ENCRYPTIA: AN AUGMENTED REALITY

PUZZLE-BASED VIDEO GAME

by

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INTRODUCTION

My whole life, I have been inspired by and drawn to interactive media, whether that be cartoons on the television every Saturday morning, or staying up late to play Pokemon on my Gameboy when I should have been sleeping. It's no surprise that children and even adults are captivated by such creative endeavors, video games especially. Games as a whole provide a way for the curiosity of man to be satisfied, as well as a means of relieving stress and escaping the harsh truths of reality, even if just for a short time. As time has gone on, there have been rapid advancements in game technology, including the format in which they are played and experienced. VR headsets are increasingly popular, as well as games that "break the fourth wall" by addressing the player in ways that fall outside the game's created reality.

However, no game so far has combined the reality we live in and the fabricated world in a seamless way, so wouldn't it be incredible if there was a game that could implement both virtual and physical components to redefine how we play games? The execution of this project will show the answer: a story-driven interactive game, dependent on solving real life puzzles in order to progress in the virtual game.

THESIS STATEMENT

This project involved the marketing and branding of an augmented reality visual novel game, which is an experience new to the genre that changes the way players think about games and controls the gameplay in a very unique way. By using both virtual gameplay and real life puzzles, the player will be able to interact with the storyline in a way that hasn't before been experienced in the video game world. This will be accomplished through extensive research into the reason people are drawn to games in the first place, the target market that typically invests into visual novels and targeted video games, the branding of digital video games and games that have real-life merchandise, and the design depending on the mood of the plotline. The final result included a full brand development, advertising, social media pages, a gameplay interface mockup, and package design.

METHODOLOGY

Descriptive research about games, specifically why humans play them and are drawn to the concept of games, was conducted to gather information for this project. This descriptive research included individual case studies on cornerstone games throughout history, as well as general research about game design, the purpose of games, and how games are evolving. This research was used to make both marketing and creative decisions regarding the development of this project.

Books

The book *Official Price Guide to Classic Video Games: Console, Arcade, and Handheld Games* was read to gather insight about the significance of early games, as well as how the gaming industry was born and the huge market it created. David Ellis, the author, is an Emeritus

Professor in the School of English, University of Kent, and quite literally grew up during the boom of video games.

Pixel Art for Game Developers by Daniel Silber was read to gain an understanding of classic digital visuals and how to work within the constraints of nostalgic games. Silber is a game developer himself and teaches a variety of different pixeling and color styles, as well as touches on how games have evolved.

Interactive Storytelling for Video Games by Josiah Lebowitz describes how to most successfully create a well-told story and how video game mechanics are an integral part woven into the structure of the storyline. Lebowitz is a game designer, writer, and narrative designer. He is also a professor of Game Writing at George Mason University, and has been perfecting his craft since 2009.

Articles

"October 1958: Physicist Invents First Video Game" published in American Physical Society's *This Month in Physics History* details the tactile and scientific process needed to create a simulated physics engine, which in turn led to the development of Pong, and ultimately other digital games. APS has a strong reputation for being reliable where science and historical progress is concerned.

The National Museum of American History also had an exhibition of "The Art of Video Games," and with it published "Pong, Atari, and the Origins of the Home Video Game" on their website. Angela Modany, the author and an intern at NMAH, described her own anecdote of growing up with early video games, as well as a brief history as presented in the exhibition.

The Encyclopedia Britannica article "Pong" detailed more information about Atari, and how the company went on to make and design more games and produce exponentially for the ever growing market; similar information was also presented in *Centre for Computing History*'s article "Atari PONG," especially details about how the game sold and its revenue.

"The History Of Chess: Where Chess Started" was published by Athnet (a leading source for competitive electives and sports) as a means to describe the competitive nature of chess, and how it has evolved into a very serious 'sport' in some ways, and how games bring people together and improve their strategic minds.

"From Early Stages to Magnus" by Chess.com also describes chess and its historical significance both as a game and as a tool for status and power through the eras.

The article "How to Understand and Play Dating Sims" was also read in order to learn about the appeal of dating sims and visual novels as a genre. It was published by Polygon, the top source for gaming news and discussion. The author, AM Cosmos, used to work in AAA game development, and she now uses these skills to write about various genres and why they are important to the market.

