Mistaken: A Video Game About Deception

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Abstract

The goal of this project is to develop a video game created for the purpose of informing students about the dangers of fake news, misinformation and disinformation. The game is not limited to students however, it is important for everyone to be well versed in consuming information within our digital age. With advancements in technology, students are at the mercy of the information they view. For the project, the unity engine will be utilized along with the component/object oriented programming language known as C Sharp. Through the iterative development process, there is a lot of feedback that is used to situate works. It would behoove the development process of creating an informative game that everything from the art style to gameplay mechanics are encouraging the player to think about how the piece of information affects themselves and society as a whole. From the beginning, I have to be mindful of how the game is perceived by the target audience.

Introduction/Background

For my senior project I am going to be developing a video game that informs the player about fake news, misinformation and disinformation. Within this video game the player must use their best judgement to engage with various media. Based on how the media is consumed by the player, the game will present increasingly difficult choices to make that affect how the game progresses. I was inspired to do this project because I am both an avid video game enthusiast and player as well as a conspiracy theorist. I was also inspired to do this project because of the meaning of all the confusing terminology used when describing misinformation/fake news. As the article *"Fake News" Is Not Simply False Information: A Concept Explication and Taxonomy*

of Online Content, points out, '"fake news" no longer refers simply to false information...the term "fake news" has been "irredeemably polarized" in that it has been co-opted by politicians to refer to any information put out by sources that do not support their partisan positions."(Molina et.al 2019, p.3) The terminology to describe the issue has be twisted to a point where it becomes hard to identify what the issue is in the first place. It is important to help people to clarify what is happening to information and how it is being used. A way to teach that clarification is through video games. The areas that informative video games can be used are extremely varied from teaching a single action or task to more complex actions. People play video games for reasons ranging from relaxation to competition. Both of these aspects can be harnessed within an informational space to keep players engaged with the content. Specifically, younger learners benefit from informative video games because there is motivation that comes from engaging with the content. At the same time however, it is not limited to younger audiences. I want to find a way to make experiences more meaningful and engaging to all players while at the same time build confidence in interacting with high quality information and video games are the way to accomplish this. This is because video games can ensure that players are able to stay focused and attentive with the learning process and is a natural way to scale challenges. Video games allow for active participation.

Active participation means that the user is able to interact with the content in a hands-on approach. Video games are an opportunity to escape the boundaries of oneself to engage with new perspectives and accounts. Interactivity is a major component to my project because I want others to experience how dangerous information can be when it is mishandled. Interaction is important for learning because it helps to visualize information. There is an increased relevance of technology now because technology has become so advanced. Seeing and learning about how

information can be manipulated frightened me. Many aspects of everyone's lives revolve around the consumption of information. This information comes from a wide variety of sources with some being labeled as credible, while others are less than credible. Information causes action to be taken and when the information is low quality, drastic action can take place. An example of this would be the infamous 2016 incident widely known as Pizzagate. This incident involved the basement of a Pizzaria in Washington, D.C. were alleged child sex trafficking was taking place. This alleged conspiracy theory featured high profile politicians such as Barack Obama and Hilary Clinton. Doubek states, "a 28-year-old man pleaded guilty to charges related to a December incident when he brought an AR-15 rifle and other weapons into the restaurant and fired shots inside."(Doubek, 2017, paras. 4) disinformation, or false information that is deliberately spread to influence what the public perceives, is rampant within the digital age that society is in. This is all happening during a time where information is personally tailored to affirm our biases and beliefs. This creates a situation where the consumption of information can lead to violence.

With advancements in technology, people are taking the way they gain information into their own hands. The journal, *Self directed learning in video games, affordances and pedagogical implications for teaching and learning*, explains that "self-directed learning is becoming increasingly important in the twenty-first century due to the rapid changes caused by technological advancement and automation, which necessitate a shift in the learning models adopted by students from a more teacher-directed to a more student-centred pedagogy."(Toh, Kirschner 2020, paras.1) The information landscape is changing overall. People are more inclined to do their own research about topics as opposed to studying at a university. This is

convenient but with the mass of low quality information flooding the internet, the user has to be able to discern between what information is accurate and reliable.

Video games that are traditionally not informative and educational in nature can in fact be used for informative purposes. The book, *Computational Thinking Education*, talks about how "many schools in India offer some form of computer studies as a subject to their students. This subject is suitable for learning thinking skills of broad applicability, such as computational thinking and twenty-first-century skills, in addition to learning computer application usage skills." (Lyer 2019, p.375) As computers become more and more a part of our lives, the idea of computer literacy should too. This is because at the heart of technology is interaction and consuming information. That information can have many origins and agendas unknown to viewers.

