Reintroducing Time in Games: Defining Urgency as a Motivator for Action

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Abstract

This report investigates time in games and game narratives with a focus on establishing the concept of *urgency* as a core motivator for why and when players choose the actions they do. To this end, a model for describing the 'agency/urgency loops' that players experience while playing games in order to make decisions was made, based on a series of expert interviews. This was followed by a between-groups case study, evaluating the concept of urgency through a novel scale for measurement, the *Urgency Player Motivation Scale* (UPMS), demonstrating the adverse effects of issues that arise because of urgency (or lack thereof) in many critically acclaimed commercial games. Analysis of the results showed significant results ($p < 0.05$) between evaluated games, showing promise for the ability to evaluate urgency through the use of the UPMS. Furthermore, a novel implementation featuring a proposed solution to urgency issues was developed, and preliminary results from a small study, based on interviews, showed similar promise for the future of the solution, and in general, for the possibility of thinking urgency into the design of game narratives, for more emotionally engaging narrative experiences.

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Contents

List of Figures

List of Tables

Chapter 1

Introduction

Conflict is often regarded as the heart of drama (Szilas et al., 2018), it is used in narrative media to evoke emotions and interest in those that experience them. In film the director is in complete control of these aspects, they use pacing to retain the suspense and tension of conflicts to keep viewers engaged to great effect (Bizzocchi, 2007). In fact, pacing and retention of conflict is something film does phenomenally well, and as nothing irrelevant to furthering the plot is usually included in films, pacing is epitome for the format; everything has- and needs purpose to support a condensed experience that blows an audience away in the span of a few hours.

In games, however, the idea of pacing becomes more vague, since plot and how it is told is often only part of the experience. Games afford an abundance of additional content, be it combat, exploration, narrative branching, side quests, radiant activities, etc. The list is long and seemingly ever growing depending on the particular genre. While storytelling is not too prominent in mechanically simple and/or "narrative-light" games like *Solitaire* or *Counter-Strike* (Valve Corporation, 2000-2012), increasing the scope of game worlds as well as player affordances is usually accompanied by an increase in narrativity. This can be seen in popular single-player titles like *The Elder Scrolls V: Skyrim* (Bethesda Softworks, 2011) and *Red Dead Redemption 2* (Rockstar Studios, 2018), as there is seemingly no end to the list of activities players can partake in, while the overarching narratives in games like these range from deeply personal tales about love, vengeance, redemption, or forgiveness, to large-scale epics where the fate of the world is in the hands of the player.

Herein lies a known problem: Giving the player more freedom often negatively affects the control and impact that authors of the narratives in these games can have (Aylett, 2000). In a film it would be impossible for the protagonist to suddenly spend several hours chopping down trees, in games this is simply an affordance given to the player to make their experience more reminiscent of the real world; it might even be part of an elaborate economic- or crafting system within the core of the game. Such a conundrum is why a good portion of suspension of disbelief and separation of ludus and paidia, as described by Caillois (1961), is necessary to accept the base premise of some game narratives. Game narratives often reflect the ubiquitous "Hero's Journey", but here nothing really creates more dissonance than being tasked with saving the world from certain doom and spending hundreds of hours hunting

and scavenging for ingredients because you happened to meet some old lady on your path who wanted to have a bakesale in the local village.

While the problem highlighted here would make for a terribly paced narrative in traditional media, traditional narratology cannot be applied to games and the stories they convey (Koenitz, 2014) - and while the dissonance of e.g. completing menial tasks during the apocalypse can be felt in games as well, steps can be taken to work around this issue. Previously, the problem has, to a large degree, been explored within the context of environmental storytelling (Jenkins, 2002); research in this area has focused on *how* we tell stories and the *structures* used to do so. Problems related to approaching interactive narratives as traditional narrative structures has become even more apparent with the current "revolution" against the "Hero's Journey" (Koenitz et al., 2018), and its exploration of alternative narrative models. However, while alternative models of narrative definitely have their place, they do not solve the intrinsic problems of the "Hero's Journey" or pacing in general.

As stated, one of the problems can be interpreted as a disharmony between authored narrative and storyworld. Design focus seems to have largely been on creating better narratives and storyworlds, but in isolation of each other. And while it is true that truly good versions of either can stand alone, it is a shame that integrating them with each other to create a more harmonious, dynamic relationship between them remains largely unexplored. The ultimate solution to the narrative paradox would be an artefact allowing interactors every affordance possible, as in Janet Murray's *Holodeck*(Murray, 1997), while expecting, or rather "directing", how they interact with it. However, it is infeasible to do - as it introduces the problem of *combinatorial explosion*(Schell, 2014). The idea of directing players' attention and how they play is definitely not a new concept and has been explored extensively (Figueiredo & Paiva, 2010). Nonetheless, what has not been explored is what happens, or rather should happen, when players are allowed to diverge from the intended route.

To this end, we introduce the concept of "Urgency" in narratives. While "Agency" is the *potential* to act in narratives (Wardrip-Fruin et al., 2009), urgency would become the *need* to. What film and cinema does so well in terms of concentrated, balanced storytelling is almost entirely lost on the IDN-(Interactive Digital Narrative) and games medium if the interactor has too much freedom. But perhaps what lies at the core of this problem is not the lack of author control and influence in these media, but the ever vanishing concept of *time*, and the inherent effects it could have on storyworlds and narratives, if players were to do activities disharmonious to what is intended as the ideal narrative path.

Temporal aspects of interactive- and game narratives are almost entirely inconsequential in certain, especially narrative-driven, genres. Narratives are almost entirely dependent, and increasingly so, on spatial aspects; it could even be argued that almost all narratives in these media progress isolated from unified temporal aspects, and really only exist in pockets of their own void. As such, even the illusion of pacing and temporal progression is lost within them. This, of course, largely depends on the genre of game, and primarily afflicts IDNs and games that can not be directly mapped between the concepts of "play time" and "event time" as described by Juul (2004). However, the general tendency has also been to simply design around the temporal issue; thus, it has become an accepted "fact" that audiences do not take issue with time not

being a factor, even in the most apparent cases featuring large branching narratives that use the "Hero's Journey" as a narrative model. However, whether it is inherent to this model or persists in other types, becomes relevant when taking the modern revolution against the model into consideration. In this perspective it becomes interesting to look at to which degree temporal aspects can create incoherence in both narrative models and across different genres. With research on the temporal aspects being sparse, and relatively focused on simply defining its concept and how it is mapped, e.g. Juul (2004); Nitsche (2007); Anyó (2015), dealing with potential problems of time or solutions to problems through incorporating it, are virtually non-existing.

A solution to the unfortunate disharmony between narrative and storyworld, and what is attempted here, is experimenting with incorporating temporal effects and lasting, propagating impacts on both narrative and storyworld as either event-time or storyworld-time progress. In effect it means combining narrative and storyworld in a more dynamic and symbiotic relationship where time is a factor, and the consequences of it apparent to the player. While this is not an attempt to solve the narrative paradox, it could lead to an understanding of how interactors choose paths and how they interpret consequences of their specific paths. As a result, it would lead to the incoherence from potential inaction becoming its own path handled by the narrative context, thus creating a deeper, more personal narrative for players.

However to reach a potential solution some more formal analysis of time in narratives and games should be made. Thus, what is presented with this project is of how temporal and spatial aspects in narratives and storytelling are mapped- and relates to games and game-narratives. Such that, the concept of *urgency* can be introduced as a variable when discussing these media. Thus, the formal analysis made is used to present the case for, constituent parts of, what is a framework for understanding, analysing, and achieving the concept of urgency.

Chapter 2

Preanalysis

This chapter contains the preliminary knowledge required to properly research and develop *Narrative Urgency* as a concept. It begins with a case study of a few of the games that arguably suffer most from the temporal issue discussed in Chapter 1, in order to reach a more in-depth definition of the issue. Following this, a summary review of research related to this issue how, and if, this issue has previously been approached.

2.1 Case Study: *The Elder Scrolls V: Skyrim*, *Horizon: Zero Dawn*, and *Grand Theft Auto V*

Many games are troubled by the pacing issues described in Chapter 1. In this section, 3 of the - arguably - "worst offenders" are analyzed, in order to gain a better understanding of the issue.

The first of the three, *The Elder Scrolls V: Skyrim* (Bethesda Softworks, 2011) (for the remainder of this section called *Skyrim*) was released for PC, Playstation 3, and XBox 360 in 2011, and has since been released and re-released in a number of different versions, for both PC and different consoles. It has received a number of accolades, including being named *Best PC Game of the Year* by both IGN and Gamespot[1,2]. In 2016, it was reported that more than 30 million copies of the game had been sold[3], a number that has likely grown since.

The second game, *Horizon: Zero Dawn* (Sony Interactive Entertainment, 2017) (for the remainder of this section called *Horizon*) was released in 2017 exclusively for Playstation 4. It has won a number of accolades, including a BAFTA Games Award for Original Property[4], and more than 10 million copies of the game has been sold[5].

The third game, *Grand Theft Auto V* (Rockstar Games, 2013) (for the remainder of this section called *GTA 5*) was released in 2013 for Playstation 3

[1] https://www.ign.com/wikis/best-of-2011/PC_Game_of_the_Year

[2] https://web.archive.org/web/20120107162621/http://www.gamespot.com/best-of-2011-awards/platform-awards/index.html?page=2

[3] https://www.rollingstone.com/culture/culture-features/skyrim-creator-on-why-well-have-to-wait-for-another-elder-scrolls-128377/

[4] http://awards.bafta.org/award/2018/games/original-property

[5] https://blog.us.playstation.com/2019/02/28/horizon-zero-dawn-celebrates-second-anniversary-10-million-copies-sold-worldwide/

and Xbox 360, since rerelased for Playstation 4, Xbox One, and PC. It is the biggest seller of the three, having sold over 100 million copies[6], earning it the title as "the most profitable entertainment product ever"[7].

In summary, all three games can be said to be rather successful, having had, and possibly still having, millions of players worldwide. That some of these games should be troubled by bad pacing and weak narrative arcs may be hard to believe - but it is nonetheless true, as will be inferred in this section.

Setting and Gameplay

All three games belong in the *Action* genre of games (according to the classification by Adams (2014)). More specifically, Skyrim and Horizon are often considered *Role-Playing Games*, while GTA 5 contain elements of several different genres - shooters, racing, and role-playing, to name a few. One thing all three games have in common is their *open-world* navigation, meaning that players are free to navigate to where they want to in the respective game worlds (an aspect of gameplay that may be called *free-roaming*), excluding some location that needs to be unlocked through quests.

In Skyrim, the player gives the main character a name and creates their appearance before being "let loose" in the Skyrim province, a medieval-inspired fantasy setting featuring knights, wizards, werewolves, dragons, and a number of other creatures. An image of the general setting can be seen in Figure 2.1. The gameplay mostly consists of fighting different enemies with various weapons and magic spells, mostly through a first-person perspective (Adams, 2014), leveling up skills like *archery* and *alchemy* through the use of abilities related to these. Other aspects of gameplay in Skyrim includes exploration, communicating with NPCs, buying/selling items, and relatively simple puzzles.

Figure 2.1: Image from *The Elder Scrolls V: Skyrim*, showing the player character walking through the town of Riverwood - a typical medieval fantasy settings. Official promotional picture by Bethesda Softworks.

In Horizon, the general gameplay is very similar to Skyrim, except for a few notable differences - the player is required to play as the character *Aloy*,

[6] https://variety.com/2018/gaming/news/gta-v-100-million-sales-1203022310/

[7] https://www.vg247.com/2018/04/09/gta-v-profitable-entertainment-product-ever/

a female outcast of the "Nora" tribe, the player interacts with the game world through a third-person perspective, and in the place of magic, a diverse arsenal of weapons and ammunition types allows for a number of different approaches to combat. The setting is a harsh, post-apocalyptic environment based on a region of the real world, where nature has mostly "taken back" the area from human civilization. In addition to humans, the world features a number of animals (e.g. rabbits and boars) and a host of deadly, animal-inspired robots - this is visualized in Figure 2.2.

Figure 2.2: Cover art from *Horizon: Zero Dawn*, showing the player character, Aloy, in a showdown with a deadly robotic creature. Image by Luc De Haan.

GTA 5 is less inspired by the general role-playing genre than the other two games - upgrading and focusing on specific skills and statistics is not a major aspect of the gameplay as it is in the other games. In GTA 5 the player controls- and switches between the viewpoint of 3 different characters: The wealthy, retired *Michael Townley*, the psychopathic *Trevor Phillips* and the "gangbanger" *Franklin Clinton*, all of whom end up working together (and sometimes, against one another) through the twists and turns of the narrative. As mentioned earlier, this game mixes several genres - taking place in the fictional city *Los Santos*, heavily inspired by present-day Los Angeles, the player is able to steal, drive, and race in cars, motorbikes, airplanes, boats and more, initiate fist- or gunfights, date girls, play darts, get haircuts, and a plethora of other activities, from either a first- or third-person perspective. Where the other games mostly encourages exploration and character development, GTA 5 is all about exploring the nooks and crannies of the city, and partaking in the wealth of activities offered. One such activity is shown in Figure 2.3

Quests and Storylines

Another thing all three games have in common, is that they are driven forward by their narratives. While the player is able to "level up" their characters in Skyrim and Horizon, and may forget time and space doing various activities in GTA 5, the only "real" progress in these games happens through their individual

Figure 2.3: Screenshot of a character in *Grand Theft Auto V* playing golf - an enjoyable activity, albeit one that has absolutely nothing to do with the main narrative. Screenshot from a video by Rockstar Games.

narratives. All three games feature one or more mission-based storylines that drives the overall plot forwards, giving a sense of purpose and a narrative arc for the player to become engaged in.

In Skyrim, there are two major storylines - one featuring the player character's journey towards defeating the dragon demigod *Alduin* before he brings about the end the world, the other featuring a civil war in the Skyrim province, and the player helping one of the two opposing factions in their quest for domination. Both storylines are effectuated through series of quests, starting with the player evading an execution at the beginning of the game, and ending with Alduin being defeated, and one side of the civil war being victorious. In addition to these two series of quests, there are a number of "side quests", smaller storylines, e.g. revolving around the player character's rise to power in the magical *College of Winterhold* or their becoming the leader of the notorious band of assassins known as the *Dark Brotherhood*. Furthermore, there are also a large number of singular side quests that have their own small, contained storyline, and a number of repeatable, semi-random "radiant quests" that have no real narrative significance. All in all, Where GTA 5 offers a plethora of activities, Skyrim offers a plethora of quests and storylines.

Of the three games, Horizon is probably the one most focused on the central narrative. Like Skyrim, it features a series of quests (but only one) that comprises the main storyline, and a number of smaller storylines and solitary quests, but nowhere near as many as in Skyrim. However, a strong focus on the physical and emotional journey of the main character, the girl Aloy, makes this game lean more towards a traditional, concentrated, narrative experience. There are, however, still plenty of smaller storylines to explore, if the player is so inclined.

GTA 5 likewise has a central narrative, implemented as a series of quests or missions, but unlike both of the other games, there are hardly any significant missions outside of these. As such, if one were to simply complete the quests of each game, GTA 5 would be the most concentrated experience, with a singular focus on the lives of the three main characters, and how their destinies became

intertwined. However, as mentioned earlier, the game offers an abundance of extraneous activities, which means that it is very easy for the actual line of quests to take a supplementary role in the game, as the impulses of the player leads them towards other endeavours.

The Urgency Issue

Having outlined the basics, it is possible to elucidate the issues described in Chapter 1, present in all three games, as it relates to the narratives and quest lines described above.

