Senior Project Research Paper

by Jose Rodriguez-Rivas

Orthographic

José Rodriguez-Rivas

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Part One: Description

My project is interdisciplinary. I am creating a video game called Orthographic. The gaming field has a place for mathematics, art, writing, and of course, computer science. My project will incorporate writing, sound design, and computer programming. I will be using a game engine called RPG Maker MV (RMMV) to create Orthographic. The engine is used to make top down Role playing Games with turn based combat. RMMV is my engine of choice because it allows for the creation of plugins in JavaScript. This means that I can manipulate the way the game runs by installing plugins written in a very popular scripting language. All the plugins used in Orthographic will be created by me. The word orthographic refers to a type of way of displaying a three dimensional object on a two dimensional display. I chose it as a title because I wanted a weird meta title that mostly game developers would really get.

The development of Orthographic is going to be split into 4 parts. The first part is creating the plot of the game. The game is about a student, Gabriel, who must save his friend, May from a virtual reality world. After losing a competitive game to Larry, Gabriel's rival, in an experimental virtual reality pod named the Somnium. They both get to keep their pods, and when trying the pod, May is sucked into the game. May finds herself in the virtual world of Arouria that is being overrun by an evil warlock, Gurthrain. Lucio, an Arthurian local, tries to save May from being taken prisoner by Gurthrain's henchmen, but is not strong enough to save her. Gabriel enters the game to run into Lucio, who agrees to help Gabriel find 4 fragments to create a key in order to enter Gurthrain's castle and save May. After obtaining the keys, Larry meets Gabriel in the game, and they work together to save May. Upon meeting Gurthrain, Gabriel, Lucio, and Larry battle and defeat him. Gurthrain runs away, and Larry chases after him.

Meanwhile, May explains that Gurthrain is aware of the fact that he is not real, and wants to make his way to the real world by manipulating the game. She reveals to them that they need a Ring of Shadow, and a Ring of Light to go to the real world from the game, and that Gurthrain already has one. Gabriel, Lucio, and May then rush off to find the rings. After obtaining both rings, the three return to the real world to find Gurthrain destroying it as well. They fight their way to Gurthrain to have a final showdown with him. Once their fight is complete, Gurthrain asks the team to allow him to die in the real world, so that he can at least die real. The story is just a skeleton of what the game will be, most of the game will be dungeons and sidequests. I am a believer in the idea that game stories are what the players make them. As for the skeleton story, all the dialog will be written in a similar, but not quite identical, format to a screenplay. I am familiar to the format from Video Production. I hope to learn about character development, and how to write proper dialog to tell a meaningful story.

The second part is the JavaScript plugins. These plugins are the main focus of the project. I know functional JavaScript (JS), however, RMMV requires Object Oriented JavaScript to create plugins. I plan to learn how Object Oriented JS works, and how to take apart an existing system, and add to it through plugins, which is a valuable skill in the computer science industry. I will make plugins for RMMV that I will also publish as the "Tiny Country Games RPG Maker MV Plugin Library." Examples of some plugins include a Day and Night Cycle, Splash Screens, and customizable title screens.

The third part is recording dialog. All the dialog displayed in the game will be accompanied with voice over that I will record. I will audition a set of voice actors, and assign them characters that I feel are a good fit based on their auditions. I want to give all the people

who audition some sort of role, which I feel will be possible, but the ones who show the most dedication and skill will be the ones that I assign leading roles to. I will then record all the voice overs and add them into the game. I will be borrowing a Yeti microphone from a friend to record. I will either use Audacity or Adobe Audition for the sound mixing. I hope to learn about sound design, and build administrative skills in organizing all the voice actors.

The final step is to compile the other three steps into actually creating the game itself. This involves designing the world of the game. This part will most likely be the most time consuming, as it will involve designing long dungeons, and beta testing. I plan on having 2 major rounds of beta testing, the first will be when the first half of the game is ready, and the second will be when the game is almost completely ready. I will learn about game design, and about analyzing user feedback and beta test results for games.

Part Two: Research

For my research, I looked into **how gameplay mechanics and storytelling techniques can be used effectively convey a game narrative**. Storytelling in games has evolved with the technology over the years. In the past, in-game ways of conveying a story were difficult because there simply wasn't enough computing power to have both the story and the game be conveyed at once. Nowadays, games have evolved, and developers have come up with ways of conveying a story though both cinematics and exposition, but also through the mechanics of the game itself. A YouTube channel put together from game designers, Extra Credits, has helped me in understanding these concepts.

