

# **Video games on the Holodeck**

**An analysis of interactive stories and user participation**

By Inge Faber

## Introduction

It was a long road before I finally figured out what I wanted to research exactly. From the beginning, I knew it had to be something with the virtual and physical world overlapping, but I wasn't sure of the context and there are a lot of different approaches to the subject. I was, and still am, drawn to this subject, because I feel there is something lacking the new media as film and video games. They're very entertaining, but they remain distant. With some projects I've done for *Design for Virtual Theatre and Games*, in particularly 'Search for the Laurier', I've tried to remove that distance by putting the user inside the experience. With the aforementioned project, I've build a small room with projection screens in front and behind the user, and removed the hardware interface so that the user had no choice but to voice his decisions to the guiding character that asked him questions.

However, the virtual world remained distant and inaccessible behind an impenetrable screen. The user couldn't step into the world and couldn't touch anything. I wanted to find a way to allow the user to actually enter the virtual world, and realised that what I was looking for was the holodeck. A fictional medium that allowed people to walk around in a virtual world and interact with it as if it were real. I've thought about researching the means to imitate holodeck the here and now, but soon realised I was for more interested to see how it would affect video games if they were played on the holodeck. Which led me to my research question:

*If video games were played on a holodeck, what kind of impact would that have on them?*

I was also curious about how this would affect society, but as the holodeck is a fictional medium - and therefore a hypothetical situation - it is very hard, if not to impossible, to research. However, it cannot simply be ignored, because serious games are also games, and they often have a social, cultural or other not purely entertainment related goal - creating awareness of a certain problem, for example, or cheering up long-term or chronically sick children. Therefore, I will only discuss it shortly.

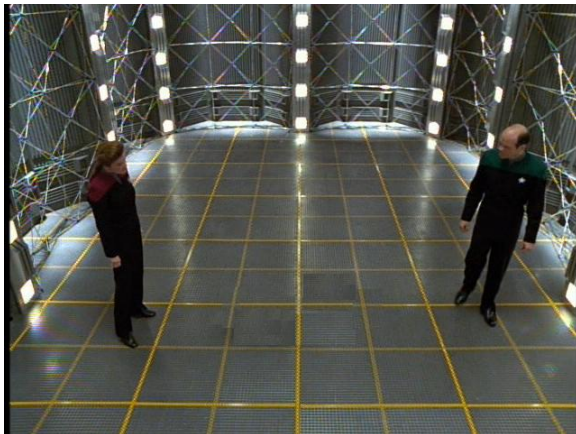
Also, when I speak in this research about 'our society' and 'our culture', I generally do not refer to a specific society or culture, for example the country I live in, or even 'the West', but rather the world as a whole. I do admit that I will always look at things in a certain way because of my upbringing and the culture I've grown up in, but ever since I got pulled into the 'wide world' of the internet, I have come to think of the world less in terms of being split up in countries and nationalities, but rather as a unity of people that live in different places on this planet. People with different histories, different cultures and believes, different circumstances in which they live, and different outward appearances, but people that are nonetheless still part of our big family that is the human race. Even if it is a dysfunctional family. I do believe, or at least deeply hope, that one day we will all be able to look at each other and not think in terms of 'us and them', but rather as 'we'.

In this research, I will also refer to gamers as 'he' for the sake of consistency, but I acknowledge there are female gamers. I am one! I do wish there was a word that encompasses both genders without becoming impersonal like 'it' or plural like 'they'. I will also mention 'hologames' by which I mean 'video games that are played on the holodeck'. One could also call these 'holonovels' as they call them in the series, but I prefer a clearer divide between videogames and novels, because by tradition novels have a linear and non-interactive story. The term 'holonovel' just gives a different ring to the medium, a less free and therefore less playful one, while I think 'play' is a one of the most important aspects of the holodeck.

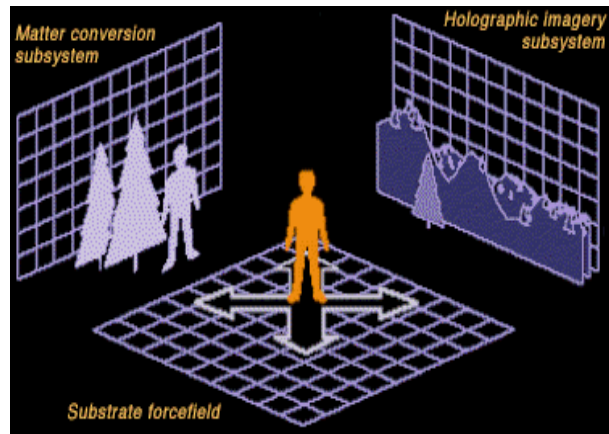
This thesis is set up as following. First, I will explain what a holodeck is, and what the similarities and differences are with present day video games. Then I will discuss the pros and cons of this medium in relation to story telling and user participation in comparison to video games. I will also pay attention to user generated content, such as mods (modifications to games), machinima and fiction based on games written by fans. Lastly, I will discuss what role the holodeck can play outside of conventional entertainment, for example in training, education and health care. Finally, I will give my conclusions derived from this research. In this research I will use both written sources as my own experience with the described media and cultural phenomena, including the artists and writers scenes on the internet.

## Chapter 1: The holodeck and its relation to other media

A ‘holodeck’, also known as a ‘holosuite’, is a fictional invention from the science fiction series named STAR TREK that creates fully immersive environments and interactive stories. A holodeck is a room with holographic projectors mounted to the walls that project full-colour stereoscopic images and force fields in three dimensions. These force fields allow the player in the room to touch and move the projected objects or characters as if they were real. A second force at work inside the room, are tractor beams locked onto the player. This way, the player is unnoticeably moved back whenever they put a step forward, as if they were on a treadmill. This way a person can never reach the actual walls of the room, and the vastness of the projected world seems endless. The holographs in the distance, closest to the wall, are not equipped with such force fields because they will never be reached, and merely simulate the illusion of depth and the wideness of the virtual world. [1]



*An inactive holodeck on “Star Trek: Voyager”*



*Concept of the holodeck of from “LCARSCOM.net”*

The characters in the simulation are programmed and designed to play a certain role, and have the ability to interact with the player with a certain amount of improvisation. This means that the characters can guide the story the player is in, without constantly using pre-determined scripts and dialogues that would remind the player he is inside an illusion. Unlike with movies and books that are linear and can only tell the same story in the exact same way, holodecks are interactive and allow the player to get from point A to B in their own way, whether this is in space or a conversation. Unlike actors, these characters will never fall out of their role, because they are only programmed to play one certain role. If the interactor refers to something from outside the fictional world, the character will either re-interpret it into something that does fit within the setting, or will simply not understand what has been said. This also forces the player to stay in character and not mess up the entire story.

In episode twelve of STAR TREK: VOYAGER “Heroes and Demons”, a member of the crew goes missing on the holodeck. They cannot deactivate the program that is still running, a holographic version of the story *Beowulf*, and need to send in a rescue team to find out where he is. In order to manoeuvre through the holographic world, they need to participate in the story and play along with the set rules. They pretend to be heroes having come to slay the monster that wrecks havoc in the world, so that the fictional characters let them go where they need to go. In order not to ruin that, they need to come up with excuses whenever something from the outside world – like a spoken message over the communication system – seeps into the fictional world, but has no place in it. Like how cell phones are out of place in the

prehistoric period. If our heroes do not ‘translate’ these alien concepts into a context that the fictional characters understand, they might become hostile or frightened. In a sense, they would react like people would when they come across something that they cannot comprehend. It is also possible that the characters would ‘translate’ these out-of-context events themselves, but in order for the characters not to get the wrong ideas, it is best for the interactor to explain the event himself in the most beneficial way.

In the end, they find out that their missing crewmember has been captured by an alien entity that has integrated itself with the story as well. The non-humanoid life form has taken on the role of the ferocious monster. After diplomatic negotiations in the real world, the life form releases his prisoners and leaves the star ship. The holographic characters celebrate the victor of the heroes over the monster, and the story comes to an end without having been truly disrupted.

If the characters and environments were unable to adapt to the wide variety of possibilities the interactor(s) brings into play, even when being in character, ruptures will appear in the illusion and the player will very soon be startled out of his state of immersion. Breaking the illusion is that last thing a storyteller wants, because he wants his audience to feel immersed in the world he is creating for them in their imagination, and only then can they truly feel connected to the characters. A story does not become fun until we are in some way part of it. When reading a book, we automatically place ourselves in the shoes of the character we are reading about and thus become part of that imaginary world. A similar thing happens to when we watch a movie, although we have far less influence on it. The world, characters and the story in a movie are given facts and cannot be altered. With a book, we can ‘cheat’ by stubbornly ignoring the writer’s descriptions about a situation or character and substitute them with our own ideas. We are in a way both part of that written world as much as we are a creator of it, and we are actively trying to enforce the illusion of the imaginary world.

When we are present on the holodeck, the imaginary world is created for us and we do not need to imagine being there either, as we are in fact physically there. However, that does not automatically mean we also feel part of that world. We cannot be part of the world until we actually have a certain level of agency over it, until we can interact with it and it reacts in a logical and understandable way. [3] This doesn’t mean it has to be predictable, not at all, but it should feel natural. It can be something surprising or unexpected, but not so much that it startles the player out of the illusion. In that sense, the narrated story should be far more structured and logical than the real world will ever be.

There is nothing more annoying than a character that replies to something you said in such a fashion that it makes no sense, or is awkward at the very least. Our experience with the real world tells us that the world and its people will adapt and respond to the way we interact with it. When we yell at the lady behind the counter, we know that she will not respond in an upbeat sort of way. If she does, we are confused and question it, but accept it as real. Inside a game this sort of behaviour is deadly for the illusion, because we are forced to reflect and that breaks the trance. We start questioning the game, and its logic, rather than focussing on the presented experience, and it is very hard to get back into the state where you accept the game as ‘reality’. With every new step we take after this event, we look for the rule set that a game acts according to, so that we might find an explanation for this strange behaviour. Apparently the game is structured according to different rules than we had initially thought. While we are doing this, we are constantly aware of both ourselves and the game, and are thus unable to become immersed into the virtual world.