All three games feature centralized storylines, and activities that allows the player to ignore or postpone these storylines. That, in itself, is not a problem - video games as a medium is based on choices and interactivity (Crawford, 2003), and allowing the player to do what they want within the provided digital space. The problem, as we see it, arises when the narratives in games like those described above attempts to instill a sense of *urgency* in the player - yet fails to do so, on account of the player being able to save the quests for later with no consequences whatsoever for their tardiness. That is not to say that the player should necessarily be punished for exacting their free will on a platform that allows them to do so - but the narrative itself loses relevance when the urgency presented through the plot does not translate to any actual urgency when the player is in control. Take Skyrim for instance, early on in one of the main quest lines, the player is tasked with stopping the dragon Alduin before it is too late; however, it will quite literally *never* be too late for the player to complete the quests leading to the dragon's demise. Furthermore, NPCs waiting for the player to take important actions along the way will act no different towards the main character if something that should have taken minutes ends up taking weeks. Similarly, in their respective games, Aloy or one of the three main characters in GTA 5 are often through various quests tasked with e.g. rescuing a loved one, getting somewhere before their opponent, or otherwise preventing something terrible from happening - but there are no differences within the individual storylines based on whether the player hurries to do what they are tasked with, or chooses to spend hours on other activities before continuing the "urgent" quest. Arguably, this is detrimental to the otherwise well-formed narrative arcs of these games, and is central to what we call *the urgency issue*, which is here defined as:

> **The Urgency Issue:** When progression towards a seemingly urgent point in the narrative can be postponed or wholly ignored by the player, breaking the intended pacing of the narrative arc, and with no cost or consequence upon eventual continuation of the narrative.

It is by no means only the narratives of the three games analyzed above that suffer from the urgency issue - older games like *Super Mario 64*, *Pokémon Red and Blue*, and *Final Fantasy* allowed the player to e.g. search for secret stars, play slot machines, or quest for legendary swords when they really should be busy saving the princess, saving pokemon, or saving the world, respectively (Nintendo, 1996a,b; Square, 1987). Similarly, many newer games, in addition to the three analyzed above, suffer from the same problems - although it may

be most prominent in story-driven games allowing free-roaming. This is unfortunate, as story-driven games comprise many of the games that have "most captured the popular consciousness" (Harrell & Zhu, 2009).

2.1.1 Working Around the Issue

That being said, game developers may be aware of the problem - as several games feature interim solutions to the urgency issue and maintain a sense of urgency; however, most of the solutions will only work in specific games, or by compromising player freedom. Consequently, most games suffer from urgency in some way, but not always to an extent where it becomes an unassailable issue. In GTA 5, it could be argued that the nature of the narrative does not *need* to be completed in a tight time-frame, and as such urgency stays at an acceptable level.

In Horizon, and at a few key points in Skyrim, as the player initiates a quest, their movement may be restricted either by the level design itself, or by "invisible walls", forcing them to finish the quest before being allowed to free-roam once more - in essence, the story is told through "forced progress". The same is true for GTA 5, except that players are always allowed to leave the mission, returning to the point immediately before starting it. As such, in all three games the pacing may be kept relatively stable within specific quests and missions, but progress from quest to quest is still in the hands of the player. The same technique has been applied to a wide range of games in addition to these three, e.g. games belonging to the *Final Fantasy* series, the *Far Cry* series, the *Witcher* series, the *Dark Souls* series, and several, more linear FPS (First Person Shooter) series like *Call of Duty* and *Crysis*. As such, it is a widely used solution - but an inelegant one, as it reduces the player from a free agent to a servant of the narrative, and furthermore, it does not address the appearance of the urgency issue between quests.

The 2018 game *God of War* (Sony Interactive Entertainment, 2018) likewise relies on forced progress at key points in the story, but apart from this, the game is free of any urgency issues. The developers of the game have rather elegantly avoided this by simply having *no* literal urgency in the overarching narrative - the player has a mission, but there is no deadline, and no characters waiting for the player to achieve their goals. At several points in the game, one of the main characters even encourages the player to take their time and explore their surroundings. As such, this game has mostly avoided the urgency issue, but only through a very specific approach in the narrative, that is not widely applicable to most games.

The 2017 game *Nier: Automata* Square Enix (2017) is also an open-world game, but it does not rely on forced progress in the same way that most other games do. Instead, when the player reaches a critical point in a quest that requires the player to continue, failing to do so triggers an "easter egg" ending, usually something along the lines of the player failing to complete their task, leading to the fall of humanity, followed by a fast-forwarded version of the game credits, and returning the player to the menu - a strategy for maintaining narrative control called "kill 'em if they stray" by Crawford (2003). In effect, this is just another kind of forced progress, as the player will eventually have to continue along the lines prompted by the narrative; however, refusing to do so leads to an outcome that somehow makes sense from a storytelling standpoint

- at least more so than invisible walls and otherwise restricting the players movement. Then again, the game, like most others mentioned so far, suffers from the urgency issue when moving from quest to quest (or refusing to do so), and the easter egg endings are still mostly a way to force the player to do what the game designers intended.

Types of Narrative Progression

From total player freedom to total restriction, the ways of making players take actions or progress as intended at specific points are quite varied; nonetheless, a few general categories emerges as the go-to solutions.

Restrictive level-design is often used in linear games that feature concentrated, often shorter, narrative experiences. Some of which we would sometimes refer to as "cinematic"-narratives; newer games by game developer *Naughty Dog*, such as *Uncharted* and *The Last of Us* comes to mind. However, in the vast, expanding open-world games, the very same restrictions can be imposed to direct audiences to finish specific parts of questlines before doing something else. As such, the criteria where developers through level design have constrained players to move along a specific path. This would also include "semi-open" spaces where you would have to unlock parts in a specific place to progress in another, e.g. God of War.

Total Freedom is what is mostly used in Skyrim throughout, and is otherwise contained to inconsequential narrative events, i.e. side-quests and radiant-activities. Coincidentally, why it is mostly used in inconsequential events might be because it is what violates the concept of urgency the most - even though it affords the most agency. It relies on the event-time to come to a complete halt, if the player decides to leave further progress to a later moment. As such, this type of progression is mostly seen in games that better simulate a virtual sandbox. e.g. The Legend of Zelda: Breath of the Wild (Nintendo, 2017), Minecraft (Mojang, 2009).

Instance-based progression is what GTA and most of the other games produced by *Rockstar* use. To some extent, it is a combination of the other two, and also what is furthest away from a direct mapping between reality and game. Using the concept of contained "missions" as their own short-span cinematic arc, usually consisting of a *set-up*, *climax*, and *conclusion*, they handle both progression and consequence during these missions. However, these are repeatable, resetable, and abandonable, by simply returning the game world to the state immediately before accepting the mission. Consequently, these missions can never really impose a sense of urgency in regards to the larger narrative arc or storyworld, only within their contained selves; however, the urgency within the individual mission is quite pronounced as they here have the scope and constraints to allow audiences to actually fail the mission. In that sense, instance based narrative progression is the solution that offers the largest separation between ludus and paidia.

In summary, it would seem that no commercial game developers have so far come up with a solid solution that can be applied broadly to games suffering from the urgency issue. Whether that is because it would be too difficult to develop, or compromise the player's freedom too much, or simply because it is not considered a problem as such by the game industry, is so far unknown.

However, the preliminary analysis of games, such as these presented in this section, shows a general distinction between how narrative progress is handled, and, perhaps indirectly, how the inherent urgency in the respective narratives is handled, too. Furthermore, there is no go-to approach, and most games mix-and-match which type of progress fits with the scenario of individual narrative events.

2.2 Related Research

In addition to the interim solutions featured in many commercial games, some of which are described in the previous section, several academic attempts have been made at combining interactivity and storytelling - indirectly acknowledging that, for some games, this relation may be problematic. In this section, some of the more novel methods for creating game narratives integrated with gameplay are explored.

Research in this area has been focused on many different aspects; the notion of integrating temporal concepts, the goal of this project, have however not been one of such aspects. The most present of topics in the area has been that of emergent narratives, and simply understanding *how* to guide players into an optimal author path; the latter, however, admits that some paths are stronger than others without looking at how those weaker paths can become stronger.

One such approach has been that of Schoenau-Fog (2015) which incorporates the notion of having the storyworld adapt to the player; thus, becoming a dynamic entity. However, while the SPATIN (Space-Time Interactive Narrative Framework) and STDM (Space-Time Drama Manager) of Schoenau-Fog (2015) focus on emergent narratives, and on the concept of serving events at the right time, right place idea, to best serve the author intentions; it misses an interplay between events and solely introduces the notion of influence between events and the storyworld in a spatial manner with a fixed timeline.

To properly gauge how events can relate to both storyworld and to each other, this notion of a fixed timeline is interesting and a concept that might simply be a prerequisite for conceptualizing the framework for potential solutions. It is however able to stand alone, and a deeper approach to understanding how collaborative aspects of user and author can be implemented is needed.

Mastering the balance between player freedom and author determinism is a challenging endeavour and approaches in literature has been to solve this in an automated, or semi-automated manner by attempting to have computational systems react to the behaviour of players. One of such ideas is to simulate a *Game Master*, as known from table-top RPG (Role Playing Games), as attempted by Strugnell et al. (2018). While the idea of simulating a game master can be good, we are far of from being able to fully incorporate such ideas as a core feature in games, and even then it has the potential to be its own genre. Nonetheless, the results produced by Strugnell et al. (2018) are promising and the end results are infinitely better than many of today's "radiant" quests that exists simply to boost play-time. However, this only lessens the increasing author burden in vast and complex experiences, it does not solve the problems of coherency between world and narrative that we suggest; although with ex-

tended capabilities it could help with a more computational implementation of potential solutions.

In emergent narratives the users have mostly free will and will often experience or interpret the authored narrative in widely different ways (Bevensee et al., 2012). However, with narrative where the authors intention or motivation needs to stand clearer the users free will can hinder, or chose sub-optimally - especially, as described by Si et al. (2010), if the motivation of the characters are inconsistent with the narrative or the authors intention for the character. This inconsistency with the narrative, as perceived by users, is very apparent in the game *A Way Out*. Roth et al. (2018) describes "(. . .) there is a friction between the player's unfolding ideas about the characters they inhabit, and the designer's intended experience for that player." highlighting this disparity between author and user motivation.

The idea of creating a harmonious relationship between author and player, then, have seemingly both become easier and more difficult than one would first assume. On one hand we see that creating more freedom, as in emergent narratives, creates wildly different narrative constructs in users, and similarly we see in *A Way Out* that users generate their own ideas of the characters and their motivation which leads to conflict with the authors understanding of a character in a, strictly, linear narrative. Both scenarios leading to weaker narratives but becomes such from antithetical reasons.

How, then, can we solve or simply better understand this problem? Well, something IDNs, books, and tv-series have in common is the time and ability, to let characters and the storyworld breathe; often letting characters and the world grow in their own contained arcs and subplots, something that is not usually possible within the confined timeframe of film. However, what a lot of games does is combining these arcs with a film-like main plot which results in a weakened state of both. However, this is not to say that film-like plots are a futile endeavour and should not be pursued, but merely that how the narrative and storyworld are designed has to become a contributing factor rather than a detrimental one when they are combined.

In essence it is how we design for the retention of tension created by plot development with the expansive world building taking place at the same time. Si et al. (2010) attributes this problem, partly, to users understanding the motivation of authors better - something we saw with *The Way Out* was a problem. And as Figueiredo & Paiva (2010) states, "One of the central goals for every Interactive Storytelling system is to provide the user with the feeling of *Agency*." However, what is proposed in the article is far from simply giving users choices to give agency, it is to influence their choices to not only unwittingly choose the author-idealized path but making users have the intention or motivation to do so.

Motivating users to make choices as intended by others is quite commonplace in many different business fields, as such, it could be quite logical to attempt the same in interactive narratives. While Figueiredo & Paiva (2010) generated promising results, if we reach a point where it is reliable to assume every user always choose the intended path, should we discard the other paths? Influencing users to the extent that choices becomes non-choices can become problematic. Fendt et al. (2012a) suggests the illusion of branching can illicit the same sense of agency that truly branching narratives can; and with their final conclusions that they *can* achieve it in their experiment with immediate

textual feedback, they reach the conclusion that in the end it is much up to authors whether the extra authoring burden is worth the effort to increase agency slightly. However, we believe it is worth championing the cause of alternative solutions, and that, perhaps, simple tweaks to existing materials and concepts without an additional authoring burden can be enough to reach an accommodating middle ground.

However, as the list of possible solutions to, what seems to be, the same problem grows, it becomes evident that some crucial part is missing. Simply put, there seem to be missing a common point of reference of what the "goal" of these solutions actually is. Since adding more agency to some extent just adds more problems or shifts existing ones. Perhaps what truly is needed is this missing piece of common reference. We would like to suggest that such a common reference, could really be the "forgotten" concept of time, here taking the shape as the sensation of *urgency*.

Chapter 3

Analysis

In Chapter 2, the "urgency issue", regarding the freedom afforded to players in games and the consequent lack of urgency in game narratives was described. In order to properly explore and understand it, a thorough examination of the concepts of narratives, game narratives, and various theories related to this is presented, in the effort to demonstrate why we see urgency as a concept that should be considered when designing narratives. Following this, the concept of time in narratives is investigated, and its relation and implementation in games are presented. The understanding gained through these subjects will then lead to a clear definition of the concept of *Narrative Urgency* and its constituent variables.

3.1 Narratives

Many games tell stories. While this may seem like a rather simple, innocent statement, it was at the heart of the infamous "ludologists vs. narratologists debate" that took place some years ago (Jenkins, 2002), a debate that, while never reaching any official consensus between opposing sides (Koenitz, 2014), managed to shine a light on some of the issues surrounding games and narratives. Additionally, most modern views on game narratives, and the general need for modern views, can be traced back to the debate and the arguments and ideas generated here. And so, while the sentence "many games tell stories" may have been controversial years ago, it is somewhat agreed upon today(Post, 2009) - and the discussion has moved on to *how* stories are told in games, and to which degree (Sim & Mitchell, 2017).

3.1.1 The History of Narratives

Taking a step back from game narratives, the meaning of the broader term "narrative" has also changed significantly over time. According to Ryan (2007), "few words have enjoyed so much use and suffered so much abuse as *narrative* and its partial synonym, *story*.

Since the beginning of time, people have been telling and listening to stories(Brooks, 2003). In the days of old, storytellers would, "around the fire at night", tell tales of e.g. their ancestors, hunts, mythical beasts, or of how the world came to be. Even today, we consume stories, be it in writing, in theatres,

or in front of a screen - and specifically in front of screens we spend "a staggering amount of time watching fiction"(Gottschall, 2012). At a very basic level, a narrative can be considered:

> A perceived sequence of nonrandomly connected events, i.e., of described states or conditions which undergo change (into some different states or conditions)(Toolan, 2006).

This traditionalist view was, according to Ryan (2006), spearheaded by the likes of Gerald Prince, Gérard Genette, and Seymour Chatman, all of whom considered a narrative to be the actual telling of a story, by a narrator to a narratee. Additionally, according to this view, a story has to be told from a specific point of view (the narrators), orally or in print, and it has to recount past events. According to these, arguably, dated views, it is apparent that a video game cannot be considered to tell stories, as one side of the aforementioned debate argued - the player, in a way, is both narrator and narratee, and if the player is afforded interaction with the narrative itself, it cannot be a retelling(Ryan, 2006).

Adding to this, a narrative may be considered the combination of two distinct aspects of storytelling, namely *story* and *discourse* - also described in the early 20th century by russian Formalists as *fabula* and *sjuzhet*(Toolan, 2006). The story or fabula in this view is the basic, unbiased descriptions of characters and events of the narrative, laid out in pure, chronological order. When a story is then told, it is told through the use of one or more types of media, and by the use of different storytelling techniques - events can be emphasized, others omitted, the temporal order of events can be rearranged, and so on. All of the considerations related to the *telling* of the story is considered the discourse or sjuzhet of a narrative.

While the separation of narratives into story and discourse is still a rather common view (Ryan, 2006), the traditionalist view of narratives e.g. as strictly a retelling of past events has lost most of its supporters. Since those views were presented, narratives have evolved from the subject of a somewhat niche field of study to an essential, ever-present aspect of the human condition.

3.1.2 Narrative as a Cognitive Construct

According to Ryan (2006), "the trend today is to detach narrative from language and literature and to regard it instead as a cognitive template with transmedial and transdisciplinary applicability". This development has also been noticed by Toolan (2006), who claims that "many branches of literary linguistics have taken a 'cognitive' turn". We now believe that story "dominates human life"(Gottschall, 2012) and that storytelling is "an efficient way to make life and the world more intelligible"(Ryan, 2006). From the early days of the study of narratology, we have now reached a point where "no one area of study can come to terms with the multidimensional complexity of stories and storytelling"(Herman, 2011).

Perhaps the most grandiloquent advocate for narratives as a cognitive construct, Gottschall (2012) considers humans "creatures of story". In his view, narrative permeates life, as we spend most of it constructing stories in our mind's eye; throughout the night and for on average half of our waking hours,

we dream, daydream, and "skip off into la-la land", which to Gottschall sufficiently constitutes construction of narratives. Doing this, he claims, is simply "the mind's default state".