The article "Understanding Gamer Psychology: Why Do People Play Games?" published by Sekg was read in order to pinpoint the reason games are appealing and why human curiosity drives us toward interactive experiences like games.

Along these lines, both "The Demographics of Video Gaming" by Carolyn Morris and "Gender Dynamics and Consent in Dating Sims" by Rohil Aniruth were read to understand who

exactly plays games, and how the demographics and values of modern gamemakers have changed over time. Both Morris and Aniruth specialize in technology, film, and research.

Observations

A present-day video game store, GameStop, was visited in order to observe how games are presented in physical form. Games are displayed by console, and merchandise such as accessories, novelty items, and expansions are sold alongside the most popular games. There is also heavy use of color-coding products and sleek design of displays.

A different sort of game store, Steam, was also observed. Rather than a brick and mortar store, digital purchase of games has become widely more popular, especially with the advancement of laptops. Steam in itself utilizes dark colors to ease eye strain from desktop gamers, which is very different from the bright GameStop. Games are organized by genre rather than console, since the type of console is moot on Steam. There is also the use of clickable ads for new or underrepresented games, which allows people to discover new titles since they are not all immediately on display like they would be at a store.

Gaming convention PAX South was attended to conduct field research on the design and marketing of new video games and tabletop games and how they are presented in a saturated market. A number of different displays were used in order to promote games depending on the genre and format, which included (but was not limited to) monitors, large signage, projections, vinyl decals on the floors and walls ornamenting individual booths, and so on. The environmental design was critical to differentiating each game or company from the other booths around it.

A selection of popular visual novel games were played as well, including titles such as *Monster Prom, Doki Doki Literature Club, Mystic Messenger,* and the *Danganronpa* series. These games encompass a variety of plot genres, but ultimately have the same mechanics that will be emphasized in the execution of this project.

Monster Prom is a generic 'dating simulator' game, but what sets it apart is the bold character design, and the player's goal is to romance an actual monster of their choice.

Mystic Messenger also falls into the dating simulator category, but an interesting gameplay element is that the novel plays out in real time. You have to wait until certain times of day to progress the story.

Doki Doki Literature Club begins with the appearance of a regular dating simulator, but the story arc twists until it becomes a psychological horror, and even goes as far as to program in "shut downs" (the game closing on its own for dramatic effect) and other features where it gathers information from your computer and uses it as part of the gameplay mechanics.

Finally, the *Danganronpa* series is just another variety of visual novel, following a modified "murder mystery" plot. However, the games also implement a variety of minigames, so-to-speak, allowing the player to solve puzzles, interact with the environment, and move through a three-dimensional space.

The key takeaway from this selection of titles is that each game has a different aspect that makes it stand out or attracts players with a varied type of gameplay. This information was crucial when creating an augmented reality visual novel that is meant to separate itself from the crowd.

RESEARCH RESULTS

The research led to valuable information related to the history of visual novel video games, the advertising and promotions that are commonly used in the industry, the specific target market for this business model, and design considerations for creating brand, collateral, and advertising.

Background Information

Three case studies were conducted on increasingly specific games in order to narrow down the purpose of why people play games, how game technology has advanced, and the level of interactivity of current games within the genre. The notable components of each case study were observed in order to select the individual elements of game design that will be utilized in this project. As such, the studies are formatted in a way that broadly describes the subject, then pinpoints which elements are significant to include in the final execution of this project and cites them accordingly.

CASE 1 - CHESS

It is widely accepted knowledge that chess originated in India around the 5th-6th century. However, the basic format of the game has been around and similar versions have even been played by the Egyptians, dating the concept of games even further back in time (Chess.com). Chess, being one of the oldest and most well-known games, is noteworthy not because of its use of strategic gameplay as opposed to being luck-based, but rather that the game was developed as a no-consequence alternative to actual war planning.

