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LORE EXPOSITION IN VIDEO GAMES

How to effectively convey an in-game world to the player

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ABSTRACT

This study examined the topic of lore and worldbuilding exposition in video games. The objective of the thesis was to answer the question of what methods a game designer can use to successfully convey the in-game world to the player without breaking their immersion.

Qualitative methods (case studies) and a quantitative method (a survey) were used to research optimal methods of lore exposition. Three video games were analysed as case studies: Disco Elysium (2019), Soma (2015), and Half-Life 2 (2004)

The study showed that lore exposition methods can be text-based, visual, or audio-based. Their function can be either general or specific. The study also showed that using multiple kinds of lore exposition methods creates variety, making the gameplay more exciting. Not all parts of the in-game world should be shared, so that the players can draw own conclusions while playing.

Furthermore, lore exposition can be utilised as means to reward the player with experience points and other gameplay mechanics that are helping to proceed. It can also be used as means to create a specific atmosphere or to signal lack of threats in a particular section of a game level.

The study also showed that it is best not to force lore information onto the player, so that they do not feel needlessly overwhelmed. The primary purpose of worldbuilding in a video game is to elevate the player's experience and to make the game more memorable.

The thesis succeeded in achieving the set goal.

Keywords: game design, exposition, immersion, storytelling, worldbuilding

CONTENTS

1 INTRODUCTION

Lore is an important component of a memorable video game. When utilised properly it can considerably elevate a player's experience. The aim of this research is to answer the question of what methods a game designer can use to successfully convey the in-game world to the player without breaking their immersion.

This thesis first presents past research connected to the topic of video game lore. The scope includes concepts such as lore, worldbuilding, exposition, immersion, character design, environment design, and sound design. Once the background information is established, the paper presents three game analyses and results of a survey. After conclusions are drawn, the acquired information is used to assemble the Lore Exposition Methods Overview, which is meant to aid game designers in the process of worldbuilding.

The risk to this research and its documentation is the number of analyses and survey participants. The relatively small range offers a limited insight into the topic. Nevertheless, it can serve as a reference for further research.

2 PAST RESEARCH

The following section presents background information gathered from articles and theses written between 2006 and 2021. It focuses on the main topic of lore and worldbuilding, as well as connected topics: storytelling and immersion. Subtopics include transmedia, narrative, character design, environment design, and sound design.

2.1 Lore and Worldbuilding

In the context of video games, lore can be used synonymously to worldbuilding, although the latter usually refers to the process. In general, lore is defined as a sum of knowledge, culture, and traditions held by a particular group on a particular subject (Jones 2021).

Worldbuilding is the act of designing and constructing a fictional world. Said fictional world often outgrows the medium it exists in, meaning that there is more to it, than shown in the game. (Savikko 2019.) In other words, it denotes the existence of an in-game setting beyond its primary concept. It consists of characters and places and its main purpose is to create a sense of space in which the plot takes place. It gives additional weight to the experience of playing a video game and makes the players more invested. It sets a standard of how the settings and characters behave, thus helping to regulate player experience. It also creates an opportunity to expand the game as a property - if the players like the game, the team can develop another game set in the same world (Bycer 2018).

Developers and publishers can use media other than the game itself (such as videos, comics, films, books) in order to expand on the game's lore. A good example here is the "Meet the Team" video series that introduces characters of the video game Team Fortress 2 (2007). (Bycer 2018.) Expanding a universe leads to a formation of transmedia.

Transmedia are networks of various media forms. These networks are built around a core production. For example, Mass Effect (2007) game series is a core production of a wider network that includes novels, comic books, and a film, all set in the same universe as the game series. The network expands on the source material and thanks to it, the story world transcends media boundaries. (Koskimaa et al. 2018.)

Transmedia have a notable downside to them related to coherence. Parts of the network often require the viewer/player to be familiar with the core production, at least to some extent. It is possible to enjoy a book based on a video game without ever interacting with the game itself. However, the fans who know the source material well, are more sensitive to inconsistencies in the book's plot, while people who read the book with no prior knowledge of the universe feel confused when faced with concept explained only in the source material.

(Koskimaa et al. 2018.) Another possible coherence problem might arise when the tone or the style of writing is drastically different compared to the source material. This issue may occur when the authors of the core production and the authors of the network expansions are different people.

According to Dealessandri (2020), the core aspects of worldbuilding are context, complexity and structure. The type of the in-game world (i.e. whether it is a real place or fictional) considerably affects the narrative. Every in-game world has a set of rules to follow. If the rules are broken, player is left confused and their gaming experience suffers.

The vastness of the in-game world is dictated by the narrative. Worldbuilding can include all kinds of details, such as climate, atmosphere, demographics, languages, religions, politics, economy, transportation, species, ethnicities, as long as they serve the narrative. Overcreating does not serve the narrative. Unlike in real life, every single object in a video game has a purpose, a reason to be there with relation to the narrative. Furthermore, it needs to show internal, logical consistency. Lore can also be implied without actually existing, in order to relieve the design team and budget, while still creating a sense of a larger world. (Dealessandri 2020.)

When it comes to stories taking place in real world, game designers need to set boundaries and decide how much of the real world they want to include in their game. In case of developing fictional worlds, there are two approaches: Inside-Out and Outside-In. When using the Inside-Out approach, the writer first creates the premise of the story and then creates a fictional world around it in order to enable the premise to happen. In this approach special interest is given to how the elements of the world can strengthen the narrative. When using the Outside-In strategy, the writer first creates the world. It is often very in-depth, including detailed geography, languages, ethnic groups, biosphere, and other elements. After that, the writer populates the world with specific characters and their story. Creating a fictional world is a personal process and so it depends on the writer to what extent the world is developed. (Omeragić 2019.)

According to Smith (2020), another way of categorising approaches to worldbuilding is top-down and bottom-up. Top-down worldbuilding is a process used by a game designer in pre-production. It includes creating most or all of the elements of the world. The player has little to no influence over the created world and enters it after its creation is complete. Bottom-up worldbuilding on the other hand allows players to create the world basing on a rulebook and prompt sets written by the game designers.

Lore can be very important for the fans of a game (Bycer 2018). Fandoms and fanbases are what keeps the interest in a title alive. The interest may survive for over a decade, as proved for example by Off (2008) developed by Unproductive Fun Time. As of 2022, the game still has a small active fandom, even though no official sequel or additional content was ever released. One of the main reasons for its success was the worldbuilding with a focus on memorable environments, characters, and atmosphere.

2.2 Storytelling

Worldbuilding is not synonymous to storytelling. However, the two are linked closely as storytelling is the main means of presenting lore to the player, while lore provides context and meaning for stories, which is especially important in interactive media such as video games. (Savikko 2019.) In other words, during game development, worldbuilding is a necessity, if the game is supposed to have a story (Omeragić 2019).

Playing games and the oral tradition of storytelling are both very old forms of social interaction still relevant today. Text-based interactive fiction was the first genre of video games. However, it had quickly become a minority, once first video games with graphics were developed. This has changed in time and today most video games have at least a simplistic story acting as a background for the main action. Moreover, games strictly focused on worldbuilding and storytelling are not rare nowadays. Enticing story, world and/or characters has proven to be an infallible method of ensuring that the players will remember the game for

years to come and will come back to it. (Kemppinen 2019.)

As Partanen (2021) declares, every video game has a narrative. The simplest type of narrative is the stated motivation of the player character or the game overall.

Kiander (2019) describes the three components (called “acts”) of a story: exposition, conflict and resolution. Exposition act sets the stage by first introducing the main characters, and then the problem. The problem leads to act two - the conflict, in which the main hero struggles with the problem. It gets resolved in the final act.

The most common structure of a game narrative is linear, where all actions are presented to the player in chronological order. Another type of a game narrative structure is branching. Branching narratives offer the player choices that influence what they experience. This type of narrative usually includes several endings. Open world (also called sandbox) is a narrative structure that is tailored to exploring and investigating. Players can interact with the story in any order, have a unique experience, and arrive at one of several endings. Parallel narrative structure allows the player to complete tasks in any order, but all choices will lead to one ending. Game mechanics can be used as a narrative device. (Kiander 2019.) For example in Disco Elysium (2019) one of the main game mechanics is investing experience points into certain skills of the player character. This leads to character development, which is a part of the narrative.

While watching someone else play as merely a passive observer is a valid way of getting to know the game’s narrative, games are designed with a player, not a viewer, in mind. They are predominantly an interactive medium (Omeragić 2019). Genre of a medium has an influence on storytelling methods, for example post-apocalypse genre is well-suited for participatory audiences (Joyce 2018). It is a successful video game genre, where players can explore the fallen world, scavenge, or consider philosophical implication of the end of the world. Film genres such as comedy are less successful when applied to video games and

usually exist in conjunction with another, more game-specific genre.

