White Rose Research Online

eprints@whiterose.ac.uk
https://eprints.whiterose.ac.uk
Universities of Leeds, Sheffield and York

Deposited via The University of York.

White Rose Research Online URL for this paper:
https://eprints.whiterose.ac.uk/id/eprint/170095/

Version: Accepted Version

Article:
Hughes, Nathan and Cairns, Paul Antony (2021) Opening the World of Contextualised Player Experiences. Entertainment Computing. 100401. ISSN: 1875-9521

https://doi.org/10.1016/j.entcom.2020.100401

Reuse
This article is distributed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivs (CC BY-NC-ND) licence. This licence only allows you to download this work and share it with others as long as you credit the authors, but you can't change the article in any way or use it commercially. More information and the full terms of the licence here: https://creativecommons.org/licenses/

Takedown
If you consider content in White Rose Research Online to be in breach of UK law, please notify us by emailing eprints@whiterose.ac.uk including the URL of the record and the reason for the withdrawal request.

UNIVERSITY OF LEEDS
University of Sheffield
UNIVERSITY of York

Opening the World of Contextualised Player Experiences

Abstract

Games provide a variety of experiences for players. Currently, research focuses either on games as undifferentiated wholes, where games provide summative experiences, or on a feature-level basis, where it is difficult to generalise findings. However, specific gaming experiences cannot be explained from these approaches. Open world games for example (a popular game type known for giving players high levels of choice over what they engage with) allow players to have uniquely different experiences. Current approaches cannot capture what about this gaming experience players enjoy or why. To do so, a 'context specific' approach is needed, which this paper demonstrates. In this study, eleven players of open world games were interviewed about their experiences. A thematic analysis revealed 5 concepts that interlock together to enable the final theme; (1) players are situated to scale within the world, (2) the world is large, connected and accessible, (3) the main goal does not restrict players from engaging with other activities, (4) content density is more important than world size, and (5) players can self-pace gameplay through engaging/disengaging with tasks at will. This study highlights how the use of a 'contextually-specific' approach can provide insight into specific player experiences, and why players enjoy them.

Keywords:
Open World Games, Player Experience, Thematic Analysis

1. Introduction

The field of player experience is beginning to mature. Over the past few years we have learnt that games can provide a plurality of experiences, and that players enjoy them in different ways (e.g. eudaemonic vs hedonic enjoyment, Oliver et al. [1]). We have also learnt that some types of games are distinct from others, and draw players into this experience. However,

so far there has been little focus on how gaming experiences differ from one another, as games have been treated as undifferentiated wholes. Because of this, we do not know what different types of experiences there are to have, why some are more appealing to players over others, or even why an experience is different than another. For example, research has found that *Wii Boxing* (a game involving physical movement of the body to play) is immersive (Pasch et al. [2]), but research also has shown that World of Warcraft (an online multiplayer game) is also immersive (Christou [3]). However, these two games offer entirely different playing experiences — how do they differ, yet nonetheless have the same experience?

To understand gaming experiences as distinct and differentiable, there is a need to use a contextually-specific approach that focuses on a singular gaming experience and attempts to explain what it is and why players enjoy it. To demonstrate this approach this study uses open world games, as the concept of an open world is ill-defined and highly individualised, whilst still being immensely popular (such as the success of *Red Dead Redemption 2* in 2018, which generated over $725 million in revenue in the first three days of release[1]). These games offer each player a unique experience, even from the same game, as players can choose what content to engage with. Open worlds therefore provide an important testing ground for understanding the commonality of experience arising from the uniqueness of an individual's playing of the game.

1.1. Research Questions

The current paper seeks to understand the experience of playing an open world game from the perspective of players, to learn what about the experience is unique. To achieve this, a 'contextually-specific' approach is deployed, that asks players to describe and explain a specific gaming experience. By doing so, it may be possible to understand what players expect from the experience, and what about the experience is important to them. Therefore, the research questions are as follows:

- What do players find unique about the 'open world experience'?
- What do they 'expect' from an open world?

[1]Retrieved from www.hollywoodreporter.com/news/red-dead-redemption-2-breaks-records-725-million-opening-weekend-1156235 on 25/02/2020

- How is this experience enabled?

These are answered via a Thematic Analysis on interviews with players of open world games, after an initial content analysis of online game review data used as a guide to the interview questions. From the thematic analysis, 5 themes emerged that interlock to explain how the experience is enabled and experienced by players. These themes lead to the sense that, despite the diverse experiences players have, they are common expectations of what an open world game can deliver and therefore what the experience of such games, in some overarching sense, should be.

This work will benefit researchers who wish to study specific gaming experiences, by demonstrating how a contextually-specific approach can explain what it means to 'experience' a game from the viewpoint of players. By doing so, researchers can better understand how games enable specific experiences, and what about these experiences are important and particularly attractive to players. This allows for a more nuanced understanding of players, and can yield specific insights that can aid future work, such as investigating how these experiences interact with individual differences in players (e.g. player traits/personality). The work may also benefit game designers wishing to understand what players expect from open world experiences, to build upon these in their designs.

The next section discusses the current literature on approaches to understanding gaming experiences, and highlights why these cannot explain behaviours that occur in the open world experience. From this, it is demonstrated how by studying open worlds we can begin to understand these context-specific experiences, how they occur, and why players enjoy them.

2. Background

Typically, there are 3 approaches to investigating game experiences: summative overarching experiences like Immersion; individual game experiences focusing on specific game mechanics; and the study of games within specific genres. The following sections outline these approaches, and how, despite their success in many ways, fail to capture the distinct experiences certain games offer, as they all focus on the feelings of the player and less on what the game offers in terms of an experience. Players play because they want to 'do' something, and the 'something' is what makes games distinct. To highlight these limitations, open world games are introduced as a complex experience

that cannot be captured or explained from the current approaches, but which offer a way to begin developing a better account of how games build unique experiences.

2.1. Summative Experience Research

Player experience research has looked at various types of experiences in games, across a wide range of topics. Typically this is done to understand how games are similar, and what the overall summative experience of playing games feels like to players. In this section, three examples of these experiences are outlined, followed by an explanation as to why these experiences fail to account for specific gameplay experiences.

Immersion, defined as "the engagement or involvement a person feels as a result of playing a digital game" (Cairns et al. [4]), is a widely studied summative experience. It has been liked to multiple game features, such as the effect of music on game immersion (such as Sanders and Cairns [5] and Zhang and Fu [6]), the effect of first vs third person perspectives (Denisova and Cairns [7]), and how immersion relates to the appeal of video games (Christou [3]). These studies highlight that the experience of immersion is an important factor for games, and one that is typically enjoyed by players (Brown and Cairns [8]). Another frequently studied gaming experience is that of Challenge, a factor considered important for games and a key to their enjoyment (Vorderer et al. [9]). For example, players enjoy/find satisfaction in resolving tension within the challenging emotional aspects of a game (e.g. Cole et al. [10], Bopp et al. [11]). Players need an optimal level of challenge in order to feel competent at the game (Abuhamdeh and Csikszentmihalyi [12]), which is also related to Immersion — players feel more immersed when the challenges they face match their current skill level (e.g. Cox et al. [13]). Overall, players enjoy experiencing challenge in games, as without challenge games become boring (Czikszentmihalyi [14]). A third summative experience studied is that of Uncertainty (Costikyan [15]). Kumari et al. [16] sought to provide a taxonomy of types of uncertainty, as whilst it is commonly mentioned as important for games (e.g. outcome uncertainty leads to higher suspense and in turn higher enjoyment, Abuhamdeh et al. [17]), there was little agreement as to when uncertainty leads to these outcomes and why. A notable finding is that choices experienced as 'free' (where players have high levels of agency in which to choose) create feelings of competence, as players believe they are making meaningful differences.

