

Jakub Dobi

NARRATIVE-AND-THEME-INFORMED GAME DESIGN

Bachelor's thesis
Game Design

2019



South-Eastern Finland
University of Applied Sciences

Author	Degree	Time
Jakub Dobi	Bachelor of Culture and Arts	April 2019
Title		
Narrative-and-Theme-Informed Game Design		69 pages 1 page of appendices
Commissioned by		
South-Eastern Finland University of Applied Sciences		
Supervisor		
Marko Siitonen		
Abstract		
<p>When setting out to create this thesis one main goal was set: To find solutions to the persistent problem of the games industry with cohesion between gameplay and intended narrative. This goal was divided into a number of objectives, namely: Assemble vocabulary to use when engaging with the problem, define the titular concept, and outline an actionable framework to create narrative-and-theme-informed game design.</p> <p>The methods used consisted of case studies of games as both positive and negative examples of narrative-gameplay cohesion, as well as interdisciplinary research into connected sciences and arts. The former was done mainly to clearly define the titular concept, its problem areas, and edge cases. The latter was used to bolster the available vocabulary with already established ones, and add further points of view to the one the author set out with.</p> <p>When defining what coherence between narrative and gameplay would be, the central vocabulary was defined as that of Cognitive Metaphor. Further, game elements were found to be either predominantly metaphorical, or predominantly metonymical, as inspired by narrative structuralism.</p> <p>The aggregated research done for this thesis defined an integrated view of game narrative (as opposed to a segregated one), meaning that the de facto narrative of any given game is the sum of the expression of both gameplay and writing (or narrative design), as well as all other features. This implies an absolute necessity to consider game design as narrative in nature, in order to avoid loss of control over the narrative expression of the end product.</p> <p>A framework to be used to inspire thought about the titular design philosophy was created. Its ultimate utility is difficult to judge, as it provides little in the way of concrete advice. It composites concepts ranging from cognitive psychology to even theatre, to define all the factors that affect any given game's final narrative, without judgement on quality.</p>		
Keywords		
narrative, theme, game design, cohesion, framework		

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1 INTRODUCTION

Contemporary video games in large part incorporate a narrative, or at least a more or less other-than-real world or theme. In such cases ideally all areas of development follow the intended narrative or theme, creating a cohesive experience which feels harmonious across all different kinds of art and science that comprise a modern video game. This however, is not always possible, or demanded by the context of production and the end consumer. The base assumption of this thesis is that narrative-informed game design is a positive factor for any game's overall design, but its benefit is variable.

1.1 Problems and Goals

With the evolution of video game development technology and practices, narrative design and game design have diverged into two separate areas of production. As this divide persists and widens, communication and coordination between the two departments often gets neglected, or deemed counterproductive to either side. Fundamentally, the questions posed by this problem are: What is narrative-informed game design? What are the factors that affect the viability and benefit of such design? When and how to incorporate it into a video game's design?

The development role of Narrative Designer has been recently popularized in game development companies to bridge the gap between the diverging disciplines of narrative and game design (Horneman 2015). However, the introduction of this role puts the responsibility for playability more on the narrative, and less on the game design. This thesis examines the above questions from a game design perspective, and for the purposes of creation of game systems. This means that the supposed narrative or theme which will serve as a base and target for emulation and comparison will be treated as a largely immutable feature of the overall product. This will be done so that the responsibility of change and adaptation will be put onto the game design, and so

game design solutions and techniques will be sought to create cohesion between game system and narrative and/or theme. Essentially, while the Narrative Designer designs narratives for largely immutable game systems, a Game Designer attempting narrative-informed game design should be able to design game systems to emulate an immutable narrative.

This thesis targets three ultimate goals: Firstly, establish vocabulary to be able to meaningfully discuss the concepts related to the titular design philosophy. The second goal is to define the concept and edge cases of narrative-informed game design both through formulated definitions, and examples described through case studies. The last goal then becomes to assemble a description of interactions between relevant factors, and preferably formulate actionable ideas and considerations for implementing the desired designs.

1.2 Methodology

The main method of research of this thesis will be evaluating case studies to generate definitions for key concepts important to narrative-informed game design. These key concepts will then be subjected to comparative analysis with each other, as well as concepts from outside the realm of game design- particularly narratology and psychology. This interdisciplinary analysis will be done to better understand the interaction between media and the consumer, and for these interactions and comparisons to be further analysed through the lens of the ultimate goal of consumer engagement and approval, as well as the realities of video game production.

It is also important to express the titular concept in terms of measurable, or at least considerable metrics. Given the nature this study most of the analysis will be qualitative, and thus inevitably tinted by the author's perspective, but where possible, quantitative markers will be found. One such quantitative marker used in the case studies will be the online review aggregating website Metacritic, which collects review scores from both games industry journalists, and users of the website, and averages both separately. The scores cannot exactly be called

absolutely useful, but they gain usefulness in comparing reviews of similar products.

1.3 Terminology

This work will use language specific to the games industry, but will explain terms and expand acronyms as needed for an audience that has an average level of knowledge of games as a medium, but is not as immersed as a game designer might be. As such it will not shy away from summarising multiple concepts with names of genres, or technologies.

Genres will be used as shorthand for collections of game elements which players recognise as belonging together. It is however important to point out, that genre is not a useful term from a game design perspective. This is because it has limited usefulness as a game design tool, when conceptualising game systems. It serves marketing purposes, as it eases communication between the game developer and the consumer, who wishes to know ahead of purchase, what kind of experience they are buying. (Apperley 2006.)

More useful is to talk about single game mechanics, or game design patterns (Björk et al. 2003). These can quantify information about game systems, and might contain quantifiable effects on the cognitive reception of the game. However, It can be argued that the patterns proposed by Björk et al. are not as useful as they could be. Their phrasing could be more general and less prone to group separate concepts together, which deserve their own pattern status. For example, their example of “Paper, Rock, Scissors”, cites both bluffing and anticipation of unknown variables, as well as the aspect of non-transitivity. Both of those halves could be a design pattern in their own right. For comparative analysis such maximal division of bits, and granularity of information seems important. Interestingly, perhaps due to this exact reason, the online wiki maintained by Björk does not include this pattern, and instead uses somewhat more general definitions. Yet still, many of the patterns on the wiki can be further divided into more general patterns.

1.4 How to read this thesis

Any reader who values their time, and does not have to evaluate this work in its entirety, is advised to read the following chapter (Defining Narrative-and-Theme-Informed Game Design), and then skip directly to the last chapter (Actionable Considerations of Narrative-and-Theme-Informed Game Design), which summarizes all insights gained from the research which constitutes the bulk of this work. While reading these recommended parts, the reader may of course refer to the research chapters, if they find some piece of information objectionable, or unclear.

2 DEFINING NARRATIVE-AND-THEME-INFORMED GAME DESIGN

Narrative and gameplay do not map onto each other, meaning they are non-analogous. This is because of the vastly different principles that govern the creation and experiencing of both. This chapter describes how- in this circumstance- gameplay can be “informed” by narrative.

