The Influence of Narrative Agency on Player Experience

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ABSTRACT
In this paper, the use of narrative agency, the control a user has over the story, within narrative games is explored. User response to two version of the same game was tested and compared; one game containing narrative agency and the other game containing a linear story. Through this experiment, it is shown that the addition of narrative agency, while it does increase the player's enjoyment of the storyline, does not lead to an increased enjoyment of the game as a whole.

Keywords
Narrative Agency, Interactive Narratives, Linear Story, User Experience.

1. INTRODUCTION
A narrative game has been defined by Ryan [4] as a game where story is meant to enhance gameplay. While both are important, and a story is often expected, the gameplay is ultimately the selling point of the game. It is therefore the opposite of an interactive narrative, where story comes first, and the gameplay is there to enhance the story.

In a narrative game, both gameplay and story can cause immersion within a player, immersion being the engagement of the player with the game and its story, the ability to be completely absorbed into a fictional world. While story delivers immersion into a fictional world, gameplay offers immersion through the performance of tasks [4]. Immersion is an important factor within entertainment, and thus in video games, as heightened immersion leads to a greater enjoyment for players [5]. There are several ways to improve immersion, and thus the player's interest, either through story or gameplay [3]. One such way is by increasing agency, the power of a player to affect the environment within the game in a meaningful way [2].

There are many different interpretations of the term agency [2]. The research in this paper is limited to narrative agency, defined as the ability of the player of a narrative game to affect the story itself, either on a small scale, like changing the actions of a single character, or on a large scale, such as altering the ending of a story. When a player makes a choice, and that choice has an effect on the narrative, it is narrative agency. In contrast, when the player lacks narrative agency, he/she has no meaningful choices that affect the story. Either there are no choices in the narrative, or the choices presented to the user do not impact the story in any meaningful way. An example is when a player chooses between two pathways that both lead to the same area, each pathway containing the same story advancement. While there is a choice, story-wise, the results of the choice are the same for the narrative.

Developers of interactive narratives often assume that the more agency a game offers to the player, the better. However, Harrell and Zhu [2] claim that, despite popular belief, a high degree of agency can detract from gameplay experience as the lack of restrictions may result in unwanted behavior on the part of the player. Related to this is the narrative paradox [4], which states that the higher the degree of agency a player has, the harder it becomes to create a logical, structured narrative, because the more actions there are available to the player, the harder it becomes for the story to deliver a suitable narrative based on the actions chosen by the player. As such, the question can be asked whether it is worthwhile to add agency to a narrative game.

In a narrative game, narrative agency can be provided by allowing the user to make choices that affect the story. These choices can be delivered either through dialogue, such as choosing to react friendly or hostile towards a character, or through actions of the player, such as choosing whether to fight an enemy or to avoid such an encounter. It has long been possible to have players affect the story through these ways, and many games use these methods in order to generate more interest and provide replay value. For example, games such as Fable (Lionhead Studios) and Infamous (Sucker Punch Productions) grants the user several choices between good and evil, leading to different character growth, while in games such as Deus Ex (Eidos Interactive) and Mass Effect (BioWare), the choices made lead to different endings of the game. The question is whether this method actually affects the user's experience of a narrative game.

The research question is therefore: Does the inclusion of narrative agency affect the user’s opinion of a game, and why (not)?

To test an audience’s opinion of agency, a narrative game has been developed and split into versions that are almost identical except for the addition of narrative agency in one of the versions. In addition, a questionnaire has been developed to measure a user’s response to each version of the game.

Whether the experience of a user differs when narrative agency is added to the game, an attempt has been made to find the reason for this difference or lack thereof. In addition, whether or not narrative agency improves a narrative game, narrative agency has been compared to other elements of the narrative game to gauge which element is more important to the user; if users rather experience narrative agency or, as an example, improved graphics or more varied gameplay.

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The structure of the paper is as follows. In section 2, related work is discussed. In section 3, the narrative game that was developed is explained in detail. In section 4, the procedure for the experiment is covered. In section 5, the results are presented and analyzed. In section 6, the results are discussed, and finally, in section 7, a conclusion is presented.

2. RELATED WORK
A few similar experiments have been done before. In Achieving the Illusion of Agency [1] Fendt et al. tested the difference in perceived agency between three versions of an interactive story. The first version contained a branching storyline, and thus, narrative agency. The second version contained a non-branching storyline, where each decision gave direct feedback, with no long term ramifications; in other words, choices without true narrative agency. The third version contained a non-branching story without any feedback from the decisions made. Fendt et al. reported no difference between perceived agency when comparing the first version to the second. In the third version, however, players felt a loss of agency as compared to the first version. Fendt’s research shows that global narrative agency might not be a necessity for players’ agency. Where the research in this paper differs is that the focus is on player entertainment instead of perceived agency.