Key features of story rich games include dialogue systems (e.g. speech bubbles, voice acting, text boxes), exploration (includes options to interact with the environment), cut-scenes and scripted events, puzzles, choice options. (Kemppinen 2019.)

The layer of character design that the player usually sees first is the exterior. Here, shape language and colour theory play an important role (Partanen 2021). Soft and friendly characters have rounded features. There are a lot of ovals in their silhouette and not many sharp edges. Squares convey features such as stability, consistency, reliability, stubbornness. Shapes with sharp, pointed tips such as triangles convey danger, movement, unpredictability. They can also evoke determination. According to colour symbolism warm hues show energy, positivity, and strength. Cool colours are more calm, reserved, peaceful. Black and white stand for simplicity, formality, and when they appear together - duality. (Tiainen 2020.)

The deeper layer of character design is their personality (Partanen 2021). It is influenced by their backstory and in turn it influences their actions. The backstory should include a couple of key moments in the character's life which play a role in the way they are in the present. Personality is visible in body language - quirks, such as ticks or a favourite colour make the character more memorable to the viewer. Dialogue can also show a character's personality and views on the in-game world. And since the character lives within it, it is logical that the in-game world has an influence on the character as well. The climate should affect their clothing choice (or in case of animal characters - their fur, skin, or scales). They should have a specific position within the society they live in. Their actions should by logical within the context of their life situation (Tiainen 2020).

Every element of the in-game world is a part of environment design. This includes all assets, props, interactable objects, and characters (Partanen 2021). Environmental storytelling is used to reconcile storytelling with worldbuilding. It is

a less direct method that requires more focus from the player (Omeragić 2019). Such method can be used extensively in genres that inherently require focus from the player, such as puzzle games.

When the landscapes of the game serve only as a meaningless backdrop for quests that do not make much sense within the context of the in-game world, the worldbuilding potential is wasted (Sorvo 2017). The lack of logic in such backdrops may also lead to the player's confusion and subsequent low engagement.

Environments within video games can help to tell the story with a use of composition and colour (Haanpää 2018). Composition is the arrangement of elements in a space, whether real, digital, or fictional. Light is part of the composition and it is used to guide the viewer's eye (Tiainen 2020).

The base function of a video game environment is to help the player to proceed. It consists of characteristic, memorable elements meant to help the player form a mental map of the area. It also contains objects used for unlocking doors, chests, portals, lifts, padlocks. For the sake of storytelling, environment can also hold information on the in-game world. (Kemppinen 2019.) Ideally, all elements of the in-game world should have an intradiegetic purpose and extradiegetic purpose. Intradiegetic purpose means that the element has a reason to exist explained within a story. Extradiegetic purpose means that the element serves the game mechanics in some way. (Sorvo 2017.)

Sound design is an important, although frequently overlooked element of game design used for storytelling. Soundscape of an environment can inform the player on the state of the place (e.g. creaking floor means the house is old), voice acting used for characters can inform them on the mental, physical, or emotional state of the character (e.g. trembling voice can mean fear, hoarse voice can mean the character smokes), and music sets the atmosphere of the place or moment in the game (Kemppinen 2019). Most successful sound design feels like such a natural part of the in-game world that the player does not consciously

notice it (Partanen 2021).

Soundscape of a game consists of parts that are either diegetic or non-diegetic. Diegetic sounds and music exist within the in-game world and can be heard by the characters. Non-diegetic sounds and music are heard only by the player and are used to set the tone and atmosphere (Smith 2020). A clicking sound made by a cursor hovering over a piece of a game main menu is an example of a non-diegetic sound.

Game developers can “train” the players to relate a piece of music to a specific character, item, or place. Such a recurring musical theme is called a leitmotif (Smith 2020). A character’s leitmotif usually plays when said character is on screen. Once a connection between a sound and a character is established by repetition, it can be used for storytelling. Suppose a player enters a scene of crime in a game and they hear a tune that always plays when a certain character is on screen. This foreshadowing can be completely missed by the player, but their subconscious might make the connection and begin to suspect that certain character to be the perpetrator of the crime. Leitmotifs are thus a powerful indirect storytelling tool used to form connections in the player’s subconscious.

2.3 Immersion

Video game immersion and worldbuilding are often intertwined. Immersion is an act of deep mental involvement. In fictional works, immersion is preoccupied with creating an illusion of reality, leading the audience to suspend their disbelief. It means that the audience enters a mind space where the activity engages creative thinking strongly enough to blur the line between reality and fiction. (Omeragić 2019.) This phenomenon can be observed when music evokes strong feelings to the point of crying or when a video game player starts referring to the player character as “me” (as in “I went to see my house” instead of “I made my character go see his house”).

Immersive details are present in the following game design elements: environment design, narrative design, character design, and sound design.

Immersion occurs when the player feels as if being part of an in-game world while playing a video game. There are three tiers of immersion: engagement, engrossment, and total immersion. Engagement is the most shallow tier and means that the player pays attention and invests time into the game. Engrossment is one step further and includes also emotional investment. At the total immersion tier, the player no longer pays attention to their real life surroundings. Every person perceives reality through the lens of their own experiences, which makes the process of immersing into the game personal and to some extent unique to each individual. (Partanen 2021.)

Main goal of most entertainment media is to immerse the audience and make them feel invested. In case of films, literature and video games, the audience can be invested in the story, world and/or characters. Players are more likely to be invested when they have agency, ability to modify the in-game world in some way or personalise their player character. (Omeragić 2019.)

Immersion is influenced by emotion, integration, and flow. Emotion refers to emotional engagement of the player, integration refers to a logical link between story and game mechanics, and flow refers to the player's optimal experience in which they pay attention and experience a sense of control (this usually occurs when the skills of the player match the current challenge in the game). Flow is constructed on the base of the game's core loop, which is a set of actions performed by the player repeatedly and meant to keep them engaged. Cutscenes can break the flow of the game, because they remove the player from the position of active agent and place them in a position of idle observer. (Tanskanen 2018.)

3 RESEARCH METHODS

The chosen research methods are case studies and a survey. Case study is a good method for close examination of data within a specific context with a limited number of relationships and conditions. Even though case studies tend to lack robustness, they have the advantage of observing the data in the

situation where it occurs, instead of observing it in an artificial environment such as a laboratory (Zainal 2007).

There are two viewpoints crucial in game analysis - narratology and ludology. According to the narratology viewpoint, video games can be analysed and interpreted like literary text or film, thanks to their underlying narrative structure. According to the ludology viewpoint, video games should be treated as a system of rules and mechanics. These two viewpoints exist on opposite ends of a spectrum and every video game falls somewhere on the spectrum in between these two ends. Visual novels and other forms of interactive fiction fall closest to the narratology viewpoint, while classic shooters and strategy-based games are closer to the ludology end of spectrum. (Kemppinen 2019.)

In this paper, three video games are analysed: Disco Elysium (2019), Soma (2015), Half-Life 2 (2004). All three include a sizable in-game world, as well as systems of rules and game-typical mechanics. Among the three, Soma is arguably closest to the narratology end of the spectrum thanks to its focus on the story. Disco Elysium (2019) is very text-heavy, which is a trait usually associated with visual novels. However, it also sports a robust character skill system, includes plenty of optional material and allows freedom in the sequence of doing the tasks. This forces the player to form strategies of how to approach the story. Half-Life 2 is the closest to the ludology end of the spectrum, as its main gameplay focus is on defeating the enemies and progressing to the next area.

Surveys consist of three main steps - sampling, question design, and data collection. Sampling is selecting a small subset of a population to represent the whole population. Ideally, all members of the population have equal chances of being in the representative subset. Question design aims to formulate unambiguous questions that provide clear answers. Data collection is the method used to gather the results and prepare them for analysis. Uses of survey techniques include measurement of public opinion, and consumer preferences and interests. They aim for the subjective feelings of their test subjects and

therefore can provide a valuable insight into consumer's perspective. (Fowler 2013.)

Strengths of surveys as a research method include being suited for obtaining information from large samples of the population, gathering demographic data describing the composition of the sample, being inclusive for a variety of types of variables, allowing generalization, and eliciting information that is difficult to obtain through observational methods. Weaknesses of surveys as a research method include high probability of participants being biased, varying accuracy of the answers, respondents lacking perspective when assessing their own behaviour, and a chance of poor recall in the participants. (Glasow 2005.)