2.1 Narrative and Theme

The distinction between narrative and theme almost did not make it into the phrasing of this thesis' title, as it is not an enormous one. However, it is important to point out how similar game design principles apply to both narrative and theme, therefore the temporal aspect of the product does not introduce eminently great differences into eventual design philosophy.

Narrative and theme mainly differ in the temporal dimension. While theme is the overarching or recurring idea or expression of a media product, narrative is the progression of messages and ideas over time or interaction. These messages and ideas can be completely the same (such as love, loss, or revenge as popular narratives and themes). Narrative can touch on all of those concepts in the same product, and therefore is more challenging to design for, as examples and analyses will show. The term Narrative-Informed Game Design (without theme

included) will occasionally be used, but it is ultimately interchangeable with the titular phrase.

2.2 Game Design

Game design, for the purposes of this work, is the design of gameplay and game systems, that is the functional elements of an interactive product, the interaction with which is referred to as gameplay. Represented through the example of a probably universally known game, chess: The people who created chess engaged in game design. The set of all actions possible in chess are the game's systems, also referred to as mechanics. The process and means of moving a chess piece (taking one of those actions), as well as considering the next move, is gameplay. This definition is much more restrictive than it could possibly be, as one could also say that anyone who designs any element that comprises a game, is a game designer (Extra Credits 2012). This way the conversation around the titular concept can be focused to a useful scope.

2.3 What is design informed by non-analogous factors?

When talking about two different qualities of any consumer product, they rarely map neatly onto each other. One would not talk about a book's contents the same way (using the same concepts) as they would about the binding. Same goes for the visuals and plot of a film, or the packaging and taste of food, and similar pairs.

This makes it necessary to justify even attempting to talk about such factors in analogous ways. In fact, this whole thesis will often attempt to draw parallels between seemingly disparate concepts. It makes it justified to ask if it is even useful to think and write about the relationship between narrative and gameplay. The bulk of the justification will crystallise in case studies, the interdisciplinary analysis thereafter, and the summary thereof. Hopefully, it is possible to make a good enough case for the usefulness of considering game design this way.

2.3.1 Cognitive Metaphors

Ultimately the question comes down to subjective experiences of the experiencer, and how those harmonise, that being the domain of cognitive psychology. The feelings an experience gives to the experiencer- however non-analogous the separate sources might be- are analogous with each other. This is the underlying mechanism of metaphor. According to Lakoff (1992), cognitive linguist specialised in metaphors, any analogy or metaphor works on a similar principle: It draws parallels between modes of thinking so that one of them can be understood in the language, or “cognitive topology” of the other. This mapping follows the Invariance Principle which expresses how the different expressions in different topologies express concepts like “positive” “negative” “motion” or “possession” across all included topologies consistently. The consistency is key, as it ensures that all mappable points in the source topology will map onto the same “meaning” in the target topology: Positive will be up, or more, or bigger, but never negative.

When we can map from the source domain to the target domain in this manner we are talking about a cognitive (or conceptual) metaphor (Nordquist 2017). This psychological definition of metaphor has to be treated separate from the literary one, as it is considerably wider and encompasses all non-literal stimuli. This definition of metaphor is deeper than linguistic, as language expresses these cognitive topologies itself. This also means that it can be applied to the topic at hand- non-analogous points of expression- without creating new high-level abstractions and linguistic devices. In fact, whenever we find situations in which negative values seem positive, or any other violation of the Invariance Principle, we are most likely dealing with a linguistic artefact (“huge debt”, for example).

A useful thought experiment inspired by Lakoff (1992) to help consider metaphorical mappings would be to consider any non-material concept in terms of others: Time considered as spatial. Ahead of the observer is future, behind is past. Time moves at a constant pace past the observer from ahead (positive) towards behind (negative). Time is also numerical, as its current value constantly

increases. We also “have” time, we also can “spend” it, and so it can be considered as a possession. Note that not all pieces of information have their counterparts in all included topologies, and so do not map onto them. (Figures 1 and 2)

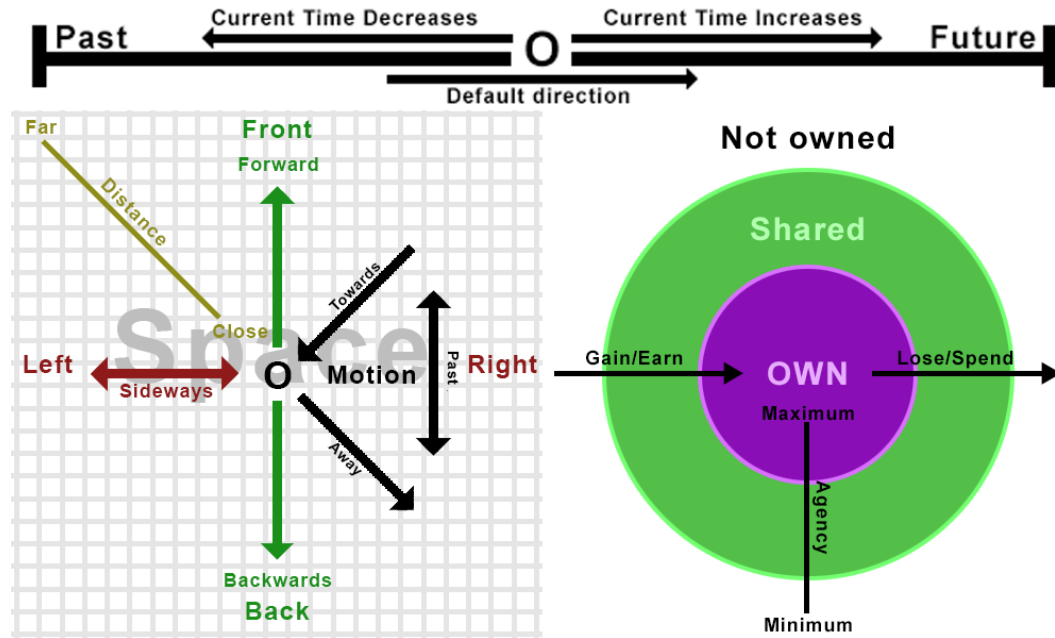


Figure 1. Proposed visualisations of cognitive topologies. Top: Time, Left: 2D Space, Right: Ownership.