Whilst these approaches capture overarching commonalities in player experiences, they also treat games as an undifferentiated whole; the interest is in how playing games can lead to certain experiences. This means it is difficult to understand how specific games/types of games differ from one another, both in leading to the same summative experiences and to the distinct experiences particular to a game. Research may understand that players enjoy feeling immersed in games, but it is harder to understand what about the game led to this enjoyment. This is true of many summative experiences; reading a book is an immersive experience (e.g. Nell [18]), but we cannot point to any one line or sentence that led to this feeling. Furthermore, understanding that games are immersive may help explain why people play games, but not why players play *specific* games. This is because summative experiences cannot explain why the experience of playing one game is different to another; playing a driving game can be immersive/challenging (e.g. Forza), and so can playing a Match-3 (e.g. Candy Crush), but these games are distinctly different in terms of gameplay and style. These games may show similarly high levels of immersion/challenge, meaning this approach cannot distinguish between the experience offered to players. The feeling of immersion/challenge is the *outcome* of having an experience, rather than the in-the-moment experience. Treating games as a unified entity whereby they 'have' challenge and 'have' immersion cannot tell us why games differ, or why some players like some games over others. To understand these differences, there is a need to study games within their own contexts, to not leave out the importance of the distinct features of the games themselves.

2.2. Individual Games Research

One way to remain context-specific is to study individual games, to assess what about them is distinctive. The following section outlines examples of specific games that have been studied in the past, before explaining why this approach is too specific to explain experiences across games.

The games that have been chosen to study from a feature-level approach are typically games that became rapidly popular, and so there is interest in understanding what makes them uniquely appealing. Games such as *World of Warcraft* and *League of Legends* are two such examples, where their uniqueness and immense popularity inspired an influx of research surrounding them. Though it is difficult to know the exact number of subscribed players in *World of Warcraft* (those who own accounts), at its peak there

were over 12 million players[2]. *League of Legends* had 8 million daily concurrent players as of September 2019[3]. This massive player database has motivated researchers to understand what about these games draws players to them over other types of experiences.

For example, researchers have been interested in why *World of Warcraft* became such a successful Massively Multiplayer Online game (MMO), and what factors contributed to this (e.g. Ducheneaut et al. [19]). A variety of factors specific to *World of Warcraft* have been studied, such as how players perceive and value intimacy (Pace et al. [20]), the specific appeal of the game (Christou [21]), and how players value their in-game characters (Livingston et al. [22]). All these studies consider *World of Warcraft* to be a unique gaming experience, and so worthy of study at this detailed level. Similarly, to understand the unique player experience found in *League of Legends*, Mora-Cantallops and Sicilia [23] explored how players scored on the Player Experience of Need Satisfaction questionnaire (PENS, Rigby and Ryan [24]). This was motivated by the fact most online games research looked at games such as *World of Warcraft*, but games in the Multiplayer Online Battle Arena genre (MOBAs) provide noticeably different experiences — players of such games have less desire to socialise than those who play MMOs (e.g. Tyack et al. [25]). The work by Mora-Cantallops and Sicilia [23] found that *League of Legends* players felt more competent about their play performance the higher rank they were in the game, and players did not feel differently towards their team members regardless of rank. By focusing on this one game, the authors were able to show how the feeling of competence is more highly valued by *League of Legends* players than the social aspects of the game, highlighting that the game provides a unique experience (or alternatively, attracts a unique subset of players that are different to those who play MMOs).

The research on individual games has proved useful to gain insight into the specific features that may otherwise have been missed by taking a summative approach to these games, such as the focus on intimacy in *World of Warcraft*. However, work that focuses at this level is so specific that it cannot infer anything about other games, even ones that are similar. It may be possible to

[2]Retrieved from web.archive.org/web/20130809153328/http://us.blizzard.com/en-us/company/press/pressreleases.html?id=2847881 on 25/02/2020

[3]Retrieved from www.eurogamer.net/articles/2019-09-18-league-of-legends-hits-8m-concurrent-players-every-day on 25/02/2020

understand how specific gameplay elements influence the gaming experience, but we cannot be sure that a specific game mechanic is experienced the same way across different types of games. The RPG element of 'levelling up' is present in many games, and players enjoy this feature in some games (e.g. Bostan and Berkman [26]). But do players feel the same about this mechanic in all games? Is it an inherently different experience to level up in a fantasy MMO from levelling up in a puzzle game? Studying at the feature-level is therefore so specific that it cannot infer how the feature is experienced in different contexts, limiting the usefulness of the findings.

2.3. Game Genre Research

In order to make more general statements about player experiences, it is necessary to move beyond consideration of individual games and their features. At the same time, the summative experience approach does not easily connect experiences back to the specifics of games. What is needed is an intermediate approach that resolves this tension. Genres of games offer a way to talk about player experiences that is both connected to game features and allows comparison across games (though genre is itself a contentious classification system e.g. Clearwater [27]). Games considered part of the same genre may hang together due to a similarity in the experience offered to players. In this section, this genre-focused approach is explained, with examples of its usage on MMO games. This is followed by highlighting how this approach still requires refining to truly understand what about game experiences players seek.

The MMO genre is considered distinct cluster of games, with specific variances to account for. A typical research focus is on their ability to foster social interactions. Indeed, this social interaction is usually key to the experience — the enjoyment of such games is linked to the ability to socialise within them (Cole and Griffiths [28]). Because of this, research has focused on why players enjoy this experience, and what draws them to it, such as Chang et al. [29] who explored why players stay loyal to certain MMO games. Similarly, Suárez et al. [30] found that MMO players enjoy the ability to immerse themselves in a fantasy world, whilst other researchers such as Chen and Duh [31] sought to understand what influences players to seek out this socialising experience. Therefore, understanding what is unique to this type of game is important to understanding what players enjoy about them, and so has fostered research interest in this topic.

The genre-focused approach therefore helps explain how game features combine to enable experiences that players reflect on. In World of Warcraft, there are features that enable social interaction (e.g. chat), that allow players who enjoy social interactions to use these features to feel this gaming experience. However, this approach still focuses heavily on the summative experience of games treated as a whole, rather than what are the constituents of play leading to the experience. It is typically deployed to link the above approaches together (i.e. how game features lead to summative experiences), rather than explain what the experience is and what it means to players. Just as Costikyan [15] recognises uncertainty as central to playing games, he also recognises the distinct sources of uncertainty that a game may offer, which lead to the felt experience of uncertainty (Kumari et al. [32]). Therefore, to truly understand games and their impact on players, is it imperative to understand the experiences they offer.

2.4. The Open World Gaming Experience

This distinction between the totality of a game and what a player experiences is brought into sharp relief in open world games. These games are known for allowing players to 'do what they want when they want', by providing a multitude of activities and tasks to pursue whilst not pressuring the player to do any one of them. Because of this high level of choice and freedom to pursue tasks, there are very few players who could claim to have experienced the totality of these games. Indeed, even finding two players that have played through the exact same content would be challenging, if each component can effectively be played at any time with little consequence. Further, these games are hugely popular, and recognised for offering players great experiences. One such example is the release of *The Witcher 3: Wild Hunt* in May 2015. The fantasy open world role-playing game sold 6 million copies in the first 6 weeks of release, and in the first half of the year generated $63.3 million in revenue for the studio[4]. By June of 2019, the number of copies sold had passed 20 million[5].

Therefore, open world games are the ideal candidate to explore player experiences at this intermediate level. Each player has a uniquely individuated

[4]Retrieved from www.gematsu.com/2015/08/witcher-3-sold-six-million-six-weeks on 25/02/2020

[5]Retrieved from www.gamesindustry.biz/articles/2019-06-13-the-witcher-3-has-passed-20m-lifetime-sale on 25/02/2020

experience, even though players have engaged with the same game. This variation in experience between players is higher than most other types of game. Players of the strategy building game *Civilisation* must always start with a settler and build their empire through a series of technology progressions. The Match-3 game *Candy Crush* involves players progressing through a series of levels in the same order, meaning each players' trajectory is comparable. This is not the case in open world games. One player in *Breath of the Wild* could diligently work their way through the main story, completing every side objective they come across. Another player could simply run to the final boss straight after the tutorial. Both players have 'experienced' the game, but are these comparable? How can we conclude anything about the experience of playing *Breath of the Wild* (or indeed any open world game) if each player has such a different experience? Can we be sure there are in fact any commonalities of experience to be found?