Information retrieval. During case analysis, aside from the analysed games themselves, three additional tools were used for verifying my notes taken while playing. *FAYDE Playback Experiment* is a website containing the entirety of dialogue present in the game Disco Elysium (Morgue et al.). *Elysium: A Timeline* is a project that lists major events in the history of Disco Elysium's in-game world chronologically and includes in-game sources for the information (six & brenn 2021). *SOMA • All Data Buffers & Audio Recordings* is a collection of audio recordings found in the game Soma (venterry 2020).

For the survey, Google Forms was used. Thanks to its popularity and fairly straightforward design there was no need for training the participants in how to answer the survey. Link to the survey was spread online, mainly through blogging sites and Discord servers of communities interested in games. Due to the massive scale of the whole gaming community, the sampling method used for this paper's survey is limited.

4 RESULTS

This chapter contains analyses of lore exposition in three titles: Disco Elysium (2019), SOMA (2015), and Half-Life 2 (2004), and an analysis of the survey results. The initial research and the results lead to the formulation of Lore

Exposition Methods Overview, which is a set of guidelines for in-game lore retrieval. It includes a proposition of exposition methods classification and a brief description of each method. The overview is meant to be used as a guide or a checklist by game designers in the process of worldbuilding.

4.1 Case Study 1. Disco Elysium

The following subchapter analyses playing experience and elements present in the video game Disco Elysium (2019). Disco Elysium is a cRPG developed and published by ZA/UM. The version played for this thesis is the Final Cut, October 2021 update. The genre of the game’s narrative is crime fiction.

Disco Elysium (2019) consists of text (narration and dialogue) supplemented by 3D models and isometric graphics. Heavy emphasis on dialogue and lack of combat system likens the game to a visual novel. Additionally, one of the key components of gameplay is rolling dice, a trait characteristic for tabletop roleplaying games.

Disco Elysium's primary method of lore exposition is dialogue. The player learns about the worldbuilding in a very interactive way, through back-and-forth between the main hero and other elements of the in-game world. The player character is a police officer/detective who has lost his memory after heavy drinking. The sources of lore exposition about the in-game world can be categorised based on their relation to the detective - they are either internal or external. Additionally, some exposition is stored in user interface design.

Internal sources of lore exposition. Arguably, the most impressive collection of facts about Elysium belongs to the Intellect skill Encyclopedia. Unable to recall personal facts or what money is, it makes up for it by chiming in with facts vaguely related to the topic of an ongoing conversation. Encyclopedia's range of knowledge is seemingly boundless, however it seems to be most familiar with topics related to nature, history, and geography.

The majority of the skills provide exposition relating to their speciality. For example Electro-Chemistry is a Physique skill responsible for the more hedonistic side of the player character. It can offer exposition on narcotics, such as Pyrholidon, a military-grade psychedelic developed to treat radiation sickness. Hand/Eye Coordination is a Motorics skill that specializes in knowledge on firearms present in the in-game world, such as Belle-Magrave or Villiers, and everything that is connected to shooting and fighting strategies.

Shivers is a Physique skill which represents a unique bond between the main hero and the city of Revachol. Oftentimes mystical in nature, it describes places beyond what we can see during the gameplay. From its descriptions we can learn a number of facts about Revachol. For instance, Pox is an area that used to be a park. In its perimeter, there is an abandoned military hospital operating long ago during a measles outbreak. We can also learn that the city used to run on coal mined in Coal City, and currently runs on energy from petroleum and hydropower on river Esperance.

Thought Cabinet is another internal source of lore exposition. When interacting with NPCs, the player can receive a Thought based on what dialogue options they pursue. These Thoughts consist of a Problem and a Solution and can be internalised by the detective in his Thought Cabinet. Internalisation takes in-game time and uses up one slot in the Cabinet. While internalising player receives a research bonus, usually tied to one or more skills. Upon completion they receive a different bonus, plus a text describing a conclusion drawn from internalising the Thought. While researching, the detective's brain quietly ponders a Problem and after concluding he arrives at a Solution. Problems and Solutions are a narrative-based lore exposition method. For example, Thoughts called "Ace's High" and "Ace's Low" reveal the cultural meaning of a high five, describe what clothes revolutionary aerostatic brigades wore and mention hybrid airships used in the Insulindian Civil War.

External sources of lore exposition. These sources exist outside of the detective. They are environments, items, books, maps, and NPCs (non-playable

characters).

Environments in Disco Elysium showcase the architecture of Martinaise, the scope of post-revolution destruction, and the everyday surroundings and conditions of the residents.

Objects, such as radiocomputers, maps, or a horse monument, are available for a text-based inspection. The inspections are a part of the game's narration and can reveal facts about the objects. A notable type of an item present in Disco Elysium is a book. Books can be found while scavenging around levels or purchased in Plaisance's bookstore. As a gameplay mechanic, their role is to pass the time in case the player gets stuck and needs to wait for a scheduled event (time in the game passes only when the player clicks text/dialogue options). They operate similarly to NPCs, except there is no back-and-forth dialogue between them and the detective. Instead, they prompt his inner monologue. As an exposition method, works of fiction simply show what kind of fiction exists in Elysium, while history books explain concepts present in Elysium more in-depth to the player. For instance, "The Greatest Innocence" describes Elysium's personifications of history who are regarded as infallible and act as top political figures whose decisions are considered inevitabilities. The player can also learn about an innocence from Kim and Encyclopedia while in a ruined church at a coast in Martinaise. However, only the book mentions more than one innocence by name and list their achievements.

Joyce Messier is one of the most prominent sources of information in the game. She is a representative of the Wild Pines company (more specifically - the Senior Labour Negotiator) and agrees to give the detective a reality lowdown. We can ask her a long list of questions. For instance, we can learn that the game takes place in Martinaise, which is a district in a city of Revachol, built in the Dolorian century, 380 years ago. Revachol is located on Insulinde - one of seven isolas. Isola is a continent, a landmass surrounded by a mysterious phenomenon known as pale. The entire world is called Elysium and has a shape which Joyce describes as a "shattered corona".

In order to prevent the player from feeling overwhelmed, the mass of knowledge is delivered in smaller chunks. Using questions, the player can regulate exactly how much information they are willing to learn. Aside from the questions available on the initial reality lowdown list, the detective can also ask additional questions while Joyce is answering. Moreover, some of the knowledge is locked away from the player behind a "white check". White check is a game mechanic present in Disco Elysium and it is a dice roll, which can be repeated if failed (unlike red check, which cannot be repeated). In order to repeat a failed white check, the player must invest an experience point into a skill that the check was tied to. Intertwining extensive lore exposition with game mechanics helps to decrease the chance of overwhelming the player by giving them short breaks from the information flow. In this particular case the knowledge on pale is hidden behind a white check, because Kim does not want the detective to become overwhelmed and opposes talking about this topic. The detective can attempt to convince him to step aside. If the player fails the white check (i.e. fails to convince Kim to step aside), they have an option to return to Joyce when Kim is not around or retry the check.

In order to remain engaging for the player, Joyce's monologues are interrupted by her asking for detective's opinions and then reacting to them. If lieutenant Kitsuragi is present, he chimes in offering his own knowledge and opinions from time to time. This helps the exposition to feel less artificial to the player and more like a natural conversation between characters.

Joyce also offers information on the murder. In that dialogue, the player can receive some lore exposition as well, for example about Krenel, an Oranjese military contractor. In order to access this dialogue, the detective must prove to Joyce that he is a police officer by presenting her with his badge. The task of finding the badge takes a while and prevents the player from learning too much in too little time.

Lieutenant Kim Kitsuragi, as the deuteragonist, is present at the detective's side

for most of the time during the gameplay. Despite having quite a reserved personality, he does offer exposition. Information from him can often be vague and leave room for interpretation to the player. His laconic dialogue can be analysed and elaborated on by the detective's inner monologue skills such as Empathy, Esprit de Corps, Encyclopedia, Interfacing, depending on their statistics. The main exposition scene with Kim occurs at the end of Day 1, during debriefing. Then, the detective can ask Kim questions about the RCM (Revachol Citizen Militia), the organisation both men belong to. Aside from this scene, Kim will occasionally comment revealing worldbuilding elements less crucial to the main storyline. For example we can learn from him about motor carriages, TipTop Tournée racing show (further elaborated on by Encyclopedia), interprecinct rivalry (rivalry between Precinct 57, which Kim belongs to, and Precinct 41, which the detective belongs to), or a series of shootouts in churches.

Neha, the Novelty Dicemaker lives and works in a defunct furnace of the Doomed Commercial Area. Dialogue with her is a part of one of the side quests and she offers answers regarding various failed businesses from the Doomed Commercial Area. The bankrupt companies include a hairdresser, a gym, a window replacement service, fashion atelier, taxidermy service, ski business, ice cream producer with a giant ice bear (sic) fridge (the fridge is still operational and can be used for other quests), and a game development company, which is a part of 'raver's nightclub' task and 'hole in the world' task.