Slightly more reserved, Ryan (2006) acknowledges that life itself may suggest a certain "narrativity"; however, she also maintains that not all mental activities resemble storytelling. According to her, narratives are "solidified, conscious representations produced by the convergence of many different mental processes". As such, she also considers narratives as examples of the inner workings of the human mind - "a mental image, a cognitive construct" - albeit of a less erratic nature than what Gottschall (2012) suggests.

David Herman, one of the earliest adopters of what he calls "postclassical approaches" to storytelling(Herman, 2007), among which the "cognitive turn" may be counted, offers yet another modern view on what narratives are; namely that narratives can both exist as types of text (or more generally, *semiotic artifacts*), and as sense-making, cognitive constructs(Herman, 2011). This view was also somewhat mirrored earlier by Ryan (2004), in that she suggested two narrative modalities: "Having a narrative", indicating that a semiotic artifact may invoke a narrative in the mind of the narratee, and "being a narrative", meaning that the artifact is created for the specific reason of narrative experiences. Herman (2011) further suggests that a narrative can also be viewed as "a resource for communicative interaction" - in addition to being a type of text or a cognitive construct.

Stories, as defined earlier, are chronological collections of events(Toolan, 2006). In an attempt to distance story, discourse and narrative from the classical view, Herman (2011) defines stories as "accounts of what happened to particular people - and of what it was like for them to experience what happened - in particular circumstances and with specific consequences". Additionally, like narratives, he considers stories as both cognitive and textual in nature. He characterizes a "prototypical narrative" as 4 elements, abbreviated, in turn, as (1) *situatedness*, (2) *event sequencing*, (3) *worldmaking/world disruption*, and (4) *what it's like*:

> 1. A representation that is situated in - must be interpreted in light of - a specific discourse context or occasion for telling.
> 2. The representation, furthermore, cues interpreters to draw inferences about a structured time-course of particularized events.
> 3. In turn, these events are such that they introduce some sort of disruption or disequilibrium into a storyworld involving human or human-like agents, whether that world is presented as actual or fictional, realistic or fantastic, remembered or dreamed, etc.
> 4. The representation also conveys the experience of living through this storyworld-in-flux, highlighting the pressure of events on real or imagined consciousnesses affected by the occurrences at issue. (Herman, 2011)

While these elements may seem somewhat unspecific, they cover most of the major points about narratives made so far. *Situatedness* covers how a narrative requires *discourse*, a "framing" for- and a means of telling the story. *Event sequencing* covers how a narrative is a series of events, which are "nonrandomly

connected" (Toolan, 2006), that is, the narratee is able to discern a causal chain from beginning to end of the represented story. *Worldmaking/world disruption* mixes new and old concepts - it covers how a narrative requires *change*, as mentioned in Toolan's definition of narrative (see Section 3.1.1), but also introduces a new concept - the concept of *storyworlds*, which is explored in the following sections. Finally, *what it's like* covers the remaining "human part" of the narrative - how it is experienced and interpreted cognitively. Herman (2011) draws a parallel between this element and the philosophical term *qualia*, concerning the deeply subjective experience of some stimulus, and furthermore states that the individual's interpretation of the story is central to narratives. As such, what one considers a narrative may not be considered a narrative by others, based on how the experience is interpreted by the individual. According to Ryan (2007), there are no right or wrong answers to the question of whether an experience constitutes a narrative - we all apply "different criteria of narrativity", and decide, based on these, whether we are presented with a narrative or not.

Storyness

Regarding games, some scientists argue that they *all* have narrative qualities (Post, 2009), even games as "non-narrative" as *Tetris*[1], but most seem to settle for the more casual stance that games are *likely* to tell stories - as expressed by Schubert (2011), "nearly all games have some level of storytelling in them".

This view is supported by Ryan (2006), who suggests that narratives are "fuzzy", and that this "level of storytelling"(Schubert, 2011) can be expressed as a narrative's *narrativity* or *storyness*, a scalar property describing "how much" a semiotic artifact constitutes a narrative. She subsequently presents a list of conditions for semiotic artifacts to fulfill to increase their storyness, distributed between four dimensions:

Spatial dimension

1. Narrative must be about a world populated by individuated existents.

Temporal dimension

2. This world must be situated in time and undergo significant transformations.
3. The transformations must be caused by nonhabitual physical events.

Mental dimension

4. Some of the participants in the events must be intelligent agents who have a mental life and react emotionally to the states of the world.
5. Some of the events must be purposeful actions by these agents, motivated by identifiable goals and plans.

Formal and pragmatic dimension

6. The sequence of events must form a unified causal chain and lead to closure.
7. The occurrence of at least some of the events must be asserted as fact for the story world.
8. The story must communicate something meaningful to the recipient.

[1]Tetris, by Pazhitnov, A., 1985

According to Ryan (2006), this list is an example, a "toolbox for do-it-yourself definitions", from which individuals can determine the storyness of semiotic artifacts. She further notes how narratives may focus more on specific dimensions than others - e.g. that fantasy may be more focused on the spatial dimension than other literary genres. In the same vein, many games may be equally, if not more, focused on the spatial dimension than the temporal (Wei et al., 2010) - an aspect that will be explored in the following sections.

3.1.3 Narrative Time

Traditionally, we refer to events of a story as the fundamental parts which constitute the "plot". Plot is by Aristotle defined as the "arrangement of incidents". Chatman (1980) presents that this arrangement is performed by *discourse*; as the events of a story is, by its discourse, turned into plot. When thinking about time in narrative theory, discourse becomes relevant as the means of understanding the story as a sequence of events presented in some order, with this not necessarily chronological or the exact sequence in event-time. Thus, we already in traditional narrative theory distinguish between the concepts of "discourse" and "story event". As Chatman (1980) states *"Its(Plot) function is to emphasize or de-emphasize certain story-events, to interpret some and to leave others to inference, to show or to tell, to comment or to remain silent, to focus on this or that aspect of an event or character."*. However, while plot is used to convey these aspects in a larger scheme, or in the perspective of the story world, *time* and *space* is what becomes the tools used to *emphasize* or *de-emphasize* certain points or events in such plots.

According to Genette (1980), a narrative operates in two different "temporalities", related to story and discourse - *story time*, comprising the the chronological time period covered by a story, be it minutes, weeks, or years, and *discourse time*, the time taken by audiences to experience the narrative. Having established this, Genette (1980) argues that there are three primary dimensions along which elements in a story may be organized temporally, thus creating narrative discourse from a story: *Order*, *Frequency*, and *Duration*. By "order" is meant the relation between the chronological sequence of events in a story, and their representation in the discourse; by "frequency" is meant the number of times events are presented in a discourse, e.g. from different points of view; and finally, "duration" covers the "textual extent" of events in discourse time, in relation to their actual duration in story time. In addition to omitting events, and establishing the temporal relation between narrative and narration, these three dimensions encompass all means by which discourse - with its emphasis, inferences, and so on - may be constructed from story. Regarding the temporality of the narration, Toolan (2006) argues that, for written narratives, events usually precede their narration, as these are most often written in past tense - thus, the narrated events *have happened*. In addition to this, "anterior narration" can be used to tell of events that *will happen*, and "simultaneous narration" tells of events in the present, as they *are happening*.

Following the creation of narratives, we see events in these being inferred by audiences to create correlative or causative connections between sequences of events, not necessarily because of any chronological or logical sense in a story world, but simply because of their sequence as presented through discourse. However, how causation is inferred changes over the course of history and

connections that audiences would make today or in the past are not guaranteed to be made by the other party. In essence, the *verisimilitude* of a narrative, its "lifelikeness", may not be the same for past and future audiences, affecting their ability to fill in gaps in the discourse. Consequently, what has to be explicitly stated or shown to audiences has- and will continue to evolve.

In narratives, or on a narrative timeline, narrative events have a logical connection and hierarchy that is followed, however at Chatman (1980) only major events are usually causally linked as part of a chain, with minor events being mostly un-linked with this chain and having their own structure altogether.

Returning to time aspects, having minor plot events, while having existed for a long time is an attribute of narratives that takes more time, or requires more discourse even if it is somewhat irrelevant to the major plot arc. As such, when discussing time it is possible to divide it into several different types of time in narratives. In traditional narratives we can, as Chatman (1980); Genette (1980), distinguish between discourse time, which would be the time it takes to read or view the discourse, and story-time which is the duration of the unfolding events of the narrative. These are important constraints on how we can tell narratives, and one of the reasons we can establish that *discourse-time* and *story-time* can differ greatly is through the aforementioned use of verisimilitude. We can *infer* time passing through a range of tools - the often used "montage" sequence of various cinema comes to mind.

Time, then, is of utmost importance to how narratives are told - and at a very deep level, what narratives are. Stories consist of events happening over a period of time, and are likewise told and experienced over a period of time. *Change*, as argued by e.g. Toolan (2006) and Ryan (2009), is perhaps the most basic requirement of what might constitute an *event*, more than one of which in a series might be considered a narrative, and change requires temporality - a *before* and an *after*.

3.1.4 Storyworlds and the Willing Suspension of Disbelief

Another arguably rather important aspect of the postclassical understanding of storytelling, and one that has already been mentioned a few times already in this chapter, is the concept of *storyworlds*. According to Herman (2011), a storyworld is the world evoked by a narrative in the mind of the experiencer. It is one of the fundamental ways in which we make sense of narratives - *so* fundamental, Herman (2011) argues, that the process has been ignored or overlooked throughout classical approaches to narratology. In postclassical narratology, however, the creation and updating of storyworlds is considered essential to the understanding and experiencing of a narrative (Herman, 2011; Domsch, 2013), and conversely, a storyworld may be required to *change over time* if the semiotic artifact is to even be considered a narrative (Ryan, 2009). As such, narratives and storyworlds exist in a kind of reinforcing loop:

> Which come first: the experiences-in-worlds that give rise to stories or the storytelling processes by which worlds are made?" (Herman, 2011).

Ryan (2007) considers fictionality a "type of game" played between author and reader. As part of this game, immersing oneself in a narrative thus requires imagining a world in which the story takes place, but also, consequently,

allowing oneself to *believe in it*. This act was first described more than 200 years ago by Coleridge (1817) as "the willing suspension of disbelief", a term which has since been adopted and researched by scholars worldwide. Bizzocchi (2007), for instance, describes how suspension of disbelief (SOD) as well as flow (a concept first described by Csikszentmihalyi (1991)) are related to *immersion* and *engagement*.

According to Muckler (2017), SOD is "the cognitive act of accepting an imposter (simulation) as genuine (clinical)". In her article, she identifies five different aspects that affect suspension of disbelief in clinical simulations - and while those may differ from games, the aspects identified could very well be similar for both types of experiences. The aspects of SOD identified by Muckler (2017) are:

Fidelity: Firstly, SOD relies on the different kinds of fidelity present in the simulated environment. Of these, *psychological fidelity* is arguably the most important, and is loosely defined as the degree to which a simulation can be considered believable. As such, it is more or less identical to the concept of *verisimilitude* in classical narratology, described in Section 3.1.3; while one belongs to narratives and one to simulated environments, both concepts concern the medium's believability - affecting the SOD of the user, yet existing independently of it.

The Fiction Contract: According to Muckler (2017), suspending disbelief requires the user to cognitively commit to believing the fantasy. This cognitive agreement is called the fiction contract. This contract may be set up prior to the experience - in the case of clinical simulations, it may be in the form of a literal contract, setting the ground rules, establishing the user's expectations, and so on. In the case of games, it could be argued that watching a trailer or looking at the cover art is a kind of fiction contract - deciding to play a game can entail committing to the storyworld presented in other materials prior to actually playing.

Psychological Safety: This aspect may have more to do with learning-focused environments, as it entails users being assured that they can experiment and take risks without fear of embarrassment or ridicule. Nonetheless, it may also apply to game environments - players would probably be less engaged, and less willing to explore and take risks, if failing a task or making a wrong choice had more dramatic consequences - for instance, if there were no "respawns" or "restarts", and player characters dying meant that the game became unplayable.

Emotional Buy-In: This aspect is rather self-explanatory - it is easier to immerse oneself in a simulation if it is able to "invoke the emotions and beliefs of a real-life event". For clinical simulations, as well as narrative media artifacts, keeping users engaged and willingly suspended in their disbelief becomes difficult if they are not emotionally invested in the experience.

Assigned Meaning: The final aspect of SOD discovered by Muckler (2017) explains how users individually assign meaning to simulated environments - as a consequence, different users may experience varying levels of SOD, depending

on their own personal perceptions and preferences. This obviously applies to games as well. Players imagine storyworlds differently, and some may find it more easy to suspend their disbelief than others.

Suspension of Disbelief in Games

While players may be unequal in their ability to suspend their disbelief, any "good" narrative artifact should probably strive to make SOD as easily achievable as possible, as successful suspension of disbelief leads to increased experiences of *presence* and a sense of *realism* (Muckler, 2017). Based on the aspects of SOD presented above, it can be argued this can be done in games in a few major ways - firstly, by prioritizing *fidelity* and making the world presented in the game as believable as possible; secondly, by prioritizing the *emotional buy-in* of the player, e.g. through intriguing characters and stories - which would consequently also increase the general storyness of the game along the *Mental* and *Formal and Pragmatic* dimensions according to the list of conditions by Ryan (2006).

Returning to the purpose of this paper, we argue that some games suffer from an "urgency issue", narrative incongruities in the timeline presented through the game world, as described in Chapter 2. Furthermore, based on the aspects of SOD described by Muckler (2017), we argue that these issues may negatively influence the believability of the game world, and consequently make it harder for players to suspend their disbelief and immerse themselves in the experience. Finally, we suggest that incorporating Narrative Urgency (a concept that will be expatiated at a later point in this analysis) in the games' narrative design could potentially alleviate the issues.

3.2 Game Narratives

According to Juul (2004), games are practically "state machines" that allow for input and output, and definitions of what input will force what state change. Another, albeit similar, definition of games is one by Domsch (2013), who argues that games can be defined as "rule systems" that require "active participation" if they are to be experienced as games. These rules (often called *mechanics*) can work in any number of ways, enabling and constricting the player's options - and while it may seem illogical to enforce rules for playing, according to Juul (2005), they serve a very simple purpose: Rules provide context for action, adding meaning to the selection of options they set up. Generally speaking, rules, mechanics, and by extension, interactivity, are considered the quintessential aspect of games. As an example, Rouse III (2005) defines games as:

> A product that either facilitates the interaction between others, in the case of multi-player games or sets up an interaction between a single person and the computer, for solo games.

What, then, is the importance of the game narrative? While some scientist may argue that "stories are just uninteresting ornaments or gift-wrapping to games" Eskelinen (2001), others (e.g. Elson et al. (2014)) considers game narratives to be as much of a "principal component" of games as their mechanics.

It would seem that, while the debate on whether games contain narratives has ended, the *role* of narratives in games is still up for discussion.

The reason for this is that games themselves, like narratives, are somewhat difficult to define. According to Juul (2004), though, it is rather simple: A game is basically a state machine, accepting input, changing the state, and producing an output; however, looking at the arguments of other scientists, this may be an oversimplification. To Aarseth (2012), at least, games are much more than simple state machines. They go as far as claiming that games are "analytically indefinable", concluding, rather vaguely, that a game is a game if it has been referred to as such. In their view, games belong to a type of phenomena called "cybermedia", a conglomerate of different types of media that may all contribute to this otherwise indefinable, digital, interactive experience of playing a game. In the same vein, Domsch (2013) consider video games a "meta-medium", since other presentational media types are easily incorporated: Video can be incorporated in the form of cutscenes, and written and spoken texts can be intermingled with gameplay - enhancing the experience of the game, without compromising the quality or impact of the individual media types. In total, according to Ip (2011), there are five common techniques for "delivering" narratives in games:

- back stories;
- cut scenes (including interactive cut scenes);
- game structures, for example, linear and branching;
- the portrayal of emotion and/or reactive environments; and
- narrative structures: for example, monomyth, three-act plot, archetypes, kernels, satellites.