While the chess that is known today has a set of rules that seem convoluted in comparison to war strategy, older versions of chess were more akin to the reality of how battles actually took place. What is interesting to note, however, is that the game became a catalyst for human bonding, social status, and entertainment. Human intellect is so advanced that we, as a species, bore easily, so it makes sense that we would turn a form of work into something we can occupy ourselves with. Humans are also extremely social animals, so the aspect of playing versus another person or even cooperatively in some cases is a huge draw. Winners would even be considered higher status or of having a higher strategic intellect; in lieu of wasting resources on supplies and other human lives, the game could be played as an alternative ("The History of Chess"). The pieces would have similar valuation placed on them as they would in real life, such as a queen being more powerful than a pawn, but there would be no risk of losing either in the tangible world.

The element of uncertainty with no life and death consequence is what makes games, and chess in particular, successful as a concept. Humans are innately curious, and it is suggested that games are a form of escapism from "reality." While many games are played with physical components, such as chess, you are not in control of an actual knight or queen, and making decisions that affect a real person's life. With this in mind, the player can focus on the strategic aspect and learn how to better their senses in a controlled simulation. Chess was one of the first documented examples of escapism, and both the mild amount of stress towards beating the

opponent and the sense of accomplishment when a player wins is what makes the game attractive, and even addicting.

Chess, of course, has evolved from more primitive games, and more nuanced games have evolved from chess. Reduced to its most basic form, chess is a game based on the interactivity of the user and the other player, and how one's individual moves affect the outcome of the game as a whole. This gaming principle has carried on through hundreds of thousands of other games, whether someone plays solo, against another person, or artificial intelligence, and that is what makes this game a cornerstone in the development of game entertainment for all games onwards. With this element of gameplay noted, significant work could be made toward implementing the true purpose of a game and what makes it playable and enjoyable into this project.

CASE 2 - PONG

In 1958, William Higinbotham created what is considered the first video game, which was essentially a very early version of the game Pong from the 70's (Tretkoff). The transition from physical board games and sports to something entirely self contained was a huge breakthrough in how games are experienced and interacted with. The implementation of games being digital also meant that game design had changed, not only in developing user-friendly gameplay techniques, but also in visual communication on-screen.

While the very first version of Pong had extremely limited graphics and a tiny screen, it was still important that there was a visual connection between the controls and what was happening on screen. The instructions were even simplified to the highest degree, to simply avoid missing the ball to achieve a high score (Tretkoff). The game, even though it was simple due to limited technological advancements, became extremely popular among children and adults alike. What brought everyone together was essentially the new method of interacting with games, and broadly, technology. As Pong evolved, its success pushed Atari (who ultimately coined the name and produced the Pong,) to create more and more arcade style games (Centre for Computing History).

As for the design, a whole new genre of art called pixel art sprang from the limited graphics of the period, and some game designers choose to use it today in lieu of realistic graphics because of the distinct style, nostalgia, and charm. While formed out of necessity, there is something to be said about the skill needed to create images out of a small grid of squares and as few as three colors, if any (Silber, p.1-7). Of course, today's standard gaming machines allow far more customization and larger canvases, but a large draw for older audiences is the development of games implementing classically styled artwork with a limited palette.

Pong not only sparked the advancement of game interaction, but created a new platform for art and design to grow from. As the world of video games has broadened, so has the stylization and design depending on how the game is played. It will always be important to recall, however, the effect visual nostalgia has on an older audience, allied with the currently trending graphics and interfacing in games that appeals to the younger audience (Silber, p.2). This information will definitely be considered in the execution of this project to align it toward the projected audience.

CASE 3 - DATING SIMULATORS

Dating simulators are essentially a text-based, interactive visual novel where one can guide their persona along various choice paths in order to romance one of the number of characters 'available' to them. Since the surge of digital games, there has been a huge variety of game genres bursting from the seams of potential, and among those have been text-based adventures. The dating aspect goes as far back as 1985, where the primary goal of the game was not to beat a boss per se, but rather to end up with the love interest.

The mechanics of dating sims are quite unique in that there is not necessarily "life" and "death" like most games (though of course, there is always the possibility that could change with a creative script) but rather "bad ends" and "good ends." Bad ends serve to teach players how to interact with dating sims (Cosmos). Since there is no finite end like death to be afraid of, players may test their limits to see what they can get away with; similar to the appeal of chess versus directing the actions of actual armies. The goal of the simulator is to emulate what would happen if you ended up in a virtual 'relationship' with a character in the game, so bad ends exist to deny you of this, naturally.