Vermeulen et al. [6] used an assessment tool to test user responses to two different groups, one group playing the game Fahrenheit, a game containing narrative agency, the other group watching a recording of the game. The group that played the game experienced a higher narrative agency. The experiment of Vermeulen et al. is similar in design to this research. However, the intent is different. Instead of a test between interactivity and lack thereof, this research aims to be more specific, and test the effects of the presence or absence of narrative agency.

3. THE NARRATIVE GAME
In order to test response to narrative agency, a narrative game containing narrative agency is necessary. In addition, a control group that plays a narrative game without agency would be needed for comparison. These two games need to be highly similar in every respect in order to avoid bias between groups. Due to a lack of existing narrative games that fit these constraints, the decision was made to develop two narrative games that do; two narrative games that are, in fact, two versions of the same game, with only one containing narrative agency. To develop the two versions of this game, Game Maker

3.1 Gameplay
The developed narrative game takes the form of a platform game due to ease of construction. The player controlling the character has to use timing and jumps in order to pass a series of platforms, as well as the ability to fire rocks at enemies, with at the end a boss battle in which an antagonist must be defeated. The game contains two difficulty settings, Easy and Normal, with Easy granting the player character more lives, and making his shots more powerful. Due to time constraints on both the development of the game and the playing thereof, the game was kept short in length. This ensured that not too much time was spent on development, and that the players of the game would be able to finish the game within half an hour. Between the two versions, the gameplay does not differ to ensure that any differences in opinion are the result only of the narrative agency.

3.2 Narrative
The two versions have the same basic premise for the narrative. In both versions, the reigning monarch, named ‘The Princess’, has recently been abducted by the antagonist, a fiendish brute named ‘the Ogre King’. The playable character in the game, an unnamed guard designated to protect the town, is recruited to free the princess. In the non-agency version, the guard finds the Ogre King, defeats him in combat, and frees the princess. The simplicity of this story has been chosen for two reasons. First of all, several classic video games feature this plot, namely the Mario series (Nintendo), Legend of Zelda (Nintendo) and Earthworm Jim (Shiny Entertainment), meaning that people familiar with video games are most likely familiar with this scenario. Secondly, due to its simplicity, the addition of narrative agency has a greater effect on the game, creating a sharper contrast between the agency version and the non-agency version.

In the non-agency version, saving the princess is the full extent of the narrative. (See Figure 1) In the agency version, however, the player has the capability to make choices through dialogue

at certain places in the game, leading to a total of seven unique endings. The player is given the choice to either accept the quest or reject it (See Figure 2), the choice to eliminate or spare an enemy soldier, the choice to defeat the Ogre King, to bargain with him, or to join him, and finally, the player is given the choice to free the princess or kill her. Each of these choices leads to an alternate ending, some choices merely adding scenes, others rewriting the entire ending. Figure 3 shows a simplified tree of the possible paths the user can take. Only four of the seven potential endings are shown, as two endings are merely slightly altered versions of the included endings, and the third ending is triggered upon exiting the game before it is finished.

4. Procedure

Participants were gathered from personal circles and online communities and divided amongst two groups. One group consisted of players who played the non-agency version of the game, while the other consisted of players who played the agency version of the game. Each participant was randomly assigned to a group.

To increase participation, both the games and the questionnaire were made available online. Each participant was given a single link to the game, and a link to a questionnaire. They were asked to play through the game, and to truthfully fill in the questionnaire when they finished.

4.1 Demographics

The non-agency group contained ten participants ranging from age 16 to 22. The average age was 18 years old. 50% of participants in the non-agency group were male, and 50% was female. The average experience with video games, as determined by a five point scale, was 4.1, while proficiency with the English language was stated, on average, to be 4.8.

The agency group contained eleven participants ranging from age 16 to 23. The average age was 20 years old. 45% of participants in the agency group were male, and 55% was female. The average experience with video games, as determined by a five point scale, was 4.2, while proficiency with the English language was stated, on average, to be 4.9.

4.2 Questionnaire

The questionnaire handed out to the testers consisted of two parts. The first part consisted of questions to analyze the demographics of the testers, namely, their gender, age, and experience with video games and the English language. The results of these questions have been discussed in the previous section.

