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Exploring the Potential of Video Games as Educational and Story-Telling Tools

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EXPLORING THE POTENTIAL OF VIDEO GAMES AS EDUCATIONAL AND STORY-TELLING TOOLS

by

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Table of Contents

Overview

For my honors thesis, I have attempted to explore the potential of video games as educational and storytelling tools. The central questions I formulated before beginning this project are twofold:

1. How can video games be used as tools to educate players?
2. How can video games be used to tell stories, and how are they unique from other storytelling methods?

In pursuit of the answer to the first question, I conducted a literature review of articles that explored the educational and cultural potential of various video games. The articles that I surveyed were diverse, ranging from studies of elementary school classrooms that used "exerlearning" (exercise learning) games to a survey of players of a MMORPG games that had a built-in "religion." Conducting this review helped to expand my understanding of how video games are being used and how they potentially can be used as educational tools. I found that, in many different settings around the world, researchers are studying how video games can increase student engagement, enhance empathy, and offer new shades of education to the student experience in several more factors.

To answer my second question, I wanted to be a little more hands-on. I wanted to attempt to "tell a story" using a video game as the delivery method. I wrote and built a choose-your-own adventure game myself. In each step of the process, I sought to integrate skills that I have learned and developed throughout my college career, including story writing, document design, and usability and game testing.

Introduction

I enrolled in USU's creative writing program in the fall of 2009. I have had a passion for creative writing since I was young. When adults would ask me what I wanted to be when I grew up, my default answer was always an author. Since coming to Utah State, my interests have expanded in different directions,

and I have realized that I am not just interested in written storytelling; rather, I am interested in multiple forms storytelling. After about a year I switched my major to professional and technical writing, but I have always reserved a soft spot in my heart for creative writing.

I also picked up a multimedia development minor in my process of discovering what academic and professional direction I wanted to pursue. Through this program, I found that I have a passion for designing and developing digital documents; I especially enjoy building simple websites using HTML and CSS. I have long been interested in the way the Internet is changing some cultural paradigms, especially about storytelling, which ties in nicely with my minor.

All of these interests funneled into my thesis. Although I wouldn't consider myself an avid "gamer," I have always had an interest in the artistic and story-telling potential of video games. Through the process of writing and developing my thesis, I sought to learn more about the research that others have done on the educational potential of video games, write a narrative of my own, and then use that narrative to build a choose-your-own, web-based adventure video game.

Why video games?

Although I do not own any major video game consoles, I have been curious for a long time about how video games can (and will) fundamentally change the world we live in. I have several younger siblings who are still in elementary and middle school, and every time I visit my family I notice the way they play games on their iPads and other consoles. My little brother knew how to operate our Wii before he knew how to read. I started wondering if educators in the United States had tried incorporating video games in their curricula and, if so, what kind of results they had seen.

In my sophomore year of college, I began to explore various forms of interactive storytelling creators were putting on the Internet. I first became interested in the idea of an "interactive story" after watching a basic animation on YouTube called "Haircut (an interactive adventure song)," created by Neil Cicierega. This was a series of short videos that you can watch and then choose the path you take next

(taking you to another video). It is not only cute and has a catchy song, it also sparked my interest in the possibility of choose-your-own-adventure narrative (a genre I became very familiar with in elementary school, when I devoured R.L. Stine's *Goosebumps* series). I wondered about the line between "game" and "story." I held the opinion that a video game can be just as effective and "artistic" in delivering a narrative as a prose story or a film, and I wanted to test out how user interaction in a story can affect their engagement and enjoyment of the story.

Video Games as Educational Tools

For the first portion of my research, I wanted to learn how effective video games are as tools in education. The articles I studied for this portion of my thesis discussed video games in a variety of settings and a variety of categories, and although not all of them necessarily focused on education (one, for example, discussed the creation of "culture" in video games), they all framed usage scenarios for games that defied the traditional stereotype of teenage boys playing Halo in a basement. Though the articles I studied were very different and covered a wide range of possibilities in this field, they were all valuable in that they helped me understand where games can take us and how people interact with them, from young children to mature adults.

Literature Review: The Educational Potential of Virtual Games and Simulations

For this literature review, I sought academic literature that discusses the potential of virtual games to enhance and facilitate learning. I used the Utah State University library's online catalogue to search for peer-reviewed articles on the subject. I was hoping to find articles that spanned a wide variety of study designs and hypotheses.