If accepting that game narratives can be encapsulated through these techniques, a narrative in itself can also be considered an "addition" to the game meta-medium - and while there is more to games than the telling of stories (Jenkins, 2002; Bizzocchi, 2007), a narrative dimension enhances the gameplay by immersing the player in the fictional world (Ryan, 2009) and makes the overall experience of playing a game more enjoyable (Elson et al., 2014; Bizzocchi, 2007). Consequently, it must also mean that games can function without any narrative qualities (Jenkins, 2002; Domsch, 2013), and instead rely solely on game mechanics (or, to use Ryan (2006)'s term, games may have a very low degree of *storyness*). Similarly, according to Domsch (2013), games may contain narratives that are "completely unconnected" to the actual game elements, through the incorporation of other media types. Nonetheless, Domsch (2013) goes on to describe how people "almost inevitably" assign meaning to their in-game actions in ways that resemble storytelling - which, if accepting that narrative is one of the basic cognitive tools for meaning-making (Ryan, 2006), is hardly surprising.

3.2.1 Storyworlds and Games

While many games have rather linear storylines (Elson et al., 2014; Rouse III, 2005; Anyó, 2015), and while some players may dismiss the narrative "as

unimportant decoration of the game rules" (Juul, 2005), different types of media can create different types of narratives - not least games. As Ryan (2006) argues:

> We no longer believe that all media offer the same narrative resources and that all stories can be represented in media as different as literature, ballet, painting, and music (...) When it comes to narrative abilities, media are not equally gifted; some are born storytellers, others suffer from serious handicaps.

While the above quote makes no direct mention of games, Ryan (2006) also states at another point that digital media have "taken immersion to new depths". Supporting this view, Jenkins (2002) also argues that video games are very much their own medium, and that they are unlikely to tell stories "in the same ways that other media tell stories". One reason for this, as hinted at in Section 3.1.2, is the role of worlds in games.

To play a video game, according to Juul (2005), is to "interact with real rules while imagining a fictional world". He argues that most games contain these fictional worlds, and that they are "worlds that the game presents and the player imagines". As such, he argues that games evoke storyworlds in the minds of the experiencer in the same way Herman (2011) describes that narratives do. According to Juul (2004), the more direct relation between game and player than between traditional audiences and traditional media is established by players being mapped into an actual world, and by their actions having a direct impact on this world. A year later, Juul (2005) presented a hierarchy of game worlds. This hierarchy spanned from *abstract*, featuring worlds of games like Tetris that have no significant links to reality, to *iconic*, featuring for instance the "world" evoked by the face cards in a standard deck, to *incoherent* worlds like the arena of Counter-Strike or the board and pieces of chess, to *coherent*, featuring the more complete worlds of "adventure games", like the games presented in the case study in Chapter 2. Finally, he mentions a fifth "meta-level" of the hierarchy, featuring games nesting worlds within each other. While his hierarchy of game worlds may be useful, Jesper Juul was, at least at the time, heavily against the incorporation of narrative theory in game studies, and consequently, he makes no mention of the role of narrative to these worlds. In this paper, however, games are definitely considered to be narrative media, evoking storyworlds just like other types of narrative media, helped along by the worlds presented in the games themselves.

Spatial Storytelling

From the more story-positive side of the ludo-narrative debate, Jenkins (2002) also argued that *spatiality* is more important for game designers than creators of other types of narrative media - as game designers not only create stories and narratives, but also "design worlds and sculpt spaces". To this end, he argues, game designers should not be considered authors in the traditional sense of the word, rather, "narrative architects".

To many researchers, time and space may be considered equally important when it comes to a game's storytelling abilities. Wei et al. (2010), for instance, argue that "time and space work together to anchor textual, visual, auditory, and other interactive cues in the digital game", and that players use these cues

to create and maintain their mental storyworld. They mention *Assassin's Creed* as an example, where all missions the player may partake in are bound to a specific location rather than bound in time, and that the entire plot as such is structured around space. Similarly, Domsch (2013) argues that "storyworlds are expanses of time as well as of space" and that information in games contains "spatial properties" and span over a period of time. A difference between spatiality and temporality, according to Domsch (2013), is that the player is usually given some control of space, but not of time. As a consequence of this, time is often variable in games, tied to the player's actions and navigation via "event triggers". In a sense, then, Domsch's first statement is wrong - the player *does* have some control of time, as time "waits" for the player to take specific actions or navigate to specific locations.

This dependency on player action to make time progress is understandable - after all, game designers would not want players to miss out on important information or plot points because their avatars were in the wrong place at the wrong time. However, it may also lead to inconsistent narrative arcs and the pacing issues described in Section 2.1. On this note, Domsch (2013) argues that "it is helpful, especially when looking at video games, to distinguish between narrative and storyworld". In his view, much like the view presented here, game worlds often lack internal consistency, since they still mostly function as "embellishment for the rules of gameplay". Relating the urgency issue to the hierarchy presented by Juul (2005), described in Section 3.2.1, it can be argued that games with abstract or iconic worlds do not suffer from any issues in relation to their narrative arcs, as these worlds are simply not complicated enough for any pacing issues to arise in the first place, and perhaps also too low on *storiness* (Ryan, 2007) to be considered supporting of narratives in the first place. As such, as hinted at in Section 2.1, it would seem that games are more likely to experience issues with pacing the more complete their game worlds are - which is of course problematic, as more complete game worlds also allow for more ambitious narratives.

3.2.2 Interactivity and Narratives

As discussed in the previous section, video games are quite different from most other types of narrative media. When compared, video games have one rather straightforward advantage: "They play well, and they look good" (Domsch, 2013). Nonetheless, the most profound advantage in video games in terms of pure storytelling, in addition to their close connection with storyworlds, lies in the concept of *interactivity*, and what can be done with it.

Agency

According to Domsch (2013), "The appeal of games lies in their promise of agency, in the promise of an openness that is dependent on the player and her choices". Agency, however, is not synonymous with "choice" - it is a "facet of interactivity", and potentially the most important aspect of it (Stern, 2008). According to Wardrip-Fruin et al. (2009), agency has in the past been regarded as either an aspect of the player experience, or an aspect of the system. The modern interpretation of agency, however, is that it is a phenomenon involving *both* player and game; a phenomenon that arises when the player desires certain

actions, and is afforded by the game mechanics to take them (Harrell & Zhu, 2009; Wardrip-Fruin et al., 2009). Agency, then, is an important aspect of what makes a game a game, and, as expressed by Stern (2008), a critically important component of interactivity - but there is a caveat, as more agency is not always better. The final aspect of a succesful game/player interaction is that the player *perceives the effect* of their actions, which has led researchers like Day & Zhu (2017) to differentiate between *theoretical* and *perceived* agency. Of the two, only perceived agency has any actual value to the experience of playing games - if the player fails to perceive the agency they are afforded, these affordances might as well not be there. This, however, also means that agency can arguably be 'faked', as players can be led to believe they have some degree of control over an aspect of the game where they in reality have none. This was discovered to be true by Fendt et al. (2012b), as they found no significant differences between their participants' reported feelings of agency in a game featuring branching points in the story, and one simply acknowledging to players that it registered their "choice".

As such, agency can be said to be the interplay between the actions a player desires, the systems ability to allow (or imitate) said actions, and the system's response to the actions as perceived by the player. However, a potentially important aspect of this player/game relationship not explained through agency, is *why* a player may desire certain actions over others - and this is where urgency could serve as an explanation, as a 'player motivator', complementing the 'player enabler' that is agency.

Interactive Storytelling

Given the importance of agency to games in general, interactive storytelling is a powerful tool in the game designers toolbox - potentially allowing for up to hundreds of hours of gameplay (Ip, 2011). In essence, interactivity in the narrative dimension can be achieved by giving players a choice at specific points in the narrative, or by forming the narrative around their behaviours and exploration patterns (Schubert, 2011), - both of which may be considered choices, albeit the latter is a hidden one. Giving the player these choices, then, allows the narrated story to be "determined by the playable nature of the medium" (Anyó, 2015). Most often, though, the outcome of a player's choosing is not created in the moment, but taken from a predesigned list of potential "routes", making the overarching plot dependent on both the predesigned narrative structure (commonly known as a *branching* structure in both academia and game industry), and the player's affordances.

While many commercial games employ these techniques, the actual creation of interactive narratives has been given an inadequate amount of attention in academia, according to Koenitz (2014). He claims that "a crucial goal for IDN research is to create exciting and fulfilling narrative experiences", and that the role of this research should be to educate others in the potentials of interactive storytelling, "thus creating a new class of author" - which may also be considered a goal of this project.

Interactive Story Structures

Games as a type of media are constantly improving, both in how they play and how they look. In terms of general narrative structures, however, not much has happened since the early days of gaming.

As Ryan (2006) stated, "interactive narratology", while it may have certain differences from traditional narratology, involves the same basic story elements: "time, space, characters, and events". By emphasizing spatial storytelling and quest structures, she argues, games have "mastered what could be the oldest form of narrative (...): the struggle of the individual against a hostile world", and furthermore that an "emphasis on physical actions" is the easiest solution to building a narrative around typical game mechanics. Jenkins (2002) agrees with this, as he describes how the spatiality of games makes them well-suited for the "much older tradition of spatial stories, which have often taken the form of hero's odysseys, quest myths, or travel narratives".

Because of games' reliance on these kinds of narratives, as referenced in Chapter 1, Koenitz et al. (2018) has called for a "revolution" against the narrative model known as "The Hero's Journey", a model that lends itself very well to the story structures mentioned by Ryan (2006) and Jenkins (2002). However, the game industry's apparent reliance on hero's journey-like narratives may be a testament to how well these function in games - and as Jenkins (2002) argued, the strength of games in terms of storytelling is probably that narrative can be mapped onto game space, and that "Games (...) may more fully realize the spatiality of these stories, giving a much more immersive and compelling representation of their narrative worlds".

All in all, as will be explored in the following section, the spatiality and interactivity of games may be as much a blessing as a curse - forcing games to rely on a limited amount of narrative structures, but doing these rather well.

3.2.3 The Narrative Paradox

The current major issue with interactive narratives in games is that storytelling is easy to include (e.g. through text and cutscenes), but much more difficult to integrate (Domsch, 2013). According to Jenkins (2002), integrating narrative as part of the gameplay becomes a "balancing act" between creating a compelling plot, and giving players freedom to act "at a local level". Continuing this line of thinking, Bruni & Baceviciute (2013) argue that games contain narratives, but may also allow the player to create their own - and consequently, as described by Jenkins (2002), the more a game is designed with a specific narrative in mind the less players will be able to create- and interact with it, and vice versa. This conundrum, often referred to as the *Interactive Paradox* (Ryan, 2009) or the *Narrative Paradox* (Bruni & Baceviciute, 2013), has been subject to much discussion in academia, but so far, no real "solution" to the problem has emerged. According to Ryan (2006), given how narrative requires "top-down planning" and interactivity requires "bottom-up input", a solution may be impossible:

> It will consequently take a seamless (some will say miraculous) convergence of bottom-up input and top-down design to produce well-formed narrative patterns.

As such, for IDNs it might more be a matter of working around the narrative paradox, than attempting to solve it. Ryan (2009) described how games combining narrative and interactivity becomes one of two forms: *Narrative Games*, or *Playable Stories*. In the first form, story is mostly non-interactive and meant to enhance gameplay, as is the case of most popular AAA titles like those mentioned in Section 2.1. According to Ryan (2009), this can either be achieved by creating a story revolving around the design of the gameplay (e.g. a set of problems to solve) or by extracting both the story and gameplay from a specific storyworld. In the second form, the playable story, narrative is created through gameplay - what Jenkins (2002) calls *emergent narratives* - as in e.g. *Minecraft* or *The Sims*. The drawback with this form, according to Ryan (2009), is "the lack of closure of their output: without top-down authorial control, it is virtually impossible to create an Aristotelian curve of rise and fall in tension, or a sequence of events that stops after a conflict has been resolved". In other words, it becomes more or less impossible to achieve a well-formed narrative arc.

Ip (2011) also describes how different techniques may be used to "strike a balance between prescribed narrative and interaction", the most basic of these being the *background story*, a simple description of "environment, key characters, and objectives". However, background stories, no matter how they are told - e.g. through oft-used storytelling techniques like text and cutscenes - offer no actual interaction, and subsequently falls under what Domsch (2013) would call "including" a narrative. In actually integrating a narrative, Ip (2011) suggests *game structures*, i.e. systems of nonlinear storytelling like the branching narrative (Ryan, 2009), as a potential solution. This is also the route chosen by many AAA developers, as explored in Section 2.1.

Finally, Bizzocchi (2007) discusses how the classical "narrative arc" (consisting of 5 steps: (1) *setup*, (2) *complication*, (3) *development*, (4) *resolution*, and (5) *denouement*) may not be directly applicable to most games, and that understanding the narratives of games - as was also argued during the infamous debate described at the beginning of this chapter - requires a different approach than traditional narratives. This, he claims, is because games lack the tight narrative control of more traditional media, as described by the narrative paradox. Instead, he proposes a framework of more "limited narrative parameters" that may be more suitable for examining the narratives of games. Bizzocchi (2007)'s framework is as follows:

- storyworld - what is the environment within which the game unfolds
- character - who are the beings that populate this game world
- emotion - both the emotions shown by the games' characters and those elicited in the player
- narrative interface - how are narrative sensibilities instantiated in the appearance and the functionality of the interface design
- micro-narrative - smaller moments of narrative flow and coherence that occur within a broader context of game play

Of these, *micro-narratives* are considered in this project to be a major cause for temporal incongruences in the overarching storylines of many games, as

described in Section 2.1 (in the form of *Side Quests*), and consequently for the player's belief in the *storyworld*, as described in Section 3.1.4. If games in general are to support "exciting and fulfilling narrative experiences", as described by Koenitz (2014), while still relying on micro-narratives, new methods for creating these complex storyworlds could be required.

3.3 Time in Games

As Herman (2011) argues, "At a minimum, stories concern temporal sequences - situations and events unfolding in time". Since games have well-developed narratives in terms of spatiality, as discussed in Section 3.2.1, potential solutions to the urgency issue, or at least a more thorough understanding of it, may lie within the *temporal* domain. 15 years ago, Juul (2004) expressed that there was "very little theory of time in games" - luckily, that has changed since. In this section, time and its role in games is examined, and the novel concept of *narrative urgency* is defined.

For games, the temporal and spatial design, as well as the mechanics, come together in determining not only the gameplay possibilities, but also the inherent possibilities for storytelling. As explained in Section 3.1.3, stories can be told in past, present, or future tense. Where written narratives are often told in past tense, cinema mostly uses present tense, as the story is actualized each time a film is shown, according to Anyó (2015). As always, games are a bit more tricky than that; the existence of *agency* (see Section 3.2.2) and the actualization of a world for the player to explore (see Section 3.2.1) results in a temporality that is a bit harder to grasp, since the process of playing the game is also the process of telling the story (Anyó, 2015; Wei et al., 2010). This complicated relationship is exemplified, according to Zagal & Mateas (2007), by the sheer number of terms related to time in video games, e.g. "duration, actions and reactions, timelines, turn-taking, and calendars". Looking at a set of separate events in a game, and their relation to each other, is another way to exemplify the complications of game temporality. In an attempt to come to terms with the possible relations between events in interactive media, Herman (2004) presented what he called "fuzzy temporality", stating that there are four ways in which events can be ordered. When it is possible to determine whether one event precedes, follows, or takes place at the same time as another, the events are in *full ordering*. This is how events are usually ordered in traditional media, unless there is some deliberate design behind not divulging this information. In *random ordering*, there are no orderings of events that are more probable than others. *alternative ordering* lies somewhere between the two, as the order of events is uncertain, but one or more orderings having higher probability of being correct than others. The final type of ordering, *partial ordering*, is the one used by the 'quest systems' of most open-world games. In partial ordering, some events are "uniquely sequenced relative to all others" (e.g. "tutorial quests" that have to be completed before other quests can be started), while other events are "only relative to some others" (which can be seen in 'questlines', where one event has to be completed before the next in line can begin), and some have no relation with other events - for instance, side quests that can be completed at any time, independently of any other quests, and with no influence on other quests. As such, the timeline of a game quickly

becomes blurred - while some events can give the impression that they are taking place over a chronological string of time, other events may interrupt or obscure these timelines to the point where the 'original timeline' is practically non-existing. As expressed, rather spitefully, by Anyó (2015):

> The game unfolds in a given space but the different sequences or missions do not have a temporal order pre-determined in the rules. The journey through the space allows indefinite temporality in terms of the order without making the player feeling lost, since they know where they are, and time doesn't matter.

