From Hypertext to Hyperdimension Neptunia: The Future of VR Visual Novels.

The potentials of new technologies for branching-path narrative games.

Abstract— Visual Novels have recently begun to attract attention in the West, thanks to various successful Kickstarter localization campaigns. However, few visual novels have experimented with VR technologies, despite the fact visual novels replicate VR via psychological manipulation; users have their feelings toyed with, as opposed to their senses. This suggests that there is something about this multi-linear, text-based genre that cannot translate into VR, despite VR’s immersive potential. Moreover, despite being an RPG with text boxes, sword, and hypertext, visual novels have yet to effectively exploit VR’s storytelling capabilities. While the failed Kickstarter campaign for Angels & Demigods contrasts the successful campaign of the acclaimed ‘interactive’ VR visual novel narrative game Technolust, it also suggests that VR can be used to tell immersive stories, but potentially not with the typical visual novel format. Successfully crowdfunded visual novels like Sword Art Online Hollow Fragment. This suggests that visual novel fans are intrigued by fictional VR settings and worlds, like Japanese Roleplay Games (JRPGs) with VN elements are set in fictional VR <reality>deal with VR themes in their narratives, while JRPGs (Japanese Roleplay Games) with VN elements are set in fictional VR worlds, like Sword Art Online Online Hollow Fragment. This suggests that visual novel fans are intrigued by fictional VR settings and are open to the potential of VR.

Interactive fiction and hypertext attracted attention at the latter end of the 20th century for their potential storytelling capabilities, but were criticized for their flimsy narratives. While these multi-linear stories remain in the forms of competitions, these genres were replaced by video games with better graphics and storytelling. Other branching-path narratives continue to reappear in various modern formats like children’s books, games, television, content streaming, hypercomics and visual novels. They also have the potential to appear in VR stories. As interactivity has become more important in art in other areas, freeware software like Twine and Ren’Py allow for the development of modern interactive Fiction (IF) by programmers, writers, artists and developers. Visual novels - often created using Unity or Ren’Py - are text and image based games that involve user agency, if/branching-path narratives and anime/manga-like character sprites. Visual novel games like Angels & Demigods experiment with VR and IF in their exploration of text and graphic storytelling. While spin-off titles, from games with visual novel elements, like Cyber Danganronpa VR: The Class Trial and Megadimension Neptunia VIIIR have taken advantage of the form, with emphasis on gameplay over visual novel story elements in their VR content.

For developers to potentially exploit VR, the visual novel will need to be more flexible in its form. Instead of relying on 2D sprites with extremely limited animation and static backgrounds, visual novels should be more open to 3D worlds and animated characters. Just like how digital comics have adapted from print to the include animation in webtoons or comics apps like MadeFire Motion Books, VR visual novels will need to use more animation and interactivity in their design. If they fail to do so, just like IF and hypertext, visual novels will be replaced by other games that successfully adapt to advances in technology.

Keywords— visual; novel; hypertext; animation; branching; path; narrative; VR; hyperdimension; neptunia; JRPG; digital; storytelling; VN; manga; comic; megadimension; anime; danganronpa; sword; art; online

I. INTRODUCTION.

Visual novels - often created using Unity or Ren’Py - are text and image based story games that involve branching-path narratives[1], 2D characters on 2D backdrops with text boxes underneath, and manga-stylized character sprites[2]. In this paper, I will begin by looking briefly at other branching path narratives before discussing crowdfunding’s and anime’s relationship with VR and visual novels, the medium’s existing use of VR, and how visual novels could use VR more effectively.

II. BRANCHING PATH NARRATIVES, IF AND HYPERTEXTS.

Traditionally, all stories have a set beginning middle and end, according to the plot structure defined in Aristotle’s Poetics[3]. In defiance of this, branching path narratives are stories with the potential for multiple beginnings, middles and ends[1]. This structure has appeared in various print and digital stories, over the years. In print, writers like B.S. Johnston explored the potential of multi-linear narratives with The Unfortunates[4]; a series of pamphlets that could be shuffled and read in any order, and still maintain coherency. Choose-your-own adventure books, stories that involve pages of narrative intersected with choices, emerged with Packard’s The Cave of Time[5]. These books contained multiple endings that could be enjoyed by readers, who were motivated to return to the book to seek out a happier ending. As the reader of the book has a goal, much like the player of a game, this genre is also known as a gamebook.