In the 2012 article "Simulating REAL LIVES: Promoting Global Empathy and Interest in Learning Through Simulation Games," authors C. Bachen, P.F. Hernandez-Ramos, and C. Raphael sought to determine if computerized simulation games help foster global empathy and interest in global civic learning. The researchers studied high school students who were instructed to play *Real Lives*, which is a computer game where players take on the role of characters from countries other than the United States and travel through simulations of some of the obstacles they might encounter. The *Real Lives* players were then compared to students who researched similar or the same foreign countries through other computer-based means. The authors described how empathy is becoming more valued among educators and asked in the text if simulation could help develop this trait. In the authors' own words, they were aiming to contribute to the "small but growing literature that directly tests the value of games and simulations for specific learning outcomes, which is still dwarfed by theoretical discussions of their educational promises" (Bachen, 438).

Using an expanded definition of global empathy that was adopted from an article on "ethnocultural empathy", the authors wished to examine the cognitive, affective, and communicative components of the empathy that the students had for the people of racial and ethnic cultural groups that were different than their (the students') own; they also expanded this definition to include "empathy with people of other nation-states, who may or may not be ethnically, racially, or linguistically different" (Bachen, 439). They discussed previous research on civic learning through gaming and the gaps in research on global empathy. Most of this research is focused on how

simulations and games for global learning can help students develop military, political, or economic learning. The authors reasoned that games and simulations offer many opportunities for players to identify with their characters, which is an important component in developing empathy. The three stated hypotheses of the *Real Lives* study were that students who played the game will exhibit greater global empathy compared with those who learned by other computer-assisted means, students who played the game would show greater interest in future learning about the countries they studied compared to the other group, and character identification would have a positive association with global empathy for those who played *Real Lives*. The authors studied 323 students from 12 classrooms taught by four teachers in three Northern California high schools. The students were administered three surveys: a pretest before the activities began, a posttest after the activities ended, and a follow-up administered about three weeks after the class activity. All three of the authors' hypotheses were supported. After accounting for levels before the test was administered, they found increased global empathy, increased interest in learning more about countries studied, and identification leading to more global empathy. The authors called for more research into the possibility of simulations fostering civic learning outcomes. They were optimistic about the prospect of simulations expanding global learning among all sorts of groups.

This article was unique from the others I surveyed in that it focused so exclusively on the development of one trait, global empathy, and how simulations can facilitate that development. It was useful in the context of the other articles I surveyed because it introduced the idea of identification and how that can help players develop empathy (which can be applied to contexts outside of global learning).

In 2010, *The Journal of Contemporary Religion* published D. Feltmate's article "'You Wince in Agony as the Hot Metal Brands You': Religious behavior in an online role-playing game," an article that discusses simulation and gaming in the context of religion. The main objective of this article

was to explore how religion is a facet in the online role-playing game *Darkmists* and to consider circumstances that could lead to a religion existing exclusively online. Feltmate prefaced his research by listing some past research done on religion in gaming and simulations and explained how this study was unique. He stated, "when people construct religions in virtual worlds, they are marking religions that conform to a particular standard. They are experimenting with reality" (Feltmate, 365). *Darkmists* is a multi-user domain (a text-based game where players create alternate identities and interact with other players in a virtual environment). The setting is based in medieval high fantasy. Unlike massively multiplayer online role-playing games (MMORPGs) like *World of Warcraft*, in *Darkmists* there are no graphics. The author's began playing *Darkmists* in the spring of 1997, eleven years before writing the article.

During the author's period of research, he removed himself from the game and announced his attentions and university affiliations. He then conducted ten in-depth interviews and gathered demographic information from twelve players of the game. In collecting the demographic information, he was specifically focusing on the variety of characters the players had used and their offline religious experiences. He then asked them questions about their religious experiences in *Darkmists* and their relationships with the immortals of the game (76 gods and goddesses played by the game's administrators). When players create their character for *Darkmists,* the traits and skills that they choose for their character influence the "immortal" that they will serve or worship in the game. Because of the way the religion is framed in *Darkmists,* the two important factors players consider in religion is their personal relationship with the divine and the resulting expression of religiousness through words. He found that among his interviewees, their characters' religious development was centered around the relationships they were able to foster with the immortals. Feltmate reasoned that players were relying heavily on offline assumptions about religion to influence their behavior, because *Darkmists* is "a game where players enact somebody else's life," so "successful playing

requires them to draw upon a knowledge base of how to live" (Feltmate, 370). He found in his interviewing that many of the participants discussed outside experiences they had with religion in "real life."