Of course, depending on what idea you’re trying to convey to the audience, immersion might be the last thing you want to see happening. If you’re trying to make your audience reflect on a

certain situation, rather than being a part of it, immersion is something that should be prevented as it does not allow the people to take a step back – out of the illusion – and reflect. Bertolt Brecht was someone who did not want his audience to be immersed in his theatre performances. He wanted people to reflect on what he showed them, make them think about cultural, human and social relations and their own place within them. His theatre was about the real world, and therefore he did not want to create an alternate reality for his audience to feel immersed by. For this reason, he also showed the mechanics that controlled the stage, broke the fourth wall from time to time, by letting the actors address the audience directly, and the actors themselves were not allowed to ‘be the role’ – as is the case with method acting. [4] (Also, see chapter 2 on Hotel Modern.)

Having said that, I should also point out that there are different kinds of immersion, and not in all cases it is necessary for the interactor to be unaware of the underlying mechanics. I will explain these different forms of immersion in the next chapter.

## Chapter 2: Immersion and its necessity

According to *Cambridge Dictionary* and *Merriam Webster*, immersion is a state of being deeply engaged or involved in something. To be absorbed by it. [5][6] Immersion is when a person becomes so deeply adsorbed in what he is doing, that he completely forget about his surroundings. When reading a book, or watching a movie or dramatic theatre, or playing a video game, the real world dissolves and that person becomes a part of the presented, fictional world. The first step to achieving this state, is through 'suspension of disbelief'. "Suspension of disbelief is the literary term for a reader's decision to accept what is presented in a story as a real event. It is the first step in the formation of people's emotional attachment to fictional characters in novels, movies, and video games." [7]

There are different ways of feeling immersed. According to Ernest Adams in an article at *Gamasutra.com*, there are three kinds of immersion in games. First, there is tactical immersion.

"Tactical immersion is [...] what people call being "in the zone" or "in the groove." It's physical and immediate. When you're tactically immersed in a game, your higher brain functions are largely shut down and you become a pair of eyes directly communicating with your fingers. It's an almost meditation-like state-the *Tetris* Trance.

Tactical immersion is produced by challenges simple enough to allow the player to solve them in a fraction of a second. Ask him to think for any longer than that, and you risk destroying the trance. Players who are deeply immersed in the tactics of a game aren't much concerned with its larger strategy (it seldom has any besides survival), and couldn't care less about its story. [...]

To create tactical immersion, you must offer your players a flawless user interface, one that responds rapidly, intuitively, and above all reliably. Players won't get into the groove if they're struggling with slow, awkward controls. Tactical immersion is usually destroyed by abrupt changes in the nature of the gameplay, a shift in the user interface, or a boss character who can't be defeated the same way that other enemies are." [8]

The second type of immersion is strategic.

"Strategic immersion [...] is about seeking a path to victory, or at least to optimize a situation. The highest, most abstract form of strategic immersion is experienced by chess masters, who concentrate on finding the right move among a vast number of possibilities. When you're strategically immersed, you're observing, calculating, deducing. However, this doesn't have to mean that the game is turn-based, nor does it even have to be about conflict. The player who intently studies patterns of traffic in *Sim City* in order to decide where to build a new road is strategically immersed in the game. In order to achieve strategic immersion, a game must offer enjoyable mental challenges. What destroys strategic immersion is awkward or illogical gameplay. Units with bad path-finding, for example, break the player's sense of immersion, because they don't obey orders the way the player thinks they should. Too much randomness tends to destroy strategic immersion as well; if a game is heavily dependent on chance, the player will find it hard to formulate an effective strategy.

Players who are deeply involved in the strategy of the game are seldom that interested in the story. [...] Deeply strategic players often ignore the story entirely, thinking of it only as a distraction.” [8]

Lastly, there is narrative immersion. This is the type of immersion I've mainly referred to in the previous chapter, and is in my opinion most closely inherent nature of the holodeck.

“Narrative immersion in games is much the same as it is in books or movies. A player gets immersed in a narrative when he or she starts to care about the characters and wants to know how the story is going to end. The player who is immersed in the narrative can tolerate a certain amount of bad strategic and tactical gameplay. Few games have stories good enough to excuse really bad play, but people who are hooked and want to know how it ends will usually overlook, say, a slightly awkward interface or a feeble AI. What creates narrative immersion is good storytelling, and what destroys it is bad storytelling: clumsy dialog, stupid characters, unrealistic plots.” [8]

Unlike video games, there is a fourth type of immersion on the holodecks, namely: physical immersion. The player is physically present in the virtual world. While the player of PC and console games needs to use his imagination and project his consciousness onto the virtual character to become part of the fictional world, the player of holodeck games does not. (I'll elaborate on this in chapter 3.) This means that it takes a lot less energy to suspend disbelief, and it becomes easier to become a part of the story.

Being physically there doesn't just have pros. There are a couple of cons, of which I will name a few. For one, it becomes hard to be an outsider. The player cannot just be a bodiless observer, because by his physical presence he is a part of the world. Even if he keeps himself at a distance, he can never truly be a separate entity as is the case with, for example: games as *BLACK & WHITE*, *THE SIMS*, *SIMCITY*, etc, where the player only exists within another dimension. Of course, one can design the game to make the player feel like separate entity by, for example, making the player invisible, or larger than the rest (a giant), or perhaps smaller (like Isshun in *OKAMI*). However, no matter how the game is designed, the player will always interact with the virtual world through his own body. (A nice example of how I think an interface on a holodeck could work, is *WORLD BUILDER*.)



*Stills from “World Builder” by Bruce Branit [9]*

Because of this, the player will also always be present in that world. In order to become truly visible or a being that is part of another world, we first need to forget we have a body. And if the body is the only way to interact with the holographic world, this is a state we cannot reach.

A second thing that is counteracted by physical presence, is the ability to take on different forms. In the virtual world anything is possible, the designers make the laws of physics and

evolution, and through them we can be anything we want. All we have to do, is project our consciousness onto the virtual body. However, by being physically present in the virtual world we are no longer able to do this. We can get far by projecting a holographic image over our own body, using the force fields to make any extensions and alterations solid, but with this technique we can only add things to the body, we cannot take anything away. In essence, we are dressing ourselves up as actors on a stage. We are still limited by the physical reality.

A third thing our physical presence causes, is the dilemma of interactive stories. As I've stated before: by directly interacting with the fictional world, we become a character in that world, a part of the story. But because we are ourselves – in character or not – we also bring our own stories to the stage, rather than letting someone else tell the story to us. We are the main character in our own story, even if we aren't the most important character of the cast. Story tellers have less influence on the story that is told, or at least have to do so in less traditional ways. I will discuss this issue further in chapter 4.

Before I end this chapter, I want to make a short critical note in regard to 'suspension of disbelief' and 'immersion' when it comes to (emotional) involvement. As I have said at the beginning of this chapter, the suspension of disbelief is necessary if we want to reach the state of immersion. We need to accept the presented story as real, however, this does not necessarily mean that the story has to be *realistic*. The story should still be consistent, understandable and we need to be able to relate to it, but the virtual world – presented either visually or in text only – does not have to look or react exactly the same as our own. (Think for example fairytales, or highly stylised visual worlds.) In fact, we can sometimes – or often? – relate more to the characters of a story and their problems if they are unlike us. By 'unlike us' I mean, different in their appearance, not entirely or entirely not human. I will use the 'Great War' by Hotel Modern to illustrate this.



Photos from "Great War" by Hotel Modern [10]

The 'Great War' is a multidisciplinary performance by the theatre company Hotel Modern. The story is about the First World War, but what is special about it, is how you are constantly confronted with the fact that it's not real. The war was real, but what is currently before you is not. The actors are little clay men in a big container filled with dirt, followed by a finger camera of which the output is directly beamed onto a screen behind the stage. The 'movie' is made live before the audience, and every aspect of it can be seen. No matter where you look, you can see it isn't real. You're not allowed to suspend disbelief. However, despite that – or because of it – the performance is both immersive as it is impressive. The sound is everywhere, as are the letters from the soldiers (read aloud by a woman on the stage) and you can't really look around the big screen. The fate of the soldiers hits home.

It sounds paradoxical, that a performance that does everything to seemingly prevent immersion, sucks the audience in more than a top shelf Hollywood movie does. Yet this is

exactly what happens. The audience feels so much more emotionally involved with the presented scenes, exactly *because* of the fact they are reminded of the illusion. At least, this is my personal experience. When we look at a movie with the horrors of the First World War with real people pretending to participate in the actual event, it doesn't take long before we shut off our feelings or distance ourselves from the character and the presented story. It is too much to bare. What Hotel Modern does in their performance by making it almost surreal, is taking away the personal layer. We aren't truly immersed, so we don't project ourselves onto the soldiers – not constantly, at least. The story isn't about us anymore, so what is left to experience are the emotions.

Which again brings me to the dilemma of the player being physically present in the story or video game and not being able to take a step back. Of course, knowing this, holodeck game designers will simply have to keep in mind what kind of story they want to tell and what experience to convey to the player, and thus what tricks (or other media) are necessary to accomplish this goal.

Now one might wonder – after reading all this – why it is necessary for someone to be physically present in a virtual world. Why not simply content ourselves with what we have reached in current day video games and other modern media, rather than bogging ourselves with these problems and dilemmas. I will explain this in the next chapter.

### Chapter 3: Physical presence versus virtual presence

With modern day videogames, the gamer controls a game character or an avatar and moves it through a virtual world. Virtual presence is what happens when, immersed into the game, the gamer projects his consciousness onto the character (in a sense he becomes the character), and becomes almost unaware of his body that is controlling the character behind the computer. The gamer is now inside the game world almost as if physically there. Personally, whenever I play a shooter against friends, especially CALL OF DUTY 4: MODERN WARFARE, I am so immersed in the game that I cry out in pain when my avatar is shot or wounded. I back away from the screen when something startles me. As I've already explained about physical presence, it is being surrounded by a virtual, world – in this case through holographic projection – and interacting with it through your own body. There is no other interface necessary.

