankind may be a common theme or trope in digital games. But the present study provides evidence that feeling that your actions are improving society or making the world a better place satisfies a basic human desire, an underlying psychological motivation that drives human behavior.

This research has important implications for practitioners, designers, developers, and applied researchers. To design interactive experiences that are engaging and enjoyable, show users how their actions are having a positive impact on other people, on society, or on the environment. Use story, characters, and other game design elements to show that the user's actions are important because of that positive impact. In the call to action, show how needed the user's actions are. In the system feedback, show the positive impact of the user's actions, show how they made a difference. For example, show the people impacted by the user's actions (or characters representing them) and have them show their appreciation and celebrate the positive impact the user had on their lives.

This motivation to improve society or make the world a better place may be especially important for motivating people to play serious games, games with a positive purpose beyond enjoyment such as education, health-related behavior change, positive social change, or pro-environmental behavior change. Future research may investigate if the effects of feeling that one's actions are fulfilling a desire for Idealism are significantly greater or less when participants actions in the game have a real-world positive impact rather than being confined to a fictional game world.

This research also has important implications for basic research and theory. When the desire for Idealism is fulfilled, it may give players a sense of meaning, purpose, or significance. One of the categories of enjoyment sources in digital games identified by Schaffer and Fang [31] was "Significance, Meaning, Purpose, & Legacy", which is how much you know why your actions are important, significant, or meaningful or how much you feel that your actions are giving their life meaning or helping fulfill the purpose of your life.

So, perhaps fulfilling a desire for Idealism is so effective at increasing Concentration and Sense of Control because when players know that their actions are important, significant, or meaningful, they are more likely to focus their attention and concentrate. Because they are focused on what is important or gives their life meaning, as opposed to focusing on trivial, non-important tasks, perhaps this makes them feel more like they have everything under control. More research is needed to explore the role of Significance or Meaning in game enjoyment and task engagement.

The Idealism desire, this desire to improve society or make the world a better place, may be part of or connected to a basic human desire to do things that help others. Specifically, it is the perception that one's actions are improving society that makes those actions feel meaningful. Another category of enjoyment sources identified by Schaffer and Fang

[31] was “Friendship, Relationships, Love, Kindness, & Belonging”. The kindness part of that category was defined as “Giving and receiving help and care, and seeing others help and take care of each other” [31]. Fulfilling a desire for Idealism, kindness, and pro-social behavior has been under-examined in the study of game enjoyment and task engagement. As far as the authors know, this paper is the first empirical evidence that fulfilling a desire for Idealism has a positive impact on Task Engagement, which in turn positively impacts Enjoyment.

As serious games present the possibility that playing games with a purpose beyond enjoyment can actually benefit society, one has to wonder if these benefits to society can themselves contribute to Enjoyment if they are presented to players in a way that makes their actions feel more meaningful and important. And that increased Enjoyment can then motivate people to play the serious game. Even in the fantasy context of digital games with no purpose beyond enjoyment, the basic human desire of Idealism, to contribute to the wellbeing of society, when fulfilled, showed the greatest impact on Concentration and Sense of Control (see Table 3 above).

Games that use their story and characters to give players a sense of meaning and purpose – a sense that their actions are important – by making them feel that their actions will serve the public, benefit humankind, or advance a social cause are more likely to get players into Task Engagement or a flow state by getting them to Concentrate on the task at hand and feel a Sense of Control, and this in turn leads to more Enjoyment.

Make users feel that their actions are important, that what they are doing will make the world a better place. This will increase Task Engagement, which leads to more Enjoyment.

7 Conclusion

Fulfilling a desire for Idealism has a positive impact on Task Engagement, which in turn has a positive impact on Enjoyment. As far as the authors are aware, no previous research has shown empirical evidence of how fulfilling a desire for Idealism impacts Task Engagement and Enjoyment in Digital games. The evidence presented in this paper supports the proposed Desire Fulfillment Theory of digital game enjoyment. Desire Fulfillment Theory builds on established theories, but is tested by doing research with actual game players.

The research presented above advances our knowledge of what makes games enjoyable and how designers and user experience practitioners can design for enjoyment. Designing interactive systems that give users clear proximal goals, immediate progress feedback and desire fulfillment will be more likely to lead to enjoyment. That means ensuring users know what to do next and how well they are doing throughout the activity. And it means identifying and fulfilling the basic human desires that motivate them.

Practitioners who want to fulfill the basic human desire for Idealism can show users how their actions are having a positive impact on other people, on society, or on the environment. Show the positive impact of user actions throughout the experience, from showing the need for user action in the call to action and through continuous feedback showing the impact of user action on the target of the pro-social actions the user is taking. These design guidelines apply for both fictional games and for serious games with a real-world impact.

Fulfilling a desire for Idealism has important theoretical implications for future basic research as well. When user tasks fulfill a desire for Idealism, this may help make user tasks more significant or meaningful, which may explain why fulfilling this desire increases users' Concentration and Sense of Control. Concentration and Sense of Control are the two Task Engagement factors or flow conditions [8, 23] that were found to positively impact Enjoyment. In addition, fulfilling a desire for Idealism, a desire to improve society, may be related to kindness and pro-social behavior, which are actions that help other people. With fulfilling a desire for Idealism standing out as having a greater impact than the other factors examined on Task Engagement and thereby Enjoyment in digital games (see Table 3 above), future research may explore the role of these related concepts of kindness and pro-social behavior in digital game enjoyment.

The present research also advances our understanding of how Task Engagement impacts Enjoyment, and the System Design factors that lead to Task Engagement. The results of this study showed that Clear Proximal Goals and Immediate Progress Feedback are the System Design factors that lead to the experience of Concentration and Sense of Control, which are the key Task Engagement factors that lead to Enjoyment.

Future research may focus on controlled experiments to test the causal linkages between the identified factors, and identifying other factors that impact enjoyment. Desire Fulfillment Theory can serve as a foundation for applied research as well, including studies of game mechanics, gamification of non-games, and serious games with a purpose beyond enjoyment. However, applied research must be informed by a solid foundation of empirical basic research. Desire Fulfillment Theory is a step forward. But more basic research must be done to fully understand what makes games enjoyable.

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