The study is uniquely useful because it shows how people's offline assumptions about religion influence the type of religion they create in an exclusively online environment. The interviews that the researcher conducted show that people consider the online religion to be important, even though some would consider it not valid simply because it is exclusively online. The author goes on to conclude: "when offline conceptions of religion migrate into online environments, the religions that form there develop around the ideas people bring with them" (Feltmate, 375). He also asserts that through studying how people role-play religion, we can learn about what matters to them offline through their online constructions. This article raised interesting questions about the development of culture in virtual games.

Of the articles I surveyed, "Learning as immersive experience: Using the four-dimensional framework for designing and evaluating immersive learning experiences in a virtual world" is a little broader than the others. Authors S. De Freitas, G. Rebolledo-Mendez, F. Liarokapis, G. Magouals, and A. Poulovassilis discuss the use of simulation in general terms as it relates to education. It "considers the use of virtual worlds in relation to structured learning activities for college and lifelong learners" (abstract) and also proposes a new evaluation method that would effectively support the development of specified learning activities in virtual worlds. The authors introduce the article by describing how the use of games is opening up a transition in learning that is based upon the concept of a learning design through the lens of 'immersive learning experiences' rather than sets of knowledge to be transferred between tutor and learner.

The study explores the game *Second Life* and how it was used to attempt to connect students to each other in a learning environment. Players of *Second Life* use an avatar to navigate through the

virtual world; the authors discuss how the use of that avatar facilitates a greater sense of control, which allows users to engage more readily. The study itself uses the 'four dimensional framework' to offer more structure to the synthesis and analysis of the research findings. The four dimensions are: the learner, the pedagogic models used, the representation used, and the context within which learning takes place. This paper focused on how virtual worlds can be better understood and used specifically in the context of education and training.

The information I found to be most useful in this article did not necessarily deal with the study itself but the analysis the authors offered on the study of virtual worlds. They claimed that studying the subject was made difficult by the nature of its cross-disciplinary appeal and the fact that the literature is dispersed around a range of disciplines. This led me to consider the options I had when researching games and simulation in learning contexts and more fully realize the possibilities of games and simulation usage in all fields.

R. Mellecker, L. Witherspoon, and T. Watterson explored the theory that when physical-activity technology driven game play is introduced into classrooms, students focus more and learning overall is enhanced in the 2013 article "Active Learning: Education experiences enhanced through technology-driven active game play." The researchers studied classrooms that used *Footgaming*, a game where you select options and navigate through gameplay with a pad on the floor (to me, the description of the game control sounded similar to the game *Dance Dance Revolution*). The authors discussed past research on educational video games that seek to achieve specific nutritional learning outcomes. The authors discussed the benefits of implementing educational video games that also incorporate physical activity (like *Footgaming*) and the possible repercussions of implementing "exerlearning" (a combination of exercise and learning) to classrooms. They sought to understand the potential for exerlearning in a classroom setting and explore the learning potential of the games. The two hypotheses the researchers held were (1) that third- through fifth-grade students

would report positive feedback experiences from using exerlearning in the classroom and (2) that teachers would view exerlearning as a positive learning tool in the classroom.

The study surveyed 57 students from an elementary school located in one of the largest school districts in the southeast United States. The elementary school in this study is socioeconomically diverse, and it has a reported 70.2% economically disadvantage enrollment. The researchers administered pretest assessments of the 57 students (to determine their pre-existing knowledge of nutritional concepts). The students were allowed to play three online games using the *Footgaming* wireless mat for 5-10 minutes during class time and were also allowed to use the *Footgaming* stations during scheduled free time before and after school, during recess, after completing assignments early, and during lunch breaks. The researchers asked the students and teachers to write journal entries that recorded how they felt about *Footgaming*; they provided guiding questions for each group that they hoped would help to respond to their hypotheses. After the test period, they found learning improvements in the students. They mostly found that, according to the teachers surveyed, *Footgaming* helped behavior problems, improved concentration, and enhanced learning. The researchers assert that *Footgaming* or other exerlearning tools could be valuable in a behavioral context, especially considering the growing number of children diagnosed with attention deficit disorder. The researchers were optimistic about the results and the possible implications of exerlearning being used in classrooms to enhance learning.

This article was mostly focusing on how the act of gaming itself can enhance learning. It was unique to the others in that the game it surveyed incorporated physical elements (rather than just handheld controls). Like most of the other articles I reviewed, it focused on gaming and simulation use in a classroom setting. This article was effective in listing possible benefits of having exerlearning games like *Footgaming* introduced into classrooms.