There are pros and cons to both of these types of presence. The pros to virtual presence are most notably the distinctive line between the virtual and the real world, and the relative ease to get out of the fantasy again. This distance is at the same time a con, because the only way to interact with this virtual world is through an interface. This interface is, in comparison to the our own body, unnatural, often complicated and very limited. Another con is that only two of our senses are addressed: seeing and hearing. Both the computer as the television are audiovisual media, and are therefore unable to address any other senses.

With physical presence, as is the case with videogames on the holodeck, the opposite seems to be the case. On the holodeck more than two senses are addressed, namely seeing hearing, feeling, and ideally speaking: smell and even taste. Secondly, as we are physically present we have no need for a complicated interface. We can walk around the world and interact with it using our own body. This is much more natural. Of course, the downside is that for unnatural movements such as flying it is a little more difficult to do opposed to videogames. Another con is the blurred line between the real and the virtual world, and the relative difficulty to leave the virtual world. Although I must add that, in my opinion, the concerns in regard to this are a little overrated. As movies and video games have demonstrated in the past few decades, music, lighting and colour filters are very important factors in setting the mood and triggering emotions. These are a few of the first dead giveaways to the player that he is currently in a virtual world, an illusion. A second is style. As I've mentioned in the previous chapter, realism isn't necessary, or sometimes even desirable, for telling a story. I believe this goes even double for the holodeck. Why would we want to wander through a virtual world that is *exactly* the same as the real one?

To illustrate this, I will use the two videogames MORROWIND and OBLIVION as an example. Both are role-playing games with a vast explorable world created by the same game studio. One of the reasons why I, and some of my friends, found MORROWIND so much more appealing than OBLIVION, was its unusual style. The lighting, the unusual architecture, the clothes and armour people wore. The world in OBLIVION was breathtaking at first because of its lifelike graphics, but became dull very quickly, because – simply speaking – it was a generic medieval world, with architecture and fashion we've all seen before. In other words, the chances of discovering something new and exciting were a lot higher in MORROWIND.

Also, looking at it from a different perspective: games need something to set them apart from others. Other than story and gameplay, they use style and setting to do that. Most obviously, they make a choice between a humorous, stylised or a realistic style, and so on, depending on the genre. But even between games of the same genre you can see subtle differences. HALF-LIFE 2 is different from CALL OF DUTY 4 which is again different from

OBLIVION and ASSASSIN'S CREED. And all of them are slightly different from reality – performance issues left aside.



Stills from respectively – left to right, bottom to top – Half-Life 2: Episode 2, Call of Duty 4: Modern Warfare, The Elder Scrolls IV: Oblivion, Assassin's Creed

To return to the interface: navigation through videogame worlds has improved greatly. The character animations are much more fluid, they don't seem to move on an invisible grid anymore, and with the introduction of ASSASSIN'S CREED the character can even move without predetermined paths. The player doesn't have to look for special ridges, or special textures to know where he can or cannot - for example - climb a wall. Before this game, it was almost impossible to safely move across a beam or a narrow surface, because you could not move the character's feet separately and it was very hard to move in a straight line. With Assassin's Creed you still can't move his feet separately, and with the current interface you probably wouldn't want that either, because it will make things unnecessarily complicated.

However, there are a lot of situations in which you would like to have more control of the character's individual limbs. Take OBLIVION for example. The physics engine is quite good, so when you bump into a bookshelf all sorts of things will fall out: books, mortar and pestles, crystal balls, and so on. Putting them back in, however, is practically impossible. For starters, because you cannot control the character's hands, and secondly because the moment you pick something up it appears in your inventory. Nine out of ten times it is tagged as stolen. The moment that happens, the original owner is usually quick to call in the guards or finish you off himself.

Another example is INDIANA JONES AND THE INFERNAL MACHINE. There are many different situations, but I will use the bonus level to illustrate my point as it is a literal translation of the first temple you see in the movie INDIAN JONES AND THE RAIDERS OF THE LOST ARK. In the opening of the movie Indiana Jones is on a self appointed quest to steal a golden idol from a temple. At one point, he reaches a room that has a floor riddled with traps. All the tiles have oval shapes in them that - when stepped on - trigger darts being fired from the wall. In order to reach the golden idol, he needs to cross this room. Indiana Jones carefully manoeuvres his way through the room, putting his feet between the oval shapes. In the video game, the player needs to make Indiana Jones do the same thing, but in my experience this

was impossible to do because the feet could not be controlled separately. There was no way of telling him where to put his feet, so you are constantly stepping on the switches and being shot.



*Stills from Indiana Jones and the Raiders of the Lost Ark*

Staying with Indiana Jones, while I was playing INDIANA JONES AND THE EMPEROR'S TOMB there are quite a few times I wished I could control his body directly and not through a keyboard interface. Most of the time this was during combat. Indiana had the greatest trouble defeating his foes, when I sat behind the screen yelling at him how to do it. The strange phenomenon of yelling at a fictional character aside, this situation is a clear example of how the frustration of the limited interface counteracts immersion. Rather than having become one with the character through mental projection, I was sitting behind the computer again fully aware that I was playing a game. Despite the (close) combat system having greatly improved since the previous game, it felt more limiting than before. In THE INFERNAL MACHINE, close combat wasn't really part of the gameplay, while in THE EMPEROR'S TOMB it played a big role. That's where the problem began. Immersion and virtual presence only happen when the real and the fictional world are allowed of overlap, when one is unaware of the divide. The moment I – as Indiana Jones – enter a fight, and become aware of the fact that the virtual character is less skilled in close combat than I am, the illusion is ripped apart. I have entered a fight and want to use the skills I have acquired for it in real life, but am unable to do so because of the interface. I am frustrated that my virtual body does not react in the same way as my real body does.

Story wise, one could argue that it would be strange to see Indiana Jones – whose battles look like bar fights – using Japanese fighting techniques. It's an argument that holds merit, but once I'm fully immersed into the game and have become one with the character, it's one that becomes irrelevant. That is one of the dilemmas of the interactive story. The story requires the character to be a certain way, but the player brings his own demands. As a teacher of mine once roughly said: "Writing is a form of masochism, making things hard and complicated to make it dramatically interesting. Gaming is about solving a task as quick and effective as possible." When the gamer becomes the main character, the driving force behind the story, this is where things start to grate. I will discuss this issue further in chapter 4, but first I would like to get back to the different senses addressed by video games and holodecks, and why we would want to go through the trouble of implementing physical immersion.

Where in books the narrator can tell us how a flower smells or feels like that we come across, in games we can only see the flower and the rest of the experience goes untold. In this sense, the illusion created by books is more extensive and superior than the illusion is created by movies and video games. Many dimensions of the fictional world are ignored, simply because these media cannot convey them. Televisions and computers are audiovisual media only. We're missing out on great part of the experience because of this. Physical immersion into a virtual world would be a solution. We could then hear, see, feel, and – idyllically speaking – smell and taste our surroundings.

After all, if we are promised to be the main character of the presented adventure, why should we accept being treated like a spectator who can only see and hear the adventure from a distance?

I feel I should note that this is not felt as a loss by all gamers. Gamers that play for the highscore and the thrill of solving difficult tasks or puzzles will most likely be annoyed by physical immersion, seeing it as an unnecessary feature, much like they also see the story as an obstacle. Their relation to the game is "us against the (virtual) world". Gamers that play for the experience and the story (like myself), feel it as a loss. We often find ourselves surrounded by amazing environments, idyllic forests, desolate open plains, alien or futuristic cities, or incredible mazes of all kinds that make us want to explore it and spend some more time there. We want to feel the air on our skin, the tiny objects it carries, like airborne plant seeds or sand. We want to smell its scents or moisture. Or feel the roughness of stones or metal under our hands, the different density or solidness of the soil under our feet. The relation of these gamers to the game is "us in the (virtual) world"/"us and the story".

For these gamers the story and the experience are incomplete. The story doesn't become 'real', because they cannot touch it, cannot feel it. In some cases that is a good thing, because the sensation of being shot or impaled by a sword, breaking a leg when we jump off something tall, and so on, are not pleasant ones. But most of the time, once one is aware of it, the fact that our other senses are not addressed, are felt as a loss. Not to mention, if we take into account what we know about the holodeck from STAR TREK: VOYAGER, there are safety protocols that can be set by the user. The user won't be injured if he doesn't want to be. [11] The holodeck is a safe environment where all sorts of sensations can be experienced that cannot be recreated by any other medium, such as books and television.

But what about superhuman strength or other unnatural skills that are quite common in video games? Or the relatively short endurance of our own body? Bringing our own body into a video game seems like a major limitation to the gameplay. To a certain degree it is, but as I've explained in the first chapter, the holodeck is a room full of protections, force fields and tractor beams. Up to a certain level, the holodeck can be rendered into a room without gravity. This means game designers can also program superhuman strength linked to normal movement. For example, when a player jumps, he simply jumps higher. If the player needs to climb a giant - like one does in SHADOW OF THE COLOSSUS - it can simply be programmed that gravity is lessened at the moment the player starts climbing. If the player has the strength to knock down houses, simply increase the effect of the player's touch where necessary. Everything in the projected world of the holodeck can be altered to fit our needs.

Yet all this does not take away the one the big problem that is inherent to the nature of the holodeck. The problem books and videos do not have, and video games only know to a certain extent. How does one guide the main character through the story when the storyteller or game designer has no control over it? In books and movies the storyteller is like a dictator who decides which character goes where and when, and what happens next. Game designers can take control of the video game character whenever necessary, primarily in cut scenes - whether in a separate screen or in-game. On the holodeck, the storyteller cannot. We, the main character, are master of our own body. The story teller only has indirect control. And that is not the only problem interactive stories have. I will explain in the next chapter.