What is interesting is how dating sims have developed using these mechanics. Self-proclaimed gamers will often try to achieve all the ends of a game, just for kicks, so game developers will make the true or good ending very hard to attain. This way, the game has replay value and it also makes the players want to work to successfully romance the character instead of just goofing off and getting the bad or dramatic endings. This can also be achieved by reverse psychology, where the game developer will make it impossible to date the character you like, and instead twist the game into a dramatic scenario that denies you of the one goal you set to achieve with a game from this genre. There is a specific art to making the player frustrated or even distraught at the game's outcome, and it must be achieved tastefully so the player doesn't leave the game ultimately feeling like it was a waste of time; what makes the games desireable is the level of attachment to the characters, so that line must be tread carefully (Lebowitz, p.110-111).

Another interesting feature of this genre is that they do not play like other games. While one can compare "bad ends" to "deaths" in other games, the entire approach to the dating simulator genre must be altered. Normally, a good gameplay technique for adventure games is to read every option and place eggs in many baskets. However, the nature of the generic dating sim is for you to select one route only. Therefore, a bad end may involve the player not being able to find love because they spread themselves too thin (Cosmos); in order to progress correctly, people who are familiar with video games must alter their mindset and dedicate themselves in one direction at a time and be vulnerable--much like a real relationship!

What makes the dating simulator genre different from normal video games is not only how it is consumed, but also the way it forces a person to think about their decisions. Coupling this concept with an augmented reality element could make for a really interesting experience that could change the way these games are interacted with even more.

Target Market

The common dating simulation game targets young men ages 18-30 years old, which also overlaps with the market for video games in general and those who frequently make gaming purchases (Morris). However, in recent years dating sim plotlines have been targeted more towards women, despite many of the main love interests still being targeted to a male audience (Aniruth). As it stands, given this information, the market is fairly gender-ambiguous, but still appeals to a young adult audience with spending habits that lend themselves to be able to afford minor luxuries like games.

Marketing & Promotions

Given the observations made on Steam and at GameStop, the most popular and effective method of advertising games is digital content. For action-based games, this means trailers, but for games of the visual novel genre, this means motion graphic advertisements on social media, clickable ads on gaming platforms or news sites, as well as physical displays in either a brick and mortar game store, or at gaming conventions/expos to promote the purchase of the game. Due to visual novels not having captivating animation, a video trailer would be redundant to the target market.

Due to the nature of the project idea, package and product design will need to come into play for the augmented reality aspect. By following the color coordination elements (i.e. the color of the disc case matching the brand color of the respective console) seen at GameStop, the entire game can be branded with a simple use of color and/or design elements much like physical copies of games are branded to the console they are played on. The plan is to sell the game digitally, so the console branding is a moot point when it's not being displayed next to hundreds of other games, but having the physical deliverables match the style of the game itself will make the product feel much more cohesive and purposeful.

Finally, merchandise will be something to consider. GameStop sells more than just games; they sell figures, accessories to consoles, novelty items relating to popular games, and more, to ultimately encompass a 'nerdy' experience rather than just a place to buy games and games only. Due to the fact that this project will already have deliverables, this type of marketing may not be necessary when the crucial assets are complete. However, it is still something to consider for fans who want more collateral beyond what is included with the game.

Design Considerations

Games are typically color-coordinated and styled based on their genre (Silber p.1-2). Since visual novels encompass a huge amount of plotlines, it is better to focus on the nicheness of dating simulators, regardless of what direction the plot ends up going. Based on the observed titles, there is a heavy usage of pinks in all saturations, but primarily soft pastel pink. Color theory dictates the theme of romance is heavy with the color pink, but the variation in saturation conveys a varied level of light-heartedness depending on how bright the color is; bright pink means more intense plot, softer pink means a gentler vibe. Secondary colors include white, for purity and airyness, and gold, which can stand for elegance and achievement, but also whimsy in some cases.