The authors of "Exploring audience involvement with an interactive narrative: implications for incorporating transmedia storytelling into entertainment-education campaigns" considered how entertainment-education strategies can be implemented and evaluated across diverse media platforms. The researchers studied the audience involvement in a Flash game that was part of a transmedia campaign to educate people on the benefits of drinking milk and encourage them to drink more milk. In the game studied, the users played as characters who were pursuing the last glass of milk on Earth, which would help them improve their health problems. The players roll virtual "dice" to move forward and toward their goal. At certain points, they are asked to answer questions about the nutritional benefits of milk, farming, or other milk-production related task. In addition to this, each character has a set of unique challenges they have to overcome. For example, one player can't see well (as a result of not drinking enough milk). That challenge makes some of the tasks the players are asked to complete more difficult. The researchers had three hypotheses: (1) "Narrative understanding will be positively associated with transportation into an interactive game" (Sangalang, 133), (2) Transportation will be positively associated with changes in milk-related beliefs, attitudes, and behavioral intentions, and (3) "Transportation into an interactive game will be positively associated with enjoyment" (Sangalang, 135).

The researchers students 157 undergraduate students at a large Midwestern university who were invited to play the game. They administered a pre-test and post-test that evaluated the student's milk-related beliefs, attitudes, and behavioral intentions, and self-reports of narrative enjoyment, frustration, and involvement. After administering the tests, they found that their first and third hypotheses were supported: narrative understanding was significantly associated with transportation into the interactive game, and transportation did significantly predict enjoyment. However, the second hypothesis was not supported: transportation was not significantly associated with changes in milk-related beliefs, attitudes, or behavioral intentions. They concluded that their findings

supported the idea that it is important the players possess narrative understanding before being transported into interactive games. They also reasoned that the "entertaining elements in interactive EE [entertainment-education] messages are central to the experience of feeling involved with those messages" (Sangalang, 140). They conclude that more research needs to be done on the topic of narrative involvement and its influence on learning outcomes in games.

This article was unique in that it discussed the use of games in a broader campaign. It also focused on a learning game that was also meant to persuade users in a certain direction. It also provided some helpful definitions about certain types of games and the uses they can have.

B. Williamson and K. Facer, authors of the 2004 article "More than 'just a game': The implications for schools of children's computer games communities" wished to explore the application of games in educational settings based on the changing attitudes about games and simulations. Rather than study a certain game and its effect on a group, they discussed the social practices that are developed among groups of children that play computer games outside of school. The article was less of a study and more of an attempt to call to attention the potentially vital information that could be gleaned from studying these groups of children. They discussed the research that has been done on virtual games' effects on children's cognitive capabilities and skills but how little is known about how "children's existing habits when playing computer games are situated within social contexts and practices, and how these practices, rather than the games software on which they are centred, might provide insights of relevance to more formal educational settings" (Wiliamson, 256). They wished to examine the social implications of playing games, rather than the individual development.

This article drew on research of projects funded by the Economic and Social Research Council in the UK. One of the projects was meant to explore children's use of computers at home. The second project surveyed young people about their use of a range of digital technologies both in

and outside school. The authors also surveyed a number of online games environments, discussion forums, and games magazines. The authors then synthesized what they found about the practices of children who played computer games. They discussed how computer games are an "accepted part of the 'playscape' when children visit each other's homes" (Williamson, 259). They described the social groups that these game-playing children formed: some children were established as "experts," children who possessed certain skills and knowledge about games and would jealously guard that knowledge (called "boundary maintenance"). They discussed how the knowledge pertaining to the games was shared in through the peer-group culture. The researchers assert that this knowledge of how children interact in the context of video games and peer group cultures can be used in educational settings, because it shows how children respond when they are introduced to certain problems that they attempt to solve with the support of networks of peers and peer "experts."

This article was different from the others I surveyed in that it focused on the development of social groups that existed in the physical world ("real life") but created bonds through virtual interaction and experiences. Although, like many of the other articles I read, it focused on the educational implications of games, it was viewing social behaviors rather than personal learning potential.

Overall, my literature review helped to expand my paradigms about video games. It was gratifying to learn that a variety of researchers were exploring the potential of video games from several different angles; the articles I read found that video games can be beneficial in educational and cultural contexts, in addition to being tools of entertainment. The process of exploring what other researchers were looking into helped me to pinpoint what exactly interested me the most about video games (the immersion aspect for players' and the storytelling elements), which then served to guide my own writing and building process for my own game.