Even so, however obscured it may be, there can be no doubt that time *does* progress during, and between, game events. Several researchers have attempted to gain an understanding of this passing, and mapping, of time in games, as will be explored in the following sections.

3.3.1 Time Progression

Anyó (2015) argues that there are two types of temporal duration in interactive media. One is the *object-controlled duration*, in which time passes independent of the audience experiencing the media, as in e.g. films, plays, or cutscenes. The second type, *experience-controlled duration* is more prevalent in games, as it depends on player action. This differentiation is also made by Zagal & Mateas (2007), as they describe how time in philosophy is usually distinguished as either *Platonist* or *Relationist* time. Platonist time is similar to object-oriented duration, in that it exists independently of those experiencing it - similar to how, in e.g. Skyrim and GTA5, an internal 'world time' flows continuously, independent of player actions, determining the time of day in the underlying day-night cycle. Relationist time, on the other hand, is the reduction of time into a string of events and the relation between these. In games, this can be compared to how storylines are generally implemented as a series events (for instance, quests/missions), the completion of which drives the story, and story time, forwards (as per story/discourse time, described in Section 3.1.3). Given the player's role in progressing time, the duration of events in games cannot necessarily be understood as the duration it would have in the real world - put in narrative terms, "the discourse is not completely fixed or predetermined" (Anyó, 2015), complicating the basic narrative understanding.

While story time depends on certain player actions, discourse time is continuous, according to Wei et al. (2010). They argue that discourse time is to be considered both "reading time", as in traditional media, but also "acting time", time spent not necessarily progressing in any discernible narrative. Building on this, Nitsche (2007) argues that something as simple as *moving from one place to another* in a game is experienced as time progression, and furthermore, that experiencing large spaces actually *require* some form of "temporal alignment". For most games, then, it can be argued that discourse time happens *while* playing, whereas story time happens *because* of playing, and because of playing *specific segments* - as discussed in Chapter 1, chopping wood for hours in a game does not progress story time, but it should be considered part of the discourse. This 'pausing of time' is explained by Zagal & Mateas (2007) as a *temporal bubble* - "If a game begins in temporal frame A, continues with B, and

then goes back to A, there is a temporal bubble when, from the perspective of frame A, no time has passed during the activity in frame B."

Time bubbles, as explained by Zagal & Mateas (2007), are not necessarily a problem - in many situations, games 'allow' players to instigate different events when they wish to, without compromising the experience of time. However, the urgency issue appears in conjunction with time bubbles when the game attempts to instill some sense of urgency in the player while, in essence, *time itself* can be frozen indefinitely, awaiting the actions required of the player to 'restart' it.

3.3.2 Framing and Mapping Time

As described in Section 3.1.3, traditionally, narratives exist along two different time frames - story time and discourse time. However, as alluded to in the previous section, two time frames may not be enough to describe narrative time in games, given the myriad of ways in which the introduction of player agency affects the development- and experience of narratives.

In his brilliant *Time to Play*, Jesper Juul (2004) introduced a number of concepts specific to time in games. One of these were the concept of *game time*, "a basic duality of play time (the time the player takes to play) and event time (the time taken in the game world)", which is basically identical to discourse time and story time, except for the fact that event time also includes time taken in the game world *not* progressing narratives. Juul then presents how the players time and actions in play time can be *mapped* to event time, as shown in Figure 3.1.

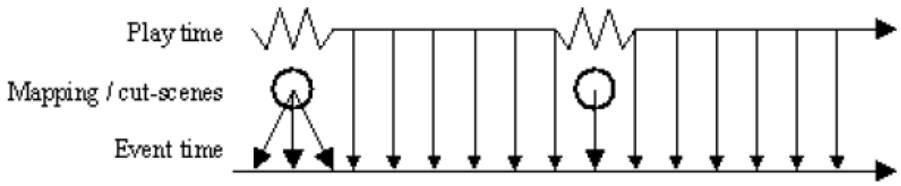

Figure 3.1: Juul's depiction of how play time can be mapped to event time. The player takes actions in play time ("real" time), which are projected into the game world. Also shown in this model is how cutscenes create a break in play time, but are similarly mapped to event time. (Juul, 2004)

Basically, the mapping by Juul suggest that player actions (which take place in play time) are projected into the game world, and translated into the time frame that exists in the game. Furthermore, he suggests that cutscenes are likewise projected onto the event timeline, whereas loading screens and similar interruptions create undefinable "breaks" in both play time and event time.

While Juul's model is quite intuitive and comprehensive, it does have a few problems. One problem is, as stated previously in this section, time in games can exist in more than two frames. According to Zagal & Mateas (2007), multiple frames exist in games - e.g. defined by the relationships between events - which can be either *sequential* to each other, or *co-exist*. Returning to the concept of *partial ordering*, described in the previous section, not every event in a game necessarily happens on the same timeline - consequently, each

string of events can be considered their own sequential time frame, as the player's actions in relation to these events often have no influence on other (potentially, co-existing) event strings. Furthermore, it is worth noting that these strings of events usually take place in relationist time (event-to-event), whereas game worlds may also have a co-existing "intradiegetic clock" (Domsch, 2013), a day-night cycle or other similar frame in platonist time, to which the individual quest frames can be mapped. This mapping or combination of event time and 'world time' is more or less defined by Zagal & Mateas (2007) as *gameworld time*). As such, a game may contain practically unlimited instances of individual event time frames, and even time frames running on different *philosophies* of time.

Another issue with Juul's time mapping, according to Nitsche (2007), is that Juul takes a formalist perspective to time, and thus, does not incorporate how time is actually *experienced* by the player - a rather important aspect in the post-classical understanding of narratives. The work done by Juul (2004) is therefore a great starting point for discussing how to map 'game time', but given today's massively complicated game worlds and theories on narratives, it is nowhere near enough to capture all of game time's intricacies.

Expanding the Gametime Mapping

As explained in the previous section, the game time mapping presented by Juul (2004) may be too simple for current games - at least those featuring partial ordering (see Section 3.3). In Figure 3.2 we present an example of an updated version of the mapping, featuring a visualization of the urgency issue. The diagram features four different timelines - as opposed to the two in Juul's model - each beginning in the left side, and progressing chronologically to the right. The top one is *play time*; as in Juul's model, this constitutes the "real" time taken to play the game - similar to discourse time, but also featuring none-narrative activities. The second timeline, *experienced time*, is a new addition; it indicates how players construct a linear timeline for their imagined storyworlds (see Section 3.1.4) through their interaction with the game narrative. As such, this experience of time relies on the player's perception of time by comparing the real-world play time with whatever representation of time may be present in the game. How time is represented in the game is included in the model as *gameworld time*. It signifies in general how time passes in the game world, including all of the events taking place - as such, it is more or less synonymous with 'story time' for traditional narratives. It may be implemented as the "intradiegetic clock" featured in most open-world-type games, or it may be more loosely defined. Finally, event time, unlike Juul's single time frame, consists of all the separate event frames implemented in the game (in Figure 3.2, 3 are featured). As an event is experienced, the different 'steps' in the event time frame can be projected onto the *gameworld time*, e.g. relating them to a specific 'time of day' (if cues of this nature are present in the game). After relating the event time to gameworld time, it can then be mapped to the player's experienced time, as happening after what has previously been experienced. Also worth noting is that event time is usually set up in games as relationist time (event-to-event), whereas play time and game world time are both platonist (continuous). Experienced time could potentially be an amalgamation of the two (as players could potentially experience time both as

a continuous cycle, but also as events following events), but as of now, this remains unknown.

The urgency issue, as shown in Figure 3.2, happens when the first experienced frame of events (denoted in the figure as "event 1") is abandoned by the player before its completion, and another event frame (event 2) is instigated and played to completion instead. Following the conclusion of event frame 2, event frame 1 is then continued - but the time that has passed since it was abandoned, plays no role in how the final events in the frame plays out. The consequence of this, in cases where the game gave the impression that continuation of event frame 1 was urgent, is a 'break' in the player's experience of the game time, where the final part of event frame 1 is experienced both as happening at the time it is played, but also as something that happened immediately after the earlier events in the event frame.

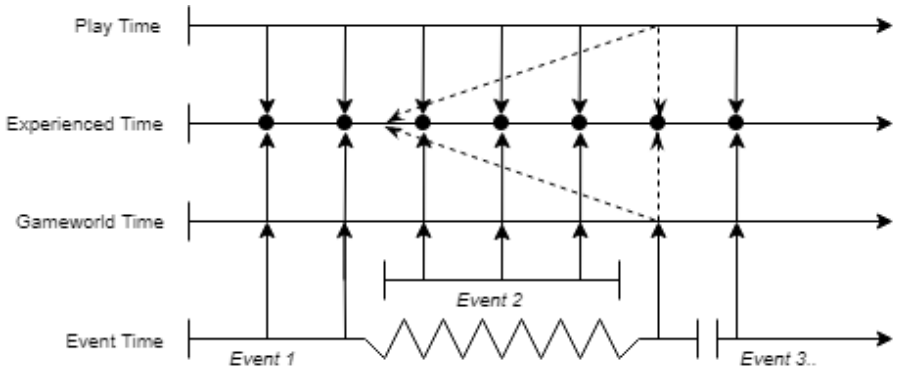

Figure 3.2: An updated version of the game time diagram by Juul (2004). In this version, play time maps to experienced time, while the events played map to gameworld time, and from there, to experienced time, to the points where play time maps to as well. Shown in the figure is also the urgency issue: When a continuous string of events are 'put on hold' for another event, and resumed afterwards, it is experienced as a 'break' in the experienced time, where the resumed event happens at the time of playing it, but also, in a way, happened immediately after the preceding events in the string.

An actual example of this kind of urgency issue could be one of the earlier main quests in Skyrim - "Dragon Rising" (Bethesda Softworks, 2011). The quest begins as the player is informed that a dragon has been sighted in the sky outside the city of Whiterun. The player is then tasked with going to the location, meet up with the city guards, and investigating the rumour. At this point, the player is free to do more or less whatever they want, for any number of in-game days - e.g. complete other quests not within the main quest time frame. When the player eventually goes to meet the city guards, they will act as if they had just arrived, and the rumoured dragon will attack, as seen in Figure 3.3.

The above example could not possibly be explained by the original game time mapping by Juul (2004); but the updated version presented in Figure 3.2 is sufficient in doing so. As such, a greater understanding of the urgency issue, and a way to visualize it, has been reached, and urgency may now be defined.

Figure 3.3: Screenshot of the dragon attack during the "Dragon Rising" quest in *The Elder Scrolls V: Skyrim*. Image by Ed Raby Sr.

3.4 Urgency

The standard dictionary definition of urgency is *"(something of) Importance requiring swift action"*[2]. Going by this definition, the concept of urgency might seem more apparent in certain types of games than others - specifically, games where gameworld time flows similarly to that of real-time. An example of this could be real-time strategy (RTS) games; in these, the dictionary definition of urgency can be experienced most of the time. The reason for this, is that players will often have to respond immediately to the actions of their opponents (at least if they want to have a chance at winning the game). The same 'immediate urgency' can also be experienced in more linear or narrative-driven games (games with a high level of storyness, as per Ryan (2009)) - in perilous situations where not acting urgently may result in the death of the player character, a game over screen, and a restart from a previous checkpoint. However, these examples are in stark contrast to many, if not most, of the games that have expansive open worlds featuring many different paths and stories, large and small, to follow. As previously described (see section 3.3.1), story time in such games can appear to almost stand still - at least in a narrative sense. This affliction is shared by most games featuring partial ordering (see Section 3.3), and where players are afforded the agency to choose between events. Consequently, the experience of urgency - as per the dictionary definition - appears to be unattainable in these types of games.

In order to achieve the narrative coherency that seems to be lacking in games of the type described above, a different approach to urgency - a formal definition, a framework for *narrative* urgency - is required. In essence, what is needed is a solution to the urgency issue (see Section 2.1) - a concept that, when implemented, instills in the player a sense of narrative coherence, of pacing, even in games where the narrative is told in relationist time, and the player is allowed the agency to pursue non-narrative activities. Reintroducing *time* as an important factor, as it is in traditional narratives, is a potential solution. However, time control in real-time environments is an unlikely fix as it only works when you limit player freedom through either restrictive or

[2]Oxford Dictionary Definition,
`https://en.oxforddictionaries.com/definition/urgency`

instance-based narrative progression, as described in the pre-analysis chapter (see Section 2.1.1) - and even then, problems with continuity and pacing may still arise, if the player is to be allowed any agency at all in the game.

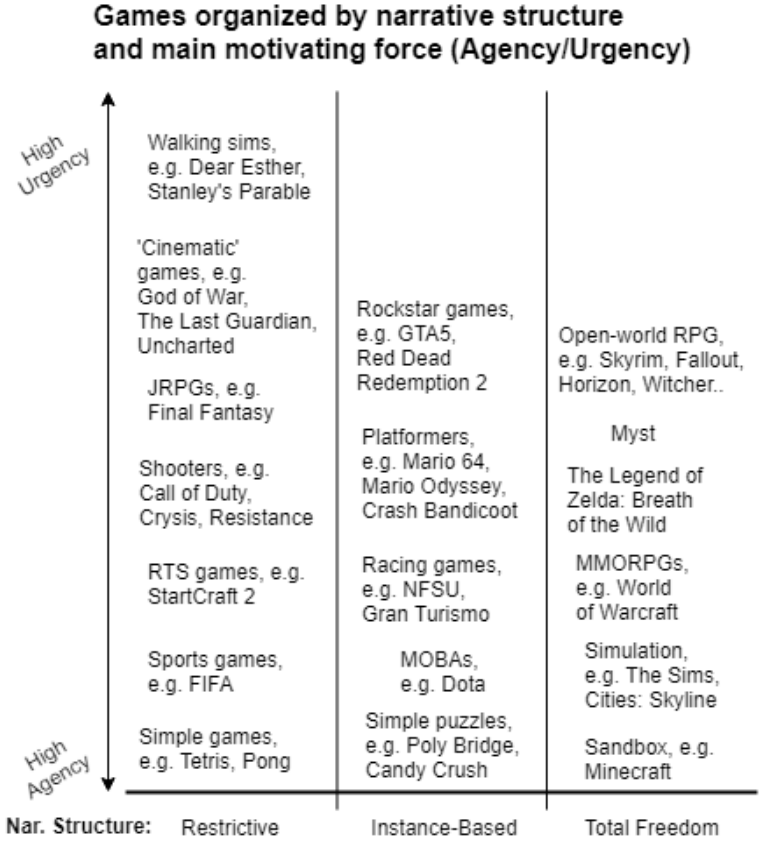

Figure 3.4: A diagram featuring a collection of well-known games and genres, graded according to their reliance on agency and urgency, and according to their type of narrative progression. The further right a game is placed, the more prone it is to urgency issues - however, some games, for instance, *Minecraft*, avoid these by having no- or very little in the way of authored narratives to begin with.

In the process of reaching a working definition of urgency, a diagram was created - it can be seen in Figure 3.4. In the diagram, games and game genres are ranked according to their 'narrative focus', expressed through our assessment of their reliance on agency and urgency - in effect, viewing these as opposing poles. The games and genres featured in the diagram are furthermore arranged according to their most-used type of narrative progression - either *restrictive level-design*, *instance-based progression*, or *total freedom*, as defined in Section 2.1. What became apparent from the creation of this diagram, is that restrictive level design is less prone to urgency issues, and more effective at creating a sense of urgency, than instance-based progression - and that total freedom is much more prone to urgency issues than the other two. This goes hand in hand

with how free-roaming and high levels of player agency has been discussed so far in this report as causes of urgency issues - but the diagram also highlights how games and genres across all three narrative progression types either strive for simple storytelling and rewarding gameplay, or *attempt* to incorporate deep narratives, even if urgency in the plot can be difficult to achieve.