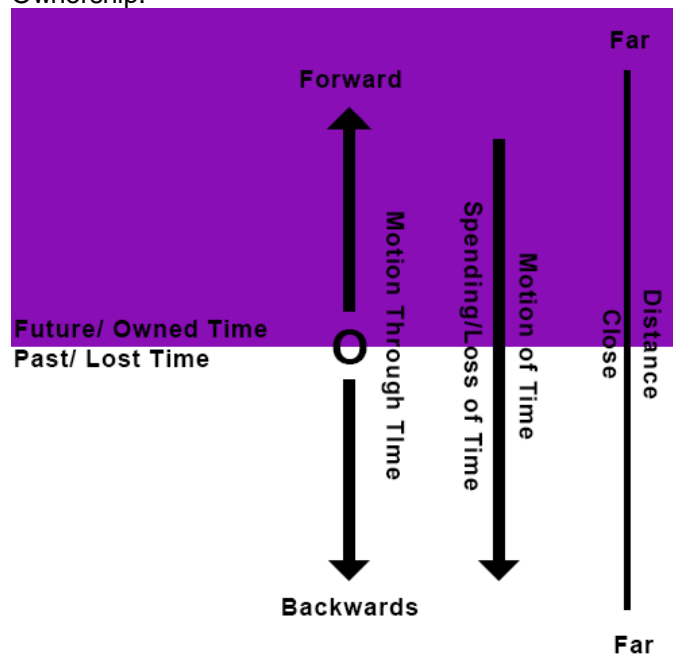


Figure 2. Combined cognitive topology of time as spatial and a matter of possession.

If we consider informed design as the metaphorical mapping of the informer onto the informed, we can follow the informer area’s cognitive topology, and express

them in the informed target's expression language. It is important to note here that according to The Invariance Principle we are not creating the connections from one to the other, but rather discovering them as a truth on the level of cognitive psychology. We are not abstracting one malleable language onto another, but looking for parallels between the cognitive domains. The former can also be done, but it is important to note that we are immediately narrowing our scope to a target culture and language when doing so.

2.3.2 The additional dimension to temporal and interactive media

Temporal and interactive media are special in their demand for designs for cohesion, as their features change over time, or as the consumer introduces changes by interaction. As examples will show, the additional challenge resides in following changes over time in one feature with the other features of the product. The product in question needs to present to the consumer that its purpose is to model the message it strives to communicate, and as the product's message changes over time, so should the model of it.

This is of course a challenge of both design and resources. From the perspective of game design, but also other aspects of temporal media it is supremely beneficial to design resource demanding features to be as flexible and responsive to change as possible. Film has already developed the tools and language to follow narrative beats mostly cheaply and efficiently, as cameras can be angled on demand once owned, and digital art makes it easier than ever to reconfigure and iterate visual elements as needed. Gameplay systems remain a relatively novel feature that still searches for its language and the balance between universal and bespoke. Game design patterns will be the answer to this problem, once the agreed-upon level of granularity for them can be brought to a useful state.

2.4 To be Informed

It is not plainly obvious that a game (or other product) absolutely should have features that are cognitive metaphors of each other. This thesis will later argue that it is always more or less beneficial, but for our definition it is enough to point out that any design philosophy or process that claims to be informed by an external factor needs to be at least considerate of how it maps onto the area of design literally or metaphorically.

This is necessary in order to be able to make design decisions based on information acquired this way, regardless of the degree of cohesion that the subsequent decision creates between informer and informed. That is, this design process necessitates informed decisions.

2.5 The definition

By applying cognitive psychology and cognitive linguistics we can justify the following definition to be used in this thesis:

Narrative-and-Theme-Informed Game Design is a design process by which the game designer attempts to create game systems, being conscious of the cognitive metaphors they constitute with the intended narrative of the game. The degree of cohesion between gameplay and the intended narrative and/or theme is up to the designer's decision informed by knowledge of the cognitive domain of both areas, as well as contextual factors (such as game genre, target market, target platform). This design philosophy is distinct from (in a way opposite to) attempting to create a narrative which will fit an established game system.

In simpler terms it could be said that a game designer introducing narrative-informed game design into their product is usually attempting to express a narrative through the gameplay systems, or to express specific messages through gameplay based on a desired narrative or theme. The very simplest examples of such design processes could be incorporating resource scarcity into

games with a survival theme, or having a helpless, defenceless protagonist in a horror game. This, as the thesis will ultimately argue, is important to the player engagement of a game. Not only as a somewhat beneficial concept to include if resources allow, but a potentially fatal flaw, if not included. It can be fatal to the player engagement and immersion into the story or theme, and can turn a potential masterpiece into a directionless, marginally memorable video game if ignored.

3 CASE STUDIES OF NARRATIVE-INFORMED GAME DESIGN

In this section case studies will be conducted on video games that feature narrative and/or theme. They will be examined by comparing their narrative and/or theme to their gameplay systems, and evaluated on the cohesion of the two. They will be further examined through the lens of constraints like genre, player base, technical and industry realities (where available for study), in an attempt to gauge the reasons and underlying processes that influence the final game design to achieve the quality it has.

3.1 Method of choosing examples to study

In order to present a comprehensive view of the core and range of narrative-informed game design it is important to choose the right examples from a vast portfolio of video games currently published. The examples presented are but a limited subset of possible candidates, about which the author could keep writing near-endlessly, but reasonable limitations restrict the final count to an amount that covers the thesis' topic thoroughly. The examples will be grouped into subjects and aspects of the titular concept, as multiple data points give a fuller picture. The subchapters that hold these groups of examples will describe the possible areas of consideration for the thesis, without making it necessary to descend unnecessarily deep into describing single games, only focusing on their relevant game systems.

It is ultimately more productive to examine negative examples of narrative-informed game design than positive ones, as praising games for their coherent design, which often just comes out of common sense, does not require creative thought. Positive evaluation is not a call to action, it does not suggest possible ways to solve supposed problems, therefore it is only useful when the ways the positive effect was achieved are not obvious. This is all to explain that the numerous negative examples of narrative-informed game design are included (even if the game they represent is otherwise high quality) to examine the reasons they have poor cohesion between narrative and game systems, and to speculate about possible solutions. Positive examples will also be included, for the above-mentioned examination of not plainly obvious as well as superbly executed solutions.

An interesting trend of inverse relation between interest and widespread recognition exists in the video game industry. That is, the higher budget a video game production is, the less interesting an example it makes for game design principles, as big production teams and financial stakeholders are risk averse, and tend to choose unchallenging design approaches (Brightman 2014). High profile examples are still useful though, primarily because of their widespread recognition which makes them easier to describe, but also because their failures tend to be better examples of game systems not tailored to the narrative's specifics. Both high profile and lower budget products will be included, but it is necessary to point out that the former tends to fail spectacularly, while the latter is interesting for the novel solutions which they use to overcome their specific narrative's challenges.

It is difficult to point to non-opinion-based qualitative or quantitative markers to justify the inclusion of any single example over others. The primary principles governing the inclusion or exclusion of examples both positive and negative are therefore predicated on answering the questions posed by this thesis in the introduction. The first principle is the already eluded to principle of relevance, that is attempting to strike a balance between widespread recognition, and innovation. Relevant examples are widely known, not plainly obvious, and pose interesting

game design-oriented questions. The second principle will be the principle of isolation, by which this thesis strives to find examples that primarily examine game design decisions. Optimally isolated examples are ones that succeed or fail mainly due to the game design decisions taken in production, as opposed to other areas of game production influencing the outcome. The third principle used to determine candidates is the principle of coverage, that is to say, the author will attempt to find examples that differ from each other in genre to cover as much of the industry's products as possible.