While print toyed with gamebooks, digital stories emerged that allowed for explorations of branching path narratives on the computer. MIT researchers in the 1970s invented Zork, a text-based Interactive Fiction (IF) game where your choices affected the outcome[6]. Hypertext was another form of narrative that emerged; coined by Ted Nelson in 1965, the term refers to hyperlinks on a computer that divert the reader to other pages of text[7]. Also known as erotic literature, hypertexts like Gray Matters [8] use images with embedded links that bring up pop-up windows that reveal sections of narrative. As George Landow [9] pointed out in 2006, hypertext fiction negates traditional Aristotelian ideas of a three-act plot structure, with the story being experienced differently by each reader. This means that a reader of a
hypertext may be more empowered than readers of a print narrative, simply because they can make their own passage through a text [10].

Despite their potential, hypertexts and IF eventually faded into relative obscurity in the 21st century. This was due to inherent weaknesses in their narratives. Problems with IF included restrictions on actions encoded into the game, which frustrated players [11]. Hypertexts and gamebooks are also fraught with problems. As part of an experiment, in 2001 Landow[10] created a hypertext which involved linking words, images and text in a digital collage, to prove a connection between the two forms. The collage-like writing of hypertexts and gamebooks inevitably makes them weaker stories than linear alternatives. Their fragmentary style of writing, and the general inability of the characters involved to reflect upon their actions, made them fail to reach the same levels of narrative depth as literary fiction[12].

While IF remains in the forms of competitions[13] and hypertexts lurk in digital archives [14], [15] story games like these were eventually replaced by video games with better graphics and more developed narratives [16]. Despite having more focus on narrative and a generally non-linear gameplay experience, many contemporary video games do not use a branching path narrative structure. One of the most common methods of storytelling in many contemporary video games is “the string of pearls”, a method where gameplay is interlaced with “pearls” of cut scenes, giving the illusion of interactivity in a linear story [17, pp. 298–9]. Nevertheless, branching-path narratives continue to reappear in various formats like children’s books[18], television[19], content streaming [20], hypercomics[21] and some video games [22]–[24]. One type of video game that implements a branching path narrative as its central feature is the visual novel [25]. Emerging in 1983 with The Portopia Serial Murder Case [26], these games, despite their branching-path narrative structure, have not faced the same fate as hypertext and IF. However, the scenario writer of the Danganronpa visual novel series Kazutaka Kodaka fears that if they do not change - to include things like more gameplay - they will also be fated to be forgotten [27]. Thus, visual novels require more flexibility to their form if they are to survive as a video game genre.

III. VISUAL NOVELS, ANIME FANDOM AND VR.

Branching path narratives can be found in many games but some of the best examples can be found in visual novels. For instance, games like Steins;Gate 0 have six different endings and two main story branches. The success of many visual novels has also lead to anime adaptions [2]. The nature of these games means that anime based on multi-linear visual novels, like Steins;Gate may choose to have more than one final episode.

The increased localization of some visual novels, in recent years, reveals a rising interest in this primarily Japanese art form. The process of localizing Japanese into English takes considerable time [28], as not only must text be translated, but sometimes whole lines of dialogue or visuals must be adapted [29]. For instance, visual novels like Chaos;Head [30], were released in 2008, and never officially localized, while its sequel Chaos;Child[31], released in 2014, was localized into English in 2017[32]. Fate/Stay Night[33], released in 2004, was another title that was never officially translated, whereas Fate/Extella[34] was released in 2016 and localized in 2017. The visual novel Steins;Gate[35] was released in 2009 and was not officially localized until 2013[36]. Its sequel Steins;Gate 0[37] was released in late 2015 and officially localized in 2016[38]. Evidently, quicker localization, or evidence of any localization efforts compared to previous titles, reveals a trend in favour of the product.