The second part of the questionnaire consisted of questions about the narrative game itself. In order to avoid influencing the answers of the players, a variety of questions were included about the game, in order to elicit a more general response instead of guiding the answers towards certain areas of the game.
First of all, the participant was asked how many times he completed the narrative game and why he quit playing. A player who quit in frustration may provide different answers than one who quit after finishing the game.

Secondly, the participant is asked to consider several aspects of the game, namely narrative, gameplay, graphics and sound, and is asked to rate these on a scale of 1 to 5, 1 being very bad, and 5 being very good. The participant is also given the opportunity to comment on each of these aspects. The participant is also asked about the perceived difficulty of the game, with 1 being really easy, and 5 being really hard, and in which difficulty setting the participant finished the game.

Thirdly, the participant is asked how much he or she enjoyed the game on a scale of 1 to 5. To verify this response, the participant is also asked to rate the game’s entertainment value on a scale of 1 to 5, and whether or not the participant would like to replay the game at a later time.

Finally, the participant is queried for his opinion about the best and worst features of the game, and what the participant would like to see added to the game. The agency group had one additional question, asking the participant if he or she felt he had any influence on the story. These questions would shed some light on whether or not agency is actively noticed, or if it would be missed.

The questionnaire can be found in its entirety in appendix A.

5. RESULTS

Each participant filled in a questionnaire, detailing his/her opinion of the game. These results were gathered and analyzed in order to find differences between the non-agency group and the agency group.

Participants were asked to give a score of 1 to 5 to several aspects. Table 1 contains the average score of each aspect, divided by group. As can be seen, in most categories, there is little difference between the non-agency group and the agency group, with the exception of two categories: Narrative scores higher with the agency group, while graphics, on the other hand, score higher in the non-agency group.

An independent t-test was done to assert the significance of the difference in numbers. It was assumed that the given answers are normally distributed. With a margin of error of 5%, it can be said that the only significant differences occur in the narrative and graphics categories. Significant differences (with $p < 0.05$) have been marked in the table with an asterisk (*).

Table 1. Average score of Aspects (Scale of 1-5)

<table>
<thead>
<tr>
<th>Average Opinion on:</th>
<th>Non-agency Group</th>
<th>Agency Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Narrative*</td>
<td>2.5</td>
<td>3.2</td>
</tr>
<tr>
<td>Gameplay</td>
<td>3.7</td>
<td>3.5</td>
</tr>
<tr>
<td>Graphics*</td>
<td>3.2</td>
<td>2.6</td>
</tr>
<tr>
<td>Sound</td>
<td>3.4</td>
<td>3.3</td>
</tr>
<tr>
<td>Entertainment</td>
<td>3.3</td>
<td>3.4</td>
</tr>
<tr>
<td>Overall Enjoyment</td>
<td>3.5</td>
<td>3.3</td>
</tr>
</tbody>
</table>

The average difficulty of the game was rated on a 5-point scale, with 1 being very easy, and 5 being very hard. The average perceived difficulty for the non-agency group is 2.8, while the average difficulty for the agency group is 3. Again, an independent t-test with an error margin of 5 did not show a significant difference between these numbers.

Table 2 contains the number of people that either did not finish the game, finished it once, or finished it more than once. In either group, those that quit before finishing the game cited the difficulty as a reason, and those that quit after finishing the game once stated that they were done with the game. In the agency group, however, those that played it more than once cited the multiple endings as reason, while in the non-agency group the game was replayed once to try both difficulty settings.

Table 2. Number of playthroughs

<table>
<thead>
<tr>
<th>Number of playthroughs</th>
<th>Non-agency Group</th>
<th>Agency Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>1</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>

Participants were asked to give their favorite and least favorite features of the narrative game as well. While participants were given plenty of leeway to describe these features, they have been generalized for brevity. Table 3 contains the best features as mentioned by participants, and table 4 contains the worst features.

Table 3. Nominations for best feature.