## Chapter 4: Dilemma of the interactive story

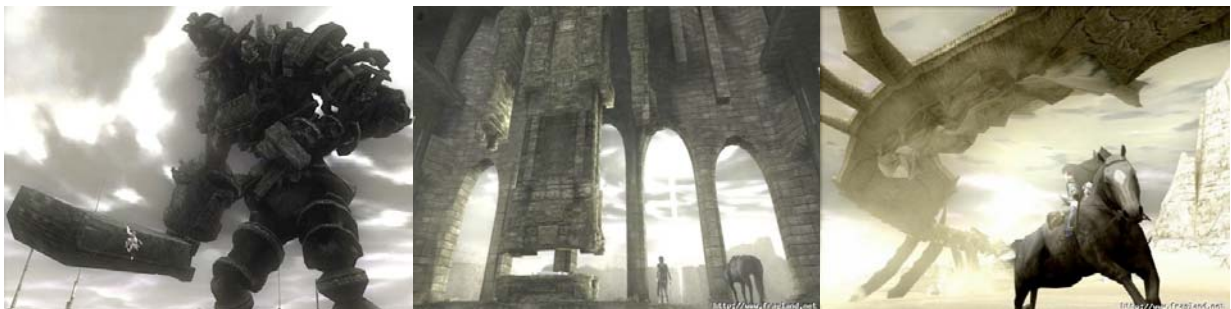
### Story versus freedom

There is a dilemma in this interactive story, both in a spatial as narrative sense, that is also becoming apparent in video games nowadays, although it's always been there. How much freedom do you give a player? Spatial wise, there often is an immense world in which the game character is located, and it is very tempting for the player to walk around and just explore. There is a danger that the player will wander off so far that, after a while, he'll start to lose interest. There is no tension or suspense, other than what he might find in his searches – treasure or danger, or both. There is no meaningful, unfolding story, until the player returns to the place where the main story revolves around (if he still can).

Narrative wise, one can give a player too much freedom by letting him choose the order in which different segments of the story follow each other up. Or with every choice given in the story, the player is overwhelmed by different options that are either meaningless or create such a system of different story branches that it is impossible for designers to make. Another effect created by this branch system, is that the more different choices, the less real meaning they have. There is a certain sense of drama, or emotional importance in a choice. Of course, if there are too little choices, they will become meaningless as well - the player feels as if he isn't *really* given a choice. Plus, every time that the player needs to make a choice from a list of possibilities, it greatly takes out the pace of the story, which in turn hurts the narrative immersion, because the player starts to reflect on the effect of the choices too deeply and becomes aware of the divide between the game and himself.

On the other hand, if game designers do not give the player any freedom to explore the world and force him to follow predetermined paths and storylines, the player will become annoyed and see the story as restricting and an obstacle. The balance between these two is often a delicate one. This goes just as much for explorations in dimensions other than space, such as emotion or story. Although I must add that, in my personal opinion, linearity in the story hurts the experience less than linearity in a spatial sense. By linearity in a story I mean: following a predetermined story from beginning to ending, rather than having influence on when or how a certain event happens or if it happens at all because we've been given an actual choice. This does not include stalling. They are for the most part non-interactive stories.

I will give a few examples of games in different genres that have a linear story, but still have a great sense of freedom and have also been well received. These games are HALF-LIFE 2 and SHADOW OF THE COLOSSUS. They respectively scored a ninety-six and a ninety-one at MetaCritics.com [12][13].



*Stills from Shadow of the Colossus*

In the adventure game *SHADOW THE COLOSSUS* you play a young man who's made a long journey on a horse to bring the body of a dead girl to temple in a forbidden land. He wishes to revive her, but in order to do so he must go on a journey to defeat a series of Colossi. Story wise, the game is very linear: you defeat one Colossus, return to the temple, and set out to defeat the next, until you have defeated them all. There is no other way to progress through the story. However, the vast lands you find yourself in on your search to each Colossus are enough to take your mind off that. Soon enough, you are immersed in the experience of riding around on your horse and the landscape rushing by, climbing Colossi and trying to stay on, and discovering new places on the map as you are completely free to go wherever you wish. It's almost meditative as there lives nothing that will attack you other than the Colossi (who are technically seen just defending themselves) – just a few peaceful birds and lizards. Yet despite the vast lands, you never get lost, because holding your sword up in the sunlight will show you the path to the next Colossus. The linearity of the story doesn't really bother the player, because – in my opinion – one soon realises the real story isn't about you trying to revive a girl, but about the strange, schizophrenic feeling of going through all lengths to complete a task while knowing you're doing something bad.

In the shooter *HALF-LIFE 2* you are an older man, a scientist named Gordon Freeman, captured by the Combine and who will first try to escape City 17 while helping members of the human resistance. In this game, both the story as the level are linear, but most people are bothered by neither. Personally, I was too enthralled by trying to escape and surviving that I couldn't really care that it was technically seen a linear narrative. What helped was that I was constantly in the experience, caused by mainly three things: all the cut scenes were in-game, the setting and characters were intriguing, and all the events were triggered at exactly the right times, based on my current location and completed puzzles. The latter is important for a few things: 1. you don't feel like you're on some runaway rollercoaster ride, because you get everything in perfectly measured doses, 2. everything is of dramatic importance, like in the movies, which makes that you don't feel lost (when you're not supposed to), 3. you don't miss any important clues, because they won't be shown until they know you're watching. Another thing these triggered events do, is giving you the feeling that everything is happening right here and right now. It feels natural rather than it being forced upon you like the cut scenes in many other games. Something happens and you just happened to be in the right – or wrong – place.

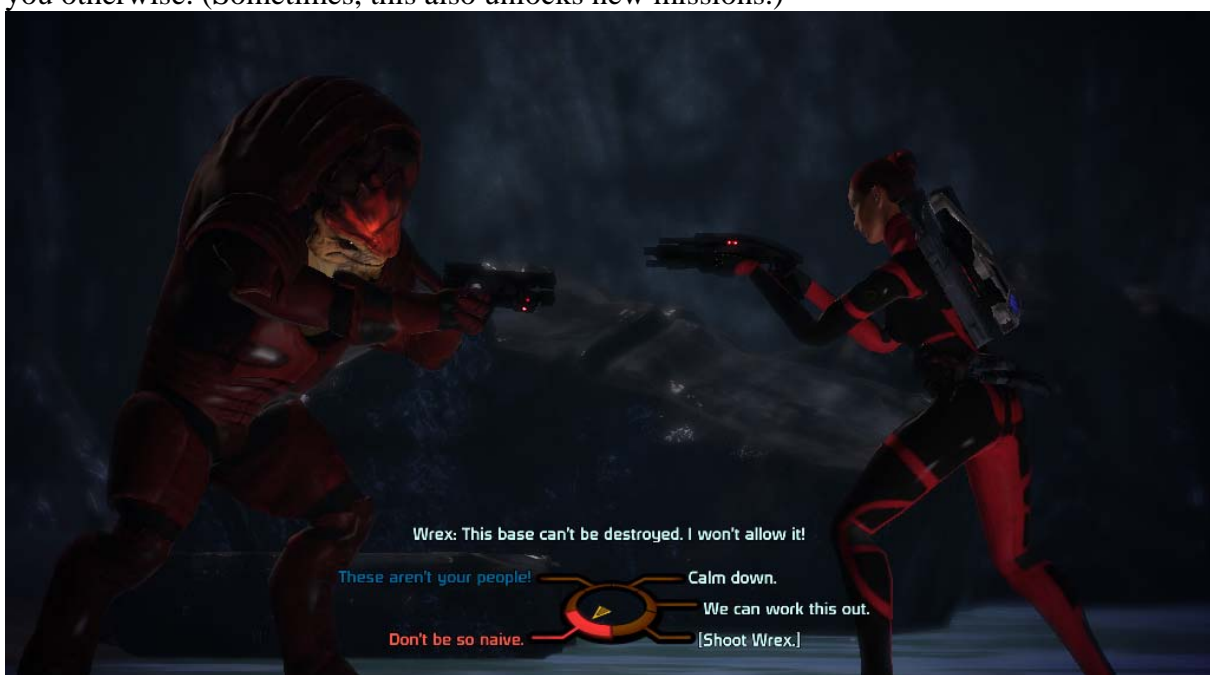
Conclusion: linearity isn't necessarily a bad thing in a video game story, or even in a spatial sense. As long as the player *feels* free and is unaware of being guided, and *feel* like he makes a relevant choice that actually has an influence, it's irrelevant whether or not this is truly the case. Upside to this also is that it's easier to make a dramatically interesting story rather than a collection of minor events. How does that translate to the holodeck? I think many of the tricks used in *Half-Life 2* can be used in hologames as well. Just like on the holodeck, there are no separate cut scenes in *Half-Life 2*, and you are in constant control of the character. The gamer decides where to look during a 'cut scene', even if that means missing some of the interactions and emotions of the NPCs. The excellent routing also makes sure the player still goes everywhere he needs to go, and the carefully timed and placed triggers ensure the player stays in the middle of the action. The gameplay in *SHADOW OF THE COLOSSUS* also lends itself well for the holodeck. There is a vast world the player is free to explore, but because of the sword the player never gets lost. When he gets bored with exploring, he can easily find his next objective. In that sense, a fully interactive story isn't necessary for the holodeck.

However, I have not yet taken dialogue into account. After all, that's a big part of what makes an interactive story truly interactive. In *SHADOW OF THE COLOSSUS*, there is a minimum of

dialogue and in *HALF-LIFE 2* only the NPCs speak, telling the silent Freeman's story for you. When it comes to stories on the holodeck, the player will not be ignored. Sure, one can program the NPCs not to respond to what the player says, but that will hurt the experience badly. If we are part of a story, we also want to have influence on in and interact with the other characters. On the other hand, the player can not say or do everything he wants either, because 1. AIs are not that intelligent yet, 2. to calculate in all the possible answers one could give, would create a monstrous branch system – one that is in fact impossible to make, because one never knows what the player will say, and 3. the player will potentially mess up the story.

I will give a few examples of games that try to tackle this problem. The first are games like *OBLIVION* and *MASS EFFECT*, that use a branch system in their dialogues. It is far from perfect for a holodeck, but I will describe this to illustrate the area between a linear and interactive story. In *OBLIVION* you are given a list of replies or topics to choose from. None of these replies are voiced by your character, and you know the spoken replies from the NPC are also selected from a pre-determined list under the hood. The only variations are caused by whether or not the NPC likes your character, and therefore says certain things or neglects to say them. How the NPC feels about your character can be seen by its facial expression. It's a very nice attempt to let your character's actions and personality have an effect on the world and its inhabitants, however it leaves much to be desired from as the NPCs only show you their feelings in between talking. The pre-recorded replies often have their own sound to them, that is rarely in relation to how they feel about you. This gives the NPCs and their dialogues a bit of a schizophrenic feeling. Also, you can select a response after they've stopped talking which takes out the pacing.

