

GAME DESIGN

ASSESSMENT 01 - GAME ANALYSIS

HAIDEN MACE

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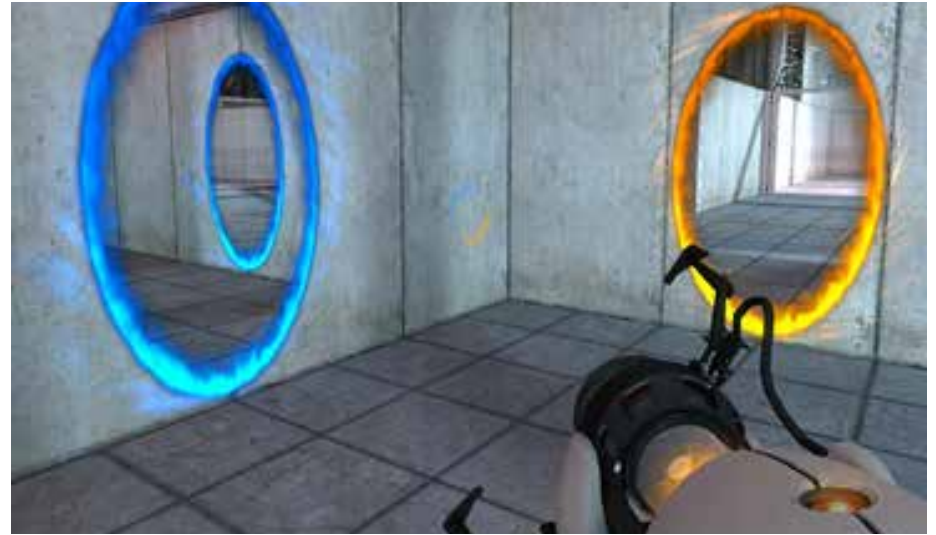
GAME DESIGN DOCUMENT

LECTURER: **Dr. Glen Spoors**



SECTION 1: GAME DESCRIPTION & BACKGROUND

"Portal" is a hybrid First-Person Shooter and Puzzle Game (tvtropes.org) where the player uses one weapon, a gun which shoots portals the player can enter through. You play through these puzzles with the guidance of a crazy killer AI known as GLaDOS.



Player examining Portals. You can see the Player looking through one and out another

SECTION 1: [2]



A Player trying to navigate a Test-Chamber



Player using Portals to reach normally inaccessible areas of a Test-Chamber

SECTION 1: [3]

I love Portal for three reasons: First, the game-mechanics are simple, unique, challenging and very rewarding and they're implemented flawlessly within the game. Second, it has Valves AAA production values. It's flawless, artistically and aesthetically, and yet it has the structure and accessibility of a casual game. Portal game-sessions don't need to last overly long, though more hardcore players can easily and happily binge on Portal puzzles. Thirdly, it's got an amazing sense of humour.

SECTION 1: [4]

The Half-Life Wiki includes Portal (as they share the same universe) and covers every aspect of Portal extensively. Metacritic PC is also a good site to check out; If anyone has a scathing review of a games raw mechanics, it's a PC-Game Reviewer.

SECTION 1: [5]

Portal began life a student project, built in-house at The DigiPen Institute of Technology. Portal is Valve's spiritual successor to the freeware game Narbacular Drop, the 2005 indie-game released by students of the DigiPen Institute of Technology (Wikipedia.org). Valve became interested in Narbacular Drop after seeing it at DigiPen's annual career fair. Robin Walker, one of Valves developers, saw the game and later contacted the team about presenting their game at Valve's offices. After this presentation, Game Newell, Valve's President swiftly hired the team and set about developing their game further.

Portal took roughly Two years and four months to complete after the DigiPen team was Assimilated into Valve. Portal's development time was considerably short compared to other projects. The transition from Narbacular Drop to Portal was relatively superficial as the core gameplay mechanics and physics of Narbacular drop were solid bar a few tweaks to gameplay. The key changes were in regards to how portals interacted within the game.

The biggest changes during Portals development time outside of gameplay was the plot and art direction. Valve's Half-Life's series writer Marc Laidlaw, was tasked with fitting Portal into the Half-Life universe. Due to the limited art capabilities of Portal's small development team, rather than create new art assets for Portal, they decided to tie the game to an existing franchise – Half-Life – which would allow them to reuse Half-Life 2 art assets. The game was released as part of a bundle package called 'The Orange Box' for Windows and Xbox 360 on October 9th, 2007 and then later on PS3 December 11th, 2007(Wikipedia.org).