The approaches discussed above could not explain these behaviours. The summative experiences such as Immersion could tell us how, overall, players felt about the open world games they play. But players completing entirely separate aspects of the same game could all be immersed — one is immersed in the main story, another is immersed in the world setting, yet another is immersed in the fighting elements. The feature-analysis approach is difficult to apply because each player can come across different content; if some players never complete past a certain point in the main storyline, what is there to learn from analysing these features of the plot, the mechanics, or the player's reaction? The crux of the problem lies in the fact that, although players can be playing the same open world game, there is no guarantee they will come across the same content, and therefore have the same experiences. Because of this, what *is* the experience of playing an open world game? By investigating what about the experience makes a game an 'open world', this may illuminate a way to think about player experiences between games and a specific game.

It is possible that, due to the highly individualised nature of each player's experience, there is no observable commonality. Each player's experience may be so unique as to obscure any sense of overarching theme. Building from this, it is further unclear as to whether there is indeed such a thing as an 'open world' that can be easily identifiable. Players frequently disagree as to what does and does not count as an 'open world' — a notable example of this came with the release of *God of War* in 2018, whereby the game director explicitly

stated he did not intend to make the game an open world[6], but many players argued that to them the game felt like one (such as threads appearing on the *God of War* subreddit[7]). This disagreement is mirrored in the literature field, as there have been disagreements as to what the term means. For example, Sullivan et al. [33] defines open worlds as having a "multitude of options for the player", whereas Tanenbaum [34] defines them as games that "present the player with a toolkit for creating emergent player authored narratives within a simulated world, by creating lots of small interlocking goals spread across a large virtual geography". Other definitions focus on the exploration component, such as Szymanezyk et al. [35] who defines them as involving "the use of large open worlds with a distinct gameplay focus on player exploration and discovery". This lack of clarity within the research field further complicates the understanding of the open world experience, as there is not full agreement as to what the experience truly 'is'.

Therefore, not only are open world games difficult to understand from the current approaches used in the literature, they are also not clearly defined by players or researchers. Because of this, open world games are worth investigating as they may yield contextually relevant information about what it means to play through a specific gaming experience. Tackling this complicated experience may provide insight into how research can understand other specific gaming experiences. If there is a commonality within the open world experience that can be identified, it may then be possible to understand what about it players enjoy, what draws them to it, and why. To achieve this, a new kind of analysis is needed that is 'contextually-specific'. This paper deploys this approach, by asking players to describe and explain what makes the open world experience unique.

3. Pilot Study

Before asking participants directly about open worlds, there was first a need to understand what players might talk about in terms of the experience of open world games. We therefore chose to gather naturalistic data of players talking about open world games, to inform the questions asked in a subsequent interview study (The Main Study). This helps reduce researcher

[6]Retrieved from www.polygon.com/e3/2017/6/23/15860796/ on 25/02/2020

[7]Such as www.reddit.com/r/GodofWar/comments/8f95iv/, retrieved 25/02/2020

bias in the interview questions, as by structuring questions around the concepts observed here there is more chance answers will capture aspects of open worlds not predefined by the researcher.

To achieve this, a pilot study was conducted that used a content analysis technique, to categorise utterances by the frequency of their occurrence in the data. These naturalistic observations were collected from the review site *Metacritic*, whereby the in-built tagging system was used to find 10 games labelled 'open world'. Information about the games selected can be found in the Appendix. From these games, 250 comments were collected that contained the phrase 'open world' (25 for each game), and each comment was split into utterances (e.g. 'large' and 'beautiful' are 2 utterances within one comment, as they provide two separate aspects of the open world). This led to a total of 505 utterances.

The analysis indicated 11 concepts, whereby the 3 largest accounted for more than 50% of utterances. These were: World Content (comments on what is in the world), World Size (how large the world space felt), and Freedom to Explore (how free players were to explore the environment). A summary of all the concepts can be found in the Appendix. The fact these concepts capture more than half of the data indicates they are important to the concept of an open world. Together they suggest players most associate open worlds as (1) having high attention to detail, with many objects existing within the environment, (2) a large environment size, and (3) they are allowed to explore the environment at their own pace (to "do what I want when I want"). These results help to understand what players relate to the open world experience, but not why they are important.

Using these results, it is possible to form questions for the Main Study. This was done by asking participants to elaborate on these identified themes, for example asking if they believed world size was important, and why. Using concepts in this way gave a natural structure to the interview, by providing meaningful prompts for questions.

4. Main Study

4.1. Aim

The aim of this study is to understand what players expect from an open world gaming experience. If the 'open world' experience is an identifiable concept, players should be able to discuss what makes it unique from different

gaming experiences. From this it may be possible to see how open world games are similar to one another, via their shared experience.

4.2. Method

Due to the qualitative nature of the work presented, collecting an adequate sample size was an important consideration. 'Saturation' is a commonly used approach when conducting qualitative studies (Blandford [36]), and is described as a state where data no longer contributes towards the theoretical themes or categories of the study (Charmaz [37]). Data collection continues until responses become repetitive, and the categories under analysis are 'saturated'. In the context of digital games, saturation is often achieved quicker than in real world settings, potentially due to the constrained and artificial nature of games. For example, Brown and Cairns [8] investigated the concept of Immersion in games by interviewing seven participants — this sample, whilst small, elicited rich insights on what players meant by the term 'Immersion', and helped build the foundation of how Immersion can be measured in games (Jennett et al. [38]).

Therefore, the current study collected a sample large enough to reach a level of saturation, which resulted in eleven participants collected via opportunity sampling from [Blinded for review].

Participants were asked to take part if they play/had played open world games in the past, and would be willing to have their voice recorded. They were invited to talk about their experiences in a face-to-face interview, where their audio was recorded for analysis. To begin the interview, players were asked to reflect on what open world games they had played, and what they enjoyed/didn't enjoy about them. This helped participants open up about their experiences and to think about why these features were important to them. Afterwards, players were asked what features they believed were essential for an open world experience, using the codes generated from the pilot study as prompts if needed. Once these features had been questioned and elaborated on, a thought experiment question of "what's a closed world?" was asked, to get participants to think more closely about what they meant by 'open world'. At the end of the interview they were debriefed on the purpose of the study, and given chocolate for their time. Interviews lasted approximately 50 minutes on average, with an average of 5544 words per interview.

To assess how players define the open world experience, a thematic analysis was conducted (Braun and Clarke [39]), by transcribing the voice record-

ings and then analysing them for themes. This involved looking through the transcript and assessing each comment, and coding them based on what players were saying about open worlds. Due to the high volume of complex data, the analysis was done as a series of iterative tagging stages. The first pass involved tagging all the comments with a summary statement of what the participant was saying. Once this had been done for all of the data, it was possible to home in on just the comments talking specifically about the experience of an open world. These summary sentences were then looked at closer, to group them under similar meanings. These sentences typically described how concepts linked together, which was useful to understand the structure of the data, but not useful to describe the themes. Therefore, these sentences were broken back down into codes and a mind map was created of how these codes linked together. If a code only contained one link it was removed from the graph, until only a small group of concepts remained that were highly connected to other concepts. This produced 5 themes that help explain when a game features an open world experience.

These themes were then used to go back through the data to make sure they still captured the essence of what players were saying, to make sure no key features were missed.

4.3. Results

The 5 themes that emerged from the data are as follows:

1. Players are situated to scale within the world
2. The world is large, connected and accessible
3. The main goal does not restrict players from engaging with other activities
4. Content density is more important than world size
5. Players can self-pace gameplay through engaging/disengaging with tasks at will

How these themes relate to each other is shown in Figure 1. To fully understand this figure, detailed descriptions of these themes are explained below. How themes link together is also discussed, where these links highlight what an open world experience is, and how these aspects allow the experience to be created.