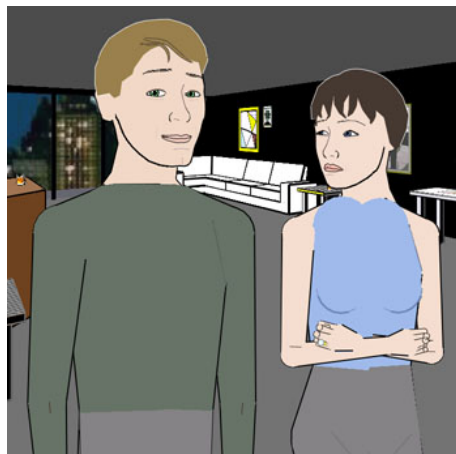
In *Mass Effect* the dialogue system allows you to select a reply during the NPC talking, which keeps the conversation dynamic. These replies are also shown in a few words, as a sort of summary, placed outside of a to hint what sort of reaction your reply will have. Top-right are the nice replies, bottom-right are the more impolite or plain hostile replies. On the left of the circle are topics to talk about or replies that are unlocked by spending experience points on your negotiating skills (charm or intimidate) that allow you to get more out of a conversation. For example, you can get out of a conflict without firing your gun, get higher or more rewards, spare the life or an NPC, or get more information that the NPC wouldn't tell you otherwise. (Sometimes, this also unlocks new missions.)



It's a very intuitive way of holding a conversation with an NPC, while keeping the pace, and the game designers make sure you can't mess up the story while keeping you immersed. You have influence on what you can say and shape your character's personality and story. Downside is that sometimes the reply you selected turns out to be not what you expected, and that it's still unsuited for a holodeck. Players cannot be expected to walk around with a script in their hands to determine what they can or cannot say, or that every time they address an NPC a menu with options appears.

In other words, players on the holodeck should be allowed to speak to the NPCs directly and should be able to do so in any way they see fit – giving that they stay in character and won't deliberately try to disrupt the story. A game that works on achieving this, is *Façade*. The system used here allows the player to type in his own replies, and the two AIs in the game try to decipher and adequately respond to this to create an emotionally rich and dramatic video game. [14] The player can type replies to what the main characters Grace and Tripp say or do, and they in turn will respond to this. The AI is still far from perfect, and often the words are misinterpreted causing strange or unintentional reactions (like getting kicked out of the apartment, when you were trying to be comforting), but games such as these are a good example of interactive stories that are also dramatically interesting and emotionally meaningful.

Another thing *Façade* illustrates, is how despite the player can say what he wants, he is not entirely free to what he wants. The game characters are very bend on discussing an important issue – namely their dysfunctional marriage – with you, their friend, and will guide the conversation into that direction. Much like real people would. Of course, you can ill-behave and get yourself kicked out of their apartment, but it is a very unsatisfactory ending, and you will end up coming back to play the game according the rules. Within these rules – or frame work – there is a lot of room to manoeuvre and guide the story into a direction you desire, which can have a lot of different versions. Within the story there are plot-twists and developments that the player more often than not doesn't expect. Even if he has seen certain plot twists before, it is hard to get the exactly same result a second time.



*AI-based, real-time rendered 3D virtual characters  
Grace and Trip in Façade. [14]*

Is *Façade* a type of game we can expect to find on the holodeck? Yes, I certainly think so. Especially with there becoming more and more room for emotion and actual story or drama in games. However, with only two characters and one conflict (a dysfunctional marriage) it's a very short and – technically seen - simply story which can be finished in a matter of minutes,

rather than days as is the case with many games and books. The explorable space – namely one apartment – is also very limited. This also means players won't be bothered to go through all the trouble of playing it on the holodeck: one needs to travel to a special location (I doubt many have room for one in the house), pay a fee (even when being idealistic, the development and acquisition costs need to be earned back somehow), and perhaps even dress up (as you often see in Star Trek.) For all that effort, it had better be an experience that cannot be found in our own house with our computers, consoles and videogames. In other words, it should be longer, more rewarding or give the player enough reasons otherwise to choose integration into a virtual world over the comfort of playing video games behind a computer or television screen.

## Playing the Part

How much freedom to explore do the game designers give the player while keeping him interested in the envisioned experience or story is one dilemma of the interactive story. They are already relevant to present-day video games, but the need to find a solution for these issues are made especially urgent because of the holodeck's nature, which allows the player to be physically present. So far, I've mentioned:

1. the player wants to explore the world, if presented with even the smallest opportunity.
2. the player will not be ignored, which requires the implementation of stronger AIs for NPC's to (among others) truly understand speech.
3. the player will not follow the script for the sake of obeying the writer, but has an agenda of his own.

The above makes it tricky to create a meaningful and dramatically satisfying story, but there are more issues that make interactive storytelling rather complex. I have already mentioned that the player wants to have influence on the story by making (relevant) choices when it comes to taking action and talking to an NPC. This is what shapes the personality of player's character. However, when role-playing a character on the holodeck it is most likely that the player will invent his own history. This can range from a small detail to a full biography. How much room will or can game designers give the player to invent the character's history? What are the related consequences? Also, in quite a few games the player has influence on the character's appearance. Is this also possible on the holodeck, in what ways, and how does the player's gender and age or experience impact the story? I will discuss these issues in this subchapter, starting with the interaction between story and user created histories and personalities.

## History and personality of the main character

If we wanted to hear a story in a fixed form, we could have simply read a book or watched a movie. A holodeck offers a playground in which the player can create his own adventure. Only the world and its rules have been pre-determined, but within these boundaries the player can create his own story. In essence, it's much like the fantasy adventures we played in our childhood. The world was our stage, and our imagination created the transformed that world, the props and our friends until everything was part of our fantasy. Together with our friends, or alone, we would create a story around what we found and unexpected events. Our neighbour sweeping the street, could suddenly become an evil wizard, a dinosaur, a horse or a robot.

Although the holodeck already supplies the world and its inhabitants for us, that sort of creativity is still what the holodeck triggers in us. We still want to create our own story. For that reason, it is hard for the designers to lay down a path with perfectly timed narrative events and a well thought out interactions between the main character and the NPCs. The only thing they can do is design the attitude the NPCs have towards the player's character and certain behaviour. The player himself decides how to act towards the NPC's and what he tells them, including about his history. However, that obviously has serious consequences. The player can tell a story about his history that is in conflict with the world's history, or even in conflict with what is already known about the character. For example, let's take Half-Life 2: a player in the shoes of Gordon Freeman seriously talking to Alyx about how he (or she) was really raised by elves in a ninja village up in the mountains. Alyx would surely think something was wrong with him – he hit his head, or was traumatized by what he saw on his adventures, or simply lost it. Would anyone still entrust him with the fate of the world?

It's a fact not everybody was meant to be a writer or to be entrusted with character design, and nothing can beat the hard work of an experienced professional, but as we are on the holodeck everybody can technically seen bring their own version of the character's history, and there is little game designers can do to stop that. However, that are a few things that can be done to minimize the damage:

1. Set up guidelines the player is to adhere to if he wants to enjoy the full experience of the hologame.
2. Build in fail-safes in the program and story.
3. Amnesia: the main character doesn't remember his past, but the NPC's still know him/her. This may or may not play a central part in the story. (FINAL FANTASY VII)  
This way the NPC's can also feed the player bits of information about his past. (HALF-LIFE 2)
4. No one has ever heard of the character. (OBLIVION/MORROWIND)
5. The player fills out the character's background through combinations of pre-determined options. This way both the system as the player know within which lines to operate. (MASS EFFECT)
6. The player starts with character's childhood and is overwhelmed by the events that will shape his later personality. (FABLE)
7. There is a (short) introduction in which the player is informed about the key elements of his/her past. (FINAL FANTASY XII)
8. The NPC's aren't interested in the character personally or his/her past. (SHADOW OF THE COLOSSUS/ICO)
9. The NPC's only know the character by name or general reputation. (PRINCE OF PERSIA)
10. The character's personality or background are irrelevant to the story. (BLACK&WHITE)
11. Simply prevent the need for the player to invent his own history.

Because of this, the story telling will also be less character driven. Rather than having a strong lead character, the player will be guided through the story by the influence of the NPC's and the environment. In a way this is also more realistic, because the hero on his adventure or the player in his life in the real world, are also guided by outside forces. The adventures of Odysseus are a strong example of this.

However, this doesn't mean that the player should be demoted to side character. On the contrary, if the player feels he has less influence on the world, he is very likely to lose interest in the story altogether. Why should we put a lot of effort into something, when we get little out of it? Nor does it right to be dragged along on someone else's adventure. FINAL FANTASY XII is a good example of this in my opinion. In this story, you play the role of a young boy named Vaan, an orphan who lost his only brother in the war, and who wishes to become a sky pirate. During the point-of-attack in the story, when Vaan sneaks back into sewers under the

castle, you meet up with two sky pirates, Balthier and Fran, and the presumed dead princess Ashe. As the story progresses, you soon start to realise the young Vaan is caught up in events bigger than he can handle, and from the interactions between the other characters it becomes clear that the real star of the story is Balthier. Vaan is just a boy who knows nothing of political intrigue, betrayal, deaths of spouses, the rise and fall of kingdoms, and the full extent of war, where Balthier thrives well under these circumstances. Not to mention that his character and history are well thought out, where Vaan is a rather shallow and empty character with little to no influence.

It should come as no surprise that the game designers had originally intended for Balthier to be the main character, as was mentioned in an article in the game magazine *Edge*. They choose to focus on the younger Vaan instead, because they feared that ‘casting players as a 40-year-old man would alienate a large slice of the fanbase’. [15] Personally, I wish they had gone through with it, because now I was stuck playing a character that felt like a fifth wheel. Most of the time, whenever the game allowed it, I walked around the world with Balthier’s character anyway, and felt annoyed when I was forced the use Vaan’s character in the cities.