<table>
<thead>
<tr>
<th>Non-agency Group</th>
<th>Number of suggestions</th>
<th>Agency Group</th>
<th>Number of suggestions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Challenge</td>
<td>2</td>
<td>Narrative</td>
<td>5</td>
</tr>
<tr>
<td>Boss Battle</td>
<td>2</td>
<td>Simplicity</td>
<td>2</td>
</tr>
<tr>
<td>Level Design</td>
<td>2</td>
<td>Challenge</td>
<td>1</td>
</tr>
<tr>
<td>Concept</td>
<td>1</td>
<td>Level Design</td>
<td>1</td>
</tr>
<tr>
<td>Controls</td>
<td>1</td>
<td>Concept</td>
<td>1</td>
</tr>
<tr>
<td>Ease of Play</td>
<td>1</td>
<td>Save Points</td>
<td>1</td>
</tr>
<tr>
<td>Graphics</td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

While there are several similarities between the two groups on the list of best features, the biggest difference is the narrative. In the agency group, the addition of agency is seen by several as the best feature, while in the non-agency group, opinions differ greatly between different participants. The worst features, however, are very similar to each other.

Table 4. Nominations for worst feature.

<table>
<thead>
<tr>
<th>Non-agency Group</th>
<th>Number of suggestions</th>
<th>Agency Group</th>
<th>Number of suggestions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Controls</td>
<td>4</td>
<td>Controls</td>
<td>3</td>
</tr>
<tr>
<td>Enemies</td>
<td>2</td>
<td>Lack of Power-ups</td>
<td>3</td>
</tr>
<tr>
<td>Graphics</td>
<td>2</td>
<td>Monotony</td>
<td>2</td>
</tr>
<tr>
<td>Monotony</td>
<td>1</td>
<td>Graphics</td>
<td>1</td>
</tr>
<tr>
<td>Lack of Power-ups</td>
<td>1</td>
<td>Level Design</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bugs</td>
<td>1</td>
</tr>
</tbody>
</table>
When queried about what they would like to see added to the game, both the non-agency group and the agency group state a preference for better graphics, and more content, such as additional weapons, different types of enemies/bosses and more areas. Neither group expressed a wish for additional story possibilities.

Each group was also asked whether or not they desired to play the game again, at a later time. As seen in Table 5, results practically did not change with the addition of agency, suggesting other reasons. There seems to be a correlation between players that never finished the game and players that like to play again, suggesting that the desire to replay is highest amongst those that never finished the game in the first place.

<table>
<thead>
<tr>
<th></th>
<th>Non-agency Group</th>
<th>Agency Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>No</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Uncertain</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

Finally, the participants in the agency group were asked how much influence they felt they had on the story. Two participants stated they felt no influence over the story, seven participants stated they felt that they had a little influence on the story, and two participants stated they felt a great deal of control over the story. Those that stated that they felt no influence mentioned in the comments that there was only one possibility in the story, suggesting they only experienced the ending in which they saved the princess, while those that felt they had a great deal of control made sure to finish the game more than once in order to see multiple endings.

6. DISCUSSION

Two cases can be made, one for narrative agency improving a player's opinion, and one for narrative agency not influencing a player's opinion.

To look at narrative agency improving participants' opinion, one needs to only look at the average scores of the narrative. Between groups, the average score differs wildly. The non-agency group grants the narrative the non-agency version 2.5 points, calling the narrative 'stereotypical', ' unimaginative' and 'simple'. The agency group, on the other hand, grants the narrative an average of 3.2, with many participants citing the fact that, while the basic premise of the story is 'cliché', the narrative agency was a fun inclusion. As shown, this increase is a significant difference.

In addition, roughly half of the agency group named the story agency as the best feature of the game, with none of the non-agency group mentioning the story in their best features. This means that, for those playing the agency version of the game, the agency made a sufficient impression on them, in order to be elevated to best feature. On the other hand, the lack of a central best feature for the non-agency group might mean that, without narrative agency, no feature stands out.

There are, however, two factors that may influence these results. First of all, the agency group contained more people that did not finish the game. In addition, out of those that did finish the game, two did not feel like they could influence the story, and thus felt like they had no narrative agency at all. While it is not certain, these factors probably have had a negative effect on the average opinion of the narrative, meaning that in different situations, the agency version might have scored even better.

There are similar arguments for narrative agency not influencing the judgment of participants. First of all, the average scores for entertainment and overall enjoyment show no significant difference between groups. This suggests that the enjoyment of the game is independent of the group one is placed in, and thus, independent of narrative agency. In addition, the desire to replay the game at a later time does not seem to depend on the addition of narrative agency.

Secondly, while the agency group nominates the story agency as best feature, none of the non-agency group suggests the story as the worst feature. In addition, no participant of either group, when given the opportunity to propose new additions for the narrative game, suggest to add the narrative, preferring to add new features to the gameplay. This implies that, while an improved narrative is a fine inclusion, it is not the chief concern for the player.