During my research, I found a video by Extra Credits explaining the three-act story structure. They explain the three major segments, or acts, that a plot can be broken into. The first act is where the player receives a call to action, or when an inciting incident occurs. It is when the essential question of the story is asked. At the end of the first act, the protagonist does not usually have what they need in order to answer the question asked. The second act is where the protagonist acquires everything they need. The second act is typically the longest and is made up of several subplots occur. The third act contains the "climax and resolution of the piece" (Amnesia and Story Structure). It is where the essential question is finally answered, and the conflict is resolved.

I have chosen to use the three act story structure represented in the video. The first act of my game takes place in reality, where Gabriel's character is set up. It ends when May is pulled into the world of the game and Gabriel must do something to help her. The second act is the bulk of the game. Gabriel must travel the game world, and stop the evil forces terrorizing it as well as

saving May. The third act begins with the final battle between Gurthrain and Gabriel that takes place in the real world. Once Gurthrain is defeated, things start to return to normal. However, the characters have all grown through the experience, and the player can reflect on how they feel about the game itself.

A video on what makes people roleplay has helped my research. In the video, they discuss what makes game worlds real. The two ideas they introduce are the consequences of a player's actions and the permanence of choices made by the player. An example they give is from the game "Deus Ex" where if a player does not save hostages in time, they will be killed. Rather than the game starting over, and the player being given a second chance, the game actually just continues and the player has to live with the consequences of what they have done.

I will try to incorporate consequences into simple actions into my game. Given that I am following a linear plot line, I will have to do this in the side quests of the game. I can, for example, have a quest where a certain family needs a critical medicine for a child. If the player does not do this quest by a certain point in the game, entering the house in which the quest would be originally triggered, would just lead to a mourning family. I could have a quest just like this one and more similar to it where the player must choose to complete at a certain point, or with other conditions, or else, the player will feel the consequence of inaction.

The Extra Credits video, "The Feeling of Agency - What Makes Choice Meaningful?" is all about explaining choices in games. They distinguish the difference between meaningful and unmeaningful choices are. An arbitrary choice, or one that the player does not believe that it will lead to different results, is not a meaningful choice. They distinguish that whether or not a choice is meaningful is also up to the player, and not just the designer.

The implementing choice is going to be important in my game. I want to have side quests with multiple endings, and thus, varying outcomes that affect how the game is played. For example, certain quests that can only be triggered in specific conditions that cause certain advantages or disadvantages for the player to continue the game.

I would like to look further into different techniques in conveying a game narrative. I could research conveying a story through mechanics and level design, without any dialog or explicit storytelling to convey a narrative. I would also like to explore more into the effect that game stories have on the people playing them. To find out whether or not games really do have a bigger impact on real world behavior than other forms of media such as film and music.

Part Three: Reflection

I expect things to go moderately well for my project. The work I have done so far has been pretty solid. The plugins work well, and the script is coming along decently. The script still has ways to go to be complete, but I don't have to write much more in order to begin the audition process. I think the audition process will also go well. I believe that people would want to be a voice actor for a game just for the sake of the experience.

The strengths for my project so far are the JavaScript Plugins. I am especially proud of my splash screen plugins and my day night cycle plugin. They work well, and allow for plenty of flexibility so any RMMV user can benefit from the plugins.

I have not encountered many problems so far. However, when it comes to coordinating voice acting auditions, I predict several logistical problems to arise. I plan to hold auditions at my home, in Newbury Park, which might be difficult for people in Simi Valley to make the drive all the way out. I will have to find a good date to get as many people as possible to be able to come. If someone simply cannot make it out to Newbury Park, I will find a way to hold their auditions elsewhere, and figure out how I will record their voices later. I also see time constraints creeping up. I want to have the project done by February, but I might face some difficulties if school work gets in the way, or if voice actors are difficult to schedule. I will do my best to manage my work time wisely. I will use GitHub to set milestones of what needs to be done within a monthly period. If something is not done at a milestone, I will make it a priority above any other work to make sure I do not fall behind on the project.