3.4.1 Defining Urgency

Looking at the contributing factors to urgency as a concept for interactive media is a logical step in reaching a formal definition of urgency. Based on how urgency and urgency issues have so far been described in this report, including the ordering of games featured in Figure 3.4, it becomes evident that it relates to somehow driving the narrative forward, or otherwise updating the "state" of the narrative, in game environments that may be rich in agency and non-narrative possibilities. Thus, *urgency* will be defined as:

> *"An interactive medium's ability to motivate interactors to act in accordance with optimal narrative coherency, given the agency not to do so."*

Considering this definition and the visualization of and urgency issue in Section 3.3.2, we can now properly describe the problem of urgency in its proper context. Lack of urgency is not always an issue, nor do all games suffer from faulty implementations of it, as there are both good and bad examples - to some extent, we would allow that urgency is something that can be imposed upon players by limiting their agency at given situations. This approach is what, at the present time, is the normality for most applications, however, we argue that what is achieved through such an approach is simply the illusion of urgency.

How or when urgency becomes a problem is when the perceived urgency can't hold up to the perception of what would happen if action was not taken in an urgent manner. It can be argued that, in order for players to *perceive* a situation as urgent, requires a basic understanding of the narrative. As described in Section 3.1.4, understanding and processing a narrative includes constructing a mental storyworld, based on the cues in the presented story (and in the case of games, the presented game world). As described in the same section, all of this requires the player to suspend their disbelief. Conversely, it can be argued that issues with urgency may compromise the player's storyworld construct, and challenge their suspension of disbelief. Thus, we can approach urgency as a problem when players' suspension of disbelief is broken in the narrative. As described in the analysis of time in narratives (see section 3.1.3) the concept of verisimilitude (or naturalization, or believability) of what is experienced by the audience can to some extent be used to describe this problem; such that, failure to reach verisimilitude from the experienced narrative events, main or secondary, results in failure of urgency. However, this is not a failure to instill urgency in the audience but a failure to "follow-through" when the illusion of urgency is broken.

Agency and Urgency as motivators

At its core, urgency is influenced by player motivation and is to some extent linked to the construction of storyworlds in the minds of players, as a method of determining what actions to pursue at a given moment - what actions are 'most necessary' in the player's perception of the world, so to speak. According to Mawhorter et al. (2014), taking an action in a game is motivated by one or more of a number of "desires", that can either have *diegetic* motives (i.e. be narrative-driven), *extra-diegetic* motives (not driven by narrative - e.g. agency-driven) or somewhere in between. The full list of desires is as follows:

Diegetic motives:

- Desire to achieve the "best" outcome from the perspective of a specific character.
- Desire to achieve a character's goal.

Semi-diegetic motives:

- Sympathy for or empathy with a character.
- Desire to select the "most realistic" option according to the character making the decision.
- Desire to manipulate some semi-diegetic quality (for example a character's strength or alignment score) through choices.

Extra-diegetic motives:

- Desire to achieve the "most interesting" outcome.
- Desire to entertain an audience.
- Desire to explore a game exhaustively.

In narrative-driven games, the diegetic and semi-diegetic motives translate to an inherent interest in pursuing or progressing in the narrative; an *urge* to experience the story, so to speak. In opposition to this, games that focus more on gameplay and mechanics may rely more on extra-diegetic motivation, enticing players with a promise of great agency, their perception of the mechanics, to progress the game. An example of a game on each end of the scale would be The Last GuardianSony Interactive Entertainment (2016) as an urgency driven game, and Tetris as an agency driven game.

The Agency/Urgency Framework

Considering these opposing motivators, we present a model: The *Agency/Urgency framework*, shown in Figure 3.5. This model provides a textual and visual explanation to how a game is interpreted by players, what motivates their actions, and how this in turn updates or changes a state in the game.

The starting point for this framework is the game (potentially, any game) itself. Games can be considered to contain both *game elements* (e.g. the rules and mechanics) and *narrative elements* (e.g. the authored story (insofar there

is one), and how it is represented in an audio-visual game world). These two types of elements, game and narrative, each form the basis for a loop that repeats throughout the play session - an *agency loop* and an *urgency loop*.

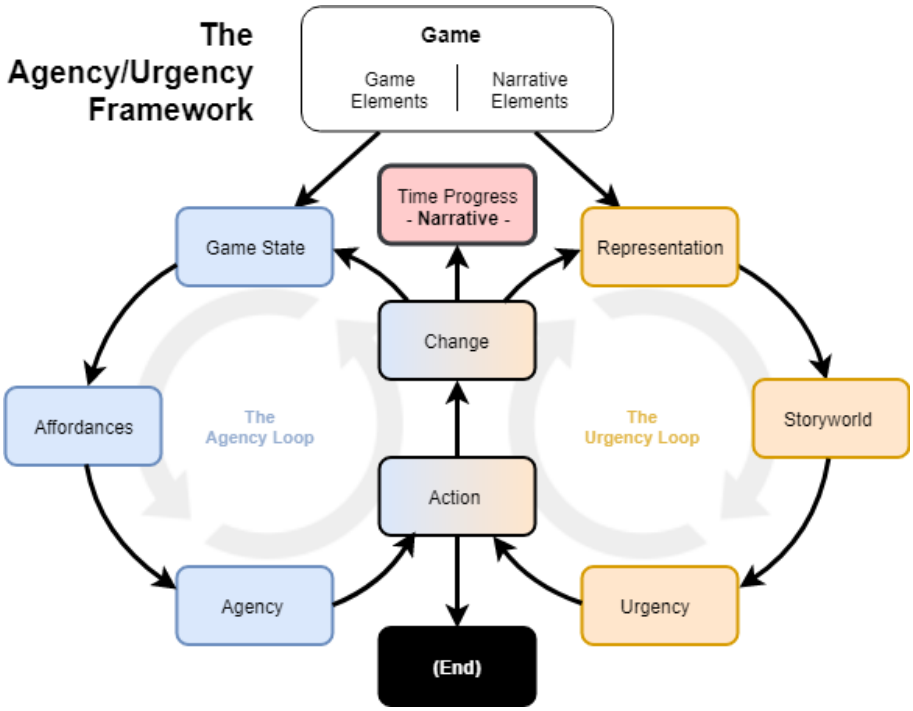

Figure 3.5: The Agency/Urgency framework. A model of how actions are influenced by agency and urgency to instigate change in a game, which updates both the game state and the represented game world, which may also be perceived as narrative progress.

In the agency loop, the game elements form the basis for a *game state*. In this state, the player is afforded a number of actions, which are then perceived and interpreted as agency by the player. The player, having agency, may desire certain actions - e.g. exploring a game exhaustively, as per the "extra-diegetic motives" described in the previous section. A player acting on the game, will then constitute a change - this can be anything from pausing the game or moving the character, to more 'serious' actions like killing an NPC or beating a level. This change, whatever it may be, then leads to an update in the game state - and thus, the loop repeats indefinitely, until the player takes their final action: Ending the session.

Mirroring this, the urgency loop begins as a *representation* of a game world is created through the game's narrative elements - e.g. through its visualization, but also through text, cutscenes, or in-game events. This representation is then interpreted by the player as a mental *storyworld* construct, containing both the cues obtained through the game world itself, and the current 'state' of the story. This perception may then trigger a sense of *urgency* in the player, motivating them to take an action because of their attachment to the story, rather than their perceived agency. Following this action, the same thing happens as with

the agency loop - the action sparks a change in the game world, which leads to an update in the represented world.

In addition to feeding back into the loops, the change brought upon the game state and game world may also lead to another outcome - an experience of *time*, as described throughout Section 3.3.1, and then, by viewing the current state of game and narrative as an *event*, and relating it to events earlier in time, an experience of *narrative*, the 'final outcome' of the framework.

Returning to the loops in the framework, a player may also be motivated by *both* their experience of agency and urgency - as per the "semi-diegetic motives" described in the previous section - and an action driven by agency may also bring with it an update to the urgency loop, and vice versa. Worthy of note is that games themselves, as explored through the diagram in Figure 3.4, may be designed to focus mostly on urgency or agency (or try to strike a balance between the two) depending on their focus on gameplay and storytelling. However, a game that inspires mostly agency-driven action may also includes a narrative - but if players only focus on agency, the urgency loop will grind to a halt, meaning that the player's suspension of disbelief, and consequently their imagined storyworld, will be challenged - or ultimately, broken. At this point, the player may be unwilling to 're-immerse themselves' in the story, and play the game only for its gameplay - an experience the authors of this report can attest to having experienced numerous times. Conversely, the storytelling in the game may be so riveting that the player fully focuses on the narrative, feeding only into the urgency loop - in effect, completely forgetting the 'game-parts' of the game, potentially ignoring some otherwise interesting gameplay elements or missing out on e.g. hidden items or rewarding challenges. As such, it may be most rewarding for players to strike a balance between the two loops, and 'keep them both running' - although, naturally, fluctuations may occur.

With the presentation of urgency - including its definition, a discussion of how it is achieved, and a framework explaining how it relates to the experience of playing games in terms of e.g. narrative, agency, and storyworlds - this analysis is concluded. The remainder of this report will focus on how the urgency concept was validated, and how it can be implemented and measured.

Chapter 4

Methods

In the previous chapters, the concept of *urgency* was introduced, defined, exemplified, and related to existing terms. However, the effect - and indeed, very existence - of urgency is still far from being established as fact, as the term at this point has yet to be properly formalized as an observable, measurable factor in how game narratives are processed, and player actions, motivated. This chapter describes the methodology selected in this project for potentially achieving that goal.

4.1 Research Question

In order to delimit the research going forwards and keep it focused on the goal above, a main research question could potentially be beneficial. The central question to answer in this project is thus formulated:

> **To which extent can urgency be incorporated in the narrative design of games, and its effects measured?**

This question is in two parts, but both parts are equally important in establishing urgency as a potential solution to the issues described in Section 2.1. Therefore, it would likely not be sufficient to conduct a singular study, if both parts of the question are to be answered.

4.2 Approach

In order to sufficiently answer the research question presented above, an approach featuring 3 individual studies was decided upon, each with their own unique focus and goal.

4.2.1 Study 1

The purpose of the first study is to validate the existence of urgency; to discover whether this term actually has any bearing on how game narratives are experienced to others than the writers of this report - and the few researchers featured in the analysis, who describe problems in current game narratives similar to our definition of urgency issues (see Section 2.1).

To this end, a series of expert interviews will be conducted. The full goal of these will be: (1) as described above, to assess whether the thoughts and opinions expressed in the previous chapters on urgency (or the lack thereof) in most games is shared by others, and (2) to assess whether the assumptions made in the Agency/Urgency framework, while based on existing research, sufficiently covers how gameplay and game narratives are experienced by (and motivates) players.

A pair of hypotheses have been developed, expressing the main question that will need to be answered by this study:

Study 1 Hypotheses

- Experimental Hypothesis: Urgency issues in games have a negative impact on the narrative experienced by players, and consequently, the players' ability to suspend their disbelief.
- Null Hypothesis: Urgency issues in games have no impact on the narrative experienced by players.

Following the interviews, the answers will be analyzed and it will be discussed whether the Urgency/Agency framework needs to be updated. While this study is not expected to yield any data directly towards an answer to the research question, it is nonetheless considered important in establishing urgency as a credible concept. Following the potential update to the Urgency/Agency framework, study 2 will be commenced.

4.2.2 Study 2

Study 2 will begin with the creation of a questionnaire featuring Likert-scale items measuring the 'level' of urgency present in a game along several subscales, based on the Agency/Urgency framework, the theory behind urgency as presented in Chapter 3, and the results of the conducted interviews in study 1 (5). Following its creation, a number of test participants will play an approximately 20-minutes session in one of several commercial games, some of which are considered more prone to urgency issues than others, and subsequently answer the questionnaire.

The purpose of this study is likewise expressed as a pair of hypotheses:

Study 2 Hypotheses

- Experimental Hypothesis: Through questionnaires, a significant difference in perceived urgency can be measured between games.
- Null Hypothesis: No significant differences can be measured in the perceived agency between games.

Statistical analysis of individual items and subscales will reveal whether they reliably measure what they are supposed to, while statistical analysis of individual answers will reveal whether any significant differences were experienced between game sessions. If successful, this study will indicate that perceived urgency levels can be measured through questionnaires, as well as

which subscales most significantly affected the participants' perceived levels of urgency. As such, with the conclusion of this study, part of the research question will hopefully be sufficiently answered, and a questionnaire for measuring urgency created, allowing for future exploration of the urgency concept.

4.2.3 Study 3

The purpose of study 3 will be to exemplify one or more potential solutions to the urgency issue through the implementation of a novel game prototype. This prototype could then potentially be evaluated through the developed urgency questionnaire, by A/B testing it together with a version of the game that did *not* incorporate the urgency solution, in an evaluation featuring either between-groups or repeated-measures design.

The hypotheses for this study are:

Study 3 Hypotheses

- Experimental Hypothesis: A significant difference in perceived urgency can be measured between a game featuring a solution to the urgency issue, and an (otherwise identical) game not featuring this solution.
- Null Hypothesis: No significant differences can be measured between a game featuring a solution to the urgency issue, and an (otherwise identical) game not featuring this solution.

Like in study 2, statistical analysis would reveal whether any significant differences in the experienced urgency between game A and B could be found. Thus, likely showing whether the proposed solution have merit, and warrants further exploration and development.

4.2.4 Considerations

In this chapter, the methodology chosen for validating and evaluating urgency has been outlined. This methodology is expected to be a sufficient starting point in establishing the concept of urgency - insofar the results are promising, of course.

As with any scientific study, there is the question of validity - but all in all, the studies described here will presumably be able to be kept both acceptably valid and reliable. Furthermore, even with only a single iteration, the strategy outlined here will hopefully serve as a relatively thorough basis for further validating and iterating the urgency concept, framework, and questionnaire in the future. However, as for study 3, conclusive results might be difficult to obtain and compare to existing, commercial games because of the polish required to accurately represent that of a fully realised implementation. As such, results from study 3 would, likely, not be directly comparable to the results obtained in study 2.

Chapter 5

Study 1: Validating Urgency

5.1 Research Design

In the model shown in the analysis describing how actions are made based on agency and urgency (see section 3.4.1), the parts of the system and mental representation that goes into this process were described. However, as we are dealing with urgency and mental representations, we are also dealing with a large amount of subjectivity. Leaning on the model, the review of work going into it, and our definition of urgency, we can approach certain sub-categories of emotion or experience as they relate to urgency - as described in 4, this study aims to discover and contextualize the parameters useful for evaluating urgency.

Target Group

To properly describe these parameters, we used expert interviews to establish the motivating factors. Experts, in this case, was rather loosely defined as people who considers themselves such, in terms of playing games. This mostly included those that play a large variety of games and have broad knowledge of games, mechanics, and narratives in games.

5.2 Setup and Evaluation

To allow for some exploration in the opinions of interviewees the semi-structured interview model was chosen. Based on the techniques described by Bjørner (2015), the interview was constructed to be, firstly, exploratory in regards to games and their narrative; secondly, more probing questions would be asked if subjects mentioned something that potentially lead them to talk about concepts concerning urgency issues. Afterwards, indirect questions about their motivation of what to pursue, and how they choose their actions, and lastly direct or verification questions were asked to directly get their opinion on urgency and how it is, and could be, handled in games. The interview guide was as follows:

- Demographics
  - How often do you play games?

  - Would you consider yourself an expert on games?

- Introductory / Probing
  - Have you ever felt drawn into or immersed in the narrative of a game?
  - Have you ever felt drawn into or immersed in the world presented in a game?
  - Can you name a few games where this was the case?
  - What was it about these games that drew you in?
  - How do you choose which "activity" to pursue in games?
  - Can you think of any games that failed to draw you in, or where you lost interest in the narrative/world?
  - Why do you think those games failed to draw you in?

- Indirect / Verification
  - Imagine a situation where you have a choice between two different quests to pursue. Which considerations do you make to choose between the two?
  - Imagine, then, that the premise of one quest was that you had to hurry, and the other that you did not. Would that affect your choice? (if no, why not?)
  - Imagine you did not choose the "urgent" quest quest and moved in another direction. If you then, much later, returned to the quest and it was still available - how would that affect your immersion/-experience of the world/experience of the narrative?
  - What would it take (or do you have any ideas) for a game to affect your choices more than they currently do?

During interviews, notes to each question, and anything of interest, were noted down. Furthermore, interviews were recorded, after verbal consent, and listened to afterwards, to check whether anything of importance was unknowingly omitted in the note-taking process.