Typographically, dating simulators fall all over the map. Traditional and 'wholesome-appearing' games use rounded, sans serif fonts, as seen in *Doki Doki Literature Club*. However, games with a more serious plot or unique features use different decorative types to match the art style and story, such as the futuristic vibe of *Danganronpa* or the rugged monster emphasis on *Monster Prom*. With this in consideration, the type typically relies on the seriousness of the game, as well as the individual style the game is being portrayed in.

Finally, imagery also is a mixed bag. The visuals created ultimately determine what sort of audience will be drawn to the game, so it is important that the illustration style matches the energy of the game. For instance, a 'wholesome' theme will utilize softer palettes, rounded illustrations, and gentle expressions and character designs, whereas a very stylized and intense game will have bold colors and patterns, heavy lines with varied weights, and daring character designs that draw a lot of attention to themselves. Much like typography, the style of the game visuals depend a lot on the ultimate goal of the game story-wise.

ACTIONS TAKEN

Based on the results of the research, a number of design projects were executed, including concept art, character design, a brand identity, game interface mockups, social media pages, a Steam store page, advertisements, and package designs.

Brand Identity

The project is named 'Encryptia.' It combines the root word 'encrypt,' which means to encode or turn data into a 'puzzle' of sorts, with the suffix '-ia' typically used to name worlds or lands. This combination thus suggests Encryptia is a 'world of puzzles,' which aligns directly with the theme and plot of the game that was decided.

The logo was created with a rounded square typeface, and hand-manipulated to create subtle suggestions that the extensions of each letter were intertwined with one another, giving the indication of a maze or puzzle pieces fitting together just so. There is also a small dot placed in the counterspace of the 'y' for a number of reasons, including balancing the logo visually, creating a symbolic visual of a keyhole, as well as representing the player being surrounded by puzzles and animosity.

The logo symbol is derived from the main logotype, and features just the 'y' with its key-and-lock imagery.

The typeface choice follows the idea of suggesting the theme of the game through the look of the logo, so to hint at the neo-futuristic vibe that was selected, it was imperative to find a face with a common width and x-height.

The colors that were selected had everything to do with the theme of the game, as well as how color theory affected their perception. The base colors of white and light grey were meant to be a set of bright neutrals, to give a light and modern feel to a game centered around the future and technology; some inspiration was drawn from the design of the Apple brand. The main three colors are an electric pink, a battery-acid green, and a slightly muted teal. The pink symbolizes compassion and confidence; both attributes significant to the plot, as the player

needs to develop them throughout the game to progress. The green represents energy and critical-thinking, which align with the 'technological' aspect of the theme, as well as the skills needed to solve the puzzles in the game. The teal indicates technology and progress, putting the player into the correct headspace to play the game. All of these colors together create a palette of vibrant and welcoming hues, that entice the player to the game through intrigue and pleasant, "clean" colors.

The typefaces for the rest of the game and branding were kept very simple, not only to prevent distraction from the heavy amount of visuals in the game, but also to minimize the class with a very prominent brand style. The Agency FB type family was used for the game interface and for headings in any collateral, since it has a futuristic feel to the characters and is also very readable. For general body copy elsewhere in the brand, Acumin Pro Condensed Light was used as a clean, easy-to-read sans serif with few stand-out features.

The imagery in this project is extremely heavy since it is a video game which is almost entirely dependent on visuals. Several different categories of visuals needed to be created, including concept/ background art, the interface of the game, character design, physical puzzle design, and general design elements, all while taking into account how the game would be sold and displayed online. Imagery created focused primarily on humanistic elements of daily life with a modern twist, while emphasizing the brand colors to give that sense of the earlier attributes and being transported into a different 'world.'

Plotline

Almost more important than the brand itself is the plot of the game, and how that theme and the design of the brand work hand-in-hand to tell the story. It was important to create a story before even starting the design so that not only the design matches, but so the consumer can be walked through a journey effectively regardless of what it looks like.

The plot of the game follows the narrative of our future world, where nearly the entire population is addicted to screens so much so that they can't escape it and are permanently glued to their phones and laptops. If they managed to try and separate themselves from the screens, they'd have extreme negative health consequences. You, the player, are one of the addicted members of society, and Encryptia is framed as a game you download on your computer. However, you soon learn that the game is actually a simulation and experiment, meant to slowly wean you off of screen usage and back into the "real world." The character and plot you follow is all meant to represent an artificial intelligence that guides you through the simulation and to breaking your 'screen addiction.'