Project Specification

To elaborate on my project, I will be creating a video game that is informative in nature. The player will be tasked with manually filtering through posts that are presented on a social media platform. This imaginary platform will have information in the form of posts that will be displayed for the player. The idea of the game is for the player to decide if the information that is presented before them and sift through posts that are not credible. The trade-off of removing posts that are not credible may be the popularity of the social media platform. The revenue generated by the site may be reduced. On the other hand posts that use clickbait may generate more views and attention but may be spreading dangerous ideologies. The player has to manage various systems including, credibility, public perception, and funding. The player wins by successfully managing all of the systems to have a thriving social media platform. The player

loses by allowing public perception to decrease to a point where they lose funding and users and have to close the platform. The genre of game is simulation based. The look and feel of the game will be presented in a 2D visual style. The target audience of my game is people that are of highschool to college age. More importantly, people that are not well versed in consuming information. There will be a gui that acts as the hub for the player to go on to manage the various systems. The player has to manage resources over time. The inspiration for this type of game came from the video game called *Reigns*. Developed by Nerial, an independent game studio, and published by Devolver Digital, the game follows a king ruling over a kingdom. The player has to manage various resources such as money, religion, population and military power. The key is to keep the balance between all four of these resources to rule for a long time. If the resources depletes or becomes an overabundance the player loses. In a similar fashion, for my project, management as a type of game works best for my approach. Another game that was highly influential to my project is the video game called *Papers, Please,* developed by Locus Pope and published by 3909. Papers, Please follows a border customs agent as they check people's passports for entry into the country. Though this game features a simple premise, the game introduces more and more complex scenarios that require the player to make decisions with an abundance of information. The problem is however, that not all the information presented is accurate. This creates a complicated dynamic where the solutions to problems are not readily available. Papers, Please does a good job at creating limitations that the player has to overcome. The graphical user interface is designed to make the process of acquiring information a challenging task due to the fact that only a limited number of items of information can be accessed at a time. In a sense the information has to go through a "middle-man" to become usable to the player. This idea of information going through a middle man situates itself, on the

term disintermediation. Disintermediation quite literally is “the elimination of the middlemen.”(Pariser,2011, p.59) In relation to my game, this concept could be interesting to utilize to emphasize the barriers to obtaining accurate information. This would add to the anxiety of choosing information to flag or pass.

Specific Aim(s)

The reason for creating a video game centered around misinformation and disinformation is because of how overwhelmed society is with the influx of constant streams of information that is readily available. The hope for this video game is to inform people that are not well versed in the ramifications of consuming information. To be able to measure the effect that the video game will have on the people playing it I have thought through the evaluation process to be undertaken. For my evaluation, I will be testing the users before they begin their play session. After the game session has concluded the player will then be tested again. This is the pre-post test evaluation method. This is an effective method because it allows for the individual being tested to definitively know where they stand in their understanding of the subject matter. It is also a great way to as an evaluator to measure the successfulness the product has on the audience. The article, *A Brief Guide to Selecting and Using Pre-Post Assessments* by Sanders, (2019) , shows that

> ”pre-posttesting can also be valuable to teachers because it provides teachers with baseline information when beginning instruction. Although the pretest should not be the sole source of information when determining academic level and instructional methods, it can be a valuable source of information.”(p.3)

This evaluation model will ensure that the product will have a measurable impact on the perceptions of the audience. It is also important when collecting this information to realize that the scores recorded do not reflect the capability of that individual to discern information. The types of questions that will be asked to the participants will be multiple choice questions.The questions during the pre-test would include questions such as, how often do you do research about news that you see or hear about? The participant would respond by selecting from four choices with those choices being: 1(always), 2(often), 3(occasionally), 4(never). An example of a question that would not be a pre-test question would be for example, what is fake news? This question itself is a loaded question that can be ambiguous to most. Fake news as described by Wang, (2020),

> "refers to news messages that contain incorrect or false information but do not report the incorrectness of information. It is the core concept in the research of fake news. However, not all studies adopt this definition of the term "fake news". Tandoc Jr, Lim, and Ling (2018) revealed that in the literature, there are different definitions based on two dimensions: levels of facticity and deception." (p.149)

There is a lot of disagreement within the academic community as to how to label or define fake news as.This is because there are many complex narratives weaved into what comprises fake news. Fake news discusses news put out by the news media so it does not always have to originate from non-existent stories. There are truths within the lie but the facts presented are inaccurate. The types of questions asked during the post-test will be about gauging what participants will do with the newly acquired knowledge.