Initial responses to imported visual novels in the early 2000s were mixed[39]. However, successful Kickstarter funded translations further suggest that the English market is becoming more open to this form of narrative game. Games like Muvluv [40] earned $1,255,444 out of a $250,000 goal, while CIANNA[41] reached $341,161 out of a $140,000 goal and the Grisaia [42] trilogy of games had $475,255 donated out of $160,000 goal. Some suggest funders are led by the same mindset as charitable donors[43], others believe that they are encouraged by a rewards scheme to give more money [44]. Whatever the reasons behind their donations, the act of donation itself reflects an interest in the product. Whether this is because of the extensive anime, manga and Japanese pop culture fandom overseas[45], or an increased interest in branching-path narrative games, visual novels are beginning to become more readily available for purchase by English speaking consumers.

As well as localizations, and the development of VR headsets like the Oculus Rift[46], Kickstarter has also aided with the development of original English language visual novels. However, these have met with varying degrees of success. The first full VR visual novel Angels & Demigods [47]only made $2, 617 out of their $24,000 goal while <reality>[48], a non-VR visual novel about VR, reached over their $6,000 goal. Both Western produced visual novels use manga-style character sprites and sci-fi settings, both are available on Steam, however only the latter was fully funded.

Just like how visual novels may lead to anime adaptions, many anime fans are also fans of visual novels [2]. Yet, despite the failure of funders to back the first VR visual novel, anime and manga fans are not necessarily opposed to VR. In fact, anime like Log Horizon...hack//Roots and Sword Art Online are all set in fictional VR universes, while anime films like Ancien and the Magic Tablet involve characters using VR headsets. In an interview Oculus Rift founder - and anime fan - Palmer Lucky suggested that Sword Art Online’s original broadcasting run, which occurred around the same time as the Oculus Rift’s Kickstarter application, may have helped backers become more open to the potential of VR [49]. Sword Art Online, similar to anime like hack//Roots and Log Horizon, is a series about characters trapped in a VR game. The franchise has led to several spin-off games on PS Vita and PS4, also available in English, where players take on the roles of characters playing VR games inside the fictional Sword Art Online universe. These games also contain extensive segments of narrative; around 50% of the game is a visual novel. However, a complete VR game has yet to be made. IBM has toyed with the franchise and created a short demo called Sword Art Online:
The Beginning[50], while Fove has worked to create a demo where the user can spend time with the character Asuna. Nevertheless, neither demo involves narrative or visual novel elements. A special event was held to publicise the movie Sword Art Online Ordinal Scale - a film that involved AR and VR settings - where individuals could use a Fove Zero and experience quality time with the character Asuna in VR[51]. This suggests that the anime industry is aware of an interest in VR in its audience and is looking for ways to exploit it. Therefore, the lack of interest from Western Kickstarter backers, who are also potential fans of anime, in producing a VR visual novel is surprising. This suggests either a bias towards visual novels produced only in Japan, or a scepticism about the visual novel form in VR.

IV. VR VISUAL NOVELS

Despite their immersive first-person viewpoint, which has been compared to a VR experience for a player’s emotions[39], there are few visual novels that utilise VR. However, there is one VR visual novel; a game that attempts to reproduce the typical visual novel interface in VR. The VR visual novel Angels & Demigods uses mainly 2D stationary, unanimated sprites and backgrounds and text that appears in message boxes at the bottom of the screen. Utilising a branching path narrative, the game also has multiple endings. There are no minigames and the only game-like activity involves making decisions in response to the menu choices that appear onscreen. Altogether, the combined use of these features is very in keeping with many non-VR visual novels.