Trant Heidelstam is a well-travelled civilian consultant who can be encountered near the ruined FELD building, sightseeing with his son. He is one of the most talkative NPCs in the game (to the point that even Encyclopedia comments on it). His monologues reveal a wide range of exposition - from a martial art called Lomantang stick fighting, an exhibition in Vredefort, Oranje and its curator, all the way to the history of the inoperative FELD computer engineering company, their lost tape computer prototype and the failed FELD Playback Experiment.

Numerous other characters provide exposition to the lore that is relevant

specifically to them. Examples include Klaasje and the Looskap conglomerate, Paledriver and the pale, René Arnoux and the revolution, Lena and cryptids, Roy and the radioactive spill clean-up operation, the ravers and anodic music.

All of Disco Elysium's lore exposition is non-obligatory. In fact, not a lot of it is directly connected to the main case the detective investigates. The player can decide to completely disregard it and still complete the game. The player can also pick and choose which parts they deem useful for their playthrough depending on what side tasks they want to pursue. Learning about Elysium always awards the player with experience points that can be used to advance their skills or help customise their thought cabinet.

A commendable trait of Disco Elysium's worldbuilding is attention to detail. For instance, the player knows about the drug Pyrholidon from the pawn shop owner Roy and can get some of it from him. When the detective takes the drug, the UI displays a picture of a molecule. In and of itself this is not surprising - it does the same when he takes speed, smokes a cigarette, or drinks alcohol. However, it always displays a molecule corresponding to the substance (amphetamine molecule for speed, nicotine molecule for cigarettes, alcohol molecule for alcohol). This makes the case of Pyrholidon more interesting, because it is a fictional drug. The molecule picture that the UI displays for Pyrholidon can be identified as an existing porphyrin ring Mn-TDE-2-ImP 5+ also known as AEOL-10150, which protects against radiation (Zhang et al. 2018). This is a quality similar to the in-game Pyrholidon, although there is no mention of any psychedelic side effects in its real-life counterpart.

4.2 Case Study 2. Soma

The following subchapter analyses playing experience and elements present in the video game Soma (2015). Soma is a 3D first person horror developed and published by Frictional Games. It includes themes of death, existential dread, artificial intelligence, and what it means to be a human.

The game's lore exposition relies on pre-existing texts, pictures, and recordings which the player can read, look at, or listen to. They include journals, diaries, orientation videos, data buffers, computer screens, audio logs, memos, post-it notes, sketches, tool instructions, diagrams, surveys, and the main hero's unique ability to listen to people's last moments before they die by connecting to their black boxes. Other methods include dialogue with Catherine, and environment and character design.

In Soma (2015), lore exposition and storytelling are very interwoven. The game takes place mostly in the year 2104 in a dilapidated underwater multi-purpose facility Pathos-II at the bottom of Atlantic Ocean. Pathos-II consists of several sites named after letters in the Greek alphabet. All of the sites are mostly abandoned and the player can piece together what happened by interacting with available records. The story is told through these records in a non-linear fashion, slowly unravelling the mysteries alongside the worldbuilding.

In site Upsilon we can find sketches by a field service technician Amy Azzaro, which show odd fish and humanoid monsters. This is a foreshadowing of some of the horrors the player is going to witness. An audio message from Amy's husband reveals the "sky is falling down". Later, in the wreck of a ship MS CURIE, audio messages playing on loop describe the annihilation of the world above the ocean’s surface, and mention an imminent impact of a comet.

When taking the shuttle J6 train in Upsilon there is an informative video on Pathos-II - it mentions that the facility began as a part of mining operation in the 60s and grew into a large research facility that includes thermal power plants, the Omega Space Gun (a large electromagnetic delivery system), and various research programs. The video crashes halfway through.

During another pre-recorded briefing found in site Upsilon, the computer screen displays the hierarchy of Pathos-II. The same screen later displays the structure of an Omnitool (the "door opener" as referred to by Simon). Strohmeier, a security operative, explains how the Omnitool works and refers to the employees

as engineers. In the same recording, he mentions a possibility of viruses being developed in site Omicron, suggesting that Omicron handles biological materials. More information on the Omnitool is available in tool instructions lying right next to it.

Simon, the player character, has an ability to connect to machines' and people's black boxes, and hear their last moments before shutdown or death. He refers to this as "hearing the dead". He listens to one of such recordings at site Upsilon and hears Amy talking to an UH3 robot. She is the first to mention "structure gel", which is a very prominent element in SOMA worldbuilding. Structure gel is a black viscous substance present in all of Pathos-II. It acts as a conductor for the warden unit WAU (a biologically engineered computer system). By site Theta delirious Terry Akers leaves a data buffer talking about "peace withing the universe of the WAU". A doctor at Theta examining unconscious Terry Akers calls the structure gel "ferrofluid" and mentions its transformative properties which can lead to malign cell mutations.

Dr Ross' journal found in his room in site Tau later in the game confirms that the monsters populating Pathos-II were created by WAU. Ross' recordings reveal more about the nature of the WAU and also mention the date of the comet's crash and subsequent end of the world - January 12. The variety in monster design (both appearance and behaviour) helps to distinguish the creatures and makes the gameplay less repetitive. Within the in-game world, it shows the large scale of WAU's experiments with structure gel and available human, animal, and robotic bodies.

Computer screens' main purpose is to display simple puzzles for the player. However, worldbuilding information can be found in them as well, such as a transit map in the shittle J6 train. During one of the puzzles, while Simon searches for the ARK in site Lambda, we can see the map of Pathos-II and where it lies on the world map.

A prominent NPC Catherine is the only character Simon interacts with regularly

throughout the game. Her dialogue is a very important source of information on worldbuilding. Catherine describes to Simon her project called the ARK - an artificial digital world populated by brain scans of Pathos-II employees. According to her, the project began as a pet project, but its importance grew significantly after the comet annihilated the surface of Earth. The ARK has enough power to sustain itself for several decades on its own, but will turn off after this time, essentially killing all people inside. It needs to be attached to a space probe and launched, so that it can survive using sun energy. A Calibration Survey on the ARK project asks its participants about their physical condition, mental condition, senses, and perception of their new existence. This suggests that calibration of the ARK affects these aspects. Thanks to Catherine, we also know about the Dunbat - a vehicle able to withstand the crushing pressure of the deep ocean. She also frequently mentions WAU and explains to Simon that one of the monsters explodes with magnetism, which is confusing for robots. Answering Simon's questions, Catherine clarifies that the monster robots are not her scans, otherwise they would talk more sensibly. This points towards the later revelation that the crazy robots are WAU's doing. From Catherine we also know that Simon himself is a diving suit with a cortex chip, some structure gel, and a dead body of Imogen Reed, all powered by a battery pack.

The dispatcher Peter Strasky mentions failing LUMAR relays which means that direct links are hard to establish. While this information is only tangential to the story, it improves immersion by explaining why most calls have poor sound quality.

Soma (2015) reveals to the player only the necessary lore that is needed to progress, improve immersion, or make the atmosphere more terrifying. It omits unneeded information, such as most of the names of the monsters.

4.3 Case Study 3. Half-Life 2

The following subchapter analyses playing experience and elements present in the video game Half-Life 2 (2004). Half-Life 2 is a science fiction first person

shooter developed and published by Valve. It is a sequel to Half-Life (1998).

The game opens with a cryptic monologue from a mysterious character who also appears at the very end of Half-Life (1998). The monologue lets the player know they still play as Gordon Freeman, just as in the first instalment of the series. The monologue also sets an ominous tone for chapter 1 of the game.

From the very beginning of chapter 1, it is clear that the story is set somewhere inhospitable. The train Gordon is on has bullet holes in its windows, garbage on the floor and only two other passengers, both wearing the same blue uniform. One of them seems indifferent, the other anxious. The player is given a moment to get acquainted with the game's controls and then the train ride ends. Gordon leaves the train and enters a station where he is welcomed into City 17 by a pre-recorded message from doctor Breen, introduced as Earth's administrator. The large screen displaying the message looms over the player character. A floating robotic entity takes a photograph of Gordon, momentarily blinding him and the player. On the right, the player can see an alien (later referred to as a "vortigaunt" by NPCs) in a collar swiping the floor. The very same type of alien was one of the invaders in Half-Life (1998). Here it is degraded to a janitor. The player can also see citizens of City 17 receiving rations and hear them complain about the poor quality of the food. The entirety of Chapter 1 is an excellent example of exposition through environment design, character design, sparse dialogue, and pre-recorded video messages. Numerous elements (such as the ever-present cops from Civil Protection, their uniforms including gas masks, the paranoid behaviour of the citizens, their identical blue clothes, the robots, the bleak colour scheme, the bloodied interrogation room, the nearly empty rooms with multiple tenants in the block of flats, the Civil Protection raid on the block, the towering monitors with pre-recorded messages from the administrator, the fact that the city does not have a name, but is instead referred to with a number) point towards the conclusion that Gordon finds himself in a police state. The presence of aliens and unfamiliar technology, the vortigaunt janitor in a collar, and Breen being Earth's administrator reigning under "our benefactors" implies that the Earth is seized by some alien power, but not the same as the invaders

from the first Half-Life game. The alien power is referred to as "the Combine" by NPCs. Based on the architecture in City 17, it can be assumed that the game takes place in Eastern Europe.