The examples will also contain the author's own attempt at narrative-informed game design. This game project was the product of approximately half a year's work on a game development course at South-Eastern Finland University of Applied Sciences (XAMK), the object of which was to create this game project. The author was the primary designer of the game's gameplay, as well as theme, and so it presents a good opportunity to examine a design that the author is completely familiar with, however small and contrary to the above principles that exercise may be.

3.2 Narrative-Informed Game Controls

This subchapter will feature games and game mechanics that map their respective narratives onto the systems the player uses to interface with them. By doing this they communicate with the player in perhaps the most visceral way possible. On the other hand, novel controls are often the most resisted design elements of a game, and the least damaging if not cohesive with narrative. The reason for this is often thought to be that players often seek comfort and safety in controls which they are familiar with. However, often the controls that already define their respective genres are simply superior to anything closer to what the game models in the first place, from a practical perspective. Ultimately, the acceptance towards innovative controls is seemingly a question of personal preference, but the normal distribution of these preferences favours less invasive changes, as examples will show.

These “control gimmicks”, as these attempts to innovate are often referred to are achieved in a variety of ways. The least relevant from a modern game designer’s perspective is producing new hardware to play the game on, as the contemporary game developer will mainly attempt to use the hardware, which they can expect the player to have. These are historic examples such as the Nintendo Power Glove released in 1989, and more recent attempts such as the PlayStation Move, or its various competitors that include motion tracking cameras, gyroscopic control sticks, and similar equipment. The second way in which innovation is introduced is the subversion of existing controls to communicate a specific message. In this way the designer expresses narrative and theme through the established language of the controls the player is already familiar with, as an example will show. The third possible avenue of approach to innovation in controls is the combination of existing control schemes to create one that is custom made for the specific game and its narrative. This either produces a composite which carries through the entire game, or a game that has somewhat different controls from scene to scene.

3.2.1 Brothers: A Tale of Two Sons and What Remains of Edith Finch, manual controls as a narrative and game design tool

Brothers: A Tale of Two Sons by Starbreeze Studios (2013), by the direction of Josef Fares, is a third person adventure game which puts the player in control of two brothers on a quest to save their father. Its central idea is to make the player control both brothers at the same time with the same input device.

The story of Brothers: A Tale of Two Sons is a tragic one, which revolves around the loss of family members. Its central theme, however, is cooperation, and this learning of cooperation is expertly put parallel to the player learning to control two characters at the same time. The titular two brothers set off on a quest to retrieve the waters from the Tree of Life to cure their father. They adventure through the land overcoming obstacles and helping its inhabitants. Finally, the older brother gets tricked by a monstrous spider in female form and dies, leaving the younger brother to finish the quest alone.

The gameplay follows the narrative very closely and very consistently. All gameplay mechanics include both brothers from the beginning of the game, which creates an initially steep learning curve for the player who needs to get used to this subversion of their controller. The game mainly uses movement via axes and an interaction button for all of its mechanics. New tasks using these inputs are introduced as the narrative presents these new challenges. And in the end, the gameplay superbly emphasizes the story beat of the older brother's death, as his half of the controls become no longer available, introducing the concept of loss to the input device also.

What Remains of Edith Finch by Giant Sparrow (2017) is an adventure game developed in 2017, making it a fairly recent example. The entire game will not be described and analysed for the purposes of this subchapter, this case study will instead focus on a single sequence in the game: the fish cannery daydreaming scene.

This particular scene in What Remains of Edith Finch depicts the job of one of the characters portrayed, Lewis, a fish cannery worker, while describing the fantasies he has while absent minded performing his menial task. The scene starts with just the player putting fish into a guillotine, chopping their heads off and throwing them onto a pile. It soon gains a second layer, first just a small image in the corner, of the Lewis' daydream of becoming king of a fantasy realm, which over time takes up more and more space on screen, and then finally replacing the entire image.

The gameplay and controls for this particular sequence consist of two sets of two-dimensional movement, occupying two sides of the input device. With one the player aligns the fish with the guillotine, and then pushes them off the block, while the other controls the player character in the fantasy. Neither task is difficult, or includes a fail state. This actually strengthens the message of the narrative, which depicts a very low skill job, and the natural ability to fantasize. Introducing challenge and complication to chopping fish would indicate it is important, and

run counter to the message of the scene, as the game's creative director Ian Dallas confirms (Webster 2017).

From the perspective of cognitive metaphors, it is interesting to point out how the topology of the input device relates to the presented narratives. The two sides of the device are mapped both onto two hands, as well as two separate characters, with no fixed spatial relation. In fact, part of the difficulty in *Brothers: A Tale of Two Sons* stems from the confusion created by the characters often switching sides on screen. The buttons, that is functional elements of the input device also reveal their nature as resources, or possessions of the player. For most of the playtime of *Brothers: A Tale of Two Sons* the player **has** the older brother at their disposal, and the **loss** of this character also results in loss of functionality on the input device. The game's expressive success lies in the game establishing a mechanical language, or cognitive topology, and using it to deliver narrative messages.

Both above examples introduce multitasking into their controls. Multitasking as a concept exists quite widely in the games industry as a whole, but it may be important to point out the difference between having to perform many actions in quick succession with the same controls, and having different parts of the input device being performed tasks on at the same time. It is also notable, how the two examples each have a different approach to this multitasking, and therefore express completely opposite messages with the same tool of expression. While *Brothers: A Tale of Two Sons* is a game the difficulty of which stems from the multitasking, expressing the difficulty of the depicted quest, the cannery sequence in *What Remains of Edith Finch* uses the division of attention as a tool of immersion, rather than gameplay challenge, making the player empathise with the bored and depressed fish cannery worker. This shows the potential of using just a single gameplay element for a variety of narrative expressions, and opens up avenues of speculation and research for what other tools exist in the realm of input and controls.

Both examples in this subchapter are very well received, boasting extremely good reviews. Most reviewers also focus on the narrative, and more importantly, its expression through gameplay. It is, however, important and fair to point out that both games were designed to achieve the specific goal of expressing a narrative in game form, and seem to focus solely on this feature. Their target audience is therefore restricted to a specific group, which expects and judges this feature almost exclusively. Both games are also fairly called low profile, or “indie” games, which allows them a lot more good will from reviewers. (Metacritic 2019a and 2019e.)