SECTION 2: ANALYSIS OF RULES AND STRATEGIES [1] [A-F]

“A game is a (1) rule-based formal system with a (2) variable and quantifiable outcome, where (3) different outcomes are assigned different values, (4) the player exerts effort in order to influence the outcome, (5) the player feels attached to the outcome, and (6) the consequences of the activity are optional and negotiable” (Juul, 2003).

Portal is a game because it has a set rules (1). Players are limited to not only the physics of the Source Engine (meaning players can enter a fail state if they fall from a certain height, drown or vaporize etc.) much like real-life, but they may also enter a fail state if they do not complete certain tasks set out by the game. Portal also has limitations to what you can do, in this case, what a player can do with ‘Portals’. For example: players can only place two portals at any one time. Players cannot shoot Portals through Portals and players must solve puzzles in order to progress.

The ways in which a player can solve these puzzles (2) varies, thanks to the Source Engine's simulated physics and Portals' unique game-mechanics (the Portal Gun). The player may manipulate the outcome by manipulating the physics found within the game engine such as: changing their trajectory and velocity. These differing outcomes (3) aren't an integral part of the game, though competitive modes of Portal count the number of Portals used and the time taken to solve a puzzle. And much of the fun is derived from seeking out alternative solutions to a Portal-puzzle.

A game like Portal demands player influence (4). Without the player actively trying to engage and solve the puzzle, the game does not progress. When the game does progress (5), players are often cited as feeling intelligent. We are familiar with real-world physics, but the simulated physics combined with Portals add an element of unfamiliarity, making it intriguing; The “wonky thinking required to [solve the puzzle will] make you feel like a space-folding genius” (PC Gamer UK. 2007). The script and pacing of the narrative also give the player an added sense of agency and attachment to the game. A player will want to see the game to its conclusion for both the sake of gameplay and story.

The solution to the average puzzle in Portal is arguably linear (6). While there is a particular sequence of events that must be done to ‘solve’ a puzzle, the ways in which players approach this sequence is open to them. Where and how they place Portals is unique to each player and their play-style, whether aggressive or passive, will reflect how they negotiate obstacles.

SECTION 2: ANALYSIS OF RULES AND STRATEGIES [2] [A-E]

Portal is considered a non-zero-sum game in that the player does not acquire any 'net change' in wealth or benefits for any kind of loss or gain (Investopedia.com 2015). I believe Portal is a mix of single-shot and repeated gameplay however. There are examples of puzzles that have been solved in alternative ways, though the fun of Portal can only be truly experienced once. Once a puzzle is solved, the replay value drops significantly.

Portal also has a mix of 'perfect' and 'imperfect' information needs. A player must know the game mechanics and functions of tools and equipment found within the game. Without this knowledge, a player cannot solve the puzzle. A player does not, however, need to know everything about a particular puzzle in order to solve it. The ways in which equipment and tools are used are what creates fun and intrigue.

"If you find a mixture between two strategies (or more) strictly dominates another strategy, eliminate that last strategy immediately. Strictly dominated strategies are irrational whether pure strategies or mixed strategies dominate them." (Spaniel, W. 2015).

Portal does not contain any one dominant strategy. Every Puzzle the player faces is enhanced in one way or another, whether by the design of the map itself, the access or lack of access to certain tools, obstacles and general physics all play a role in how a player will approach the puzzle. Though there are more dominant strategies used in particular scenarios, almost always, a player will employ mixed strategies in order to solve a puzzle. Rarely does Portal allow for 'pure strategies' or 'dominated strategies' simply because they will not work outside of a particular scenario as each puzzle is different. Portal puts a subtle emphasis on the importance of scientific knowledge, spatial reasoning, probability and problem-solving (learnwithportal.com), through its unique physics based puzzles which leads to some surprisingly fun logic-base puzzle solving.

SECTION 3: ANALYSIS OF NARRATIVE ELEMENTS [A] [1-7]

The game's opening sequence gives the player no backstory, or context for what he or she is doing. A rather meta introduction considering the character you play as: 'Chell' who also does not know why you are there, solving puzzles. The game's setting plays into the story seamlessly; You are a test subject. You are told to do a very specific set of tasks and both you and the character you play as, don't quite know why. As the game progresses, more of the story is revealed and both you and the character are compelled to escape.