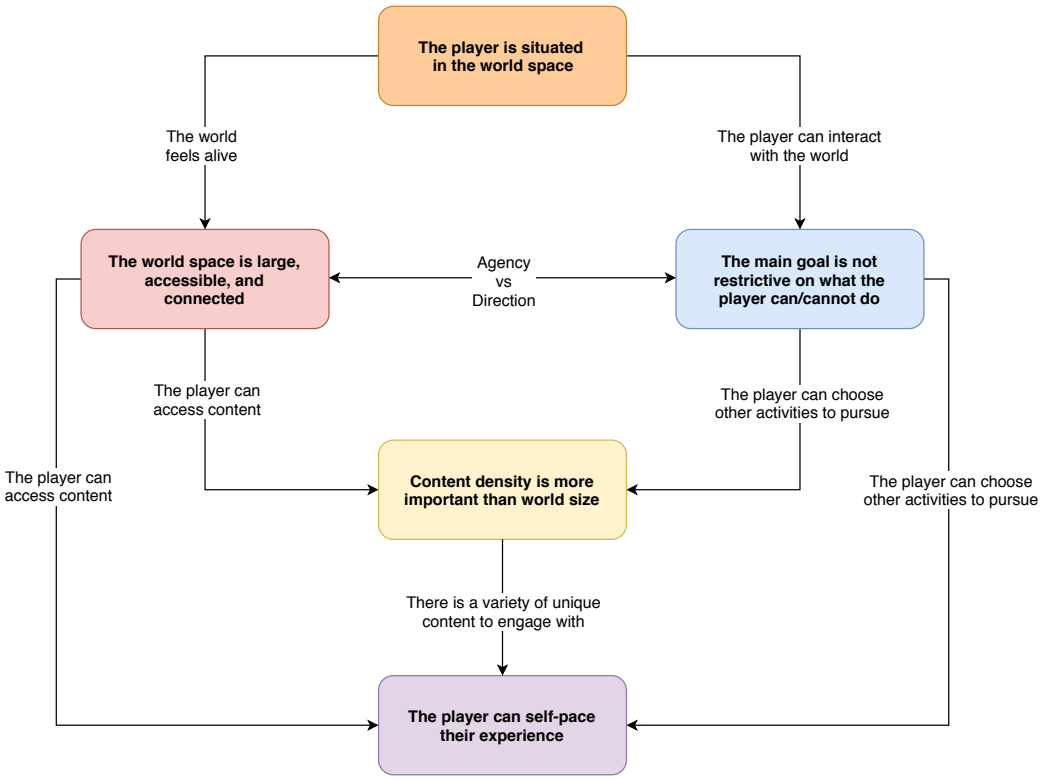

Figure 1: A diagram illustrating how themes relate to each other, with arrows indicating direction of influence.

4.3.1. The Player is Situated in the World

The first theme that relates to the open world experience is that of being situated within the world. That is, the player exists in the world as a character/entity of some sort, where they exist to scale. The player considers the game a world because they exist within it — "when I started playing them I'm like I could play this for hours, I'm having so much fun, I'm in another world right now it's amazing" (P6). In this regard, the focus is on the 'world' aspect of 'open world'. This does not have to refer to a physical world, as the game setting could be in a variety of other places, such as travelling in space.

The importance is in the player feeling as though the world is alive in some regard, and that they are part of it — "you believe that it's a world if you believe that it exists even when you as a player's not there? There's stuff going on. It has to be really dynamic" (P9). Players typically relate

this concept to that of being immersed; "and just the freedom as well to just get lost and immersed in a world like that" (P4). This immersion can be in varying levels of intensity, though the important factor is that the player believes that they exist *within* a space, that they can be situated within a controllable entity and use it to interact with the world. The intensity of this situated feeling can be influenced with how the player is represented in the world. Some players enjoy having a character that they can see and role-play with, as it makes the feeling of presence stronger:

> "Maybe it's more immersive if you are a character? Does that make sense? Versus if you are just a pair of hands, because you're thinking oh this is me playing the game, I need to dig this I need to do that, you're never gunna think, that you're really in there you know. Whereas you know in that game where you're playing a character you take the role." (P2)

Other players expand on this to say they prefer a character because they can use them as a vessel: "I wasn't playing it thinking I'm a female policeman I was playing it thinking I'm me, and I'm just playing this game having a great time [...] if your character doesn't speak your character is just you" (P3). This concept of the player situating themselves into the body of a character is also important as it can enable players to envisage themselves within the world: "I think because it gives you that freedom to play the game how I guess maybe how you would play the game? Like how you would be in real life" (P4). This ability to play as themselves through a character gives them a high level of control over their actions, as players value how unique each character is to them: "with an open world game no two characters are the same. That is like your character you chosen your race you've chosen the weapon system they're gunna choose to use, everything about it is completely your own" (P10).

Overall, in an open world game a player takes the form of a character, which allows them to be situated within the world and enact their will through them. This can either be viewed as controlling a character, or as pretending to be themselves, but the importance is on having this vessel as their viewpoint of the world. Because of this, the game world truly becomes a world, where they exist within its rules.

This ability enables the next two themes; the world space is large and accessible, and the main goal does not restrict the player. This is because

unless the player is situated in the world, they cannot interact with the world (the right arrow from the situated theme on Figure 1). Also, the player can then access the space in a way that feels as though they are a part of the world, that the world is alive (the left arrow from the situated theme). These themes are elaborated below.

4.3.2. The World Space is Large, Accessible, and Connected

The structure of the world is important to the player, and can infer the type of experience the player expects to have. World size for example was mentioned frequently by participants, but whilst stated as important — "I'm playing Assassins Creed Odyssey, which I believe is open world? It's huge" (P11) — this was usually in the context of the experience the player was expecting; "[...] big world means that there's loads to explore, there's loads of new shiny stuff" (P5).

Whilst a large world was considered important — "[...] if it's so small that you can explore for all of about 5 minutes and then you're done, then I wouldn't say that's open world I'd say that's just like, loosely level-based" (P10) — there was a limit to this. A vastly large world was overwhelming; "I've been put off by quite a few games where cause the marketing is all around oh this world is 10 times bigger than any previous ones and it's just like I don't need a world that's 10 times bigger" (P3). Succinctly explained: "size isn't everything. I think I wouldn't want to play a game bigger than Red Dead Redemption 2" (P4).

Instead, players were more likely to comment on how they expected the world space to not contain 'artificial barriers'; "I like quite big, so I'm not going to bump into an invisible wall any time soon" (P7). Barriers are generally viewed negatively, as the player wants the space to be accessible: "[...] there's times in the past where you've been playing an open world game and then you've gone to go to somewhere and there's been like an invisible wall. And you're like oh you've cheated me." (P3)

Overall, the above concepts explain the importance of the world space being connected in some way. How the world is divided up should not be due to a restriction that feels out of place in the context of the world; "[...] if there's an invisible wall or if there's a pile of debris that you just can't climb" (P3). Whilst it may be segmented due to computational costs/design choice, this does not necessarily affect the world feeling 'open' as opposed to 'level-based'. The difference here is that the connectivity between areas does not encroach on the player's ability to access them. In contrast to level-based

games where the player cannot go to level 3 until they have completed 1 and 2, in an open world the player can access each segment at will and in any order they choose:

> "[...] if you could choose which area you're going to, although they had to do it in smaller, basically chunks, if you could [...] direct the storyline in whatever direction you want to go in, I'd say that's still open world. But if you put in a small area and said okay until you finish the storyline in this area you can't leave to the next one or you can't go back to the previous ones, then I'd say that's probably no longer open world." (P10)

That is not to say the game cannot be designed to encourage players to go to sections in a specific order. Designers can set the difficulty to be higher in certain areas as a way to guide players through the expected path. Players do not usually view coming across content higher than their level negatively, as they appreciate the ability to self-decide their level of difficulty:

> "I feel like that's something that gets done too much and something that I think in Fallout worked really well. You go somewhere and there's a level 20 super mutant and he just bashes your head in and you think okay, I'll go north instead and I'll come back when I have a bigger gun" (P9).

Players are happy to come across restrictions in this regard, as they are still given the ability to try if they want to; "there were definite encounters in [Mutant Year Zero: Road to Eden] where I'd spent a long amount of time perfecting how to tackle an encounter that was slightly out of my reach instead of going oh I'll go and do that easy bit instead." (P3). This choice is fundamental to the design of an open world (discussed further in section '4.3.5 The Player can Self-Pace their Experience'), which can only be facilitated if the world space is freely connected.

Overall, an open world contains a game space that is large enough to be explored, connected in a way that is accessible, where the player is not kept from areas (including those higher than their current skill level) by artificial barriers. This leads into the idea that the game enables the player to do what they want within the game space, Theme 3.

4.3.3. The Main Goal Does Not Restrict What the Player Can/Cannot Do

A large factor influencing whether the game is considered restrictive is the structure of the main goal. If the game's narrative encompasses most, if not all, of the gameplay, it is no longer considered an open world; "Closed world? One thing would definitely be I think having a direct storyline which you play start to finish and that's it, there's nothing else to it" (P10). The player expects the open world to offer content outside of the main goal — "There was not much to do outside of sort of the corridor that's created for you" (P9, Knights of the Old Republic) — which enables them to pursue other activities within the game; "I couldn't just in that [game] open a door and go outside, you have to do what the game's telling you to do" (P11, Resident Evil 2).