5.3 Results

The results of the interviews were quite consistent, and showed general tendencies towards describing urgency. Player types (as described by the *Player Motivation Model* [1]) remained somewhat varied, but 3 of 5 interviewed subjects identified mostly with the "Immersion" type, although 1 of those also identified with more than one type. All subjects felt drawn to narratives and their respective storyworlds, with the exception of 1 subject who mostly played multiplayer games, and consequently did not have much of a focus on narratives when playing games. Subjects in general pursued activities that furthered the main story, 1 simply to "get it over with" as they wanted to focus on gameplay,

[1] Obtained from `https://quanticfoundry.com/#motivation-model`

but mostly, interviewees chose the activities that fit best with their personification of the character they play and to finish the story, so that they would "experience" the full narrative. However, 3 also (2 of which identified as achievers) usually tried to play and complete everything; one stating that they at first play as they interpret the character or narrative warrants, and to follow the story. Then, when finished, they would start a new play-through where they would go for 100% completion of the game and all activities.

In general, interviewees were motivated to finish the story arcs, and would most likely, if they had to choose between quests, choose the one they perceived would progress the story the most. In the event that they were presented with options where one gave the impression that they had to hurry, they would most often pick the one that felt urgent; furthermore, every interviewee stated that if 'urgent' events only gave the impression that they were so, in the case that nothing 'happened' if not completed quickly, would to some extent break their experience of consistency and belief in the storyworld. Some even noted that they would not be as emotionally engaged if there were no consequences to forgetting playing specific events urgently; although, they acknowledge why more coherent narratives might not be implemented because of an understanding of the games' development process. On the topic of solutions, they preferred if they simply would not give the impression of urgency if nothing would change if not acting upon it, so that the contained narratives makes sense, or that there, simply, is a diegetic explanation to why nothing happened.

5.4 Discussion

In general the results showed some of the predicted tendencies. A somewhat surprising note is that some subjects, on their own accord, entered into describing what we, in this report, have described as urgency issues. This aspect has to some extent already validated the need to reach a better understanding of how players take the actions they do in games, and what the experience is like when the encompassing world does not respond as they expected. With most subjects choosing to closely follow the main narrative aspects in the games they play, but also investigate and be curious about events they encounter along the way, it seems prudent to continue the pursuit of making the narratives and the impact they have on their respective worlds more intertwined. In terms of parameters to evaluate urgency, there is a prevalence of experiences with a break in believability, consistency, and emotional engagement (also described as *emotional buy-in* in the analysis, Section 3.2.1). Consequently, these describing factors align well with our definition of urgency, and our own experience of urgency issues typically arising when there is a failure to reach verisimilitude in the experience. To this end, we reject the null hypothesis of study 1, *"Null Hypothesis: Urgency issues in games have no impact on the narrative experienced by players."*, as from the results, it can be gathered that such issues do affect the experience and perception of the game narratives and their worlds.

Chapter 6

Study 2: Evaluating Urgency

With study 1 concluded, study 2 was initiated. The plan for this study, as explained in Chapter 4, was to develop a questionnaire for assessing perceived urgency in games, and have participants evaluate a few games with it.

6.1 Research Design

The inspiration for the questionnaire was mostly drawn from the theories presented in Chapter 3, and from the Agency/Urgency framework, presented in Section 3.4.1. In general, urgency was described as being dependent on the players suspension of disbelief (SoD), and by extension, their imagined story-world. SoD, in turn, was discussed in Section 3.2.1 as being mostly dependent on (1) the *verisimilitude* of the game and, specifically, game world, and (2), the players' *emotional buy-in*.

Having distilled some of the more basic potential components of urgency, the subscales for the questionnaire, which was created as a 7-point Likert scale and named the *Urgency Player Motivation Scale (UPMS)* were created. 6 such subscales were decided upon: Completeness, Consistency, Emotional Buy-In, Agency, Urgency, and Time/Urgency Issues. The first two subscales, completeness and consistency, were taken directly from the "Narrative Believability Scale" (NBS-12) created by Yale (2013). Considering the precautions taken, the thoroughness of the research, and the high number of participants, this questionnaire was deemed a relatively 'safe' measure of believability - a term that is, if not exactly the same, very similar to verisimilitude. As such, the NBS-12 was deemed sufficient in measuring this aspect of urgency. The two subscales chosen from it (out of four), completeness and consistency, were the subscales considered to have most relevance to urgency in general - the remaining 2 categories, less so.

The other four subscales in the urgency questionnaire were created through the knowledge gathered in the analysis. Emotional buy-in, like the two NBS-12 subscales, were included in order to assess the 'strength' of the participants' SoD, while the agency and Time/urgency issues subscales would reveal what was assumed to negatively impact the perceived urgency - focusing on gameplay over narrative, and experiencing "time bubbles" (periods of 'frozen time', as described in Section 3.3.1. Finally, the urgency subscale was for asking more direct questions related to the perceived urgency.

Table 6.1: The items in the first iteration of the Urgency Player Motivation Scale (UPMS). All statements are rated on a 7-point Likert scale from 'strongly disagree' to 'strongly agree'. ([a]indicates that the item should be reverse-scored. [b] 7-point scale from 'very low' to 'very high').

Subscale	Question	
Completeness	CM1	It was easy to follow the story from beginning to end
	CM2	It was hard to follow this story[a]
	CM3	If I were writing this story, I would have organized it differently[a]
Consistency	CN1	The information presented in this story was consistent
	CN2	All of the facts in this story agreed with each other
	CN3	The "consistency" of a story refers to the extent to which a story does not contradict itself or contradict other things you know to be true or false. How would you rate this story in terms of "consistency"?[b]
Emotional Buy-In	EM1	I empathized with the character(s) in the story
	EM2	I felt different emotions (anger, joy, sadness..) towards what happened during the game
	EM3	I didn't care about whether something good or bad might happen to the character(s)[a]
Agency	AG1	I was mostly focused on the game's mechanics[a]
	AG2	I felt the game was too constricting in what it wanted me to do[a]
	AG3	I wanted to explore and experiment more than to follow the narrative[a]
Urgency	UR1	What I wanted to do often corresponded with what the game wanted me to do
	UR2	I was focused on the tasks the game gave me
	UR3	Sometimes I felt that not progressing with the main narrative would have consequences
Time/Urgency	TI1	I felt like time passed differently in some situations than it did for the rest of the game[a]
Issues	TI2	I felt the game pushed me to focus on certain tasks[a]
	TI3	I felt like the game allowed me to do what I wanted to do

The individual items can be seen in Table 6.1. All items (apart from one, as shown) are statements to which participants would be asked to fill in their level of agreement on a 7-point scale from 'strongly disagree' to 'strongly agree'.

Having developed the questionnaire, the test itself was designed. It was to be a between-subjects study, featuring approximately 20-minutes sessions of playing one of four games: *God of War*, *The Last Guardian*, *Horizon: Zero Dawn*, and *The Elder Scrolls V: Skyrim* (Sony Interactive Entertainment, 2018, 2016, 2017; Bethesda Softworks, 2011). As per the model in Figure 3.4, featured in Section 3.4, all four of these games are considered to be primarily

urgency-driven, although two of them - *Horizon* and *Skyrim* - are considered to be very prone to urgency issues, given their "total freedom" narrative structure (as described in Section 2.1). As such, this evaluation could be viewed as both an A/B study, each group featuring two games, or as an A/B/C/D study, each group featuring one game. As the purpose of the test was not to compare the games as such; rather, to see if urgency differences could be reliably measured with the UPMS, the sessions were to be 'skewed' in terms of perceivable urgency towards a "better"(in the case of God of War and The Last Guardian) or "worse" (in the case of Horizon and Skyrim) urgency experience. This was done by letting participants play from the beginning of the first two games, as the beginning of these games is arguably highly driven by urgency, while participants playing the two latter games would be 'thrown in' to the games post-introduction, where free-roaming and agency was more apparent, and the, by comparison, vague sense of urgency created through the plot could be ignored.

Before the play session, participants would be asked to agree to a consent form and fill in some basic demographic information, e.g. age, gender, player type (according to the player motivation model[1], as in study 1), and similar questions. At the end of the play session, participants would be asked to stop playing, and to fill in the UPMS.

Target Group

The target group for this study was less strict than for study 1 - participants did not necessarily have to be 'experts' on games; however, a basic knowledge of how to play games was required. Given this requirement, all participants were randomly chosen among 2^{nd} to 10^{th} year Medialogy students at Aalborg University, Copenhagen, given the education's tendency to attract students with a keen interest in gaming.

6.2 Setup and Evaluation

All of the games were set up on one of two *Playstation 4* consoles, connected to one of two identical, curved 34" Samsung monitors, ensuring the experience in terms of interface was the same for all participants. The two stations were set up in different, adjacent rooms, allowing for two play sessions at the same time. All participants were additionally outfitted with a pair of headphones, although here, 2 different models were used - one pair of stereo headphones by *Marshall*, and one by *Phillips*. As the sound quality for both pairs was respectable, this was not assumed to considerably impact the player experience. The introductory demographics questions and the post-session UPMS were created with Google Forms, and filled in on laptops placed next to the Playstation setups. Participants were chosen randomly, while the games were played in a set order.

[1]Obtained from `https://quanticfoundry.com/#motivation-model`

6.3 Results

A total of 60 participants participated in the study, 15 playing each of the 4 games, and answering the UPMS according to this.

6.3.1 Demographics

All of the 60 participants, as expected, were Medialogy students at Aalborg University, Copenhagen. There was a rather heavy majority of male subjects - 52 of the 60 participants ($\approx 87\%$) were male, the rest, female. Most participants were in their mid-20s, with only one participant being younger than 20, and one being older than 30. Approximately 27% answered that they played games for 5-10 hours per week, while 25% played for more than 15 - the rest of the answers were in between the two, or less than 5. When faced with the Player Motivation Model, almost 50% answered that they played games for *Immersion*, approximately 18% that they played for *Mastery*, while the remaining answers were divided somewhat evenly between *Action*, *Social*, *Achievement*, and *Creativity*. Finally, approximately 50% had previously played the game they were tasked with playing in the study. Fortunately, and most importantly, *none of the demographic aspects were found to significantly affect the answers to the UPMS*.

6.3.2 Reliability and Correlation

Before analyzing any of the data, scores were reversed for the required items. Following this, a few tests were conducted on the full data sets to explore the reliability of the UPMS.

Reliability

After reversing items, Cronbach's Alpha was calculated for the full set of answers. This revealed a decent alpha value of $\alpha = 0.750$, meaning that the items in the scale were somewhat reliably measuring the same concept. The alpha value could, however, be improved by removing three items: Two of the *Urgency* subscale items, and one of the *Time/Urgency Issue* items (UR2,UR3, and TI2). Not surprisingly, the internal alpha values of these two subscales were rather low, and subsequently, the troublesome items were removed, and the remaining questions in these two subscales were merged into one, again named *Urgency*. This was primarily done to simplify the overview of subscales, as the reliability of this subscale was still rather low - as such, going forwards, this subscale would require some major revisions. Similarly, the internal reliability for the *Agency* subscale was rather disappointing. Nonetheless, removal of the troublesome items revealed a very acceptable overall alpha value for the remaining 15 items of $\alpha = 0.824$. An overview of the reliability of each subscale can be seen in Table 6.2.

Item Correlation

A factor analysis revealed the correlation between individual items, further indicating troublesome subscales as well as potential areas of cross-loading. Unsurprisingly, following the weak internal reliability scores, the agency and

Table 6.2: Cronbach's Alpha values for all subscales (completeness, consistency, emotional buy-in, agency, and urgency), and for all items together. The overall score indicates a very acceptable overall reliability, while a few of the subscales indicate a low internal reliability.

Subscale	Comp.	Cons.	Emo.BI	Agency	Urgency	Total
α-value	.680	.747	.838	.297	.314	.824

Table 6.3: Means and Standard deviations for averaged answers, separated by test group and UPMS subscale.

Test Group	Value	Comp.	Cons.	Emo. B.	Agen.	Urgen.
God of War	Mean	6.356	5.889	5.200	4.111	5.711
(high urgency)	Std. Dev.	.781	.793	1.361	.989	.805
Skyrim	Mean	5.156	5.444	2.962	4.244	4.489
(low urgency)	Std. Dev.	1.167	1.021	1.393	1.035	.983
The Last Gd.	Mean	5.089	5.444	5.400	4.000	4.822
(high urgency)	Std. Dev.	1.383	1.343	1.513	1.291	1.259
Horizon	Mean	5.044	5.644	3.889	3.489	5.089
(low urgency)	Std. Dev.	1.290	.449	1.521	1.133	.556

urgency subscales proved here to be areas of potential issues. Two of the agency items (AG1 and AG3) had a higher correlation with the emotional buy-in subscale items than with the other agency item or indeed each other, whereas the remaining agency item (AG2) correlated more with one of the completeness items (CM3). However, adding the agency items to the correlated subscales, did not increase the reliability of those. The urgency items tell a similar story - the first item here (UR1) correlated most with the consistency subscale, while the other two (UR2 and UR3) had no particularly high correlations with anything. For the other three subscales, correlations within the subscales were modestly high, compared to correlations with other items. Nonetheless, removal of these troublesome items would reduce the total reliability - as such, they arguably still belong in the UPMS, but their 'true' subscale has yet to be discovered.

6.3.3 Averaged Subscales

After the tests made to reveal the reliability of the scale, each participant's 3 answers per subscale were averaged before going forward. The next steps were to analyze the averaged answers through a few different methods.

Means and Standard Deviations

As soon as the answers were averaged, descriptive statistics were extracted. This extracted data can be seen in Table 6.3.

Taking a closer look at the numbers in the table reveals some interesting tendencies. God of War, arguably the most "cinematic" of the games, scored higher in competency-, consistency-, and urgency means than the other games, while The Last Guardian - which was also regarded as a high-urgency game, only had the highest mean score in the emotional buy-in subscale, and was otherwise behind either Skyrim or Horizon in the other subscale means. Skyrim,

Table 6.4: Results of a Kruskal-Wallis H test, comparing the four games. According to this test, significant differences appeared in the completeness-, emotional buy-in-, and urgency subscales.

	Comp.	Cons.	Emo.B.	Agen.	Urgen.
Chi-Square	12.865	1.726	14.522	3.363	11.446
df	3	3	3	3	3
Asymp. Sig.	.005	.631	.002	.339	.010

considered one of the 'worst offenders' in terms of urgency issue aptitude, had the highest agency mean - which is surprising, considering this subscale was reversed, and a high score therefore should signify a *low* focus on agency - however, as the agency subscale has so far proved to be very unreliable, this could just be another sign that it should be disregarded. Horizon, apart from having the second-highest mean in the consistency and urgency subscales, scored rather low.

That The Last Guardian's scores turned out to be somewhat underwhelming, can quite possibly be attributed to its standard deviation scores, as it was the only game that consistently had a standard deviation higher than 1 on all subscales. There could be different reasons for this, two of which seem likely: Firstly, the gameplay and story presented in this game may simply have divided the participants' opinions more so than the other games - which could very well be, as it is somewhat more atypical in these respects than the other games in the list. Secondly, it was the game that the least amount of persons had previously played - only 1 of the 15 participants who were tasked with playing it, had previously done so. As such, this may also indicate that the 20-minute sessions were simply not enough to get a 'proper idea' of the games in question - at least not this one, which could be also be accredited to the more atypical gameplay. In comparison, the other game assumed to be of 'high agency' for the purpose of this test, God of War, had consistently low standard deviations - only the standard deviation for the emotional buy-in subscale was above 1 for that game.

Non-Parametric Tests

While the tendencies described above are interesting, what remained at this point for the statistical analysis, was arguably the most important step - analyzing whether the averaged item scores significantly differed from each other.

As questionnaire data cannot be said to be parametric (rather, ordinal), non-parametric methods were used to test for significance between test groups - a Kruskal-Wallis H test was used to uncover whether any statistical significance existed when comparing all four games, while Mann-Whitney U tests were used to compare each game to each other pair-wise, and to compare the two 'main' test groups (assumed high/low urgency). The result of the Kruskal-Wallis H test can be seen in Table 6.4, while the results of the Mann-Whitney U tests can be seen in Table 6.5.

What can be gathered from the Kruskal-Wallis test is that significant differences were found on three of the five subscales (completeness, emotional buy-in and urgency) when comparing all four games against each other. However, this

Table 6.5: p-values for pair-wise Mann-Whitney U test comparisons of the four games, and for the two assumed high-urgency games (God of War and The Last Guardian) against the assumed low-urgency games (The Elder Scrolls V: Skyrim and Horizon: Zero Dawn).