Ultimately, I want the people that choose to play my game to feel confident when they consume information. With the staggering amount of information readily available people can

become lost in information that is both damaging to themselves and others if not dissected to get to the heart of the matter.

Methods/Approach

The Unity engine is a video game engine or tool that is used in the creation of 2D, 3D and VR games across a variety of platforms including; mobile devices, PCs, and gaming consoles. Since releasing in 2005, this game engine has been praised by the developers that use it for its beginner friendly learning curve and how great the tool is for novice developers. Unity is an enormous market accounting for almost half of the mobile games on market. Meaning that around half of the mobile games that came to various markets were created using the unity engine. The unity engine is so well known and popular that it has been used in non-gaming industries such as film, automotive, architecture, engineering and construction.

Unity Engine is viable for game creation because it is industry standard. Iterative Design and Development are emphasized through Unity's Integrated Development Environment.Game design and development need to be focused and revised constantly. *RumbleBlocks: Teaching science concepts to young children through a Unity game shows that*, "[There is] the idea that the quicker you get a game fielded, the quicker you can fail and discover where your initial ideas were ill conceived which lessens the impact of course corrections. The ETC emphasizes the importance of early and frequent iteration in game design"(Christel et.al 2012, p.3) In designing my tool/game it will be important that the testing process be a top priority. Being able to quickly see what areas of the game need improvement or what needs to be reworked can save time and stress throughout the entire design and implementation processes. Christel 2012 says,

> "First designs were communicated through paper prototypes, leading to insights that guided subsequent work. For example, the first towers were constructed of a playful mix of lollipops, candy corn, and chocolate bars, chosen for a strong candy theme with rich color and variety of shapes. This early idea, loved by the artists, met with skepticism from educators concerned about promoting bad eating habits."(p.3)

Through the iterative development process, there is a lot of feedback that is used to situate works. It would behoove the development process of creating an educational game that everything from the art style to game play mechanics are encouraging healthy practices. From the beginning, I as the developer have to be mindful of how the game is perceived by the target audience which are highschool to college age people.

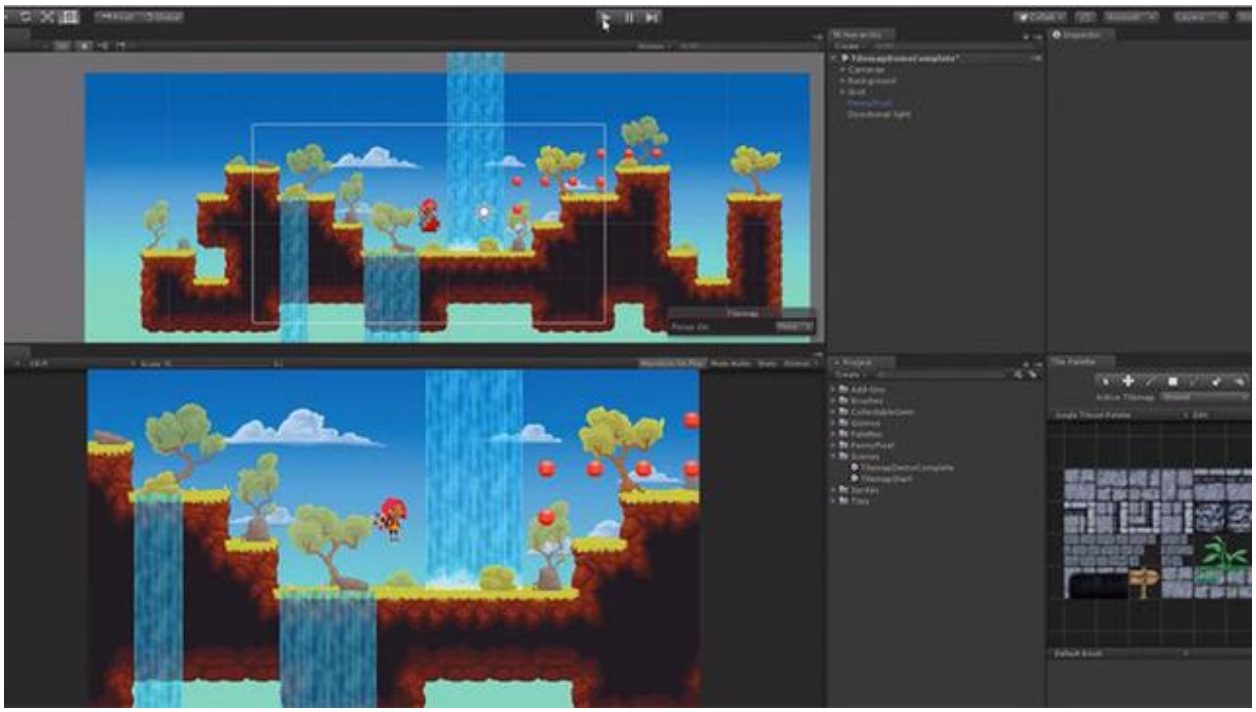

*Figure 1 - Unity engine creation of 2D video game.