Participant 5 raises the comparison between a game that contains a main narrative and one that does not:

> "Cause in Minecraft obviously you make all your own goals, there's no pre-defined thing of what you should do, I mean there's kind of achievements but you don't have to do them you can just build stuff. Breath of the Wild kind of similar you can just explore but there's a quest line you can advance if you want".

This highlights that open worlds do not necessarily need a story, but very commonly will contain one. Therefore this theme considers narrative a sub-part of a main goal, which cannot be too restrictive. For example, the main goal of Minecraft could be to survive, or to build, or to get to 'The End', but none of these dictates what the player can and cannot do to enjoy the game.

Overall, the game should offer a main goal, but it should not be all-encompassing of the gameplay, and instead be integrated within it. This integration should also be done in a way that works with the main gameplay, otherwise the overall game experience suffers; "And it felt like there's a story they're trying to tell, and their gameplay is getting in the way of that story" (P3, Red Dead Redemption 2). This limits the player's ability to choose their tasks, as the experience feels disjointed and leads to increased frustration with the game as a whole:

> "The story elements themselves are extremely linear, so you have an open world that is very dynamic and things going on there's random encounters and such. But as soon as you're involved in a

> story mission all that stuff gets locked out and you get led down this narrow storytelling corridor. And I didn't enjoy that." (P9, Red Dead Redemption 2)

Notably, these issues were flagged by participants for Red Dead Redemption 2, as it violated the player's assumptions of how linear the main goal should be: "one thing that I've noticed with Rockstar is like their main missions are very much do this, speak to this person, very like linear [...] and I would agree with that criticism that Red Dead Redemption 2 got was that the main story was just too A B C D E" (P4). Players found it too restrictive, which limited their ability to engage/disengage with tasks at will (discussed later in the theme 'The Player can Self-Pace their Experience').

The same was not true for Witcher 3, for example. Whilst it has a similar game design of a main narrative for players to follow, this was not viewed as restrictive on the player's ability to choose tasks, and so was better integrated into the gameplay: "But the Witcher 3 always felt like you would, you'd go somewhere have a cutscene and that cutscene would be like right off you pop go hunt this monster" (P3). In this example the player, after being given a task, was then free to pursue it or not. However, when talking about the given tasks in Red Dead Redemption 2: "They're all sitting there, you can go to one of them but then you have to follow it to the end, you can't stop halfway through" (P9). As this restricts the player's ability to do what they like, it violates the assumption the player expected from the open world, highlighting its importance to the experience.

Overall, an open world game has a main goal that, whilst engaging, does not restrict the player from pursuing other activities; "I think with kind of more linear games you're clearly funnelled down a path, so when I think of Call of Duty it's like, mission mission mission, you're doing the same thing every time. But with open world games you've got all that freedom" (P3). The choice between these two modes of gameplay should be equally engaging to the player: "It's either playability or story, but I wouldn't, I couldn't say which is more important. Both" (P2).

Referring back to Figure 1, the double-headed arrow between this theme and 'The World Space is Large, Accessible, and Connected' implies an equal combination of both is needed to enable the further themes. The open world exists in a state of tension between these two aspects, in that if they became unequally present then the game is no longer an open world. For example, a too encompassing goal would restrict the player from engaging with anything

else, whereas a world space disconnected and small would not allow players the ability to move freely in a direction of their choosing. Too little goal risks devoiding the game of meaning and purpose, whilst a too large world space risks feeling sparse and tedious to travel across. Put another way, if either of these are out of balance then the freedom of the player is restricted and the game can lose meaning, either of which results in the experience no longer being classed as an open world.

4.3.4. Content Density is More Important than World Size

For open worlds, it is important that the game offers content that can be interacted with. This is because without an element of interactivity, the content is nothing more than scenery; "a computer game is interactive entertainment at the end of the day [...] as much as you want the bells and the whistles of you know smooth textures and no loading times I think the interactive elements are the most important. Those things that you can do and control" (P2). Interaction in open worlds can take many forms, for example physically interacting with objects (P7 contrasted interactivity in Dark Souls vs Red Dead Redemption 2: "there's lots of things in the world that you can see but you can't interact with them, so you can't like ride a horse or whatever you can kill it, you can't like row a boat and smack it"). Another example is the range of activities available to the player; "you encounter loads of different things then you get loads of new techniques so recently I just learnt how to do fishing so now I have to do this twirly thing and then there's like oh now I can do climbing and now I can swim and can row boats" (P6).

Overall, players enjoy the ability to take the world content and use it in creative ways, which they are free to do as they please: "the cool thing was like I say the systems and all the different toys that you got to play with, and all the mechanics of how that interacted with the guards" (P1, Metal Gear Solid 5). Players want to engage with content in an open world, which requires there to be a high volume of content present to do so. If there is too little content, the player feels as if their gameplay (notably their ability to explore) is meaningless; "I mean you can have a very very large map but what's the point in a really large map if there's nothing to do?" (P4). On the other hand, a game with too much content restricts the freedom of the player to move and choose between tasks; "equally don't want it to be cramped really, if it's sort of big and cramped then it feels like they're trying to force too much onto you, you can't have your own space" (P7).

As well as the volume of content available to players, the variation within this also seems important. Whilst the content should provide enjoyment to the player, the tasks pursued do not always have to be part of any main goal: "when I think of open world games I think of GTA V, you can literally just get in a car and ride in a circle, or drive, and not even be aware of the story. And it doesn't impact you at all, where you go, you know what you do. So, you know you completely free from any structure or, if you choose to be" (P2).

However, pursued tasks should still be meaningful within the world setting, otherwise the player feels like their time is wasted, typically referred to as 'filler content'. This highlights that more content is not always better for the gameplay experience: "I think nowadays a lot of them are filled with filler content? So kind of stuff to pick up or all the missions are spread out just so it can artificially lengthen the game. So you feel like you're almost doing busywork? And you're ticking off a list of chores rather than playing a game" (P3). This seems to be because the extra content is devoid of meaning: "It's just padding. Like some of these games would have been better off being a lot more tight, because the stuff you're free to do is irrelevant in the sense that they're like challenges, go kill 10 bears or whatever so you can prove that you're a good hunter, but that doesn't tell a story you don't learn anything about the world or the universe or the characters" (P9). Players want to be able to deviate from the main goal to achieve other tasks, but these tasks cannot be seen as pointless in a narrative sense.

Furthermore, the player wants not only activities to do, but activities that are sufficiently variable in form and goal. Repetitive activities are viewed negatively as they are seen as meaningless: "One of the things that put me off like Assassin's Creed and the Fallout series is there were just all the same. The side quests, it was go speak to this person and then go kill this monster or go assassinate this person" (P4). Without meaning, the tasks are seen as boring and are likely to be disengaged from: "And it was just kind of tedious just like now I have to go over to this place and have to go to this place and find the portal and close it and it's just like well, I just wanna finish the end of the story now" (P1, Oblivion). When the tasks outside the main narrative are not repetitive and are grounded in narrative meaning, they bring enjoyment to the player: "all of that felt like you were achieving stuff, and it felt like you were actually exploring something real and you were finding stuff out that was useful rather than just repeating the same stuff over and over again" (P11, God of War).

Overall, this suggests that filler content is not appreciated by players because it lacks meaning, in both narrative and gameplay value, and so they do not engage with it. They do not find it fun, which is their goal from playing in the first place: "There's a real element of no fun, and I think that's a big problem with any of these games where you're going from A to B and collecting feathers that if that action of collecting the feathers isn't fun you're not gunna want to collect them" (P3).

The above concepts highlight the importance of content density within the game space. A high volume of variable, unique content within the world is more important than just the size, though both are needed for an open world experience to be meaningful; "If it's too sparse then you spend all of your time running around, it becomes walking simulator. But if it's too dense then you'd never get around to actually exploring it" (P5). When both are present this is also seen as more enjoyable:

> "If you've got a map that is full of stuff it feels way better than a giant map where the stuff is, or even if it has the same map stuff but it's spread out. So I don't know big Far Cry 5 is in comparison to Far Cry 4, but Far Cry 5 felt better it felt like the map was richer there was more going on, there was a lot less kind of open spaces and pointless travelling around" (P3).