Which brings me to a next dilemma. The previous example shows that age and experience determine how much a character understands and how well they can handle it. This goes for the player as well. It’s impossible to write a game tailored to the exact knowledge and maturity of each different player though, and a solution would be to move that burden of needed to possess certain knowledge to another member of the lead cast, but one must be careful not to create a situation as I’ve discussed with FINAL FANTASY XII. Another option to counter this, would be to give the player an instruction set and a short biography of the character. This way the player will possess the knowledge that is needed to successfully play the role of the main character. The characters in STAR TREK: VOYAGER always seem to have knowledge about the character they were playing that did not seem gained from the holonovel itself. I have also heard that in text or table top based RPG’s, it is quite common to have an informative text on the role the player is to play. I’m also aware the existence of text based RPG’s in which the members play the roles of characters taken from, for example, video games. They always have their own take on the character, but they do seem to stick with the key elements that characterize the character.

That leads me to another amusing fact that is important to keep in mind when writing a hologame, although I’m not sure how it can be prevented. (It would have to be determined on a case by case basis.) Many people grow to adore certain characters, and it is not hard to imagine some might actually act out their fantasies when they actually ‘meet’ the character in the ‘flesh’, interrupting the course of the story. What I’m referring to is the well known phenomena of ‘fangirls’ and ‘fanboys’. We can’t have players disrupting the story to harass and chase after characters that are not meant to be romanced. Imagine what would happen if the main character tried to get into the main antagonist’s pants.

On one hand I’d say game designers should be willing to take a step back from the story if they want to write games for the holodeck, and stick with writing behaviour scripts for NPC’s, and key events, rather than laying out the path and describing the main character in detail, and then just see where players take the story. On the other, we don’t want them to take too many steps back and let the player decide everything, or you might get the situation in OBLIVION where the player could decide when which event would take place, including the main story line. There are benefits to that, yes, but at the same time it makes the game feel disjointed and there is little suspense that *can* be found in a more linear and carefully timed story. In addition to this, while it gives a lot of freedom to leave the character open and let the player fill it in, it doesn’t give the player any guidelines either, nothing to stir the imagination.

It's important to find a good balance between these two. Of course, play test are very essential here!



Mass Effect inspired comic, with permission of the artist [16]

### Appearance of the player as main character

Along with the personality and background, the appearance of the main character has been chosen *for* you in many games. Being physically present in a video game makes that choice a lot less self-evident. We bring our own physique onto the stage and being forced into someone else's (virtual) body would feel unnatural, if it doesn't freak us out. Especially if the main character is of the opposite sex. If game designers want people to play the game, they will need to make sure the player is comfortable with his appearance first, because that is something he's constantly confronted with. Once he is comfortable with that, it's safe to introduce him to the story without scaring him off.

This doesn't necessarily mean that the player wants to look *exactly* like himself, but he wants to be given the choice. Many people that filled out the questionnaire I held under gamers confirmed this. I asked them if they had ever changed their appearance and gender in games, in what ways, and why. Then I asked them if technology allowed them they would still do this on the holodeck, in what ways, and why or why not. It turned out that there were a lot more reserved on the holodeck when it came to making changes in their appearance. From their answers it became apparent that identifying yourself with a character on screen is quite different from being a character on the holodeck yourself. The holodeck experience is more

direct and personal, which makes it hard for people to be somebody else, but many also stated that they would still make small changes to their appearance, such as the colour of their eyes.

When they played RPG's and MMO's, games that allowed them to change the appearance of their character, they were a lot less reserved, sometimes even going as far as making their character of the opposite sex. They had several reasons for this, varying per genre (as there are other people involved in MMO's) and varying per gender. In the following list, I have also included research results from R. Jalbert. [18]

1. They had finished the game with a character of their own sex, and changed that to create an 'entirely' new story and experience.
2. One particular gender made the story more interesting because of the context.
3. Step away from reality and experience someone else's story.
4. Growing tired of always using the same looks on a character.
5. Games are a safe playground to experiment.

Men:

6. The female models were prettier than the male models.
7. They couldn't identify themselves with the male models, because they were too bulky.
8. With a female character they can charm other male players into buying items for them. (MMO)
9. It's nicer to look at a woman on the screen.
10. There is something about the contraction of a beautiful female body with powerful armour and weapons.

Women:

11. To keep male players from flirting or cybering with them. Basically, to prevent sexual harassment. (MMO)
12. To make them feel stronger, empowered, and taken serious. (Many think women aren't good at playing games, expressing leadership, are too emotional and unreliable.) (MMO)
13. It's nicer to look at a man on the screen.

The smaller changes were mostly to make themselves look fitter or more attractive than they really were, to fit in with the setting (for example: the ears of an elf), to make it a more interesting character, to make the character appeal to their aesthetic taste, or to experiment with different looks. Many gamers also stated that if they made a character that was too much unlike themselves – in both appearance as personality – they couldn't identify with it, and the interest in the character would soon run thin. Between the two extremes of the character being exactly like themselves or very unlike them, they found a safe playground to experiment with things they couldn't or wouldn't do in the real world. Creating a character that looks like you also helps to make the player feel like it is really him walking around in that world. Of course, being on the holodeck takes away the absolute need to imitate yourself, because you are already there. I suppose it could also be argued that taking on a different appearance on the holodeck being able to identify yourself with the character is easier.

Personally, I often make characters that are interesting to look at, but do not necessarily look like myself. I do often pick a woman, because I dislike the look of male models. They're often too bulky or rugged for my taste, not the kind of man I'd want to look at for the entire duration of the game. It might help that I myself am a woman though, and that it's much easier to identify myself and play with those models when I'm expected to make choices that will effect the story – in a sense, when I'm expected to be myself. I had no trouble identifying myself with male characters in other types of games where I as a player had little influence on the story. (Although when I'm entirely honest, all those male characters were relatively slim.)



*Me and my version of Commander Shepard (Mass Effect)*

*How* to give a player a different appearance on the holodeck is in fact the smallest aspect of problem. In theory, this problem could simply be solved in the same way as the holographic world is created: through projection and force fields. The image of the desired appearance could simply be projected over the player's own body, with force fields where the body ends and the virtual character's appearance continues. Like with, for example, the pointed ears of an elf. One could think of it as a very advanced costume. Yet, the same as with a costume, this technique can only add things to the body, and not take them away. The best it could do remove breasts or a pudgy stomach, is through force fields that acts like bindings or a corset. In addition to this, the player could wear a special body suit which has a type of fabric that simulates touch by turning hard and soft again and thus applying pressure. With this technique even sensations from the virtual body parts can be simulated. Other arguments for this suit are that:

1. it can be optimised for holographic projections by equipping it with sensors.
2. because it always has the same type of fabric, the system knows how the suit reacts to projections. (Reflection of light.)
3. it is a tight fitting bodysuit so there are no parts of clothing fluttering about, such as skirts or wide shirts. This helps keeping the projection to stay coherent, because the layer underneath (like a canvas) always stays in the same – or at least predictable – place.
4. any type outfit can be simulated, so there is no need for an immense storage to keep costumes for each game. In addition to that, the player will always walk around in an outfit that fits the setting. (Otherwise you'll get situations like in 'LOST IN AUSTEN' where the main character walks around twenty-first century clothing, upsetting or confusing the Victorian characters with her low-cut neckline and tight fitting trousers. [19])

Not being able to project on the face, and still give it a different appearance could be solved by programming reflections to show a different image. After all, we can only see our face through the means of reflection.



*A still from 'Lost in Austen', episode 1.*

## **Gender of the player and main character**

Another reason why most people said they wouldn't change their gender on the holodeck, other than that it would be strange to walk around in someone else's body, was the interaction with the NPC's. (Some did say they wanted to try it just to see what it was like, or because of the anonymity should they be playing an MMO on the holodeck.) As I've mentioned before, stories are usually written for one particular main character that NPC's interact with in a certain way. This main character also has a set gender, which heavily influences the interactions. It's one of the reasons why I liked having a female character in MASS EFFECT, because she wasn't treated like a woman, nor did she really act like one. She was resourceful, determined, strong, self-assured, and a good leader who was respected by people. (Or if she wasn't respected, at least it wasn't for her gender.) I found it refreshing, because there are few games out there with a strong and respected woman as lead character.

Of course, one could say she was simply treated like a man, but she was treated equally nonetheless. To which one could reply that apparently she needed to act like a man to be treated equally, but I will not get into that discussion, because I'm treading upon the territory of gender studies and I simply do not have enough information in that field to make a properly founded statement. I will reserve that for a future research.

Regardless, I speak and theorize about what I have observed in videogames and other media about how the gender of the main character has a considerable influence on the rest of the story. For example, let's take the romance that unfolds between Shepard and Liara, the Asari professor, in Mass Effect. The other possible love interests in the game, Kaiden and Ashley, are only available based on the gender the player chose for Shepard. Liara is available for both genders. I can only speculate about the game designers' reasons for this. It could simply be fan service for the men (two attractive women making out), it could have relevancy to the story (but I haven't found it yet), or for another reason I'm unaware of. It's also very likely that they felt both genders should have the same amount of people available for romantic sub-plots. In either case, the game designers gave players the option to romance a woman as a female version of Shepard, but also saw the need to emphasize that it wasn't *really* another woman. Technically seen, they said, Liara isn't a woman as the Asari are a mono-gendered race. They just look like human women with a twist. No one really fell for that excuse. Singapore even went as far as temporarily banning the game. [20][21]

By which I'm trying to say that if the player can decide which gender the main character will be, that will have consequences for the story and how the player will react to it. It might even give the story a whole new twist to it, that not everybody responds well to. From the answers to the questionnaire, it became obvious that men have no trouble with a female NPC coming on to them, even if they are impersonating a woman, but they really wouldn't like it if a male NPC tried to do the same. The same thing went for female players. I must note here that these answers involved straight men and women, and the situation is different for people with another sexuality, but I didn't get enough answers to make an accurate conclusion on their feelings. Although I suppose it is safe to assume they too would act upon their sexuality. One gay player at the BioWare forums even stated he was annoyed by the women throwing themselves at him playing as a male character, and I can imagine he would've appreciated it if there was an option to get involved with the male character. [22] Another poster also commented that they'd like to see romantic options with all characters for variation, which I agree and yet also disagree with. For the variety, picking a character of your own interest, and influence on the story, it's a very nice thing, but I can also imagine that for

the sake of the story writers wouldn't want the player to run off with each character. That could lead to some seriously complicated situations. I'm thinking of a delicate political and personal balance between characters and the player disturbing that balance. It makes a very interesting story for sure though!