The game's story conforms to a three-act structure, which also mirrors the game's learning curve. The first act begins with learning the basic mechanics of Portals and Portal Guns. The second act gives way to more complex puzzles and increased initiative on the player's part. The main antagonist is revealed and the player must use his/her wits to survive. Finally the third act is a summary of all the game mechanics the player has learned thus far, and must then use them to defeat the antagonist. The setting of Portal is best categorized as a science-fiction. Personally I draw a lot of similarities to "2001: A Space Odyssey". I feel that the wonder and mystique of the setting coupled with the excellent script writing makes Portal one of the more memorable game-settings to this day. And its setting is certainly appealing in that it works perfectly with the game. That said, the appeal of Portal does not rely on its stellar writing.

There are two central characters in Portal 1; Chell and GLaDOS. Chell, the playable character and main protagonist is an interesting character because, like 'Gordon Freeman' the main protagonist from the Half-Life series and Master Chief from the Halo series, players relate and empathise with these characters because the players can imprint part of themselves onto them.

SECTION 3: ANALYSIS OF NARRATIVE ELEMENTS [A] [1-7]

Chell does not speak or show any visible personality beyond painful grunts from physical trauma. The only hints to her personality are through audio cues from GLaDOS. GLaDOS teases and demeans Chell throughout the game, and comments on her lack of speech, her tenacity and her quick thinking. These antagonistic statements can lead players to draw their own conclusions and even imprint part of themselves onto Chell. Personally, I believed Chell to be a determined, if not tenacious character.

During the first half of the game, you are herded between 'Test Chambers' by an omnipotent voice which later reveals itself as "GLaDOS". GLaDOS dictates what you can or cannot do. Of course, a game is an interactive medium, so a player may choose to rebel or submit. As the game progresses, both the player and Chell become more and more rebellious, exploring sealed off areas and going 'out of bounds'. As the game progresses, players continue exploring alternative routes. Often players are rewarded for their curiosity with humorous audio from GLaDOS such as humorous snide remarks and dark humour. In short, Portal is designed to encourage players to rebel, explore and innovate.

I believe there are multiple meanings within Portal. The game's story arc is about learning rules and breaking them and by extension, being dependant on someone and becoming fully independent. You are never explicitly told to escape but I believe every player eventually feels compelled to.

SECTION 3: ANALYSIS OF NARRATIVE ELEMENTS [B] [1-5]

There are no cut scenes in Portal. Much of Portals experience is derived from the First-Person point of view. The first-person perspective within Portal provides a level of immersion you would not get from a traditional cinematic experience because it requires direct input from the user (a puzzle won't solve itself). That said, the story of Portal is linear. There are no divergent paths, and a player cannot affect the story in a meaningful way. The player must also solve puzzles in a certain sequence. A player cannot choose the order in which he/she wants to solve the puzzles.

That said, the choices made by the player during puzzle segments are always significant. Portal assigns the player a task: solve this puzzle. The game is designed to give guidance, hints and tools to enable the player but it is almost always up to the player to actively pick and choose how to solve a problem. If the player 'fails', the player can always re-spawn. Aside from a slight set-back in time, there are no serious consequences, meaning the player is encouraged to experiment.

Interestingly, the relationship between fictional time and play time is never truly addressed. Real-time is sometimes measured through countdowns and timers which are meant to assess a players performance, but outside of that, the measurement of time is absent. In a way I feel this was intentional. Portal is set in an underground test laboratory, and the absence of time was intentional in order to create an unsettling, cold and clinical environment.

There are a few choices the player must make during the game. For example, there is a scene where the player must make the choice to incinerate his/her 'Companion Cube'. The player can refuse to incinerate this companion but the game will not continue until it is incinerated. So, although there is no 'real' choice to be made, there is an illusion of choice. The same can be said for all puzzles and obstacles found within Portal, also.

SECTION 3: ANALYSIS OF NARRATIVE ELEMENTS [B] [1-5]

Jenkin's Narratives can also be found throughout Portal:

Evoked narratives are narratives that provide only simple broad outlines coming from previously existing stories. For example some might be familiar with the legacy of Star Wars, but Star Wars the Knights of the Old Republic (KOTOR) takes place in a very different part of the Star Wars universe familiar to most. The game, KOTOR does not provide an identical story to that of the films which is why players can create and shape their own stories based on their experience within KOTOR. Portal, being an entirely new IP does not have an evoked narrative to rely on. While Portal does hold ties to a larger franchise, fans of both series will know that the ties between them are few and far between. Even then, they are not expressively stated, in fact, many ties are subtle and go unnoticed to the average player.