I feel positively and optimistic about my project. I know I have been able to work in crunch time before on major projects. I have been able to build a large scale website from scratch

in less than 5 months. I have a skeleton plan on how I am going to complete this game. I will

submit the final product to the IndieCade International Festival 2017. I hope it is received well

by the judges of the festival. I feel like I have a solid concept for what the game is going to be. I

intend on spending a substantial amount of time planning out the world of the game. This is to

ensure that there will be intelligent levels that won't seem too easy, or too difficult. I am looking

forward to releasing the game, and seeing how people to react to the game.

Part Four: Works Cited

1. *Amnesia and Story Structure*. Extra Credits, 2012. Online Clip. 11 Oct. 2016.
2. *The Feeling of Agency - What Makes Choic*. Extra Credits, 2013. Online Clip. 11 Oct. 2016
3. *What Makes Us Roleplay?*. Extra Credits, 2015. Online Clip. 11 Oct. 2016.

Part Five: Annotated Bibliography

1. *Amnesia and Story Structure*. Extra Credits, 2012. Online Clip. 11 Oct. 2016.

    To understand why amnesia is used in game stories, first the three act structure must be understood. The first act is where the plot is set up, and the conflict is introduced. The second act is about acquiring everything necessary to solve the issue presented in the first act. The final act is resolving the conflict and all loose ends are tied up. The next narrative concept to understand is In Medias Res. In Medias Res is when a story begins in act 2. Games use In Medias Res to get to the action immediately. Designers use amnesia as an excuse to not have an act one, or to just sprinkle it through the second act. Using non dialog techniques can help designers use amnesia in story without having to disregard the first act. The piece delivers the information in a digestible way, making it easy to understand for anyone. They use examples from several different pieces to explain what they are talking about and how it relates to the points they are making.

2. Krajewski, Jake. "Immersive Narrative and Storytelling in Video Games." *Reporter* May . Web. 11 Oct. 2016.

    Games can immerse a player in a way that other media can not. In games there are several techniques to tell their stories, both involving narrative and mechanics. Tropes often play a key role in game stories, and can be used effectively and not effectively. Some games don't use much of the mechanics to tell their story, yet still have a strong immersive story through narrative. On the flip side, some games with weaker narrative can have just as an effective story with just level design, mechanics, and minimal dialog. The piece focuses entirely on the words of a teacher RIT. The piece was written by a 2019 Electrical Engineering major, which might affect the credibility of the piece.

3. Shepard, Mike. "Interactive Storytelling - Narrative Techniques and Methods in Video Games." . USC, 12 May 2014. Web. 11 Oct. 2016.

    Games tell their stories differently than any other media. In the early days of video games, their stories were not so important. The major focus was just on the game itself, and the story was often not in the game itself but in the manual that came with the game. Since then, things of changed. Games can now use narrative devices to tell stories. Video game stories are unique because they are interactive. Rather than telling the story to the player, the player experiences it for itself. The piece proves plenty of examples to convey what the author is talking about. The author cites everything he mentions, to maintain his academic honesty.

4. *The Feeling of Agency - What Makes Choic*. Extra Credits, 2013. Online Clip. 11 Oct. 2016

    Choice is what set apart video games from other medium. It is important for developers to understand what a meaningful choice is. Choices can be either mechanic or within the narrative of the game. A meaningful choice is not arbitrary, the outcome of the choice must have a relative impact in the game. A choice must also lead to different outcomes. A choice is also not a calculation, being able to determine exactly which choice is objectively "correct" means the choice is not meaningful. A choice can be both meaningful and not meaningful, depending on

the player. The piece uses many examples to explain the points presented in the game. The point of the piece is to introduce the next several videos in the series, so the points where somewhat vague in order to allow for another more specific and in depth video to be made.

5. *What Makes Us Roleplay?*. Extra Credits, 2015. Online Clip. 11 Oct. 2016.

Consequences can immerse players into the world, adding a realistic feel to the world. Games that force the player to take the world more seriously, by creating different consequences for certain actions are likely for the player to role play. Games only have to set a realistic consequence to actions once in a game to immerse the player effectively. Permanence of actions also immerse a player. Making certain choices permanently change the future of the game allows the player to feel like they are the character. Role playing is also up to the individual experience of every player. The piece uses specific examples of games who use the techniques presented well in order to visualize the points being made. Each example is specific and detailed.

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FINAL GRADE

GENERAL COMMENTS

Instructor

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