Concept Art & Character Design

Designing for a game is much different than designing strictly for a brand, since there is a story to tell. While keeping the brand identity and theme in mind, several pieces of concept art were created to build the world up around the story. The neo-futurism aspect was observed closely; anything too clean and rigid would have been too much, but keeping the bit of grunge and imperfection not only made the world more believable and interesting, but aligned with the predicament of the plot and the imperfect nature of technology and human innovation.

The character design was created with this same mindset; the resulting character being Dr. Pearl Futura, a quirky and scatterbrained research scientist that provides just a bit of comic relief to the game to make it enjoyable. Her design is simple, but she fits in well to the environments that were created, which makes her a believable character to have come from the Encryptia world to the player.

Game Interface

Similar to how apps and websites are designed, the game interface was crucial to the proper consumption of the game. Since the game is so heavy on visuals, a simple interface was kept to make it both easily digestible for the player and to convey the same mood and simplicity of the overarching theme. Simple buttons and icons are used in place of text, and are used sparsely so emphasis remains on the visuals, but the other play options are available if needed.

Advertising

The advertisements needed to draw the player in just enough that they would visit the store page or social media to learn more about the game, and they couldn't give away too much. Looking at other game advertisements, a lot of them are very direct and simply state what the game is and the title. The decision to be a bit more aloof and deliberate with the information given was chosen to reflect the mystery behind the story and the purpose of the brand. This is also why the advertisements are primarily text-only with little image payoff.

Package Design

To reflect the interface design and to avoid impeding on the complexity of the puzzles inside, the package designs were kept simple and geometric. Solid 'blocks' of color for each element of the package kept the unit on brand while not over-complicating it. The common element of being in a closed matchbox sort of container not only created the desired clean lines when the package was sealed, but also placed importance on the puzzle and keeping it intact, with the added ease of opening the package. Acetate windows were also added to drive in the nail on the product and not so much the branding of the package.

The puzzles themselves were kept simple and utilized the brand colors. To reduce the amount of extra materials sent, the instructions for what the player should look for in the puzzle are described in-game, so that afterwards the puzzle is a keepsake.

Other
STEAM STORE

This game is very specific in how it is presented and sold, since it requires the player's home address to function properly, and while it could potentially be played on other platforms given there are changes to technology in the future, as of designing this project it is intended for desktop play only. Given these two characteristics, the best way to accommodate both is to have the game sold through Steam, a desktop-based game selling platform. The user's account is linked to their credit card or PayPal, which in turn is linked to their address. So without having to

do more than confirming it is the correct shipping address, the game startup process can be streamlined.

The problem with this is that the game itself doesn't have a website of its own, so all of the designed elements must speak for themselves INSIDE of Steam's own branded interface. In this way, it works much like an online storefront like Amazon. While similar to how the social media platforms were approached, special care had to be taken to make sure the game stood out among the sea of other games alongside it.

SOCIAL MEDIA

For video game social media, a lot of posts involve world-building and showing off the art and gameplay, as well as informing players of patches and updates as bugs are discovered and technology advances. Due to the text-heavy nature of the posts on these sites, simple visuals were used for headers and thumbnails, and subtitled with on-brand text corresponding to the topic of the post to keep the look of the brand cohesive even across different platforms.

CONCLUSION

This project provided a lot of insight on just how far graphic design can reach, as well as the importance of not only knowing your audience, but what exactly you are selling. Games as an industry are vastly different than selling just a product, so a lot was learned regarding game conceptualization, marketing an experience, and creating specific, niche assets for the game. This definitely became a passion project and from that a lot was learned about how to market things for entertainment and purchase, not just how to promote a brand for trustworthiness. While there is still a lot about 'standard design' that can be applied to this game normally, it definitely required a lot of research and nuanced care to be able to market this game effectively. There are plans to expand upon this project in the future, and even bring it to market commercially, when circumstances are better and the resources to do so become available.

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