Players would therefore prefer the space to be used efficiently, in that smaller but highly dense spaces are more engaging: "I think making the map physically bigger is either gunna spread out the stuff so it takes longer for you to get there or they're gunna have to spend a lot more time designing new stuff" (P11). This is because, as Participant 9 sums up: "the journey is as important as the goal, if not more important."

In summary, if there is no content between goals and tasks, the world is seen as pointlessly large, which negatively affects enjoyment. The game does not necessarily need this theme to provide an open world experience, but if it is lacking players are more likely to consider the game 'empty' and less enjoyable. This is why Figure 1 has a pathway through this theme, but can also go around it to access the final theme. Content density as a theme is enabled because the player can access the content freely outside of the main goal, which is only achieved by an equal balance of themes 2 and 3. If the world offers a high volume of unique content in a relatively dense area, and the player is able to move without restriction across the space, the player is

then able to select for themselves what to engage with. This relates to the final theme, explained below.

4.3.5. The Player can Self-Pace their Experience

In an open world game, the player expects to engage and disengage with any task they are currently pursuing, at will and without restriction; "you can choose which bits you like which bits you don't, and you don't have to follow the main storyline if you don't want to" (P10, Skyrim). This is usually done either to avoid boredom or to continue engagement with the game, instead of having to put it down: "I don't have to follow particular storyline if I'm not interested in it, or if it's too difficult at some point then can just wander off and do my own thing." (P7).

This highlights that just because a player is struggling with a certain aspect of an open world game, this does not mean they can no longer enjoy playing, as they can find something else to engage with:

> "If I get stuck I can still enjoy it and continue playing it. Yeah so like say on the Witcher 3 for example I got to a boss where I just couldn't beat it, I'd probably just go off and do random side quests and stuff and it wouldn't necessarily piss me off that much. Whereas if that was the only action that I could do is to get through that boss fight then I would get really annoyed with it after a while" (P8).

Building on the theme 'The Main Goal Does Not Restrict What the Player Can/Cannot Do, players specifically enjoy being able to do tasks outside of the main goal: "I think freedom is a really big part of it so freedom of not having to do the main story quest. Not even having to do side quests if you just wanna go around on your horse and just kill monsters and stuff" (P4). This is because participants frequently talked about being able to do 'whatever they want', usually referring to choosing whatever tasks seem enjoyable at the time, without the game imposing on this choice: "it gave you this option of, okay sure you can go to the missions or you can poodle around Afghanistan and find some like army base and infiltrate it and see what you find" (P1). By giving the player the choice of activity, the play can self-pace their enjoyment: "you can do the missions when you want to do them or they happen whenever they do like you're not forced to do them if you don't want to" (P7).

This freedom allows the player to choose between the main goal and other activities, allowing each player a flexible experience depending on what they want in any one gaming session. By extension, the player also has the ability to self-pace the intensity of the activity they are engaged with. Examples of this include if the current task is too difficult, the current task is too emotionally impactful, or the narrative pacing or game progression feels too rushed. Instead of needing to leave the game to modulate this, they can choose to pursue a different task within the game that is less intense:

> "And you get more and more frustrated if you can't beat them so it's like oh I don't really wanna play the game until I'm, cause all you're doing is that one objective and the game becomes just reduced to that [...] So I think that's why they'd probably be easier to put down, for games that aren't open. [...] Whereas if you can't get past it on Assassins Creed, I can't solve a riddle and that's fine I can just go and stab someone or I can go do a mystery thing instead or I can wander around and unlock a new eagle vision part of Paris and explore and stuff" (P6).

The intensity of the activity is therefore controlled by the player instead of the game, frequently manifesting as controlling the narrative pacing; "I don't like to play through games very quickly, I like to take my time, which is why I like open world games so much is that, if I feel myself going too quickly in the main storyline I can go off and get a fish or something" (P7). This may also refer to the wider context of pacing the progression of the game as a whole; "I took my time getting through it all because I never knew when to progress because I never knew if I'd learned everything I'd wanted to learn in a certain area before I moved on" (P9).

The execution of narrative pacing is sometimes viewed negatively in open world games, as the freedom given to the player makes it harder to control the delivery of content. For example, Participant 3 talks about how the narrative pacing of Red Dead Redemption 2 felt jarring:

> "There's a really emotionally bit where someone dies, that's quickly followed by a follow up to that, and then I can go and ride off up a mountain and then I can come back 6 months later and everyone would be like oh it's a real shame when this person died and I'm like who's, who is this? Oh I remember they're dead and we're all very touched and sad about it."

Whilst this may logically seem to lead to a negative gaming experience, it does not in fact appear to be game-breaking. It is more jarring for the player if the pacing is inappropriate and out of *their* control, as Participant 3 went on to explain further: "I can cope more with that cause I know that's my fault rather than if the game is just paced poorly, or there's games that I've played where there's just been a random difficulty spike out of nowhere and you've been like the hell is this? How has anyone supposed to have enjoyed this? How is anyone supposed to know that was meant to happen?".

Therefore, whilst players are aware of the difficulty in sustaining narrative pacing in open world games, they are forgiving towards this as they appreciate the ability to choose game elements more. This adds to the concept that in open worlds player enjoy being in control, despite the negative outcomes this can bring.

Overall, open worlds allow players to both choose which tasks to pursue, as well as self-pace the intensity of these activities. If a task feels too much for whatever reason (be it difficulty, emotionality, progression of the game) the player can choose to disengage from it and pursue something else, without leaving the game.

In order to self-pace their experience then, the player must have tasks available to be pursued. Participants talked about a variety of tasks they enjoyed in open worlds, with one of the most common being the ability to explore the world in a non-restrictive way. This was seen as an important aspect of the game design: "I think when you take the exploration factor out of it when you can't explore, that's when it becomes a closed world game" (P10). Furthermore, engaging in this behaviour brings enjoyment: "you can roam around freely and, part of the fun is supposed to be exploring that environment" (P1). The game is designed in such a way that the agency over exploration is given to the player instead of feeling controlled by the game:

> "closed world could be there is the desire from the player to go further but the game doesn't allow it. Whereas open world is the game allows you to go as far as you want, and it's up to the player how much they explore it [...] So the closed world is restricted by the game, open world is restricted by what the player wants to do" (P8).

The player wants to engage with the world content alongside the main goal, so the content has to capture their attention which is already divided

between pursuing the main goal and exploring: "if you're playing a game just to play it for the story it might be pointless having the rest of the world. But I suppose that's the thing isn't it that appeals to some people is that you've got the option to explore it if it's there" (P8). This can be done by either increasing the attractiveness of the world, or scaling down the interest of the main goal: "you want to go exploring if the world looks like it's worth exploring, or if there's nothing in the main game to make you wanna play that main game" (P3).

This highlights another tension that exists in open world games — the main goal should be interesting enough that the player believes that being in the game is worthwhile, but also that the world is interesting enough to explore and find new content to engage with — "you need a story that is obviously intriguing, but on the other hand not too much in your face? Again I found when I'm thinking about Fallout games there's a story and you're kind of interested but there's so much other stuff that is equally interesting. So you can wander off and find stuff that's interesting" (P9).

Overall, players expect an open world game to facilitate an ability to choose which tasks to pursue at any time, without feeling restricted in their choice. This usually includes the ability to explore outside of the main goal, as this enables the player to find content to engage with. As this behaviour can only be enabled from the presence of Themes 1, 2 and 3, this can be considered the 'main' aspect of the open world experience. That is not to say the other themes are not important, as without them this final theme cannot occur. This is denoted by the fact this theme is at the end of the arrows in Figure 1, as the ability to self-pace sits atop the two concepts of world size and unrestrictive main goal. Both must be true in order for self-pacing to be enabled, as the player requires both the freedom from the goal and the freedom to move across the world space at will. If these are out of balance then so is the level of self-pacing.

5. Discussion

Overall, this work has sought to understand gaming experiences as a contained, contextually-sensitive entity. This was done by asking players to describe a specific experience, and exploring why each feature is important to the overall experience. The 'contextual experience' approach explored in this paper has been demonstrated by applying it to understanding open world games. This is because open worlds are a complex and ill-defined

type of game, where players can have highly unique experiences. By asking players what they believe is important about the experience, key features have emerged that help identify and explain it.