Gender and sexuality both make story telling with a variable main character hard, because there are too many things to keep in mind and it's impossible to know what each individual player would like. One could opt to take romance out of stories entirely, but I think that would hurt the hologame more. There is a reason why in almost every Hollywood movie there is at least a kiss and most of the popular songs are about love. It's often an important drive behind stories, apart from the standard 'saving the city/country/world/universe'. But sexuality aside, gender alone is complicated enough. Writers would have to find a role and situation in which players can easily be both genders and try to write the story around the key personality traits of the character, rather than the traits associated with a certain gender. This would exclude many roles that would still be interesting to write about. Unless they would make different games for each gender. (AAA-titles or course, and not the almost insulting games for girls/women I find in the stores these days.) Which still doesn't solve the problem entirely, because I'm certain there are men and women who would want to play those games not meant for them too, and it's terribly stigmatizing.

That's just taking the player's feelings into account. It also has an effect on the NPC's. It's hard to make a believable character or serious situation when, for example, a homophobic female NPC (someone who believes in *traditional* families only) while she's flirting with a female main character. We can't make all the characters open minded and accepting if we want to write an interesting and believable story either. But even if it is an open minded character, it could be that for whatever reasons the writer still doesn't want a character to be attracted to both genders. (Or the publisher. Controversy is often bad for sales.)

In the best case scenario, I do think it could have a positive effect on the way people think about gender and sexuality. The world is currently too fixed in thinking in their ideas about that. It should also have a positive effect on people thinking in character traits rather than someone's physical gender: no prejudice based on genders. It might help people truly consider men and women as equals. This is just one of the things I think interactive stories can achieve, especially on the holodeck, where you can literally put someone into someone else's shoes. Yet for this to become truly effective, I think the community should be involved in making hologames and not just AAA-title developers, because they'll stick with the safer themes to make sure their work will be sold and the costs can be earned back.

## Chapter 5: Diversity and user generated content

In order for the holodeck to become a platform of discussion, innovation and refreshing ideas, an easily accessible toolkit should be developed so that anyone can write their own stories. Just like with pen and paper. Or with movies, as everybody with a movie camera and some friends for actors can create a movie. It can even be published through a world wide network for all to see. Yet I don't think the holodeck should be a platform flooded with bad stories, there should be some sort of rating system and moderators to ensure the content isn't illegal, abusive, physically dangerous, unnecessarily offensive or otherwise unwanted. Categories for easy navigation sounds like a good idea too, in genre, theme, age rating, but also for the quality and mindset the player can expect from it: AAA titles, B titles, art games, or self-published games – both original works as mods or fanwork.

When the threshold becomes lower, more people will create stories of their own. When video cameras first came out, there was only a select group of people who could afford them and saw their use. Little by little, story telling through film became more common, and as the price of video cameras dropped, the group of people who made films became larger. People now make their own films, although not always worth watching. The positive side to this are the vast number of creative ideas that can come to fruition, that would otherwise never have seen the light of day, and can in turn inspire, influence and cause innovation in the products at the top of the pyramid, such as professional movies and video games. These low-cost productions can also take more risks, as the penalty for failing is minimal or even non-existent, which means that they can tell less generic stories – as often made in Hollywood – and cut into more controversial subjects. They can also be more innovative in their ways of telling the story, gameplay, visual style, etc. This enriches our culture and can have a positive effect on society as a whole.

This is also what Jehane Noujaim believes, the inventor of Pangea Day. [23] She believes that people can be brought together through film, because it is a powerful medium that can show the other side of a story, create understanding, and with that take away conflict. I believe videogames can do this as well, although in another or additional way. Film is a passive medium. There is a storyteller who knows everything and gives this information to the listener. They can't change anything about it. Video games are an active medium, and the player needs to set out and discover the information the storyteller has put into the story. The player can literally step into someone else's shoes, but in the case of a conflict that might not be very effective. They are after all still themselves, and bring their own attitude and point of view into the story. When there is a conflict, there is a lack of actual communication. The two fighting forces refuse to connect and step into each other's shoes. Even though the video game or hologame can put them in the situation of the opposite party, they will still play their own role or simply refuse to play at all. When it comes to interactive stories, the story should be told subtly, not immediately letting the player know he is stepping into his 'enemies' shoes. This can go for larger conflicts, but also smaller ones you'd find in your own home or neighbourhood. Regardless of whether films or videogames are the most effective medium in this case, or if they should be used in combination, I think these stories should be made readily available through a world wide network attached to the holodeck. The stories are out there, and if anyone is interested in hearing the other side of the story, they can find it and spread it – the file itself or the story that's been told.

Putting user generated stories on a world wide network is a good idea in itself, I think, because not only does it cause diversity, it can also stimulate discussions and spread new ideas. Or revive old ones that have been lost, but still – or now – have a place in this age. It is much like books, but video games can reach a larger and younger audience, because

apparently many of them don't read books anymore, and it doesn't need a new publisher for each country, or a new print for each user. What's more, you don't need to be able to read, to understand visual stories as that of film and videogames. Related to that, I think it's a good idea to create and put historical hologames on the network too, because not only can teachers and students use this for school, they can also use the 'history books' from other countries and see how they see it. Everybody had their own view on history, and it's often the winner that gets to write it, but that doesn't mean it's the only correct version. What I often find when surfing around the internet, is that there is so much I don't know or that I haven't been told in school. When watching an episode of the television series 'In Europa' by Geert Mak I was introduced to people who grew up in a different countries and were told different or incomplete versions of the Second World War. They were shocked when they found out there was so much they hadn't been told, and I have had the same experience when I dove deeper into the history books or watched smaller movie productions on the subject, such as *LUST CAUTION*, *UN AMOUR A TAIRE*, *SOPHIE SCHOLL*, *ZWARTBOEK*, and so on.

At the same time, it's good to become aware of what others are being told, so that there will be no misunderstandings about that. I've met one girl who held a grudge against a country, because she (wrongfully) believed they didn't tell their children about the things they had done in her country. Perhaps she just met some ignorant people, but through a network with historical hologames of the entire world, she could find out the truth for herself. It also helps people to understand how others look at the world and its history, and why certain things are the way they are. In my opinion, this will help making this world a more peaceful one.

World wide available hologames shouldn't be restricted to just some categories or types of production, but to all stories. Stories are meant to be shared, fiction and non-fiction. I'm certain many stories are lost, because publishers don't dare translating and printing them or because they're hidden in the dusty corner of a bookstore somewhere. Or because they're hard to come by due to its small (oplage). Hologames on a network take away the distribution costs, much like the networks of the iPhone, Xbox and PS3 are doing. Now we just need an easy way to translate all the dialogue. Ideally speaking, we would just understand what is being said in any language and we can answer in any language while still being understood, but that aside.

There are some copyright related issues that will need to be tackled too, one way or another, because it is inevitable that users will borrow characters and worlds from other hologames and bend them into a different story, as happens with online 'fanfiction' or machinima. However, some of these stories are sometimes more enthralling than the original story, give the story much more depth, or tell the same story from a different and fresh perspective, so that one would have to wonder if it's such a bad thing if people use ideas from each other – as long as they're properly credited. There are a lot of things writers can bring up that will not only enrich the original story, but can be used as a commentary on the real world. There are as many truths and stories as there are people after all, both in present day as in history. Through these hologames, people of the world could be brought closer together in understanding, and at the same time create a rich cultural legacy. All I can say is: they don't lose profits over fanfiction either, and its free advertisement.

## Chapter 6: Serious games on the holodeck

In this chapter I will shortly discuss the uses of the holodeck as a non-narrative medium, by which I mean that the main focus of the used applications is not on telling a story. In other words: serious games, which focus instead on training, education, invoking discussions, and so on. There are many different combinations possible, but it could be a different research on its own to list them all, and not to mention entirely theoretical. More than the rest of my thesis any way. Therefore I will only mention the most important ones.

### Training, simulations and education

Holodecks can be used for training: a fireman can run through a burning building and experience the heat of the flames, the unsteady floors, the hindering smoke *without* being exposed to the dangers. If the fireman falls through a floor, it's 'game over', but not the end of his life. Just as a doctor can use a holographic body to practice surgery on a 'living' body without endangering a real person.

It can be used for educational purposes: a science teacher can show his students the very details of outer space, by bringing them into it. Or a biology teacher can take his students into the human body and show them how it functions, in a similar way as the old cartoon ONCE UPON A TIME...LIFE did. But also the more modern and science based project, the AlloSphere, developed by JoAnn Kuchera-Morin comes very close to doing this. [24] The AlloSphere is based at UC Santa Barbara and is a large sphere placed in an echo free space. Inside this sphere is a walking bridge on which the researchers can stand. They wear VR goggles to enhance the experience, and have a special sort of laser pointer to interact with the projections.

Inside, there are interactive 3D images and electronic sounds that are based on actual data retrieved by microscopes and other high end equipment. With the AlloSphere, they can bring these readings to life and also make them more insightful, as they become visual, rather than just flat text information. With one of the projects for the AlloSphere, the AlloBrain, they have turned their data into a 3D world that is supposed to be the brain. Inside this virtual world, there are all sorts of objects and sounds that symbolise the activity inside the brain. In this way, it becomes easier to see where there is a lot of activity, and where not. The difference between the AlloSphere and another type of media, such as a television, is that you literally stand in the projection and that you can interact with it. Although, when I say you 'stand in the projection', it is not like a holodeck where you are also physically present in the virtual space itself. You are surrounded by the virtual space, but you aren't inside it. As a result of this, you can only look at the projections from one perspective, or at least a very limited number.