Video Games as Narratives

Overview

For the portion of my thesis devoted to understanding how video games deliver narratives and can act as storytelling tools, I wrote and designed a simple choose-your-own-adventure, web-based game. In this game, I used the simple animation capabilities of HTML5 and CSS3 to enhance the text. My goal was to make a simple document that acted as both a video game and a story and approached both of those mediums in a new or surprising way.

Early Ideas / Brainstorming

When I first started writing my story, I wanted to tell a semi-dark story about a narrator dealing with a complicated issue (like death). I intended to start the story out with a rather light tone, and as the player moved deeper and deeper through the game, subtle hints and clues gradually came together to lead the player to believe that they were involved in a darker narrative than they expected and the previous light tone had been used as a misdirection.

However, as I wrote drafts and played other text-based games, I shifted my focus and decided to change the narrative to a road-trip story that contained monsters. My decision to change from my original idea wasn't motivated by anything specific, other than my desire to create a fun narrative that might make people laugh.

When I first started writing my monster story, I originally intended that the player would decide between four directions they could go (north, south, east, west). In each direction, they would end up facing a different monster. From that framework, the current version of the game was born: a road trip story where the player chooses between three destinations (the mountains, the beach, the desert) and ends up facing a werewolf, doppelganger, or lake monster.

Writing Process

When I first starting writing, I met a few times to consult with Professor Gunsberg, a professor at USU who teaches creative writing. I found that, even though writing stories had been one of my favorite past-times growing up, somewhere along the way I had fallen out of practice and, as a consequence, lost all confidence in myself as a storyteller. My meetings with Professor Gunsberg helped me brainstorm methods I could use to overcome that insecurity and start writing, which was very helpful for me.

I began my process by drawing a web of outcomes for each of my narratives. I then wrote bare outlines for each step of the game – usually a line or two. However, my creative juices really began to flow when I started to supplement my written drafts with basic sketches (at the suggestion of Professor Gunsberg). Some of the sketches acted as storyboards, or character references, or even just visual gags that paired with jokes I had written into the story. These drafts were mostly very informal; some of them were even on margins of class notes. This practice of supplementing my writing with sketches helped me to really visualize my ideas and get them out on paper. This was one of the major tools I used to overcome the "writer's block" I experienced at the beginning of my process.

The first draft of my story was a contained in a large binder. All four storylines were on separate pages and any accompanying sketches or additional notes were pasted or taped in. I started showing this draft to potential testers early and asking for their opinions; I had them "play" through the game by reading the story and then flipping through to the pages that corresponded with their choices. People read and interacted with this draft more like it was a book. I used these tests to gauge how people felt about the options they were given and the tone of the story in general.

Next, I wanted to conduct some informal prototype testing that was one step above my binder before I started building. I made up a quick template of an over-large, generic mobile device.

I then printed out one branch of my story and laid it out on the screen in the way I thought it would be on the final web site. I recruited players to "play" through the game by pressing the paper buttons. During these playtests, I asked the participants to read out loud and give their thoughts and feedback during and after the test. I was again hoping to determine what people thought of the options they were given and how they felt about the lack of visuals. I then drew up a report detailing the findings of those tests; that report is located on pages 22-27 of this document.

Design Decisions

Because of how much I enjoyed creating sketches and drawings that supplemented my writing, at the beginning of my design process I was hoping to produce some illustrations to go along with each screen. However, after talking with my thesis advisor we decided that producing illustrations might take time that would be better spent on other elements of design.

Instead of producing illustrations, I decided to focus my creative energy on making choices about the typography, color scheme, and animations of the game that would serve the narrative effectively. This decision was also influenced by some comments that players made in the early tests of the game; most told me that they didn't mind the lack of visuals, but if the game was text-only, they would expect the typography to be more visually interesting.

As I was advancing through drafts of my game, I wanted the appearance to be minimal, yet visually interesting enough to compel players to keep moving forward. I took into consideration the constraints of mobile; my original vision was that most people would play this game on a mobile device. As I was making each of my design decisions, I tried to focus everything on the user: what would make my game simple and playable, but still be visually interesting enough to keep the player from getting bored. I tried to make each of my design decisions to optimally drive the player forward and keep the player interested.