There remains a possibility that, due to a small sample group, the results are partially skewed. Evidence for this is that, across the board, the agency group grants lower average scores than the non-agency group. The only exceptions are Narrative and Enjoyment. In most cases, though, this difference is not large enough to be significant. Reason for this difference could be the increased difficulty that the players of the agency version experienced. However, this does not account for the steep difference between the average scores for graphics. Both versions of the game contained the same graphics, yet, while the non-agency group granted the graphics an average score of 3.2, the agency group was way more critical and granted the graphics a score of only 2.6. As the demographics of the two groups are very similar and the graphics have no effect on gameplay, it is hard to arrive at a conclusion for why this difference exists. Perhaps the addition of narrative agency raised the expectations of players, cautioning them to be more critical about other areas. In the end, though, it can be reasonably assumed this discrepancy is merely a fluke, especially since other areas show no significant difference, except where expected in the case of narrative.

7. CONCLUSIONS

In conclusion, while narrative agency influences a player's experience of the narrative within a game, it does not notably influence the player's experience of the game itself. As seen, narrative agency leads to increased scores for narrative, but the same does not hold for the entertainment value of a narrative game. In addition, while agency itself is positively noticed, lack of agency goes unnoticed. This is backed up by Fendt et al. [1], who note that players perceive no difference of agency as compared between a branching interactive narrative and a non-branching interactive narrative, as long as each choice is acknowledged.

When it comes to the choice of whether narrative agency or more gameplay additions are preferred, the answer seems simple. In narrative games, gameplay has always been more important than the narrative, and this is reflected in the opinions of the participants. In interactive narratives, where the gameplay is meant to enhance the story, the opposite may be the case.

However, this research has several limitations as well. First of all, the small sampling groups may have led to erroneous findings. Second of all, only one genre of game was tested. Players may have different expectations of platform games than
they have of role-playing games, to name an example. As such, it is not possible to generalize the results that were found to other genres of games. Thirdly, the story chosen was deliberately very basic. With a more interesting, multifaceted story, players may show no preference for agency. Fourth of all, the players of the agency version were not quizzed on what endings they saw. It could be a real possibility that their opinion of the storyline depended entirely on the ending they got. Lastly, not all players managed to finish the game in the allotted time, possibly affecting their opinions of the game.

Future works may attempt to repeat this research with a larger sample size, to see if the findings hold up for larger groups. In addition, the aspects mentioned before could be tweaked, for example by studying the effects of agency in different genres or by increasing the quality of the story-line in both versions.

8. REFERENCES


APPENDIX

A. Questionnaire

The questions contained in the questionnaire are presented here. Potential answers of multiple-choice questions are also presented. Questions marked with a star were required. The questionnaire was originally written in the Dutch language, questions have been translated for convenience and coherence.

A.1 Demographics

Age*: 
Gender*: 
  • Male 
  • Female 
  • Other:

How well do you understand the English language on a scale of 1 to 5, with 1 being very badly and 5 being very well?*

How much experience do you have with video games on a scale of 1 to 5, with 1 being very little and 5 being a lot?*

A.2 Opinion of the Game

How many times did you finish the game?*

Why did you quit playing?*

What is your opinion on the graphics on a scale of 1 to 5, with 1 being very poor and 5 being very good?*

Do you have any comments about the graphics?

What is your opinion on the sound on a scale of 1 to 5, with 1 being very poor and 5 being very good?*

Do you have any comments about the sound?

What is your opinion on the narrative on a scale of 1 to 5, with 1 being very poor and 5 being very good?*

Do you have any comments about the narrative?

What is your opinion on gameplay on a scale of 1 to 5, with 1 being very poor and 5 being very good?*

Do you have any comments about the gameplay?

On which difficulty did you play the game?*

  • Easy 
  • Normal 
  • Both

What is your opinion on the difficulty of the game on a scale of 1 to 5, with 1 being very easy and 5 being very hard?*

How much did you enjoy the game on a scale of 1 to 5, with 1 being very little, and 5 being a lot?*

What do you think is the best aspect of the game?*

What do you think is the worst aspect of the game?*

Did you feel the game was boring or entertaining, on a scale of 1 to 5, 1 being very boring, and 5 being very entertaining?*

Would you play the game again at a later time?*

  • Yes 
  • No 
  • Uncertain

If you could add any feature to the game, what feature would you add?*

Do you have any further comments?

A.3 Agency Version exclusive questions

To what extent did you have the feeling you could influence the narrative?

  • Not 
  • A little 
  • A lot