3.2.2 Tom Clancy’s EndWar, non-manual controls as narrative immersion tools

The area of control scheme innovation that encounters the most resistance from consumers is non-manual controls, be it voice, body motion, or head-and-eye tracking. This resistance is often attributed to the requirement for expensive peripheral hardware, and limited portfolios of games to use the peripherals with. As the example of EndWar will show, the issue is not as simple as that, and the dimension of usability and efficiency is another major factor. Such controls also find limited use as narrative and theme emphasizing tools, rather being marketed as devices to deepen immersion in the presented game worlds. The logic with such marketing being, that engaging more of the player’s body in an activity will make the player more engrossed in the experience. A majority of recent developments in non-manual game controls fall outside the scope of this thesis, as they serve either as controls for entirely non-narrative games, or their use in narrative or theme focused games is relegated to slight improvements in game responsiveness.

Tom Clancy’s EndWar by Ubisoft (2008) is a real-time strategy game depicting a theoretical World War III involving three major factions: The European Federation, Russian Federation, and United States. Its main selling point, and the focus of this case study is that the player can control their in-game troops by voice commands. Units have numbers assigned to them, and locations have

callsigns, thus enabling the player to order a specific unit to a specific target fairly easily. It does not necessarily require the player to purchase a special peripheral either, as most computer users can be expected to have a microphone of some kind, or to buy a fairly cheap one.

It is apparent in the design and marketing of EndWar, that it was intended as an attempt to bring the real-time strategy genre to game consoles, which by the nature of their manual controllers are suboptimal for playing most multi-entity management games. The voice commands allow the players to rely less on the manual controllers, which they still use mainly as camera controls, and give orders to the many units they control by voice commands. On Windows PC this aspect of the design is lost, that is, it does not ease the control over the already successful mouse and keyboard setup. Players are left with a relatively unwieldy control scheme, which does not allow for as granular a control over one's units as real-time strategy players are largely used to on PC. This is clearly shown in the reviews of the game, compared across consoles and PC. Most reviews are mediocre, but are clearly better on consoles than on PC. (Metacritic 2019d.)

The reason this example is included in this thesis is its approach to convey the depicted theme through its voice controls. Its theme being that the player is a military commander, and their voice commands are framed as actual orders to the in-game troops. This serves as an attempt to make the player more convinced, that they are leading an actual army. This feature seems to be the main or only selling point of the game, if the average review is any indication. Even reviewers who dislike most other features of the game, point to the voice controls as a positive, or at least interesting aspect. That is to say, the voice controls make the product appreciated for the theme immersion aspect, rather than their usefulness.

Even though the voice commands serve as a cognitive metaphor for being a military commander, they are suboptimal controls for the genre they are used in, in the case of EndWar. This relates to a central point of resistance to controls innovation. In the controlled environment of video games there are not any, as of

yet, better, more efficient controls than button press based ones, which are instant by nature. Often control schemes that attempt to more closely model the actual actions the controlled character is taking fall flat, because they end up being less responsive and comfortable to use. In short, it might be more worthwhile to develop button-based command interfaces for actual military commanders, than to try to model their inconvenience through game controls.

A recent development which holds more promise than any other innovation in terms of game controls is eye tracking technology. Its main point of resistance is that it requires a peripheral input device to be purchased by the player. It is, however, less intrusive and more useful than any prior control gimmick. It allows the game to react in specific ways to the player, based on where they are looking at on the screen. It has been mainly used for in-game camera adjustments, and hiding user interface elements when the player is not looking at them. Eye tracking technology is successful, due to its nature of adding function to something the player does anyway, and the fact it is as instantaneous as a button press. However, no good examples yet exist of narrative use of the technology, thus it will only be mentioned in this paragraph in this thesis, because the author recognises the vast potential for narrative expression through interaction with the player's gaze.

3.3 Logical and Numerical Game Design

It can be envisioned, that the opposite end to game controls, on the visceral-to-analytical axis is logical and numerical game design. That is to say, while the above described game controls-based design considerations deal with intuition and comfort more than logical analysis, logical and numerical game design is the other way around. Accordingly, players expect narrative-informed numerical game design to be used wherever they interact with numbers, and tend to express dissonance between narrative or theme and gameplay systems if omitted. Players are also more receptive to intrusive changes to numerical values in service of narrative or theme.

Due to the nature of video games, all variables the player interacts with are always actually just numbers, under layers of abstraction. Therefore, defining numerical game design will have to be restricted to the cases in which these numbers, and the relationships between them deliver narrative or thematic meaning to the player. These meanings will be resources, numbers of objects, power levels, and changes thereto.

Even though the player in most cases understands numbers to hold meaning, rather than feel their meaning, the numerical nature of meanings can be obfuscated so that the player intuits meaning derived from them, not being constantly conscious that they are interacting with a purely numerical system. This obfuscation is often the goal of game designers, and can be a boon for narrative-and-theme-informed game design. However, if the game in question delivers narrative meaning through certain numbers, hiding them can be counter-productive.

3.3.1 Logical game design, or lack thereof in Overwatch

When examining what a player consciously considers about gameplay, logic becomes the most highly analytical factor alongside numeric values. Among others, Oxford Dictionary defines logic as “The quality of being justifiable by reason.”, and this is the definition this study uses (Stevenson 2015). The logic of a game is sound, if events follow each other in a way justifiable by reason, that is logically. Clearly, on a functional level a game cannot be illogical, as computer code will always execute consistently and logically. The area of examination therefore becomes whether the computer code is designed in a narratively-informed way, that is if the game’s systems follow the intended narrative’s logic. For example, entities which are enemies by narrative should also act against each other in gameplay. This is perhaps the most thought-based area of cognitive metaphor, as the player needs to be in possession of both knowledge about the game’s contents, including narrative, and of faculties that allow them to notice logical discrepancies. It is usually very easy to make the gameplay at least somewhat justified by narrative or theme, arguably it is the default state. It

therefore becomes more interesting to examine how, and why do not games follow their narratives' or themes' logic. At times game developers intentionally discard logic, to focus their efforts on narratively unjustifiable features which after all improve the game's reception more than narrative cohesion would.

The developers of *Overwatch* from Blizzard Entertainment (2016) also initially designed the game's world to include deep lore and therefore defined events which are internally consistent, and events which are excluded by the narrative's logic. It had characters which grouped into mutually antagonistic alliances. The game was also originally designed to be a MMORPG¹, at the time called project Titan (Yin-Poole 2017). *Overwatch* turned the original concept into a competitive FPS², in order to reach a wider audience and ensure the success of the game, which worked out very well financially (Grubb 2017). However, the new genre and gameplay considerations completely disregard the original narrative of the game. Lore-wise antagonistic heroes can be played in the same team, and objectives that some characters would explicitly oppose, can be played for with those characters. This is to ensure that all the playable characters are always available to all players, and to avoid balancing issues by grouping them into factions. Therefore, the narratively-informed logic is discarded for other game design considerations, creating a valid design anyway.

This case study also heavily intersects with the wider problem of shooting and killing being the default gameplay mechanic for many games. This clearly limits the possible narratives expressed through gameplay, as we can see in *Tomb Raider* by Crystal Dynamics (2013), and most other modern adventure games. (Parkin 2015.)