After deciding not to use illustrations, the first major design element I focused on was the typography. I chose to use a monospace font, Courier New, because I felt that it was both readable and also supported a "found-manuscript" type of theme, which I thought suited the tone of my game. Of the web-safe fonts, it felt the most minimal, yet strangely old-fashioned. I thought that all of these traits made it a good fit for the goals of my project.

Another area I used to support the narrative was the color scheme of the game. The major colors were very simple: black text on a white background with dark red accents. However, for some of the effects I employed contrasting colors to add emphasis. For example, in the Sea Monster portion of my story, at one point I describe a slimy tentacle shooting out of the water. The text "slimy tentacle" fades from black to a bright shade of green. I was originally going to keep the colors to a black, white, and red scheme, with no other colors, but I changed my mind and decided to add contrasting hues at the suggestion of a player who tested the game in the early drafts.

Another major part of my design considerations was the animation effects that I used. I was employing HTML5 to create transitions and animations on my pages. I wanted each of the effects I used to be simple; the last thing I wanted was for them to distract the reader. However, I also wanted them to help keep the reader interested and support the text. Here is a small sampling of the effects that I used:

- First, I made it so that on the final pages of each of the story branches, the words "The End" faded in from white to the shade of dark red I was using on all my pages. I thought this was a subtle way to indicate to the readers that the story had ended before they even read the text.
- In order to make the pages look more complete and cohesive, I added two thin bars at the top and bottom of each page to frame the content. I applied a stretch animation the bars so that when each page was opened, the bars stretched in unison from 0% to 100% of the screen.

- Another effect I used was a "shake" effect; I applied this to certain words and phrases in each of the three major sections where I thought appropriate. For instance, in the Werewolf section of my story, when the granny-wolf slams into your car, I made the word SLAM! shake continuously.
- For one of the endings, the player plummets to their death from a tree. For this page, I made one of the thin red bars "drop" off the page (and then reappear).

Building Process

When I began to build the game, I knew I wanted to incorporate basic animations that are possible in HTML5 and CSS3. I didn't want anything too complicated; I thought that simple visuals would better serve my purpose. I first imported all of my text onto HTML pages. I then built animations using CSS3. From watching video tutorials on Lynda.com and reading through other articles found on W3schools.com and elsewhere, I was able to pinpoint the capabilities of HTML5 and find animations that I was interested in using. The resulting animations were simple but effective in conveying some elements of the narrative.

During this process, I sought feedback from more potential players. The findings of these informal tests can be found on pages 24-25 of this document.

Summary

I was very happy with the end result of my game. I loved being able to flex some of my more creative muscles, and I was pleased to find that some of the more "technical" skills that I have learned throughout my college career can serve as a supplement to my creative interests (rather than a replacement). I am interested in continuing to pursue alternate forms of storytelling, and I think that this project helped me to dabble in that area.

Informal Prototype Tests: Round One

I conducted a round of informal thesis prototype testing with four individuals. For these tests, my players sat at a table opposite of me. I asked them to "play" through paper screens of my thesis. The screens contained the text of my game and the advance buttons, but no visuals. Before we began the test, I told the test subjects the following things:

- I was testing the game's "playability" and "enjoyability," not the testers themselves. I made sure to say there were no "right" or "wrong" answers.
- I gave them an approximate count of how many pages (or screens) they would advance through.
- I told them that I was seeking their feedback about the options they were given and any suggested improvements they could supply.

I asked them to read the text out loud, interject any comments they had while they were playing, and give brief rationale about why they made the choices they made. When they advanced, I gave them the screen that corresponded with their choice.

Overview of Results

Overall, my tests surprised me because they went by very fast. Of the four people I tested, only one of them chose on the initial screen to "speed up" rather than "stop," which was the opposite of what I expected.

Three of my testers suggested that if I decide to keep the game illustration-free, I should find a way to "dress up" the text. One suggested I use basic animations, one suggested design tweaks (script font, textured background), and one suggested that I give visual cues with the typography (have multiple breaks to indicate pauses, etc.)

So from here the biggest thing I want to look into is what types of basic animations I can set up with HTML5. I also want to try testing multiple initial options (at first, you can go north and south). I also want to try doing a few rewrites and making my tone more consistent.

Subject A

My first test subject was a 22-year-old woman who is pursuing a degree in technical writing. She had seen the early drafts of the game (which included more options and visuals), so her opinion may be a little skewed based off of that. In this report I'll refer to her as Subject A.