While the background occasionally changes to match dialogue, the static natures of the 2D sprites and backgrounds makes the player very aware of the fictionality of Angels & Demigods. While fiction does not need to replicate reality in its totality, the setting of the story must appropriate our expectations based on real-world knowledge[52]. In the real-world, when we look around ourselves, the objects we see are not two dimensional. We may accept flatness on a screen because screens are flat objects, and what we see on screen is not meant to represent our normal vision, but flatness in VR destroys immersion. Becoming too aware of the 2D world reduces the suspension of disbelief for the player, which can be catastrophic for the narrative, as immersion is an important part of the experience of VR[53]. Games do not need a story to be fun[54] but VR games do need good visuals to be enjoyable[53]. Utilising 2D graphics and no minigames, Angels & Demigods is an unappealing VR game. This inevitably lead to its failure to appeal to funders, despite the crowdfunding of other visual novels. The fact that it is a non-Japanese title that was not built on a pre-existing franchise is also a disadvantage to the game. Other narrative VR games have met success on the same crowdfunding platform, suggesting that funders are not opposed to narrative VR games. Technolust, which made over double its CAS$30,000 goal on Kickstarter, is an example of a successfully funded VR narrative game.

Despite the fact it does not have features like static backgrounds, 2D artwork or text boxes delivering narrative, Technolust describes itself as an “interactive visual novel”[55]. The game involves walking around the map, completing mini arcade games and fetching articles to continue the narrative. Evidently, video game characters reflect the substance of their fictional world, just like how people reflect their environments in real life[52]. Thus, the characters, NPCs and background of the game supply the player with worldbuilding in a way that allows the user an understanding of the setting without them having to read a description. Instead of quest icons or text boxes, instructions are given to the user via voices from other characters, monitors and NPCs. These methods are a more effective storytelling technique, showing rather than just telling, compared to sole use of text boxes in Angels & Demigods.

The game is self-aware, beginning with a segment where the player is inside a VR world, and warning them about motion sickness. When disembodied voices in the VR world later tell you of the struggles of creatures and creations that are not made of real matter, the player is very aware that they are a real person playing a virtual game inside a virtual game. Its cyberpunk edginess, with its dirty streets and neon signs, is also a familiar backdrop for players. There is little need for extensive worldbuilding; if the player has seen Bladerunner, the Fifth Element or Running Man they are acquainted with this retro-future. The use of 3D sprites and backgrounds also makes the experience more immersive than Angels & Demigods. This means that the game can successfully get away with these comments, because its visuals are satisfactory enough that the player is willing to entirely suspend disbelief.

Immersion experiences must be clear, or else the fictional world will fall apart during the player’s first step into the game [6]. While Technolust starts in a VR world inside a VR game, it quickly shifts the player into the ’real’ world and provides a valid in-game reason for the shift in environment. The contrast between the desaturated reality of the non-VR world of the game, and the neon VR world, easily separates the two for the player’s comprehension. Minigames, set in the neon coloured spaces, are usually played from the third-person perspective as opposed to the first-person experience of the main game. This further differentiates the two fictional worlds.

The more effort a gamer puts into their gameplay, the more time it takes to complete, and the likelier they will find themselves drawn in by the ending they have worked so hard to achieve [56]. Technolust is a short title and a rather easy game to complete. Its ending is unsatisfactory because, despite the promise of interactivity supplied by the VR headset and interactions with objects in the game, your actions are incapable of influencing the ending. Unlike many visual novels, for instance Steins;Gate 0 which has around 40 hours of story, Technolust is under two hours long. Combining the branching path narratives of visual novels with the potential graphics and gameplay of a game like Technolust could produce a game that has complexity and depth in its narrative, as well as being a graphically satisfactory VR experience.