One of the first characters the player meets in the game is Barney who introduces himself with "It's me, Barney, from Black Mesa". Black Mesa is a research facility where the game Half-Life (1998) takes place. However, there is no character named Barney in that game. The only hint the player has regarding his identity is Barney's voice line "About that beer I owe you" which most likely references an unnamed security guard from Half-Life (1998) who says "Catch me later, I'll buy you a beer".

More characters are introduced in this vague manner, including more of Gordon's former co-workers, retroactively making Black Mesa feel like a more lived-in place even though it does not appear in Half-Life 2 (2004). Soon after meeting Alyx, she mentions that she met Gordon in Black Mesa when she was very young, which gives the player a clue that Half-Life 2 (2004) takes place many years into the future from the Black Mesa resonance cascade incident in Half-Life (1998).

In chapter 2 the player learns about the teleportation technology developed by former Black Mesa employees, now members of the resistance against the Combine. From Barney's dialogue the player learns that the incredibly tall tower looming over City 17 is called the Citadel and it can be deduced that it is Combine's main base of operation.

In chapter 3, we see the Combine using headcrabs (parasitic alien species present in the first Half-Life game) as a bioweapon. This is later expanded on in chapter 6, where Gordon finds himself in Ravenholm - an abandoned town swarmed by headcrabs.

In chapter 4, the player gets to see the industrial areas outside City 17. In this chapter Gordon uses pulse weapons, which are used by various characters

throughout the game. This technology is presumably developed by the Combine.

Chapter 5 includes some optional dialogue-based lore exposition from doctor Eli Vance about the Combine's control. There is also a board with a newspaper clip about Earth's surrender. Gordon also learns of the latest advancements in gravity manipulation technology.

In the next chapters, the player can see the unoccupied coast with old, deserted houses and disused boats. Gordon also encounters a new type of alien - the antlions, and learns from an NPC that they live burrowed in the sand and emerge when the sand's surface is disturbed by footsteps. Antlion behaviour seems to be eusocial, with antlion guards higher in the hierarchy than antlion workers. An organ called a pheropod can be extracted from a dead body of an antlion guard and used by Gordon to control the workers and use them in the battle against the Combine. With a lot of knowledge on antlions coming from a vortigaunt, it can be speculated that vortigaunts and antlions originate from the same planet.

After infiltrating a Combine base in Nova Prospekt, the player learns that the teleportation technology can lead to a time anomaly. Specifically, Gordon and Alyx disappear for a week and do not realise they have been gone this long after they appear again. We find City 17 at war between the Combine and the Resistance, which shows the player just how tense the situation in City 17 really was when the game started.

In the two final chapters, the player sees the inside of the Citadel and learns of the Combine technology known as the Dark Energy and sees its reactor.

Half-Life 2 (2004) rarely uses direct lore exposition and prefers to leave vague clues that the player can interpret on their own. The game relies heavily on exposition through environment design. Gordon Freeman does not speak and therefore, most of the dialogue in the game could technically be referred to as monologue. All of the characters' voice lines usually feel natural when they talk to Gordon, even though he does not respond.

4.4 Survey

The survey was conducted during spring of 2022. Participants were 128 members of various player communities. 42.2% of the respondents identify as female, 28.1% as non-binary, and 21.9% as male. At the time of conducting the survey 48.4% of the participants were between ages of 21 and 25, 21.8% between ages of 26 and 30, 14.8% between ages of 31 and 40, 13.3% between ages of 16 and 20, 0.8% below the age of 16.

The survey opened with a written definition of the term “lore”.

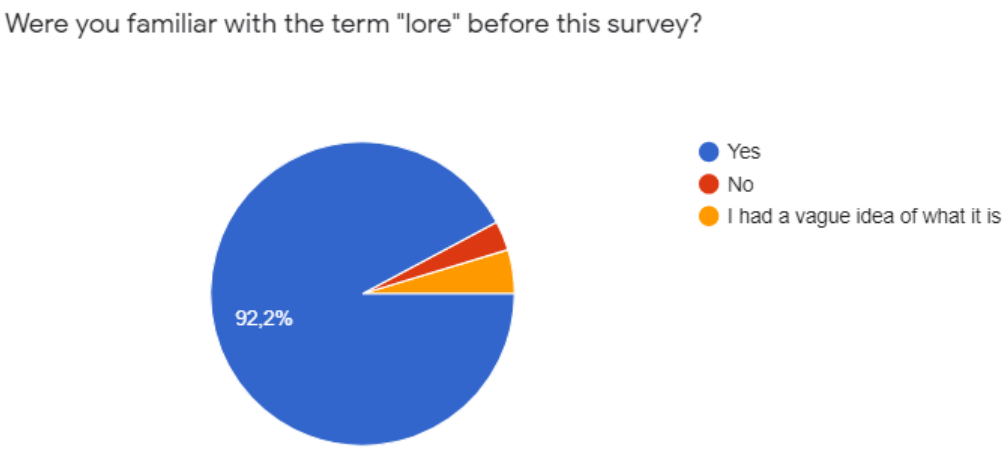

Figure 1. Answers to the first question of the survey: “Were you familiar with the term “lore” before this survey?”.

As illustrated in Figure 1, the majority of the respondents were already aware of what “lore” means. 92.2% stated they were familiar with the term, while 4.7% had a vague idea of what it means.

Figure 2 presents participants’ genre preferences.

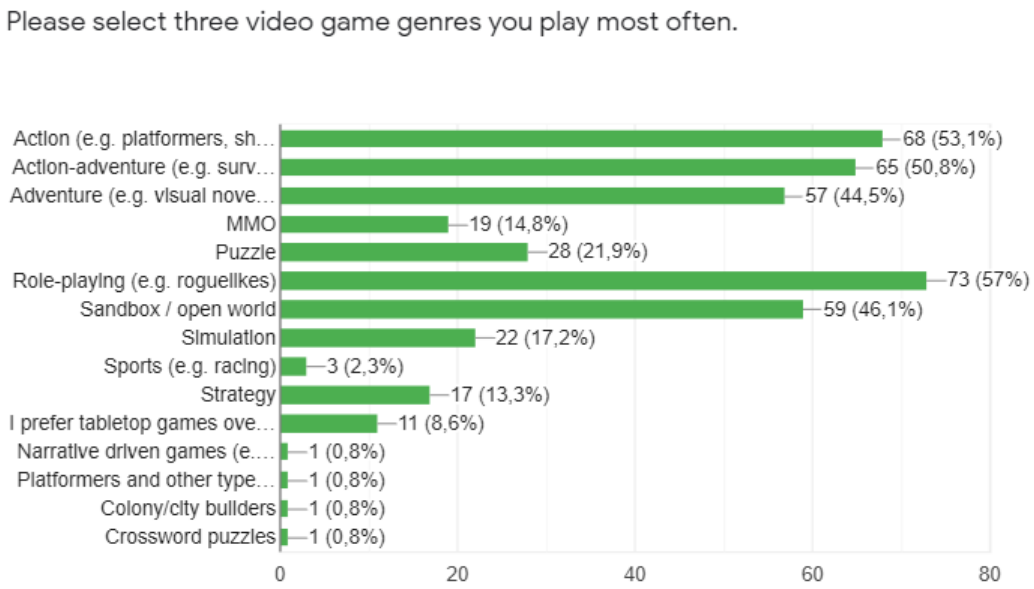

Figure 2. Answers to the second question of the survey: “Please select three video game genres you play most often.”

Over half of the participants play role-playing games (57%), action games (53.1%), and action-adventure games (50.8%). Nearly half plays sandbox and open world games (46.1%), and adventure games (44.5%). Smaller percentages play puzzle, simulation, MMO, strategy, and sports games (each below 22%). 8.6% of the respondents chose the option “I prefer tabletop games over video games”. It should be noted that the participants were asked to select only three video game genres. However, this limit was not forced and a total of 16 respondents chose to disregard the suggested number: 4 participants selected four options, 3 participants selected five options, 7 participants selected more than five options, and 2 participants selected two options.