Overall, about the experience was "fun" for Subject A. She said that she missed the extra options at the beginning (to go south, east, or west in addition to north). She thought that the game was unpredictable— she didn't anticipate any of the twists. I have mixed feelings about that— on the one hand, it's nice that the players can't just see everything that's coming. On the other hand, if the players can't anticipate any of the results of their actions, I feel like the game is less like a game and more like a straight story.

Subject A had the following specific suggestions for improvement:

- Heighten the characters' "voices"— she appreciated when the characters had a little bit of personality (for example, when the narrator refers to the granny-wolf as "ma'am")
- If I decide to forego illustrations, get more creative with the text and typography
- If I decide to forego illustrations, try to cue players into that before they start playing— maybe by making the title page of the story look like a book?
- She specifically said that after she finished, she would like to backtrack and try more options, so make sure there is a "backtrack" option at the end of every story

Subject B

My next test subject was a 23-year-old woman who is also pursuing a degree in technical writing (with a minor in marketing). Henceforth I will refer to her as Subject B.

Subject B died rather quickly— she was able to play through three screens before she died. When she read the last screen, she laughed and said, "I am terrible at choose-your-own-adventure games." Even though it ended abruptly in her case, she said that she still had fun and enjoyed reading it.

Subject B had the following suggestions for improvement:

- Make the writing more consistent— either try to make it funnier or more serious, but commit either way.
- If I decide to forego illustrations, make it animated— apply interesting transitions or aspects of the text that move or wiggle when you choose a certain option.

Subject C

My third subject was a 26-year-old man who is pursuing a bachelor's degree in economics. He described himself as a "gamer." I will refer to him as Subject C.

Subject C engaged with the writing more than any of the other subjects— he laughed out loud at the line "(like, Grandma-old)" and he took a long time making his first decision (between stopping and speeding up). Like Subject B, he died fairly early, and so the game ended abruptly for him also. After the game was finished, he said, "I wasn't expecting it to be a story." He was expecting more of a traditional video game interface, where he controlled a character. He said that he would have liked to see visuals— he described himself as "more of a visual person." He also said that he was surprised by the twists; he expected the grandma to be a vampire, not a werewolf.

Subject C had the following suggestions for improvement:

- If I decide to forego illustrations, maybe I could make some design choices to help "set the stage" early on— his suggestion was to make the screen look like an old scroll.

- If I decide to give more options up front (north, south, east, west), offer some context for why a player would want to choose each option— "otherwise it's just a stab in the dark."
- With all options, he'd like to be given more details as to why he'd choose the option. For him, that would make it feel like a legitimate choice rather than just a random guess.

Subject D

My final subject was a 23-year-old woman who is pursuing a degree in German, with a minor in folklore. I will refer to her as Subject D.

Subject D "played the game" faster than everyone else, which was interesting because she lasted much longer than everyone else. Maybe because she choice the track that had a happy ending, she didn't have any suggestions for improvement— she enjoyed the options and she never felt constrained. She liked the voice of the narrator; she thought that it was funny when the narrator said, "Wow, you're a fast runner." She also "wasn't bothered" by the lack of visuals. She said, "I'm not a super visual person" (in contrast to Subject C). Overall, she was entertained and intrigued by the game.

Informal Prototype Tests: Round Two

For my second round of testing, I sent a few users a link to a prototype of my website that was live on the web and asked them a few questions via email. I intended for this round of testing to be as informal as the first; I was trying to mostly gauge general reactions and seek feedback on the design (which is very simple).

For this round of testing, I sent a link to the game to five users (two men and three women, all between the ages of 21 and 28). I then asked them to answer the following questions, in as much detail as possible:

- What direction did you initially go in? (north, east, west). If you played through more than one, which one did you like best?
- What ending did you get?
- What did you think of the visuals? Was there anything especially interesting, annoying, disjointed, etc.?
- Do you have any suggestions for story or visual changes?

Responses and Feedback

For the most part, players responded positively to the game and the choices they had been given. A few noted that they were surprised by the ending(s) they got, especially if they played through more than once. I collected some of the suggestions these players gave and decided to make the following two changes to the game:

- Multiple players suggested adding a link to go back at the end of the game, so I changed all of the "The End" phrases to links that lead back to the first page of the game.
- One player noted a few grammatical errors in the writing portion of the game, which I fixed and then proofread through the pages once more in an attempt to find more grammatical errors.