The thematic analysis conducted in this study shows that 5 themes are important to the open world experience, which combine to give the overarching experience of playing an open world. Figure 1 (located in the Results section) explains how these themes relate to each other; for example, following the left-most line, the following statement is revealed: because the player is situated in the world, the world feels alive. If the world is also large and accessible, then the player can access the content of the game. Because of this, the player can self-pace their experience. Therefore, the open world experience is unique in how it provides freedom to players.

Each theme contributes to the experience in important ways, whereby a lack of any one theme would be detrimental to the experience. Some themes exist in tension within itself and between others, as they represent conflicting goals within the player. Inner-theme conflicts could for example be the world has to be large enough to invite exploration (but not too large as to be repetitive, sparse or overwhelming), and the main goal has to be engaging (but not all-encompassing of all activities available). Tension between themes mostly exists as a representation of the player's need for both meaning and agency. The player wishes to have a meaningful play experience (which is aided by the presence of a main goal), but players also wish to choose for themselves what to engage with, as they value this sense of control.

These tensions are not something that should aimed to be solved, as they are in fact the crux of the experience. The structure of the themes identified is that they are additive — the underlying themes support the existence of the final theme, the ability to self-pace. To use a real-world example, this structure is similar metaphorically to that of the suspension bridge. The bridge remains stable due to a mixture of components and forces at play, where all are necessary for the bridge to remain intact. Any imbalance of forces present would destabilise the bridge, in the same way too much or too little of any theme in the open world would risk disrupting the experience. This helps demonstrate why the tension is crucial to the experience; without these opposing forces, the bridge collapses, and the experience is no longer an open world.

5.1. Similarity to Other Work

This work has demonstrated how a gaming experience can be investigated from the perspective of players, in a way that extends our understanding of specific instances of experiences. Overall, the current findings are still in line with the summative experiences studied previously, though this approach provides a higher fidelity as to why in this particular context. For example, players were found to enjoy the immersive elements of open world games, a finding that replicates multiple previous studies (such as Cairns et al. [4]). What this work also shows is *why* certain aspects are immersive within the context of open world games — players, by being situated in the game world, can enact a will on the world, and so feel as if they are really 'there'. This shows that immersion (in the sense of transportation) is a key feature of open world games, with suggestions as to why.

Another example of extending the current understanding of experience is the findings around Challenge. Players enjoyed being challenged in open world games, but with a few notable caveats — typically they enjoy the challenge as long as *they* are the ones in control of the level and intensity. This highlights that players do want some level of challenge, but whether it is 'key' to the enjoyment (as argued by Vorderer et al. [9]) is questionable in this context. It perhaps makes more sense to consider challenge in open world games as another element that players wish to control, and not something they experience passively. This could be related to the concept of flow (Abuhamdeh et al. [17]), as players wish to stay within the flow state by dynamically adjusting the challenge to fit their competence and current level of interest in being challenged. From this it is possible that the flow state has a few extra requirements for open world games — the player's skill may not be the only factor, as a player could be highly skilful but in any one game session may not wish to be challenged. Perhaps instead they wish to feel overly powerful and win 'easily', an ability available to them due to the open world experience that allows them to choose tasks they feel challenged by or not.

Players therefore value the ability to control the challenge and how they interact with it, raising an interesting argument for the field of dynamic difficulty adjustment. Typically the field has sought to create artificial intelligence techniques that keep players within the flow state, via changing the challenge of the game by assessing a player's current skill level (e.g. Hunicke and Chapman [40], Hunicke [41]). By doing so, the hope is to keep players in a flow state more effectively, and so increase their enjoyment. However,

if open world game players are able to choose the activities for themselves, they themselves are already a dynamic difficulty system. They are free to choose activities to engage with, and with that comes the ability to select the challenge of a given activity. They may wish to be challenged by the story and avoid combat challenge, or vice versa, or wish for no challenge and want to simply exist within the game. Gaming sessions are unique to each player, and with that comes the unique level of challenge players may seek, regardless of their skill level. With these preferences in mind, the need to create artificial systems to perform the task of adjusting challenge is perhaps less imperative. Indeed, players enjoy feeling in control of the open world experience, and so a system that takes any aspect of the game out of their hands may in fact be viewed negatively. This is an interesting area of research that could be pursued in further work.

In terms of uncertainty, the only references to this concept came from some players feeling overwhelmed, usually to do with the vastness of open worlds. Because the world offers so much to do and so many places to go, players could feel uncertain as to what they wanted to do at all. This relates to the decision uncertainty discussed in the taxonomy by Kumari et al. [16]. Overall though these comments were not frequently made by participants, as most players could decide fairly easily what sort of activities they wanted to engage with. What affects the uncertainty in the context of navigating a large open world space is therefore another interesting line for future research.

Due to the specificity of the feature approach, it is difficult to truly compare findings from this study. However, this research has found similar trends to the work of Adinolf and Türkay [42] on online card games. Although all the open world games mentioned by players clustered around the same themes, there was still a large amount of variance left between games. For example, the concept of content density shows that some open world experiences can be perceived as more enjoyable than others, depending on what the player is seeking from the experience and how the game is designed. However, the aim of the current study was to look for similarities between experiences rather than attempting to find differences between similar games. Because of this, a deeper understanding of why these games are perceived as similar has been found, which strengthens the claim that an 'open world' can indeed be an experience.

Overall, the current work has found many similarities to the summative experiences discussed in previous literature, as well as similar trends to studies focusing on specific instances of experiences. Using this 'contextually-

specific' approach has allowed an understanding of the similarities between games in this area, as well as how players perceive them to be similar. The presence of new and unique concepts that apply to the open world experience supports the need for more research on this type of experience, as well as a need to treat more gaming experiences as unique entities with their own specific variables. Future work could also use these findings to better understand what sort of players are most likely to enjoy the open world experience, such as making predictions about what types of motivation players may have. This will help aid the player motivation literature to make more precise predictions centred around specific types of games, rather than remaining at the broad summative level typically used currently. Other work could also look into how players are expected to behave in these games, for example to see if players are seeking specific aspects of the experience moreso than others.

5.2. Limitations

The work undertaken involves a thematic analysis, a technique meant to gain deep insights from participants to understand why they enjoy and engage in certain activities. The interviews provided a large volume of data per player (60985 total words, with an average of 5544 per interview), requiring a time-intensive analysis. Because of this, it is unfeasible to gain a large volume of participants. Whilst a meaningful collection of themes has been generated from this sample, it is possible these themes do not cover the views of open world game players more broadly, limiting the generalisability of the findings. To test the proposed themes' validity, a larger sample would be needed with a different style of analysis. For example, a survey could ask players to rate how important they feel these themes are to open world games. This would help to understand if the sample are unique due to the opportunistic nature of the recruitment process, or more representative of players at large.

Another limitation is that participants were heavily skewed in mentioning open worlds that are also role-playing games. There are different examples of open worlds, such as *Minecraft*, that have no real role-playing elements, and also online games where there are added social factors. As these were not truly represented in the data, it is difficult to know if these themes fully map onto open world games as a whole. Further research could attempt to apply these themes to more examples of open world games to see if they hold.

6. Conclusion

As the field of player experience is beginning to mature, there is a need to be more specific about what we mean by a 'gaming experience'. The summative approaches have gained insight into what games can offer players, and why people may be drawn to them, but have so far treated games as undifferentiated wholes. Analysing the features of games is difficult to apply out of the context in which they are originally found, making this approach also unfeasible. To understand what games offer players in terms of experience, there is a need to use a contextually-specific approach that accounts for how features interact together, and how players perceive these interactions. An ideal use-case for this approach is open world games, due to their complexity in both gameplay and definition. Because players have such a large amount of freedom to choose activities, no two players will experience the same game in the same way. Furthermore, there is no consensus for what the term 'open world' objectively means, making it an interesting and under-explored type of gaming experience. In this study, a thematic analysis was run on eleven players of open world games, to assess what is an open world, what defines the experience, and why. This led to the following 5 concepts, that interlock together to enable the final theme; (1) players are situated to scale within the world, (2) the world is large, connected and accessible, (3) the main goal does not restrict players from engaging with other activities, (4) content density is more important than world size, and (5) players can self-pace gameplay through engaging/disengaging with tasks at will. The fourth concept of content density is not essential to the experience, but can help provide a higher level of enjoyment. These themes exist in a state of tension, whereby each is necessary and must be in careful balance. The open world experience therefore reflects the conflicting goals of players, to seek meaning and structure from their play, but to also have control over their actions. Understanding this experience helps explains how players can have varied experiences of the same type of games, whilst still having an overarching experience that can be identified. Research in the field of player experience may now use this approach to understand other gaming experiences, and why players may seek these out.