Unity is a versatile tool. As a game developer it is important to have a variety of options available for the development process. The article *Toggle toolkit: A tool for conducting*

experiments in unity virtual environments talks about, “Toggle Toolkit, which is an original collection of Unity scripts designed to control various aspects of interactive 3D experiments. The toolkit enables researchers in different fields to design, conduct and evaluate experiments and include interactive elements in immersive virtual environments.”(Ugwitz 2020,p.1) As Unity is a widely used tool, there are a number of resources available to help through the design and development process. Looking into the Toggle Toolkit would be beneficial for my work because it offers a lot of resources dealing with design, interactivity with virtual environments and measuring effectiveness. Ugwitz 2020 argues,

> “Once a trigger is executed (with a pre-described action, such as colliding with a virtual object, pressing a key, gazing at an object, etc.), the toggles associated with the trigger are activated and then change the attributes or behaviors of linked objects. All interactive behavior is logged and made available for further statistical analysis.”(p.1)

This would be advantageous to my project because I ultimately want the game to be modular. This means that the objective of the game would change as needed or wanted but all within the same environment. This allows for players which would primarily be students to remain within the gaming environment while continually learning.

The programming Language C Sharp is a modern programming language that comes from the C family of programming languages including: Java, JavaScript, C, and C ++. C Sharp is an object oriented and component oriented language and runs in the .NET ecosystem. Object-oriented programming focuses on how classes interact with each other and the bytecode is executed while component-oriented programming focuses on modularity and code that works independently.

C Sharp Integrates well into unity through scripting.Powerful programming language that is efficient.C Sharp was built with modularity in mind as it encourages isolated builds. This language is supported by the unity engine and encouraged as the unity engine runs through C sharp. The article, *Design and Implementation of an Intelligent Gaming Agent Using A* Algorithm and Finite State Machines*, enlightens prospective readers about,"A customized version of MonoDevelop ships with Unity, the game engine by Unity Technologies. It enables advanced C Sharp scripting, which is used to compile cross-platform video games by the Unity compiler."(Adegun 2020, p.194) MonoDevelop is an open source software that helps developers create applications without worrying about time. With the custom version of MonoDevelop made for unity the process of scripting is simplified. Using the integrated MonoDevelop that unity provides can allow for faster development time because one no longer has to worry about syntax, they can focus on the contents of the code. With the similarities between C Sharp and Java it is straightforward to start scripting. In the Journal of Physics: Conference Series, the article, *Development of Vehicle Fault Maintenance System Based on Unity3D* offers more insight into Unity and how it synergies with C Sharp. Zhang 2020 states,

> "Unity 3D supports three scripting languages: JavaScript, C Sharp, and Boo. C Sharp inherits the powerful functions C++ while removing some of their complex features. C Sharp itself has very powerful language features and is more suitable for in-depth development than JavaScript. C Sharp combines VB's simple visualization operations with the high operational efficiency of C++. The rich library resources enable programmers to quickly write a variety of applications based on the MICROSOFT .NET platform."(pp.5-6)

C Sharp being from the C family of programming languages has a lot of the features of its counterparts C++ and C. What stands out however is that C Sharp houses a medley of features that are borrowed from the C family. C Sharp is ideal for developers that want to have the most control over their applications.