Enacted narratives are narratives that present broadly defined goals and conflicts in games and provide game players with limited choices of paths a main character in a game can take. Unlike evoked narratives, enacted narratives are not based on pre-existing narratives. An enacted narrative is a story constructed by a character's and thus players action within the games environment and features of the environment. In Portal there a number of ways a player can solve a puzzle. How a player chooses to approach a puzzle will drastically affect the story he/she creates for herself/ Sometimes these alternative routes activate unique dialogue, and sometimes there are areas within the game environment itself that hold clues and hints to parts of the story of Portal (the Ratman caves).

Emergent Narrative surfaces mostly in sandbox games like say "The Sims" where the player imagines or authors the story by playing in a world he/she actively constructs. Portal doesn't allow enough player freedom to constitute it as a sandbox game, but, there is a lot of freedom in the interpretation of Chell, the main character. Portal follows the exploits of a 'Test Subject' called Chell. Though there are hints as to why she doesn't speak, like how GLaDOS talks to her as if she knows she can't speak but refuses to. Or It may be because Chell is a mute. Ultimately her feelings, emotions and reactions are left to the player to interpret. The player can imprint his or her emotions onto Chell because in a way she is a blank canvas, and through this projection of emotion, the player can tell his/her own story of Chell the main protagonist.

Embedded narratives are narratives that are discovered only when players deeply process information inside the game world. In games with embedded narratives, players are asked or required to actively seek and process textual information or environmental cue inside games in order to fully develop the stories. In the case of Portal, in order to learn more about the game's story, a player must complete the puzzle. When completed, GLaDOS may reveal tidbits of information. In other cases, the player may be told or incorrectly told by GLaDOS how to approach a puzzle. A lot of player discretion is required when processing the narrative as told by GLaDOS because deception is as big a part of unravelling the narrative of Portal as trust. There is a pivotal moment in the game that requires you to take what you have learnt about the narrative of Portal and test it. Meaning, the player must have actively engaged and processes textual information if he/she is to complete the game.

SECTION 4: ANALYSIS OF SIMULATION QUALITIES [1-3]

The core activities the game simulates are spatial reasoning, probability and problem-solving (learnwithportal.com), physics and physics based puzzles with the enhancement of fictional 'Portals'. The core principles are based on real-world physics: the manipulation and conservation of momentum; "Speedy thing goes in, speedy thing comes out" – GlaDoS. Of course, the Portal-mechanics are added to enhance said physics.

The premise of Portal is very unrealistic because it is science-fiction. That said, Portal is still an immersive experience because its tone, gameplay and narrative is consistent. I believe this is partially due to Valve's Source Engine and how it realistically and consistently simulates physics throughout Portal (the ways in which physics interact with the game mechanics, i.e. boxes falling through portals, or enemies tumbling out of portals) which creates a consistent and thus believable universe.

SECTION 4: ANALYSIS OF SIMULATION QUALITIES [4]

Asshole physics are very prevalent in Valve's Source Engine, which Portal runs off. Though the developers extensively tested their levels, removing any extra features/objects that could be manipulated to break the game, basic issues like objects being rubbed on walls which creates bizarre and erratic collisions are still present. There are also some player-manoeuvres game developers could not foresee being a problem in Portal; like backwards bunny hopping creating unrealistically, and sometimes gamebreakingly fast momentum which can be used to shortcut puzzles.

Originally the game had fully furnished physics-based environments, but play testers often got distracted or misused objects for puzzles. To avoid this, Portal's setting was changed to a more sterile environment. That said, developers of Portal have previously acknowledged these issues and openly encourage players to seek shortcuts and exploits as it's just another way to solve a puzzle.