¹ Massively Multiplayer Online Role-Playing Game

² First-Person Shooter

3.3.2 Strategy and tactical games, Sid Meier's Civilization VI, expression through changes to exposed numerical values.

Strategy games differ along a couple of axes worth naming from a game design and narrative perspective. Usually these games give the player a choice of differently themed or “flavoured” factions, countries, or nations. The first axis of difference therefore is, how much of an effect on the actions available to the player this choice has. This is commonly called asymmetry. The other axis is how much this asymmetry and underlying system in general, is exactly and numerically exposed to the player.

Sid Meier's Civilization VI from Firaxis Games (2016) is a turn-based 4X³ strategy game. In it, the players, who can play against each other, or computer-controlled players, control a real-world civilisation in an otherwise fictional and contextless world. It is a limitedly asymmetrical game, which exposes as many of its numerical values as humanly possible. The actions the player takes largely revolve around producing cities and units and manipulating these. Units, for example, have variables such as how far they move in a turn, and how strong they are in combat.

The civilisations the players control in this game are fundamentally identical, except for a limited number of changes, which replace existing features, actions, units, or buildings. These changes are, however charged with an immense amount of meaning, by the fact they are appropriately named, and expressed through both visual assets and numbers. As an example, the game's Rome has easier access to roads under the title “All Roads Lead to Rome”, and replaces the standard Swordsman unit with Legion, which is simply a more potent and more expensive unit, which has a wider variety of actions available. Similarly, the Russian civilisation spreads across territory easier, and has a special cavalry unit, called the Cossack.

³ “Explore, Expand, Exploit, Exterminate”

There is not much doubt that this asymmetry is majorly or entirely narratively and thematically informed. In any other case these differences could be entirely discarded along with the players leading real-world civilisations, as opposed to freely designable and customisable fictional ones. What is remarkable, is how the game manages to sufficiently express any given civilisation's flavour with a relatively small number of gameplay-oriented changes to the default. Specifically, four changes per civilisation, meaning up to eight differences between any two of them. These changes are then emphasized as much as possible through both writing and audio-visual means. Furthermore, the nature of these changes creates temporal evolution in the gameplay, which creates narratives in itself, as the changes become available at certain stages of technological advancement within the game. This means that Rome will be superior at the stage of swordsmen, but Russia will dominate once they have population do inhabit their vast lands.

Often games of the strategy genre add this flavour by entirely changing the unit and building roster of their factions, but in often insignificant ways. Real Time Strategy games such as *Company of Heroes* from Relic Entertainment (2006) have entirely different units per faction, but these differences are not exactly expressed, and the player is not privy to the underlying mathematical systems. Instead, they describe their values by summarising them in flavour text, describing what they are good or bad at. The player can intuit the unit's power anyway due to the frequent interactions the unit will have, as opposed to units in *Civilization*, where any given unit will fight a single digit amount of times during a game. This is also a perfectly valid design philosophy, and both the *Civilization* game series and the *Company of Heroes* series are very popular game series. (Metacritic 2019b and 2019c.)

Ultimately, the choice to follow narrative and thematic factors in strategy games is the easiest and most obvious decision. This is because the only reason justifiable to the player to even have a difference between the actions available to players is narrative and theme. Essentially, if the developer of the game tells their player

“This is how this real-world system works, to a degree of approximation”, it follows logically, that any asymmetry also follows the underlying theme.

3.3.3 Numerical progression systems in harmony or conflict with narrative

This subchapter is less a case study and more an overall analysis of the use of a certain game mechanic. One could call it a case study of numerical progression systems, as opposed to the games they appear in.

A numerical progression system is a gameplay system, in which the player-controlled character or entity in a game receives increments to some numeric value, usually their power in game terms, as they progress through the game. The most typical genre where one finds such systems in RPGs⁴. It is important to differentiate numerical progression systems from mechanical progression. The latter differs in that it progressively unlocks mechanics, that is abilities to the character. Many games use both, and both are ripe for narrative influence, but this case study focuses on the numerical variety of progression. For example, a character might learn to jump via mechanical progression, and subsequently learn to jump farther via numerical progression.

Such progression systems fundamentally have one narrative message which they can express, and that is personal development and progress. Usually, the progressing character will start off as impotent, and by the end of the game they are able to overcome the greatest challenges in the game. Additionally, their equipment and therefore visual representation evolves alongside their personal development, making them more visually impressive, but also relying on their equipment for their potency. Such progression systems and therefore narratives are widely popular, the vast majority if not entirety of the RPG genre seems to rest on this central mechanic.

⁴ Role-Playing Games

This mechanic is so successful, in fact, that other genres have been incorporating it to increase player retention for at least a decade, and hybrid genres have emerged such as Action-RPG and RPG-Shooter. However, because the genres this mechanic is incorporated into do not always have room or logical reason for narratives of development or increases in potency, these hybrid games often have glaring conflicts between their gameplay and theme. One such conflict even earned its own name in the language of the industry, it is called “Bullet Sponge” (Wood 2019).

Two recent games will serve as good examples of the above: *Destiny* by Bungie (2014), and Tom Clancy’s *The Division* from Massive Entertainment (2016). Both can be classified as RPG-Shooters, meaning they are a hybrid between the systems traditionally associated with role playing games, and shooters, or first-person shooters, FPS. They both feature numerical progression both for the player character, and their equipment. Herein also lies the foundation of the problem: In a fictional world of high fantasy typical for the RPG genre, of swords and axes, where a person’s destructive capabilities are indeed dependent on their brawn and personal skill, it makes logical sense for those factors to develop and affect the outcome of combat. It also makes sense in a such a world for there to be better and worse weapons, as standardised manufacturing is a relatively contemporary idea players do not associate with fantasy. The two examples, however, force numeric progression onto firearms, which in the real world are notoriously standardised, and capable of killing with a single shot or burst, regardless of the wielder’s physical prowess. This need to involve firearms in progression necessitates, that there are stronger and less strong individual bullets, especially considering that aiming in-game is done by the player, and so the in-game character’s skill can only affect what the bullet does once it hits. This leads to “Bullet Sponge” behaviour, where the game will allow scores of shots to vital areas to be survived, so that a superior gun or character can reduce the shots necessary to down a foe.

At the centre of this conflict is the marriage of thematically incompatible gameplay mechanics from two genres. In Classical RPGs, the player only gives commands

to their character, and the character's skill determines the success rate. In an FPS, the player controls the body of the character, aiming instead of them, and it is entirely dependent on the player whether they hit a vital area with their gun or not. What this means is this type of hybrid takes a necessary simplification from one genre, and applies this to a genre which needs no such simplification. How this relates to narrative and theme, is also how this problem is lower profile in Bungie's *Destiny*, which is set in a relatively far future, with fictional technologies being present, allowing for more good will from players. Meanwhile Tom Clancy's *The Division* pits regular flesh and bone humans against each other, and equips them with mostly contemporary firearms. Ultimately this dissonance stems from a narrative game design tool being misused, or at least not meshing well with the underlying logic of the narratives of these games. Mechanical progression, however more cost-intensive to develop, is a similarly powerful narrative game design tool, which could be more emphasised in such cases.