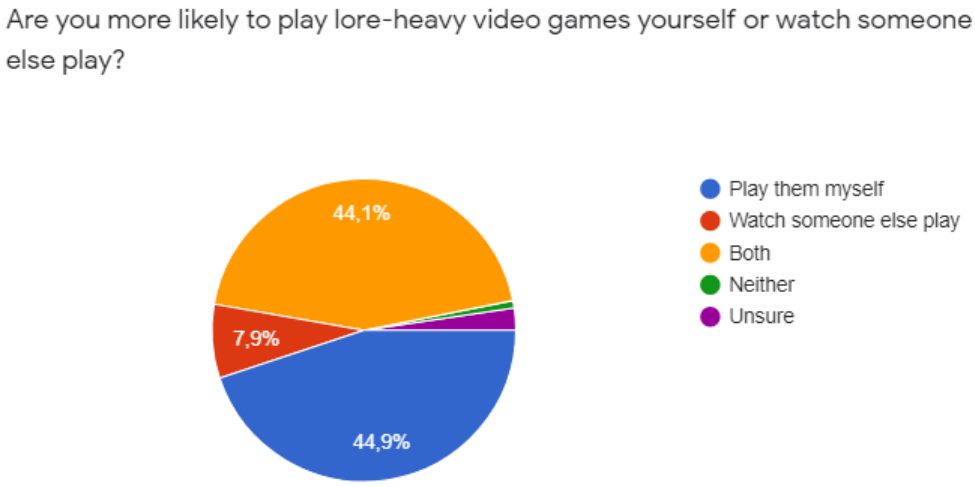

Figure 3. Answers to the third question of the survey: “Are you more likely to play lore-heavy video games yourself or watch someone else play?”

As shown in Figure 3, 44.9% of the respondents prefer to play lore-heavy video games themself, while 7.9% prefers to watch someone else play. 44.1% does not mind either.

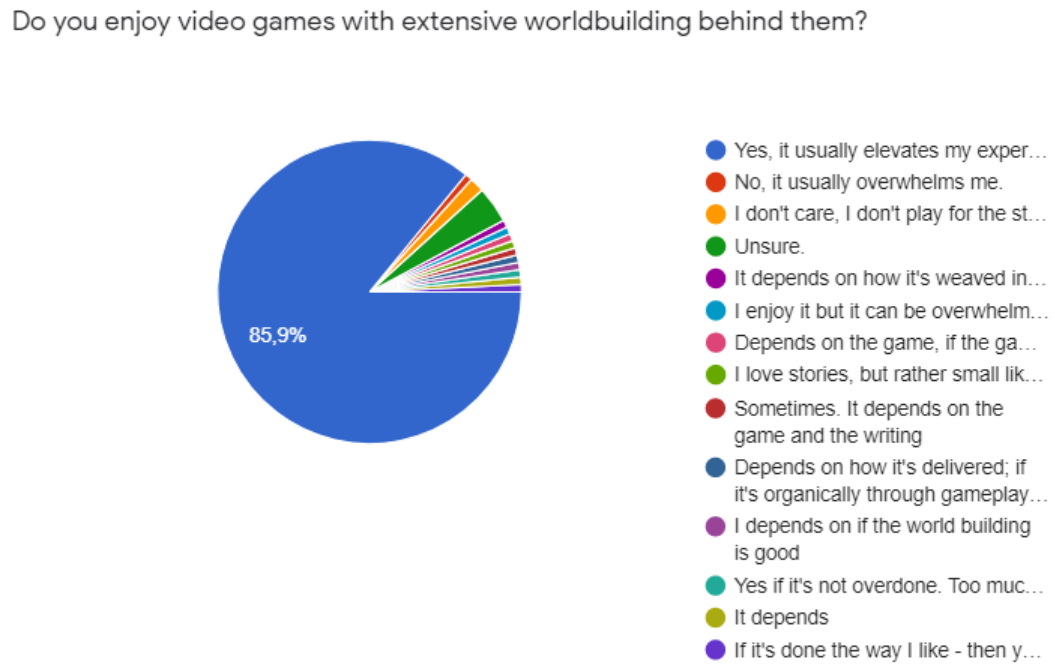

Figure 4. Answers to the fourth question of the survey: “Do you enjoy video games with extensive worldbuilding behind them?”

As illustrated in Figure 4, the majority (85.9%) of the participants enjoy video games with extensive worldbuilding. Those of the participants who chose to write their own answer, often shared that their enjoyment depends on their subjective preferences, quality of writing, extend, and delivery.

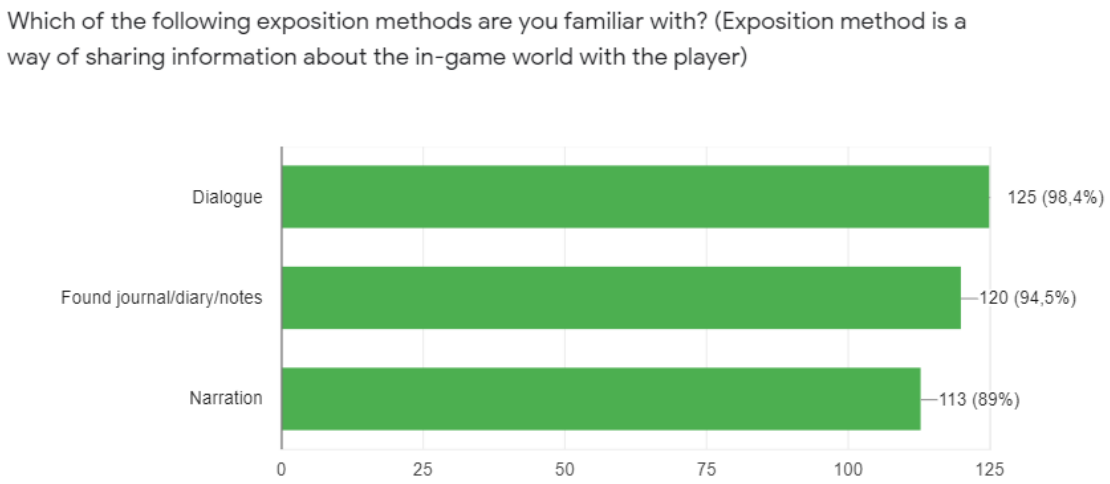

Figure 5. Answers to the fifth question of the survey: “Which of the following exposition methods are you familiar with?”

Figure 5 presents respondents’ familiarity with exposition methods frequently used in game design. Nearly all of the respondents (98.4%) were familiar with dialogue as an exposition method. 94.5% were familiar with found journals, diaries, and/or notes as an exposition method and 89% were familiar with narration.

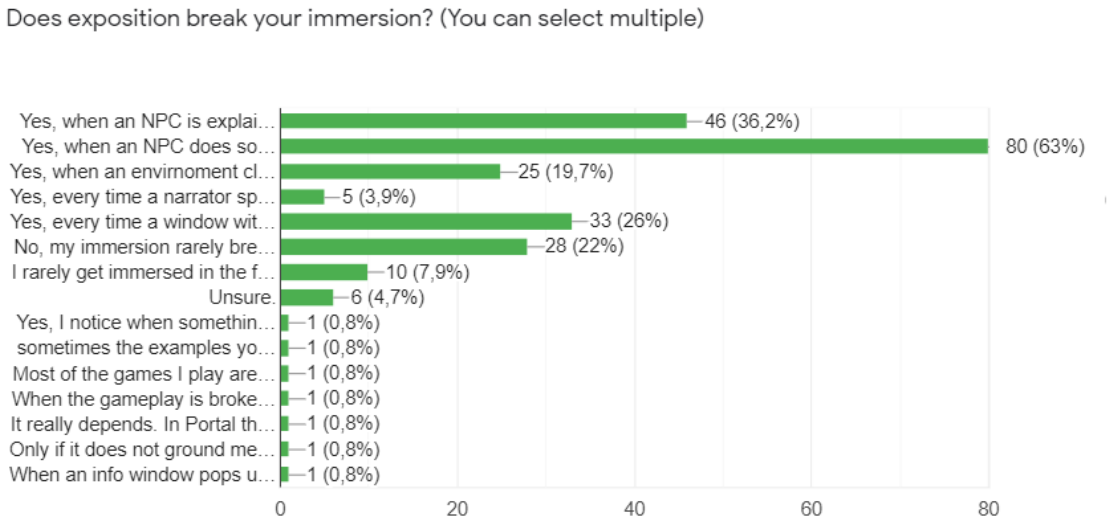

Figure 6. Answers to the sixth question of the survey: “Does exposition break your immersion?”