SECTION 4: ANALYSIS OF SIMULATION QUALITIES [5]

Frasca's four levels of ideology

Portals design is rather interesting when contrasted with Frasca's four levels of ideology. Portal guides and commands the player for the early stages of gameplay. During this time, it is assumed a player is new to the mechanics of 'Portals' which, at the time, were unique to Portal. The narrative and setting (being totalitarian, oppressive, sterile and focused) during Portals early stages, I suspect, were designed to ensure players would focus on the tasks at hand, and learn from them. Once a player has completed the basics, the narrative continues with a tone of oppressiveness, but the actual setting allows for the player to move more freely, and explore at his/her own pace. This in essence tricks the player into feeling rebellious. Even if a player doesn't rebel against the game and tries to seek out alternative solutions both types of players will eventually reach a victory state when he/she solves the puzzle. Eventually, Portal's victory state is less about following orders and completing puzzles as it is: getting from point A to point B, and hopefully, the player will have invested enough time and confidence in their own Portal knowledge that they will feel independent of the games instructions. By the third act the player feels as though they are in control and are actively subverting the game, because they are constantly being reminded of how rebellious they are by the antagonist and because the setting does not hint to them as it would have in earlier levels. The difficulty curve moves with the narrative and roughly with the player's own abilities. I believe the Portal developers understood Frasca's four levels of ideology well and designed their game around these ideologies so that the player could be subtly manipulated.

SECTION 5: ANALYSIS OF GAME AESTHETICS [A] [1-3]

Portal as a whole works on the philosophy of minimalism. The developers wanted to avoid distracting the player from the task/puzzle at hand, so a minimalist style was needed. This minimalist style also fit well with the setting of Portal, creating this uniquely sterile and clinical environment.

At the time of Portal's release I was enthralled by Portals visuals back in 2007. Keep in mind that by 2007, Valves Source Engine was only 3 years old. To this day, Portal's style and game engine hold true. Even recently, games like Titanfall (in 2014) and Black Mesa Source (in 2015) were made using the Source Engine and both received critical acclaim.

The full soundtrack of Portal can be found here: <https://www.youtube.com/watch?v=Kgny67NTtw0>

Most of the game's soundtrack is ambient music composed by Kelly Bailey and Mike Morasky. It's best described as somewhat dark and mysterious in order to match the mood of Portal's environments (Wikipedia.org/wiki/Portal, 2015). The more famous 'Still Alive' end-credits song was written by Jonathan Coulton and sung by Ellen McLain (who has a background in classical operatic soprano) as the GLaDOS character. The end credit song, I feel, reflects the soul of Portal nicely as it has a lot of tongue and cheek lyrics and the general tune is upbeat complimenting the humorous writing within the game.

SECTION 5: ANALYSIS OF GAME AESTHETICS [B] [1a-d]

The games atmosphere (setting, story and audio) combine to create a unique atmosphere of ambience, intrigue, eeriness and curiosity. A perfect playground for puzzle solving. I believe in terms of immersion, Portal is a combination of 'agon' and 'alea'. The game's focus is on the mechanics, rather than the characters or story, though both give the player a sense of agency and purpose to what they are doing. It is the puzzles and game mechanics which provide challenge but also curiosity in that they are unique and fascinating to a new-comer.

SECTION 5: ANALYSIS OF GAME AESTHETICS [B] [2a]

Portal is relatively demanding in terms of perception, attention response time and expectancy. Portal, being a Puzzler and First-Person Shooter hybrid meant that players were expected to learn and remember the puzzle-mechanics of Portal and also master the movement, reflex and spatial awareness usually required of any modern first-person shooter. Cognitive and Motor skills are also required because Portal is fast paced and requires timing and hand-eye co-ordination (aim) in order to be successful.

Portal also requires a mixture of long-term and short-term memory. As the game progresses, it will teach you new game-mechanics and new scenarios in which to use them in. After the initial learning curve, the game will put you in a new scenario where you must test your recently learnt skills. During the second and third act it is expected that the player will remember most of these basic mechanics and use them, especially during the finale.

The visual and verbal cues are also mixed. Portal is predominantly visual though a lot of helpful tips, contextual cues and dialogue is expressed through audio. This audio is not needed to solve a puzzle however.

SECTION 5: ANALYSIS OF GAME AESTHETICS [B] [2b]

There is a common theme of experimentation in Portal. Because there are no harsh penalties when players enter a fail state (dying) and the concept of portals are usually foreign to newcomers, players tend to be more inquisitive and experimental. A trial and error play-style is most common.

I believe this to be the most rationale approach to Portal as repeating ones mistakes does not advance the player further. Those who experiment and innovate progress the fastest and the game promotes this through allowing the player test, experiment and investigating potential ways to solve a puzzle.