7. Acknowledgements and Funding Source

[Blinded for review]

References

[1] M. B. Oliver, N. D. Bowman, J. K. Woolley, R. Rogers, B. I. Sherrick, M.-Y. Chung, Video games as meaningful entertainment experiences., Psychology of Popular Media Culture 5 (2016) 390.

[2] M. Pasch, N. Bianchi-Berthouze, B. van Dijk, A. Nijholt, Movement-based sports video games: Investigating motivation and gaming experience, Entertainment Computing 1 (2009) 49–61.

[3] G. Christou, The interplay between immersion and appeal in video games, Computers in human behavior 32 (2014) 92–100.

[4] P. Cairns, A. Cox, A. I. Nordin, Immersion in digital games: review of gaming experience research, Handbook of digital games 1 (2014) 767.

[5] T. Sanders, P. Cairns, Time perception, immersion and music in videogames, in: Proceedings of the 24th BCS interaction specialist group conference, British Computer Society, 2010, pp. 160–167.

[6] J. Zhang, X. Fu, The influence of background music of video games on immersion, Journal of Psychology & Psychotherapy 5 (2015) 1.

[7] A. Denisova, P. Cairns, First person vs. third person perspective in digital games: do player preferences affect immersion?, in: Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems, ACM, 2015, pp. 145–148.

[8] E. Brown, P. Cairns, A grounded investigation of game immersion, in: CHI'04 extended abstracts on Human factors in computing systems, ACM, 2004, pp. 1297–1300.

[9] P. Vorderer, T. Hartmann, C. Klimmt, Explaining the enjoyment of playing video games: the role of competition, in: Proceedings of the second international conference on Entertainment computing, Carnegie Mellon University, 2003, pp. 1–9.

[10] T. Cole, P. Cairns, M. Gillies, Emotional and functional challenge in core and avant-garde games, in: Proceedings of the 2015 Annual Symposium on Computer-Human Interaction in Play, ACM, 2015, pp. 121–126.

[11] J. A. Bopp, K. Opwis, E. D. Mekler, "an odd kind of pleasure": Differentiating emotional challenge in digital games, in: Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems, ACM, 2018, p. 41.

[12] S. Abuhamdeh, M. Csikszentmihalyi, The importance of challenge for the enjoyment of intrinsically motivated, goal-directed activities, Personality and Social Psychology Bulletin 38 (2012) 317–330.

[13] A. Cox, P. Cairns, P. Shah, M. Carroll, Not doing but thinking: the role of challenge in the gaming experience, in: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems, ACM, 2012, pp. 79–88.

[14] M. Czikszentmihalyi, Flow: The psychology of optimal experience, New York: Harper & Row, 1990.

[15] G. Costikyan, Uncertainty in games, Mit Press, 2013.

[16] S. Kumari, C. S. Deterding, J. Freeman, The role of uncertainty in moment-to-moment player motivation: A grounded theory, in: CHI PLAY'19, ACM, 2019, pp. 351–363.

[17] S. Abuhamdeh, M. Csikszentmihalyi, B. Jalal, Enjoying the possibility of defeat: Outcome uncertainty, suspense, and intrinsic motivation, Motivation and Emotion 39 (2015) 1–10.

[18] V. Nell, Lost in a book: The psychology of reading for pleasure., Yale University Press, 1988.

[19] N. Ducheneaut, N. Yee, E. Nickell, R. J. Moore, Building an mmo with mass appeal: A look at gameplay in world of warcraft, Games and Culture 1 (2006) 281–317.

[20] T. Pace, S. Bardzell, J. Bardzell, The rogue in the lovely black dress: intimacy in world of warcraft, in: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems, ACM, 2010, pp. 233–242.

[21] G. Christou, Exploring player perceptions that contribute to the appeal of world of warcraft, in: Proceedings of the 4th International Conference on Fun and Games, ACM, 2012, pp. 105–108.

[22] I. J. Livingston, C. Gutwin, R. L. Mandryk, M. Birk, How players value their characters in world of warcraft, in: Proceedings of the 17th ACM conference on Computer supported cooperative work & social computing, ACM, 2014, pp. 1333–1343.

[23] M. Mora-Cantallops, M.-Á. Sicilia, Exploring player experience in ranked league of legends, Behaviour & Information Technology 37 (2018) 1224–1236.

[24] S. Rigby, R. Ryan, The player experience of need satisfaction (pens) model, Immersyve Inc (2007) 1–22.

[25] A. Tyack, P. Wyeth, D. Johnson, The appeal of moba games: What makes people start, stay, and stop, in: Proceedings of the 2016 Annual Symposium on Computer-Human Interaction in Play, ACM, 2016, pp. 313–325.

[26] B. Bostan, M. İ. Berkman, Explorations in game experience: A case study of 'horizon zero dawn', Proceedings of the Eurasia Graphics 2017, Istanbul, Turkey, November 4-5. (2017).

[27] D. Clearwater, What defines video game genre? thinking about genre study after the great divide, Loading... 5 (2011).

[28] H. Cole, M. D. Griffiths, Social interactions in massively multiplayer online role-playing gamers, Cyberpsychology & behavior 10 (2007) 575–583.

[29] K. T.-T. Chang, A. T.-T. Koh, B. Y.-Y. Low, D. J. S. Onghanseng, K. Tanoto, T. S. T. Thuong, Why i love this online game: The mmorpg stickiness factor, ICIS 2008 Proceedings (2008) 88.

[30] L. Suárez, C. Thio, S. Singh, Why people play massively multiplayer online games?, International Journal of e-Education, e-Business, e-Management and e-Learning 3 (2013) 7.

[31] V. H.-h. Chen, H. B.-L. Duh, Understanding social interaction in world of warcraft, in: Proceedings of the international conference on Advances in computer entertainment technology, ACM, 2007, pp. 21–24.

[32] S. Kumari, C. Power, P. Cairns, Investigating uncertainty in digital games and its impact on player immersion, in: Extended abstracts publication of the annual symposium on computer-human interaction in play, 2017, pp. 503–509.

[33] A. Sullivan, M. Mateas, N. Wardrip-Fruin, Making quests playable: Choices, crpgs, and the grail framework, Leonardo Electronic Almanac 17 (2012).

[34] J. Tanenbaum, How i learned to stop worrying and love the gamer: Reframing subversive play in story-based games., in: DiGRA Conference, 2013.

[35] O. Szymanezyk, P. Dickinson, T. Duckett, et al., From individual characters to large crowds: augmenting the believability of open-world games through exploring social emotion in pedestrian groups, DiGRA (2011).

[36] A. Blandford, Semi-structured qualitative studies, Interaction Design Foundation, 2013.

[37] K. Charmaz, Constructing grounded theory: A practical guide through qualitative analysis, sage, 2006.

[38] C. Jennett, A. L. Cox, P. Cairns, S. Dhoparee, A. Epps, T. Tijs, A. Walton, Measuring and defining the experience of immersion in games, International journal of human-computer studies 66 (2008) 641–661.

[39] V. Braun, V. Clarke, Using thematic analysis in psychology, Qualitative research in psychology 3 (2006) 77–101.

[40] R. Hunicke, V. Chapman, Ai for dynamic difficulty adjustment in games, Association for the Advancement of Artificial Intelligence (AAAI) (2004) 2–5.

[41] R. Hunicke, The case for dynamic difficulty adjustment in games, in: Proceedings of the 2005 ACM SIGCHI International Conference on Advances in computer entertainment technology, ACM, 2005, pp. 429–433.

[42] S. Adinolf, S. Türkay, Differences in player experiences of need satisfaction across four games, Proceedings of DiGRA 2019 (2019).