	Comp.	Cons.	Emo.B.	Agen.	Urgen.
GoW/LastG	.007	.486	.486	.713	.056
GoW/Skyrim	.003	.27	.007	.653	.001
GoW/Horizon	.001	.325	.013	.174	.019
LastG/Skyrim	.967	.683	.005	.512	.486
LastG/Horizon	.902	.806	.007	.305	.595
Skyrim/Horizon	.935	.567	.653	.098	.098
High/Low urgency	.033	.305	.000	.645	.043

test does not reveal much in terms of precisely where these differences were to be found.

When comparing the games pair-wise, the p-values shown in Figure 6.5 reveal more details than shown in by the Kruskal-Wallis H test - details that more or less confirm the differences observed already in the means and standard deviations discussed in Section 6.3.2. God of War, as somewhat expected, scored significantly higher in the UPMS than the other games on several accounts. Significant differences were found between this game and the three others in *completeness*, as well as a significant difference in *emotional buy-in* and *urgency* when compared to the two assumed low-urgency games (Skyrim and Horizon). The Last Guardian also scored significantly higher than Skyrim and Horizon in the emotional buy-in subscale, but not in any others. Comparing the two remaining games revealed no areas of significance. As such, while the individual answers from players of The Last Guardian painted an unsure image of where this game would be placed, these results indicate that it nonetheless had more in common with God of War than with the other games. At the same time, comparing the two assumed low-urgency games to each other revealed they had more in common than any other pairs in the list.

What can be concluded from this data is, that the assumption that God of War and The Last Guardian would score significantly higher in the UPMS than the other two games proved to be correct. To further support this point, a Mann-Whitney test between the two pairings (high and low urgency games) revealed similar results: The God of War/The Last Guardian pair scored significantly higher in completeness, emotional buy-in, and urgency when compared to the other pair, and the significance here was greater for emotional buy-in and urgency than it was for God of War on its own.

6.4 Discussion

In summary, the questionnaire - the Urgency Player Motivation Scale, as it was named - got some things right, and some things wrong. Going back to the hypotheses created for this study (see Section 4.2.2), it seems the null hypothesis can be rejected, as significant differences in the games were found via the UPMS. Consequently, the experimental hypothesis can somewhat be accepted - however, the questionnaire did have a few issues. After removing a few trouble-

some items, the reliability of the UPMS in general was found to be sufficiently high ($\alpha = 0.824$) to somewhat safely assume that the questionnaire measures one concept. Given the considerations made in creating the subscales, it is also somewhat safe to assume that the concept being measured is urgency. Finally, it can be somewhat safely assumed, as suggested in the analysis, Section 3.4, that verisimilitude (or *believability*) and emotional buy-in are critical components in instilling a sense of urgency in players. What can be difficult to say, is what other aspects affect the perception of urgency, as the remaining two subscales scored very low in reliability. As such, if the questionnaire is to be iterated upon, the next steps should be to explore other possible subscales and weigh them against what was established here, in an effort to get ever closer to what constitutes the urgency concept.

Chapter 7

Study 3: Prototyping Urgency

Study 3 was, despite the name, not so much a scientific study as it was a demonstration. The purpose of this study was to showcase a potential solution to the urgency issue - proving that, with some awareness of urgency and a few clever ideas, the issue could be avoided.

7.1 Research Design

The solution was implemented in *Unity 3D*, in a novel game world created by us from scratch, using a skeleton of core functionality from Unity's "Book of the Dead"[1] demo, and primarily photogrammetry assets by Quixel[2]. This gameworld consisted of a harsh, desert environment - more specifically, a barren island in the middle of a literal sand sea. 2 versions of this game world were made; one featuring the proposed solution, and one instead featuring the usual "time bubbles" as explained in Section 3.3.1.

The ultimate goal of this implementation would be to conduct a full A/B evaluation using a re-iterated version of the UPMS (see Chapter 6). However, due to time constraints, this goal could not be fully realized. Instead interviewees played through each implementation and followed by a semi-structured interview to gain immediate feedback on the implementation, and the proposed solution in general.

Target Group

The target group for this study was similar to that of study 2 - individuals with a good, basic knowledge of games. 4 participants were included in this study. Due to limitations in regards to the used equipment, a powerful desktop computer, the test took place in the SMILE (Samsung Media Innovation Lab for Education) Lab with participants that were available at the time.

7.2 Design, Setup, and Evaluation

The proposed solution to urgency issues is focused mostly on the open-world RPG games, which we describe in the analysis to have the most extraneous

[1] `https://unity3d.com/book-of-the-dead`
[2] `https://quixel.com/`

issues, but could potentially be used in any type of game that has secondary activities/quests.

7.2.1 Prototype Design

With a general motivation for this project being to reintroduce the concept of time in games and their narratives the proposed solution is an attempt to simulate the progress of time. In general, the core idea is to use the concept of *Inaction Consequences* to change some binary quest states based on which quests players of our implementation choose to pursue. As such, we designed certain quests that implied that they had to hurry in some way, and changed the outcome based on whether they did or not. One example of this is a quest where the player is tasked with investigating some smoke down by a storage area. If they immediately go and investigate this, they discover a small plume of smoke, but manages to put it out before it takes hold; if they instead, choose to pursue other quests after having activated it, they will instead find a pile of burned out rubbish as the storage crates have burned out. As such, the proposed solution is simply to alter small parameters of the context surrounding specific events in the attempt to acknowledge the passing of time in the world. Translating this concept to one of the issue prone games used in study 2, Horizon: Zero Dawn. The game feature a small series of quests called "Corruption Zones", a small tweak to the context of these quests could be to alter the difficulty or size of the zones as players progress further in the game without dealing with them. In Skyrim, the spawn rate of dragons becomes higher as you progress in the main narrative, what we would propose instead is to increase it as you progress any quest.

7.2.2 Set-up and Evaluation

The study was conducted with participants playing the small implementation, lasting approximately 10 minutes, in a random order - i.e. two played the normal version (Version A) first, and the other two played the inaction consequence version first (Version B). Afterwards they were interviewed based on the interview guide shown in appendix A. Afterwards the notes taken from the interviews were processed to establish a general idea of what participants thought about the implementation, and the concept as a whole.

7.3 Game Design

The game, implemented in Unity 3D, was set up as a first-person, open-world (albeit a rather small world) environment, populated by a number of NPCs, with the working title of the environment/game being Seven Sands. The player character was never seen, as the game was played through their eyes. The role of the player character was to be a member of a work force, sent to explore the small island, and harvest whatever resources could be found. At the time the player enters the world, this job is more or less done, as only a few minor tasks remains before the workers can leave the island. The NPCs would serve as quest givers, triggering these small quests when talked to by the player. 4 such quests were implemented, the completion of each a requirement for the

players to finish the game. Shown in Figure 7.1 a portion of the environment can be seen in a birds-eye view.

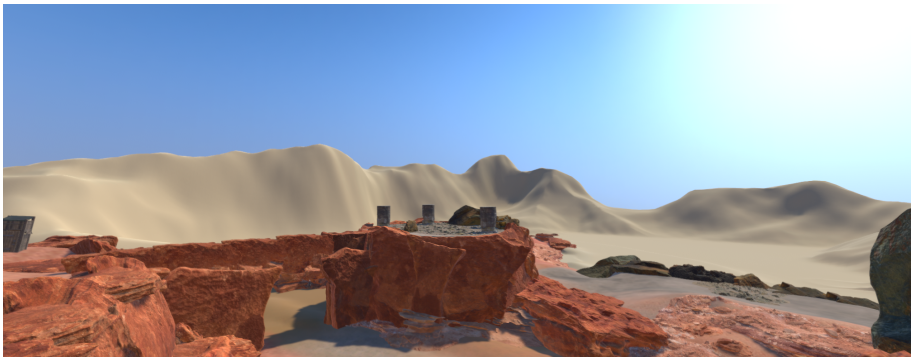

Figure 7.1: A screenshot of roughly half of the implemented environment. Showing the general theme of large sand dunes, and a rocky, sandstone island which plyers could roam

Inaction Consequences

The solution to the urgency issue included in the game was as described *Inaction Consequences* - that is, consequences designed into the quest, in case the player failed to reach the quest goals in time.

The inaction consequences were implemented via a 'hidden counter', that would increment by 1 each time specific points, in relation to the narrative and quests, were reached. As such, it was implemented in relationist time (see Section 3.3.1, as players would still be able to stand still or explore the environment, taking their time to reach the goals, without experiencing inaction consequences - while actively choosing to pursue another task, abandoning the task the player was currently working on, would cause the timer to increment, leading ever closer to a changed outcome of the abandoned task.

7.4 Results

The results showed some encouraging tendencies towards the proposed solution. All participants preferred the version with inaction consequences. Participants did feel like the consistency of version B (Inaction Consequence version) was somewhat higher as they understood why the alternate outcome occurred because they did not immediately progress a specific quest. Although of course not all participants encountered all outcomes, after explaining all potential possibilities they stated they would prefer version B. Which leads into the section about emotional buy-in, as that showed as one of the clearer parameters that is affected in this type of solution - which aligns well with the obtained results of the UPMS scale in Study 2. When asked participants agreed that they would be more likely to pursue the urgent quests if they knew not doing so would alter the outcome. However, participant 1 also stated that if they, at the time, were more invested in furthering a quest that had no alternate outcome, they would continue it even if another quest would get a changed outcome as a result. On

the general concept of inaction consequences, participants were quite positive. Although most were not immediately accepting of the idea that a game could become unwinnable. Although, some thought the concept would be fine if they could continue playing in the "lost" version of the game.

Chapter 8

Discussion

In this project, existing literature and theory was used to develop the concept of *urgency*. This concept, while being a completely new concept defined by us, relies heavily on existing research, and can be used to describe and refer to some of the more stable, accepted concepts in academic game literature, but which lack a common reference point - one that we hope to establish with this work. In essence, it is an attempt to better understand and describe what motivates players when they make decisions and do activities in games. Through the analysis, and the review of literature presented herein, we attempt to not only say that games contain narratives, but also that players can be driven to act by them - to some extent, to bring equilibrium between gameplay and story in games as the motivating factors when playing.

What is proposed is thus not a way of saying some games are better than others, but a way of describing games and their components in terms of gameplay and in terms of story, as well as how they work together and to fully describe, as we propose with the Agency/Urgency Model (section 3.4.1), that updates to the game worlds and experienced narrative or storyworld is propelled by either agency afforded by gameplay, or urgency afforded by the represented gameworld and story. The validation of the model and the concept of urgency was made through exploratory research, which started with, what is considered, expert interviews with 5 independent master Medialogy students. Even though 5 interviews are not that many, from the detail-rich nature of these interviews a lot of data on how the experiences of what we describe in the analysis as "urgency issues" is perceived by others, and if they too would regard them as issues. Through review of the gathered data, most, if not all, of the assumptions made about urgency and how issues arise because of it were verified. Because of the subjective nature of the subject matter, we constructed a self-report measure 7-point Likert scale questionnaire - based, in part, on the NBS-12 (Narrative Believablility Scale) and questions made by us, which we composed based on the knowledge gathered through the analysis and interviews. However, encouraging as that is, there is a possibility that we are measuring existing concepts that are closely related to what we define as urgency. However, as we are of the strong belief that while many concepts are related none really encompass what we attempt with urgency.

In *"Study-2"* we evaluated specific sequences of games which we predicted would be in contrast to each other and elicit measurable differences between

the two we evaluated as "good", and the two evaluated "bad" - these sequences being the intro of God of War (2018) and The Last Guardian, and the first sections where players are allowed "free-roam" in The Elder Scrolls: Skyrim and Horizon: Zero Dawn. The sequences were chosen based on what was mostly representative of the games as a whole, and to demonstrate our ability to properly define sequences, based on analysis, that would provoke the desired response. In terms of validity for this approach, it should be underlined that it might not be indicative of the games as a whole - we would also suggest, that urgency can vary throughout a game. Consequently, some next step in thoroughly evaluating these games in terms of urgency would be to conduct a much longer and extensive experiment, which would cover the entire games from start to finish and the questionnaire filled out periodically after each play session, e.g. after a 1 or 2 hour session. This would hopefully demonstrate the same results from an aggregated average as we obtained in this project, further validating the questionnaire - and also give an opportunity for the consistency- and, a revised, agency scale to register better results. Because of the results we obtained from study 2, we do strongly believe we are measuring what we think we do, and have been able to accurately analyse games, or at least sequences thereof, in terms of their urgency or issues as related to urgency. Whether urgency can gain a strong position within the field remains to be seen, but at the least these results shows promise for the core foundation of urgency, that being the concept of time.

"Study-3" was a short proof of concept for a potential solution to urgency issues in the specific context of open-world RPG games - the type of game, which we would say suffers the most from them. A small novel implementation in a virtual environment we made ourselves, with a small narrative arc and quest structure was made and evaluated upon. Although the we did not manage to have a lot of participants the information we did gather showed some promise. However, with the novelty and limitations of the prototype it is very difficult to make any concrete statements without further evaluation.

8.1 Future Works

As already mentioned, some more iterations of the developed *UMPS* questionnaire is needed, as we continue to iterate the questions which best describe the concept of urgency as we have described in the analysis and the discussion of results from Study 1. Whether the *Consistency* subscale contributes is somewhat up for debate, however without a longer study, that is much better suited to allow differences in this category to show up, we would refrain from iterating or removing the scale as it showed high internal validity and we continue to believe based on the work and observations made throughout this project, that it is a relevant parameter when discussing urgency.

For the future of the proposed solution to urgency issues, initially the fully realized study as described in study 3 would be a beginning for seeing if we through it can achieve consistently better results in the UMPS when opposed by a similar implementation not featuring inaction consequences. However, moving further into the future to achieve a more direct comparison with full commercial games a complete open-world game featuring the idea would be the best case scenario, albeit also with a very long timeframe and large price-

tag attached. As such, it becomes interesting to look at some of the rumours surrounding the upcomming AAA game Cyperpunk 2077 because some of them would suggest that similar steps might have been taken in the games narrative.

Chapter 9

Conclusion

Time in games has, as we see it, become lost in the medium. Through a thorough analysis of existing theory e.g. on mappings of time in games and game narratives, we propose a re-introduction of the concept of time through incorporating what we refer to as *inaction consequences* in large narrative structures, to better simulate the experience of time passing, in both a storyworld and narrative sense - and as a way to create a more dynamic relationship between the two - which we suggest would alleviate the issues we believe arise when they are allowed to exist in temporal bubbles. What we strive to achieve with this implementation is to create a stronger sense of *urgency*, which we propose is the narrative-based motivating concept in games which players use to determine how and when they wish to progress with the narrative of games. This concept we illustrate through the proposed *Agency/Urgency framework*, as described in section 3.4.1, showing how actions are made based on either a motivation stemming from afforded agency or afforded urgency. The former as a composite of all the game elements, i.e. mechanics, rules, gameplay activities; and the latter a composite of the the narrative elements, i.e. story and storyworld. The suggested existence of the described urgency issues was demonstrated through a between-subjects study where participants in groups of 15 would play 1 of 4 games - these being God of War (2018), The Last Guardian, Horizon: Zero Dawn, or The Elder Scrolls: Skyrim; with the first two being assumed to be good examples of high urgency, and the latter two assumed attempting to achieve high urgency, but running into problems because of the freedom afforded through agency. The four individual groups would be grouped into two of 30 each, to eliminate the possibility of one game simply being perceived as better than another. Through analysis of the data obtained through our proposed UPMS (Urgency Player Motivation Scale) self-report measure, we observed significant differences ($p < 0.05$) between the two groups in 3 of the 5 UPMS subscales (Emotional Buy-In, Completeness, and Urgency scales). This shows promise for the concept, and evaluation thereof, but also shows further iteration and fine-tuning might be needed, as we also had rather low internal validity in both the *Agency* and *Urgency* subscales. Based on these results - supported by the preliminary results from a small interview-based study conducted on the proposed solution featuring inaction consequences, showing a general positive attitude and interest in the concept - we conclude the report with a rejection of all null-hypotheses from the 3 conducted studies; however,

further study and iterations of the concepts will be needed, together with a much longer study, to really establish a foothold for the concept of urgency as one of the fundamental action motivators, alongside agency, and as a constituent component of game experiences.

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Appendix A

Study 3 Interview Guide