I believe anyone can play Portal, given enough practice. This is because of the way the game introduces players to new mechanics: the difficulty curve grows alongside a players knowledge of game mechanics. A player is never forced to use a mechanic he/she has not been taught prior.

SECTION 5: ANALYSIS OF GAME AESTHETICS [2]

Portal is considered a first-person shooter puzzle hybrid. With that said, the genre conventions surrounding both types of games can be applied. First person shooters (FPS) are often considered fast-paced, violent and immersive. Portal meets those expectations with the exception of violence. Portal is a 'shooter' but the Portal Gun used throughout is not a conventional weapon, but rather a tool and the 'enemies' you 'encounter' can be considered puzzles in of themselves. As for the puzzle aspect, Portal provides plenty of puzzles, each completely solvable and well-designed. They do not cheat the player.

SECTION 5: ANALYSIS OF GAME AESTHETICS [3]

I believe Portal's audience was meant to be as mainstream as possible. The developers of Portal have never stated a specific target audience for Portal, however, they have commented on it, saying they wanted the game to be accessible and enjoyable for anyone vaguely interested in Puzzle games, First-Person Shooters or games in general. I feel I was part of this target audience, being a teenager, heavily into gaming of all varieties, especially shooters. As for its appeal amongst casual and hardcore players, Portal sits perfectly in the middle. Its unique mechanics proves entertaining to anyone who hasn't yet played it.

SECTION 5: ANALYSIS OF GAME AESTHETICS [C] [1-3]

As mentioned previously, Portal is a first-person game. Most of its coding was recycled from Half-Life 2, one of the best First-Person Shooters of all time. So naturally, the camera feels responsive and logical. Portal is a 3D Puzzle game, so its spatial properties are a simulation of reality. This simulated reality, in combination with 'Portal Mechanics' creates fun because it simulates reality but with a twist, thus creating interest.

Portal's setting also acts as a clever spatial boundary as well. Because you are a test-subject. You must be tested in a controlled environment, or so the story goes. Throughout the game you are guided through the game by the main antagonist, but eventually you will try finding your own path within the third act. In reality, game developers have created maps so meticulously as to allow the player to solve puzzles without breaking the level itself.

SECTION 6: CONCLUSION & SUMMARY

The hybridisation of FPC and puzzle mechanics is a rare genre. The only other game to do this is 'The Talos Principle'. The Talos Principle is a game very similar to Portal, with the exception of 'portal' mechanics. The Talos Principle also has an oddly sci-fi theme, though the core themes of the story are vastly different to that of Portals, the experience is relatively the same. Both games had well crafted puzzles, and both their stories were intriguing. There was however, a disconnect between the Talos Principles story, and its gameplay, compared to that of Portals.

I chose to examine Portal because I believe that games which tie their game mechanics and story together make for some of the best video gaming experience I have ever had. And Portal is one of the very best examples to this date. Portal is flawless because its mechanics are fun, the setting is logical yet mysterious, and the story is relevant but not obtrusive to gameplay. If anything it adds reason and agency to the gameplay. The Talos Principle is close, but its story is as intertwined to its gameplay as Portal's. I believe that when the games elements are in unison, it can be a truly immersive experience, something all games should strive for.

The major criticism that Portal 1 received was its short play-time. You can finish Portal in under 3 hours if you're proficient at FPS'. The other criticism was the underplayed and somewhat under-developed story of Portal. Some players felt they needed more story, though I feel the lack of story only added to the mysticism and charm of Portal at the time. That said, Portal 2 already saw to these criticisms, keeping everything that made Portal unique and fantastical, while adding more story elements, variety and longevity to gameplay.

There was no question that I would have enjoyed Portal. I was a fan of Valve products ever since my first truly memorable gaming experience, playing Half-Life 1. Secondly, my favourite genre of gaming is First-Person Shooters. Though I enjoy shooters, I would say it's the level of immersion that a First-Person game can elicit from a player is what truly draws me into the genre and Portal was no exception. Prior to Portal I was playing the Half-Life series, the Halo series, Jedi Knight II and a whole list of various Real-time strategy games and Role-playing Games. I enjoyed games that has a strong story and strong game mechanics. As for my background, I was a typical white and nerdy teenager with an interest in pop-culture, sci-fi and fantasy etc. My father was my biggest influence, he being a 80's nerdy himself. So naturally I was interested by Portal's premise as a Sci-fi FPS/Puzzler.

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