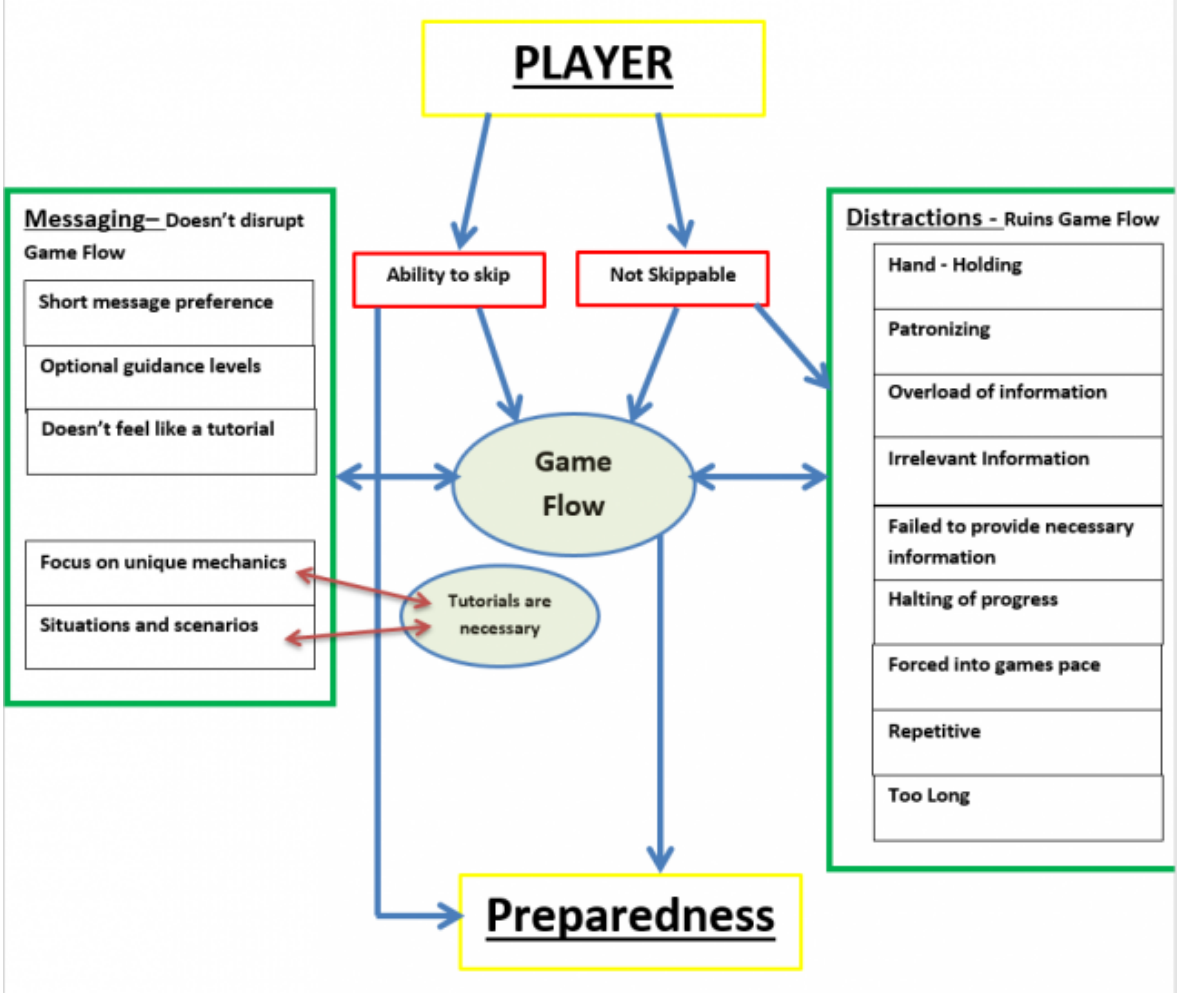

*Figure 2 - Showcases gameflow that keeps players engaged.

Project Deliverables

Source code to video game
Manual for video game
Assets for video game
Evaluation questions for pre/post tests

Week-By-Week Timeline

Task	**Begin Date:**	**End Date:**
Proposal defense preparation	Mid Oct.	Early Nov.
Thesis outline	Early Nov.	Mid Nov.
Thesis intro/related works	Mid Nov.	Late Nov.
Coding of game	Early Dec.	Mid Jan. - Early Feb.
Writing of Thesis	Late Jan.	Early Mar. - Late Mar.
Overall Testing	Late Feb.	Mid Feb.
Thesis defense preparation	Early Apr.	Mid Apr.

Autobiography

This project will be my first professional level attempt at creating a video game that can eventually be published to digital platforms. My dream is to become a video game developer. Ever since I was a child I was fascinated with computers and video games. I was obsessed with the power video games had to transform reality. Video games can transport your mind to a limitless number of places and challenges how someone perceives information. At the same time, video games allow for escape. I am prepared to complete this project by staying true to the deadlines that are set before me. Keeping to the schedule will be important to help me gauge how much time available to complete the project. At the same time it will be vital to incorporate grace periods to take into account unforeseen circumstances. I will have to have unwavering strength and resolve in researching and implementing vital components. All while at most having an email or video call with my readers. I am prepared to sacrifice my peace of mind to create something that I consider meaningful and important because the video game I am trying to create will eventually become an official game. Throughout my time at Allegheny College, I have taken the steps necessary to learn how to create video games. From learning about control flow and conditional logic to manipulating ,storing, and accessing data from various containers, I have gained the knowledge to produce a product that showcases my ability. My classes in both computer science and communications have positioned me to think critically about power dynamics and ethics of data collection.

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