It is also important to point out that the dissonance between narrative and gameplay is a purely logical one. Players who have no concrete knowledge of the real destructiveness of firearms, or simply do not think about it when playing these games will not notice the dissonance. This is how we know this to be an issue of analytical nature, as opposed to visceral.

3.4 Narrative Flow as Influenced by Gameplay Loop and Genre

Gameplay loop is the term used for describing the set of action the player takes, most often repetitively, while interacting with any given game (Guardiola 2016). These loops differ from game to game, and genres often have their own associated gameplay loops. They are comprised of quantified actions, as an example for a shooter game they can include items such as "look for target", and "fire". They include both in-game, interaction-based actions, and considerations done out of, and based on the game. Therefore, if game controls occupy one end, and exposed numerical systems occupy the other end of the visceral-to-analytical scale, game loops occupy the space in between, and denote what the player finds themselves doing, as a combination of interaction and consideration.

There are more interaction-heavy gameplay loops, and more consideration-heavy ones, too. For example, an action game or a shooter will require the player to take more intuitive actions frequently, not actively calculating the chances of success of their actions, while a grand strategy game will demand scarce button presses, but each interaction to be informed by numerous considerations.

Game loops are often visualised as flowcharts, the nodes of which describe specific actions, often denoting if the action is in-game, or out of it. The analysis of interaction between gameplay loops and narrative also needs to view narrative as a flowchart, with narrative beats represented on it. The scale of these flowcharts can be freely manipulated, to examine if a design accomplishes its goals on the macro, as well as the micro level. That is to say once a temporal dimension is introduced, the game design can and should adapt to the over-time changing narrative.

3.4.1 The Elder Scrolls V: Skyrim, rigid gameplay loops in systemic games

Open-World in game industry language designates a type of game, which allows free- that is not restricted by sequence of narrative beats- exploration of a game world, which is constantly available to the player more-or-less completely. Such games are most often systemic, meaning that in order to populate the world with events for the player to interact with, they use some rigid set of rules which determines the world's reaction to the player's, and non-player characters' actions. (Ellenor 2014.)

When examining gameplay in open-world systemic games it becomes most interesting how the gameplay relates to the intended narrative on a cognitive metaphor level. Often, the success or failure lies in whether the gameplay loop changes from narrative beat to narrative beat, and whether the system reacting to the player has enough complexity, to reinforce the nuance of each specific player's progression through the game, and fixed information contained in the narrative itself. It helps to ask, if the player finds themselves playing, as if the narrative had an impact on the way they play.

The Elder Scrolls V: Skyrim from Bethesda Game Studios (2011) is an Open-World RPG. It is set in the fictional kingdom of Skyrim, in which the player plays a demigod-like hero, the Dragonborn. The player customizes their Dragonborn to have a certain appearance and set of abilities, and interacts with the world by movement, combat, and dialogue, as well as supplementary exploration gameplay elements such as lockpicking. It has a numerical progression system which improves the player's abilities as they use said abilities. This progression system comes with a fairly controversial twist: the in-game enemies' abilities also always keep pace with the player's character level. This system, intended to always provide a challenge to the player, also ensures the player never grows past any kind of enemy, and can even fall behind, if they mainly develop non-combat abilities.

The narrative of TES V: Skyrim revolves around the player rising to a demigod-like level of power, as their nature as a Dragonborn is revealed and developed. It is heavily influenced by migration era Nordic mythology. The player first learns, that they can consume the souls of dragons, and use "Shouts", a set of vocal-based magical abilities. By the end of the narrative the player is slaying powerful dragons frequently, and enters the celestial realm of Sovngarde to defeat Alduin, the leader of the dragons. Parallel narratives include the kingdom's political upheaval and civil war, and a number of groups and factions the player can climb the ranks of.

The game's systems completely disregard, and at times counteract the narrative and theme. Firstly, the problem of compulsory genre features becomes apparent. The Elder Scrolls game series has been in fact a driving force in standardising certain peripheral features in the industry that increase the set of options the player has to customise their character. These are abilities such as crafting, sneaking, and other crime-and-trade-oriented facets of character development. These are indeed sought after by players, but perhaps without even the players realising, they dilute the experience and actually limit the set of valid narratives to express through gameplay. A story of heroic rise to demigod levels of power is

simply not expressed through avoiding detection of city guards, or forging iron daggers at the village forge. To make matters worse the rigid systems of the game do not react to the player's superhuman ability. For example, the game will sometimes spawn highway robbers to shake the player down at sword point. It will do this even if the player is freshly past killing a dragon, and consuming its soul. City guards will likewise punish the player for petty theft without hesitation, even when they are theoretically supposed to know, that the player is the hero of the realm.

The feature that actually acts to destroy narrative-gameplay cohesion however, is the level-scaling of enemies. This ensures that no matter how far along the player is in their journey, the challenge of common enemies rises to rob the player of any feeling of personal development (The author is not aware of any exceptions to this, but accepts there might be). This means that common bandits will gain abilities and even equipment akin to that of the player. Likewise, some formidable foes scale down, if the player was to encounter them early. This, in this particular game, and in RPGs in general is a highly questionable decision, and only serves as an easy way to scale difficulty, and avoid having to modify the number of enemies, or add new types of them. The intention was noble, however, as it was to allow the player maximal freedom of exploration no matter which direction they want to go.

Ultimately, the player usually does not change their playstyle in any meaningful way throughout the game. This is because the underlying systems are set up in a way that is rigid, and actually works to maintain that rigidity. The gameplay loop towards the end of the game is largely the same as in the beginning, unless the player has already grown past all the available improvements, and just does not bother to pick up new items.

Other standard features of modern open-world game design also restrict the set of possible narratives expressed: repetitiveness, and player-centrism in particular. Repetitiveness is essentially the symptom of the reality of game development, that features will often be reused and altered parametrically to fill

the world with activities. As necessary as these practices might seem, they often pause the narrative flow. Games such as *The Witcher 3: Wild Hunt* from CD Projekt RED (2015), and *Persona 5* by Atlus (2016) incorporate repetitive themes into their narrative⁵, thus alleviating the problem, but this is not a game design solution, but a narrative one. One could say player-centrism is the wide range of phenomena that emerge from the fact that most games wait for the player to interact with the world for anything meaningful to happen within it. This makes it unwieldy to rush the player narratively, or give the player a sense of their relative insignificance within the game world.

3.4.2 Frostpunk, the Upkeep design pattern, and wide applicability thereof.

The genre of Survival games is one that is always built on a central game design pattern, which this study will call Upkeep. In fact, Survival games are so inseparable from this pattern, that the pattern could be called Survival too. However, the pattern itself is applicable in different genres too, hence the chosen name.