"AlloBrain" for the AlloSphere at UC Santa Barbara [14]



Still from "Final Fantasy 7: Dirge of Cerberus"

## Therapy

The holodeck can also have a therapeutic function: certain emotional situations can be simulated for a person to practice with and learn how to deal with them, ranging from minor everyday situations to very traumatic ones. People can train with these projected people, and also gain insight in himself – this can be gained through both simple simulations as more elaborate narrative. It is safe, highly adaptable and even rewind-able. You can repeat a scene over and over again, until the patient has found a good and responsible solution for the situation. As is common with simulations, you can also show the person in question the (possible) results for their actions. If they decide to ‘shoot’ someone to end an argument, you can immediately show them what happens afterwards, how that event has an impact on the people’s life that are somehow involved in the incident, but without the nasty (long term) consequences of the real world.

In regard to this, the holodeck could be used in a conflict, to show how the perspectives of the different parties. Assuming it comes with a very easy to use toolset, every party could insert their own perspective into the program and let the other people walk in their shoes for a short time. I am not saying this would end all conflicts, but it could help to gain an understanding in each other when we are open enough to see it. Some conflicts could be resolved in this way, be it on a large scale – nations - or a small one – families or other interpersonal relations.



*Still from "World Builder" by Bruce Branit [9]*

For people with problems of a more physical nature, the holodeck could be used for rehabilitation. In the holographic environment everything can be programmed and altered, unlike the real world, so it can be adjusted to every patient’s specific needs. Gravity can be decreased to make it easier for people with leg-trauma to practice walking again. The intensity of sunlight can be limited to a minimum, so that children with severe sun allergies can also play ‘outside’. Animals can be projected for people to cuddle with, without bringing germs and viruses into the hospital or possibly being traumatised by rough treatment – a tight hug. Another good thing about these holographic animals, is that their fur isn’t real and people with allergies to it can still enjoy their company. Like NINTENDOGS, but tangible.

## Conclusion

Although the holodeck has a lot of benefits, I believe it will not completely replace current day video games, or other media, but will simply be an addition to. A different way of storytelling. Not all video games are suited to be played in a fully immersive environment nor do we want to be physically emerged every time we play a game. Games that would benefit most from being played on the holodeck are serious games or simulators and games that centre around a character-driven story or experience. This character will most likely be human or humanoid, because the player is human and there is only so much a costume can do to change that. Another thing worth noting is the holodeck's lack of mobility. Even if the technology will be so advanced we can move the projectors from place to place, we will still need a room to play in. I believe there will always be a place for consoles and handhelds, although I never really claimed otherwise.

The holodeck, whether theoretic or not, will also greatly effect the way we approach stories. For a long, long time, stories have always been non-interactive. New media such as videogames have changed that by introducing user participation and making stories interactive. The holodeck takes this to an extreme by inviting the player into the virtual world and giving him as much influence on it as he has on the real world.

Physical presence, one of the key characteristics of the holodeck, is very important for the player to interact with the virtual world and allowing him to touch objects and living creatures. This is what makes illusion real, what makes the experience more complete. However, it is also a narrative disaster, because the designers can no longer tell a story about a distinctive character with a history, age and gender as a player brings his or her own history age and gender. Linear stories are practically ruled out. Only about the history, which is non-physical, can the game designers indirectly negotiate with the player, but even here it is the player who has the final say in the matter. The game designers can still decide which outfits the players should or can wear, as far as the main character's appearance goes.

This type of immersion demands a lot from interactive stories and game writers. On the holodeck there are a lot more variables at play then in a video game, where the game designers have control over pretty much everything, except on what the player does in between cut scenes and dialogues. On the holodeck, there are no cut scenes - except events that can be triggered and orchestrated, like in Half-Life 2 - and the player can say anything he likes rather than selecting sentences from a list. Another thing that has a great influence on the interactive story is the gender - and sexuality - of the player, which makes it hard to predetermine how NPC's should respond to or interact with the main character. How much the gender of the main character influences the story and interactions with NPC's is something that requires more research.

Physical presence also has a downside to the player. In many RPG's, gamers choose a character that not necessarily has the same appearance or gender as their own. The fun part about creating a character at in a virtual world is that it doesn't need to look like you. You can temporarily be someone else, and safely experiment with looks and behaviour. Theoretically speaking, this is still possible on the holodeck through the means of a highly advanced costume, but you cannot distance yourself from it the way you can with a videogame. Through my questionnaire, gamers already stated that they would be a lot more reserved in making changes to their appearance on the holodeck, because of this reason.

Holodecks can do more than just innovate the way stories are told. They can also be used for training, simulation, education, and health care. In addition to that, hologames can be used for cultural or other non-commercial initiatives such as, for example, projects like Pangea Day.

All in all, I think the holodeck is an exciting new medium for storytelling, but also other purposes. Its most remarkable feature is how it immerses the user into a virtual world and let him interact with it through touch. It's very natural and intuitive, and creates a much livelier experience and stronger bond with the virtual world. It also takes away the need for a complicated interface that, even at its best, is very limited. It allows the user to directly use his previously acquired skills in a game setting, rather than getting frustrated at the character's inability to do the same. Especially in combat situations. The technology aside, there is still a lot that needs to be solved - like interactive narratives - before we can enjoy the full experience of videogames on the holodeck. It'll be worth the wait.

## Special Thanks

I want to thank Alice Breemen without whom I never would have gotten this far. She's been an incredible help in explaining to me how to write a proper thesis, forming a research question through brainstorming, pointing out articles and books to read. I also want to thank her for the useful discussion we've had about 'physical versus virtual presence' and the differences and similarities between video games and theatre.

I also want to thank Kaisu Koski for giving me her book on augmenting theatre, lending me the related audiovisual material, and for pointing me at other performances and theatre companies that experiment with the overlap of the virtual and physical world. At the beginning of writing this thesis, when I wasn't sure what I wanted to research, Joris Weijdom told me to read her book until I found something that resonated, and research that subject. Much to my distress, there wasn't much that resonated, although it was a very interesting book to read! It did help me realise that whatever I wanted to research, whatever really inspires me, I wouldn't find it in theatre. Many thanks for that too. I also want to thank all the people that answered my questionnaire and who helped spreading them, in particular Rémy van den Wijngaart and Suzanne van den Boom. And of course thanks to Hans Klein Schiphorst for the research support, TED.com – especially Jehane Noujaim who wished for Pangea Day – for inspiring me and giving me hope for a better world.

Lastly, I want to thank the fanfiction communities I am part of. That may sound a little silly, because I know fanfiction is always a little frowned upon, and I've also been around long enough to understand why that is, but that doesn't change the fact that there are also a lot of good things about it. Throughout the years, I've met many different people all around the world that shared my love for writing and the fandom, inspired me to improve, showed me things I hadn't even thought about before (in many ways), and showed me how alike we can be, regardless where we live. The fanfiction community at large is as diverse as its people, but united through the stories that inspire us. This is just one of the examples floating around on the internet that in their core make me truly believe a more peaceful, understanding and united world is possible. And I am very thankful for that.

## **Notes and bibliography**

## Notes

1. <http://www.lcarscom.net/holodeck.htm>  
*“The basic mechanism behind the Holoscene is the omni-directional holo diode (OHD), a microminiature device that can project full-color stereoscopic images and force fields in three dimensions. The walls of a Holoscene are covered with millions of OHD's, under dedicated high speed computer control. OHD's manipulate tiny and subtle force fields, allowing an individual to "feel" projected objects that are not really there. Other (inanimate) objects can be physically created by replicator matter conversion. Shaped force fields and background imagery allow a visitor to experience volumes and distances apparently larger than the Holocene room could physically accommodate. Force fields create a "treadmill" effect, so a user could walk or run over seemingly great distances while the projected scenery scrolls by.”*
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*"In Final Fantasy XII, Yasumi Matsuno originally intended for Balthier, a much older member of the core cast, to take on the role of lead protagonist. Reportedly, it was felt that casting players as a 40-year-old man would alienate a large slice of the fanbase, so the decision was taken to focus on the much younger character of Vaan."*
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<http://aimo.deviantart.com/art/ME-Alternate-FemShepard-74776303>
17. Questionnaire on character creation in games and on the holodeck. Held between 19 August 2009 and 27 August 2009, 14 participants.
18. From a summary of the interviews gathered by R. Jalbert under members of the MMORPG "Final Fantasy XI"  
*"Most males simply state that it's better to see a female fighting, running and stuff than to see a male, hence to many males, it's simple eye candy. However, I rarely find these people acting as a female, and if they do, they seem to do so jokingly (such as to play a prank on a male by flirting with him, knowing full well that he hates homosexuals flirts).  
Secondly, and this seems to be mainly an aftereffect (I think is the word), where they find that if they act all nice and sweet, they'll find a sugar daddy to buy them whatever they want. Males afterall, would know what males like.  
To females, I've had many mixed responses.  
1. So that males will not hit, flirt, cyber with them. (seems to be the number one reason). So in a sense, protecting them from sexual haressment.  
2. Makes them feel stronger, empowered, more easily taken serious as a male than as a female. So, basically to feel more higher in society than a female. Especially since most of the population that play MMORPGS are males, and many don't seem to think females are good at playing games, reliable, too emotional, not strong enough leader.  
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*"Still. Being a gay gamer, I am used to be "nonexistent" in games, but all those women are always so pushy, it was that was in KOTOR, KOTOR 2 and now even worse in ME. I mean, does not any of them have any decency? How is it that almost every women in those Bioware games tends to throw herself at the male player, just because he said some friendly words? It strikes me as a kind of odd way to display women."*
23. Jehane Noujaim, Pangea Day  
[http://www.ted.com/talks/lang/eng/jehane\\_noujaim\\_inspires\\_a\\_global\\_day\\_of\\_film.html](http://www.ted.com/talks/lang/eng/jehane_noujaim_inspires_a_global_day_of_film.html)  
<http://www.pangeaday.org/index.php>
24. "AlloSphere" at UCSB  
[http://www.ted.com/index.php/talks/joann\\_kuchera\\_morin\\_tours\\_the\\_allosphere.html](http://www.ted.com/index.php/talks/joann_kuchera_morin_tours_the_allosphere.html)

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