Some Japanese adventure games with visual novel elements have also released demos or games with VR features. Megadimension Neptunia VIIIR (2017) is a remastered re-release of an adventure game with extensive visual novel elements; the latest in a series of Hyperdimension Neptunia games. Its VR elements are additional scenes, which involve spending quality time with the characters of the main game.
The VR section of the game allows the player to choose their favourite character and spend time talking with her in a large room in the ‘real’ world, a space quite unlike the fantasy settings of the game. This differentiates the VR environment from the main portion of the game; giving it a different world and narrative from the main game. Keeping the two narratives separate, for the sake of the player’s coherency. Upon selecting the VR option in the main menu of the game, the user picks a 2D sprite. When the player first enters the VR room they are confronted with a 3D version of a character on a 3D background, which normally only appears during cut-scenes or during dungeon gameplay; in previous titles, visual novel narrative sections consistently use 2D characters on 2D backgrounds. This also differentiates it from the main visual novel sections of the game, as the game favours providing the user with a 3D environment. During the conversation, the player can agree or disagree with certain statements, shaking or nodding their head, which will influence the dialogue being said. Thus, instead of menu choices, the game uses body language to influence narrative. Text boxes appear only to give instruction; instead of acting like subtitles to the voice acting, which occurs with the visual novel scenes in the main game. The use of body language to influence narrative is something that could be pursued elsewhere in VR narrative games.

**Cyberdanganronpa VR: The Class Trial** is a demo of a game which is a VR version of a class trial from Danganronpa Trigger Happy Havoc; a visual novel that uses minigames interspersed with large sections of visual novel narrative. As well as using animated scenes, 2D artwork is primarily used in the original game. However, the demo makes use of entirely 3D settings and artwork. Using 3D artwork instead of 2D allows the player to examine the characters from different angles, instead of producing characters that look like 2D cut outs; as popularized in the main game, which calls this style of sprites 2.5D. It also makes the characters animated attacks on the sentences in the centre of the room more comprehensible for the player.

Text is a large part of the visual novel content of this game as well as its minigame elements. Nevertheless, this demo rejects the use of text boxes to deliver narrative. Instead of text boxes, instructions in a speech bubble are delivered via monitors which extend downwards from the ceiling. During the debate sentences - which normally appear on screen alongside panels of character reactions - appear in the centre of the debate room. Characters break or interact with the sentences as the player attempts to uncover who is lying. Normally, these statements appear in panels, but having characters leap into the foray and break up sentences is more engaging than simply watching the sentences appear in front of static character sprites. The player is then invited to shoot the false phrases, in a comparable manner to the minigame in the original. The use of a minigame keeps it from being a passive experience for the player.

An alternative to the standard text box can be observed in the non-VR visual novel */reality*, which has sections where, in keeping with the fictional VR MMO segments, a chat box appears and displays dialogue. This chat box replicates the sort of in-game chat used in MMOs like *World of Warcraft*. The character interactions in these chat boxes use acronyms and emoticons in a manner that supplies the user with worldbuilding in a more credible way. Future VR narrative games could potentially utilise chat boxes to reveal exposition in this manner.

To prevent visual novels falling into the same disregard as hypertext and IF, they must be willing to adapt their features to fit the possibilities given by the latest developments in technology. Adapting to technologies is nothing new. Traditionally, comics are 2D, static printed stories. However, animated comic apps like Madefire Motionbooks and LINE Webtoon allow for a fresher, more interactive visual narrative reading experience that defies typical comic structure; thanks to their use of animation and panels. If comics can change when shifting from print to digital, there is nothing to stop visual novels from adapting their features to suit VR.

**V. CONCLUSION**

Ultimately, VR visual novels should aim to use 3D backgrounds and characters, instead of the 2D art of VR games like *Angels & Demigods*. VR visual novels must also not rely too much on text boxes to deliver narrative, unless these text boxes can be credibly explained in the world. The use of minigames in *Cyberdanganronpa VR* and Technolust are also features that can keep players interested, as completing challenges rewards them with more information about the plot. The ability to influence the conversation in *Megadimension Neptunia VIIIR* and *Angels & Demigods* is a feature of the visual novel that should also be brought into more VR narrative games to fully exploit the potentials of interactivity in the medium. Future VR visual novels cannot fall into the same trap as *Angels & Demigods*; merely replicating features of the visual novel form, instead of adapting them. Instead, they must make use of 3D art, minimalist amounts of text, minigames and a branching-path story to be a successful narrative game.

**REFERENCES**