Value of the Testing

Although I didn't make as many changes to my game after this round of testing as I did after the first round, I still regard this round as valuable. I was able to gauge reactions to the game by players who weren't familiar with the project, which helped me to gain more of a "first-impressions" perspective. Even if it accomplished nothing else, this round of testing helped me to feel more confident in my writing, which helped give me the drive to keep moving forward.

Overview and Application of Both Tests

For both of my rounds of testing, the structure of my tests were informed by concepts and practices I have been exposed to in a course I am taking this semester, entitled "Topics in Professional and Technical Writing: Games User Research." In this course, we have discussed usability and games user research in depth. Specifically, I was basing my testing model off the Microsoft Playtest method, which is described in Chapter 4 of Isbister and Schaffer's *Game Usability: Advancing the Player Experience.* In it, the authors of the chapter describe the steps they take at the Microsoft lab to ensure the testers are comfortable and their experience is as "pure" as possible. The authors describe practical solutions to challenges that occur when conducting playtests, along with advice on how to overcome them. In an attempt to follow the advice of this chapter, I sought to recreate testing conditions from tester to tester, tried to anticipate player needs and questions (to fill in any gaps in the testing), and develop specific, directed questions to optimize the testing sessions.

The tests were very beneficial to me, especially the second round. I find that after working on a project for a long time, I get tunnel vision and can become blind to its flaws. Testing the game when it was near its final design iteration helped me to understand how it really looked to fresh eyes who hadn't been staring at it for hours. Although I have the tendency to be self-conscious when other people read my creative writing (especially if I'm in the room with them), setting up each test in a routine way helped me to overcome that shyness by viewing the process more clinically. It helped be to take a step back from the work and view it in a more academic and professional way (rather than having such a personal and emotional attachment to it), which helped me to move forward more pragmatically and ultimately made the game stronger.

Conclusion

At the beginning of my project, I set out to find the answer to two questions: what research had been done on the educational value of games, and what was the line between game and narrative. To answer the first question, I conducted a literature review of several diverse articles that explored how games are being used in educational and cultural environments, and found that games can enhance learning in a number of ways; they can make player experiences feel more "real," they can make players feel more motivated to learn, and they can even change the way players interact with their peers in the "real world." In response to the second question, I wrote a non-linear narrative and formed it into a game, using informal game user research and multiple drafting techniques to craft the final product.

After conducting my literature review, I feel confident in stating that video games have real potential to educate that is currently untapped in most educational settings. Certain types of video games have the potential to promote empathy, increase interest, and foster environments where players experiment with religion. Although current mainstream attitudes may treat video games dismissively, they can add shades of understanding and engagement to a learner's experience, if used correctly.

The latter part of my thesis especially proved to be challenging in unexpected ways. At the beginning of the writing process, I realized that in order to effectively understand what the final product of my game would look like, I had to do more advance planning than I would if I were writing a conventional piece of fiction. Instead of writing one narrative from start to finish, I had to map out several different possible branches of one story. From the beginning of this project, I have wondered about player engagement in video games and how video games can enhance storytelling. I found a partial answer to this question in my playtests of my game. As I was testing different iterations of the game, I would be with my players every step of the way. As they were reading

through the pages, they were "thinking aloud" about the choices they were making, what they thought about the tone and style of the writing, and what they were anticipating from the narrative. This testing process helped me to have an inside look at what my reader was thinking as they were playing the game.

To answer my own query, I think that, at least for the game format that I chose to build, there was no line between "game" and "story." The choices that a player would make were a way to make the player feel more engaged in the story, especially if they saw that their choices made an impact on the outcome of the game. Though my game was very simple and relatively small, it offered me this small glimpse of how video games can enhance narrative delivery.

As my project developed, I found that my two research questions had a significant amount of overlap. Many of the games that were surveyed by the researchers in my literature review relied on a strong narrative to educate the player, especially in the case of the global empathy study and the *Darkmists* study. In those cases, the games were effective teaching tools because they engaged players in a strong narrative. In addition, although the game that I developed during the second part of my process wasn't intended to be used in an educational setting, I think that playing or writing a game of that structure could be used in many educational contexts (to teach writing students about linear versus non-linear story-telling, for example).

Overall, this project shifted my perspective on video games dramatically. Rather than seeing them as simply a means of entertainment, the research I did and the creative project I wrote helped me to see the potential of video games to be viable educational tools or engaging artistic pieces. If I were to engage in further research about this topic, I would specifically focus on the artistic elements of video games. Completing this project has greatly increased my interest in seeking out and playing beautifully designed, narrative-reliant, or educational video games.

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