Figure 6 illustrates which examples of exposition are most likely to break immersion, according to the survey’s participants. NPC doing something clearly out-of-character solely in order to share information with the player was chosen by 63% of the participants as the reason of their immersion breaking. 36.2% has their immersion broken when an NPC explains something for too long. 26% has their immersion broken every time a pop-up window with lore information appears. 22% of the participants rarely experiences their immersion breaking, while 7.9% rarely experiences immersion overall. A small percentage (3.9%) has their immersion broken when a narrator speaks. Additionally, some participants mentioned that their immersion breaks whenever something irrational occurs in the game.

5 CONCLUSIONS

The process of worldbuilding is usually personalised depending on the type of the in-game world, the genre of the game, and the developers. The in-game world can be unique to only one game or it can span several titles, and even several media, not only video games.

Video games are usually developed by teams of two or more people. When several developers design a world, it is crucial to maintain communication and

avoid inconsistencies. If inconsistencies exist in the in-game world on purpose, it should be explained diegetically (i.e. within the fictional world). However, overexplaining everything should be avoided as well. Knowledge of the in-game world should be dispensed during gameplay in small, uneven portions (not to cause boredom) and it should be possible for the players to fill in the gaps themselves. This way the player can feel clever and engaged.

An issue related to overexplaining is overcreating. In all types of fiction, not only video games, every single element present in the narrative needs a reason to be there. It can be an obvious reason, or a more metaphorical one, influencing the player's subconscious. Either way, it should have some logical purpose, otherwise it becomes a risk of causing confusion in the player and breaking their immersion.

Ideally, the game uses its interactivity potential to share the lore. This way, the player can have some control over how much information they receive. It is also advisable to use a wide variety of ways to share lore, such as fictional books, environment design, dialogue with characters. Characters can only share the information that they can realistically possess.

All three video games analysed in this paper make use of a fish out of water trope, which means that the player characters are out of their depth and unfamiliar with the environment. The strength of this trope is that the player and the player character have a similar level of knowledge about the in-game world, which helps to better immerse the player. Disco Elysium (2019) achieves this trope by having an amnesiac player character, while Soma (2015) and Half-Life 2 (2004) achieve it by transporting the player characters into the future - almost a century and around two decades respectively.

Disco Elysium (2019) makes use of the medium's interactivity, encouraging the players to explore by rewarding their curiosity with answers, experience points, Thoughts for the Thought Cabinet, and Check modifiers. During a Check, the player rolls the dice. Whether they pass the Check or not depends on

cumulative number from the dice and the modifiers. Some modifiers are negative numbers and lower the chance of passing the Check. This game mechanic introduces an element of risk and makes the gameplay more exciting, which is crucial in a game based mostly on reading text.

Disco Elysium (2019) allows the player to explore at their own pace and in their own way. Elysium's history is delivered in paragraphs or sets of paragraphs that the player can opt out of, if they are not interested. Numerous parts of Elysium's lore have their real life counterparts, but they are not always obvious. Additionally, pieces of information that are shared during the gameplay are often incomplete, letting the fans form their own interpretations and theories. This fits very well with the genre of the narrative, which is a detective story.

Soma (2015) offers less freedom of exploration to the player. Most of the lore can be learned while trying to find a way to proceed. Thanks to the story's non-linear delivery, the information on lore is disjointed and often related only to the current challenge. The fact that the player learns about the in-game world in slow intervals helps to form the atmosphere of horror.

Since Half-Life 2 (2004) relies strongly on environmental exposition, the process of learning about the in-game world is more passive and happens during less violent moments of the gameplay. The player can therefore relate environmental and dialogue-based exposition to calmness before the next portion of shooting begins.

The survey results show that many players are aware of what lore is and generally enjoy games with extensive worldbuilding. Their enjoyment is often influenced by personal preferences, but the majority agrees that characters acting out of character is detrimental to the level of player engagement.

6 LORE EXPOSITION METHODS OVERVIEW

The following set of guidelines for lore retrieval includes exposition methods classification and a brief description of each method. As a part of the public domain, the guidelines can be expanded on and adapted freely.

The lore exposition can be divided in two ways: based on its function or based on its delivery. A lore exposition method's function can be either general or specific, while its delivery can be via text, visuals, or sound. The two ways of division are shown in Figure 7.

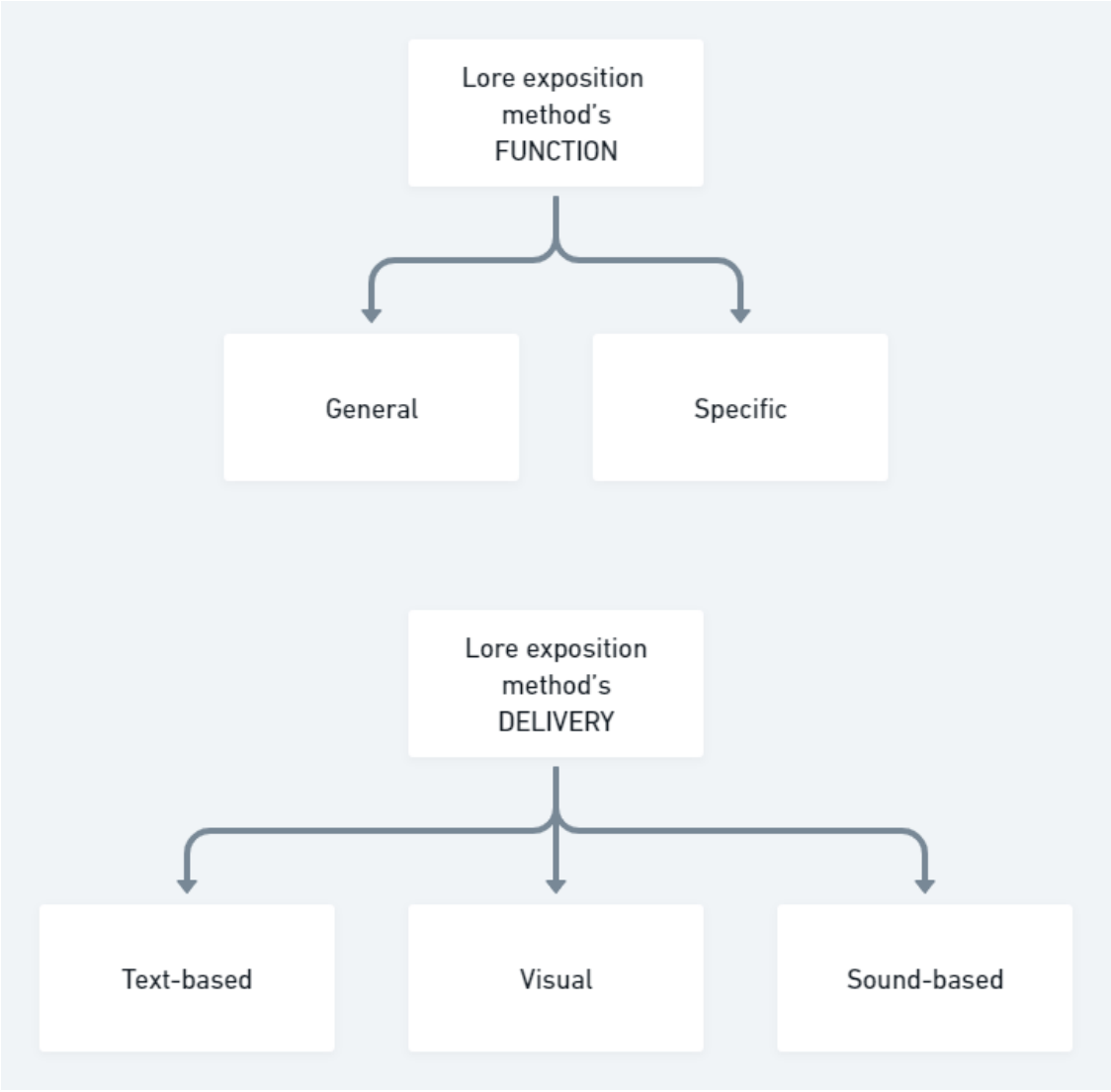

Figure 7. Function of lore exposition and delivery of lore exposition.

The general exposition influences abstract variables such as mood and atmosphere of the game. It aims to impact the player's emotions, to form a

general idea of what the in-game world feels like. Example: The colours of the in-game world are bleak and use a limited colour palette. The player sees multiple instances of verbal abuse and several instances of physical violence between various NPCs. The ambient sounds include scared shouts. Together, these elements make the player aware of tension present in the in-game world.

The specific exposition provides the player with concrete, countable facts about the in-game world: names, events, dates, places, objects.

The text-based lore exposition methods utilise dialogue, narration, and texts found in-game by the player character, such as journals, books, newspaper clips. Example: The player can learn of a past disaster by reading a found diary.

The visual lore exposition methods deliver information on lore through the appearance of characters, objects, and environments. Example: The player character walks through a glass corridor. The player can see water and fish behind the glass. This delivers the message that the game takes place underwater or in an aquarium.

The sound-based lore exposition methods use voice acting, soundscapes, and music. Example: Every character living in tunnels speaks hoarsely, because the air underground is polluted.

It is advised to use multiple kinds of lore exposition methods to create some variety, making the gameplay more exciting. Not all parts of the in-game world should be shared, so that the players can ponder the facts available to them and draw own conclusions.

Lore exposition can be utilised as means to reward the player with experience points and other gameplay mechanics that are helping to proceed. It can also be used as means to create a specific atmosphere or to signal lack of threats in a particular section of a game level.

It is best not to force lore information onto the player. The information should be delivered in chunks small enough, so that the recipient does not feel needlessly overwhelmed. The primary purpose of worldbuilding in a video game is to elevate the player's experience and to make the game more memorable.

REFERENCES

Bycer, J. 2018. How Worldbuilding Elevates Video Games and Fandom. Available at: https://www.gamedeveloper.com/business/how-worldbuilding-elevates-video-games-and-fandom. [Accessed: 27 October 2021].

Dealessandri, M. 2020. Six ways to improve your world building. Available at: https://www.gamesindustry.biz/articles/2020-03-26-six-ways-to-improve-your-world-building. [Accessed: 27 October 2021].

Fowler Jr, F.J. 2013. Survey Research Methods. Fifth edition. Thousand Oaks: SAGE Publications.

Frictional Games. 2015. Soma. Video game. Helsingborg: Frictional Games.

Glasow, P.A. 2005. Fundamentals of Survey research Methodology. Online documents. Available at: http://www.uky.edu/~kdbrad2/EPE619/Handouts/SurveyResearchReading.pdf [Accessed 2 March 2022].

Haanpää, E. 2018. Visual Storytelling of a 3D Environment. Available at: https://urn.fi/URN:NBN:fi:amk-2018052510381. [Accessed: 27 October 2021].

Jenkins, H. August 2006. Convergence Culture: where old and new media collide. New York: New York University Press. Available at: https://archive.org/details/isbn_9780814742815 [Accessed 14th November 2021].

Jones, S. 2021. Lore, exposition & world building. Available at: https://simonkjones.com/lore-exposition-world-building/ [Accessed: 1 December 2021].

Joyce, S. 2018. Worldbuilding and World Destroying in BioShock and The Last of Us. In: Transmedia Storytelling and the Apocalypse. Palgrave Macmillan, Cham. Available at: https://doi.org/10.1007/978-3-319-93952-0_6. [Accessed: 27 October 2021].

Kemppinen, R. 2019. Designing visuals for a story rich game : project: Liekko and the Stolen Moon. Available at: https://urn.fi/URN:NBN:fi:amk-2019060515010. [Accessed: 27 October 2021].

Kiander, V. 2019. Choice and the illusion of it in narrative-driven video games. Available at: https://urn.fi/URN:NBN:fi:amk-201905017034. [Accessed: 16 November 2021].

Koskimaa, R., Maj, K., Olkusz, K. 2018. Introduction to Expanding Universes. Exploring Games and Transmedial Ways of World-building. International Journal

of Transmedia Literacy (IJTL). Available at: https://doi.org/10.7358/ijtl-2018-000-intr. [Accessed: 27 October 2021].

Morgue et al. No date. FAYDE Playback Experiment. Website. Available at: http://www.fayde.co.uk/info [Accessed 24 February 2022].

Nurmio, J. 2017. A user experience study in storytelling. Available at: https://urn.fi/URN:NBN:fi:amk-2017090814931. [Accessed: 27 October 2021].

Omeragić, E. 2019. Immersion and Worldbuilding in Videogames. Available at: https://urn.nsk.hr/urn:nbn:hr:142:664766. [Accessed: 27 October 2021].

Partanen, J. 2021. Immersive Details in Games - And how to apply them. Available at: https://urn.fi/URN:NBN:fi:amk-202105209623. [Accessed: 27 October 2021].

Savikko, S. 2019. Iconology in a Fictional Context: Intradiegetic Iconology in Worldbuilding. Available at: https://urn.fi/URN:NBN:fi:amk-201904256056. [Accessed: 27 October 2021].

six, brenn. 2021. Elysium: A Timeline. Online document. Available at: https://docs.google.com/spreadsheets/d/e/2PACX-1vQpO4H_oSPNXVCGC3tczPArbAWgk8pFcpcx0hKDX5L2MbvTM2xcvHAQhlUQAY6vRgNugB0JNr8F6ZK0/pubhtml [Accessed 24 February 2022].

Smith, J. 2020. Worldbuilding Voices in the Soundscapes of Role Playing Video Games. Available at: http://eprints.hud.ac.uk/id/eprint/35389/. [Accessed: 27 October 2021].

Sorvo, R. 2017. WORLDBUILDING IN GAMES : Creating a Functioning World For a Role-Playing Game. Available at: https://urn.fi/URN:NBN:fi:amk-201705107392. [Accessed: 27 October 2021].

Tanskanen, S. 2018. Player immersion in video game : Designing an immersive game project. Available at: https://urn.fi/URN:NBN:fi:amk-201805189034. [Accessed: 27 October 2021].

Tiainen, J. 2020. Conveying Character Personality Through Illustration. Available at: https://urn.fi/URN:NBN:fi:amk-2020052814813. [Accessed: 27 October 2021].

Valve. 2004. Half-Life 2. Video game. Bellevue: Valve.

venterry. 2020. SOMA • All Data Buffers & Audio Recordings. YouTube video. Available at: https://youtu.be/MzQWIiNi1YU [Accessed 24 February 2022].

Zainal, Z. 2007. Case study as a research method. Online document. Available at: https://jurnalkemanusiaan.utm.my/index.php/kemanusiaan/article/view/165 [Accessed: 14 November 2021].

ZA/UM. 2019. Disco Elysium. Video game. ZA/UM and Humble Bundle.

Zhang, X., Zhou, W., Zhang, Y. 2018. Improvements in SOD mimic AEOL-10150, a potent broad-spectrum antioxidant. Military Medical Research. 5. 10.1186/s40779-018-0176-3. Available at: https://www.researchgate.net/publication/327475475_Improvements_in_SOD_mi mic_AEOL-10150_a_potent_broad-spectrum_antioxidant [Accessed: 11 February 2022].

Appendix 1

SURVEY

Definition of "lore":
Lore - sum of knowledge, culture, and traditions held by a particular group on a particular subject. In the context of video games, lore is all the elements that complement the main narrative.

1. Were you familiar with the term "lore" before this survey?
- Yes
- No
- I had a vague idea what it is

2. Please select three video game genres you play most often.
- Action (e.g. platformers, shooters, pvp, stealth, rhythm, battle royale)
- Action-adventure (e.g. survival horror, metroidvania)
- Adventure (e.g. visual novels, interactive movies)
- MMO
- Puzzle
- Role-playing (e.g. roguelikes)
- Sandbox / open world
- Simulation
- Sports (e.g. racing)
- Strategy
- I prefer tabletop games over video games
- Other

3. Are you more likely to play lore-heavy video games yourself or watch someone else play?
- Play them myself
- Watch someone else play
- Both
- Neither
- Unsure

4. Do you enjoy video games with extensive worldbuilding behind them?
- Yes, it usually elevates my experience.
- No, it usually overwhelms me.
- I don't care, I don't play for the story.
- Unsure.
- Other.

5. Which of the following exposition methods are you familiar with?
- Dialogue
- Found journal/diary/notes
- Narration

6. Does exposition break your immersion? (You can select multiple)
- Yes, when an NPC is explaining something for too long to me.

- Yes, when an NPC does something clearly out-of-character just to share info with me.
- Yes, when an environment clearly exists only to give me hints on how to proceed.
- Yes, every time a narrator speaks.
- Yes, every time a window with information about the in-game world pops up.
- No, my immersion rarely breaks.
- I rarely get immersed in the first place.
- Unsure.
- Other

7. Please select your age.
- Below 16
- 16-20
- 21-25
- 26-30
- 31-40
- 41-50
- 51-60
- Above 60
- Prefer not to say

8. Please select your gender.
- Female
- Male
- Non-binary
- Prefer not to say
- Other