Upkeep can be summarised as: *A numerical value which constantly decreases, and when reaching zero, the game- or an in-game effect- ends. This numerical value can be increased through gameplay.* Note how this is different from a countdown for a duration of a certain game element, as those only decrease, and cannot be replenished. In the case of Survival games this is the mechanism behind all the gauges the player must keep above zero, such as hunger, thirst, energy, or any other. The following image depicts the typical gameplay loop created by this pattern (Figure 3)

⁵ These are essentially the main characters' job(s). Jobs are most often by nature repetitive.

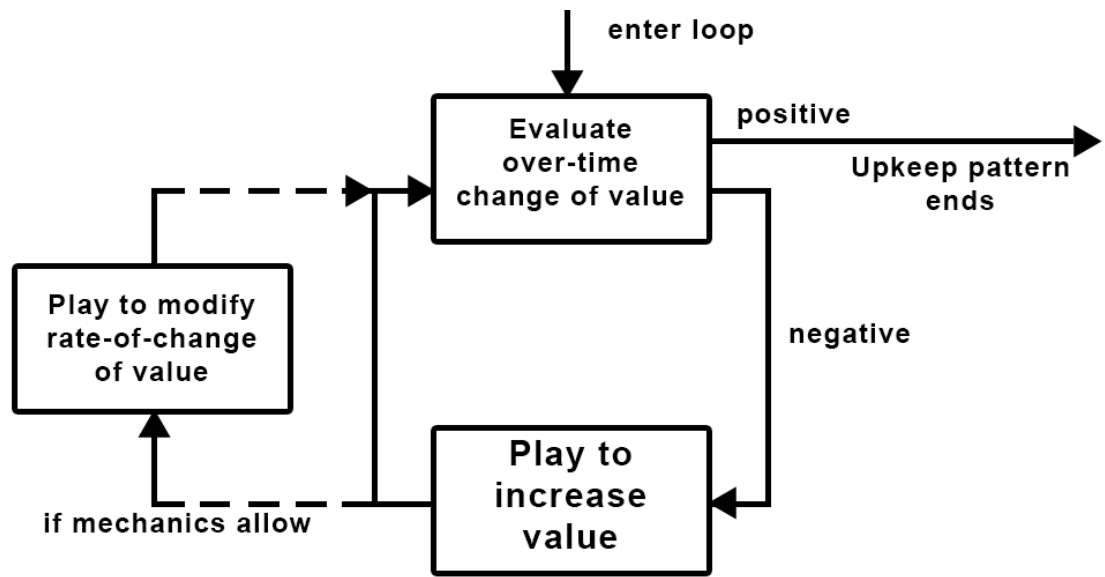


Figure 3. Visualisation of the Upkeep game design pattern as a gameplay loop.

Frostpunk, by 11 bit studios (2018) is a survival city-building game. In it, the player develops a city built around a heat-producing generator, and needs to protect its inhabitants from cold. The main Upkeep element of this game is the generator, which needs coal to operate, and shuts down if coal is depleted, leaving the city to freeze.

From a cognitive metaphor perspective all survival games are very simple. Tension is introduced and maintained by a numerical value being constantly depleted and needing to be replenished. This feeling of necessity is at the core of the survival theme. Frostpunk demonstrates how the Upkeep pattern, which is commonly associated with character-focused survival games is widely applicable to different genres, creating hybrids with the Survival genre. This gameplay loop is also more consideration-heavy, as opposed to the more action-heavy average survival game. It also evolves throughout the game, as the player's attention is drawn to different gauges, which require different actions to satisfy. Once coal is momentarily secured, the human needs of the citizens, such as Hope need to be kept up, introducing a new kind of failure: banishment from the player's position of power. This is remarkable, as this game design enables the effective

presentation of a not very common narrative: one of the everyday struggles of a replaceable leader of a group.

3.4.3 Discard, the author's own attempt at Narrative-Informed Game Design

Last year in a class at South-Eastern Finland University of Applied Sciences (XAMK) Game Design course a task was given of grouping into small developer teams and developing games with freely chosen direction and features, in a half-year timespan. The following concept was presented to the team, at the time consisting of Verna Kiander, Tuomas Hellstén and the author, with Lauri Aho joining later as the Lead Coder. The idea was set as the direction for the project, and the author became the overall leader and Game Designer for it. This gave the development team an opportunity to test out some, at the time not so organised ideas about narrative-informed game design.

Discard (Figure 4) is a game in which the player controls ABE, an automaton which finds itself in an unfamiliar metal processing factory. The player progresses through the game by moving ABE and overcoming puzzle challenges mainly by sacrificing ABE's limbs. Over all, the game's controls are fairly simple, with movement, jumping, and a single interaction button available to the player. The game is simple and short due to the limited development time and team size.



Figure 4. Screenshot from Discard.

The narrative of Discard is appropriately simple for the game's expected length: The player first does not know about the context of ABE's predicament, only learning that the automaton wants to get back to its master, for whom ABE is willing to do anything, even sacrifice parts of itself. At the end of the game ABE meets its master, who reveals that he had ABE scrapped, but now demands the ultimate sacrifice: ABE's power core, to power his automobile. The story was meant to be one of unreciprocated love, expressed through ABE's selfless, but also perhaps unreasonable self-sacrifice. Using an automaton made sense, as it makes it possible for it to have immutable "programming", making it an exaggerated metaphor of instinct, and allows the game to express self-sacrifice by literal dismemberment.

The gameplay loop has the player evaluate the puzzle ahead, and decide in which order to take actions which often include said dismemberment. The player can lose one leg and both arms. Without two legs ABE cannot jump, without any arms ABE cannot pick up junk that can also be used to avoid having to lose limbs. Limbs can be sometimes retrieved, and in one instance ABE finds another inactive automaton, from which it can salvage a limb.

From a cognitive metaphor perspective, the controls of the game reinforce self-sacrifice by locking off movement and interaction abilities based on the current limb-configuration of the automaton. On an analytical level the game gradually teaches the player to view self-sacrifice through a utilitarian lens, and look forward to reunification with ABE's master, disregarding the cost. The objective for the development team was to teach the player the same mentality as the automaton would have, if it was a thinking entity.

The problems with this design are twofold, balanced against each other delicately: The game's duration is capped by the fact that ABE only has so much to lose. On the other hand, retrieving limbs can extend playtime, and add complexity, but dilutes the significance of the sacrifices made. The balance therefore lies in maintaining the impact of self-sacrifice, while having enough of it

to spread across the narrative. The ultimate game length is not very long by industry standards in any case. However, in any different case of using this pattern in games, more things to sacrifice can be implemented. Ultimately this is a reverse mechanical progression, that is mechanics are lost as the player progresses. In the normal, forward progression scheme ABE would be gaining new parts and functionality to overcome obstacles throughout the game, and therefore the perception of the narrative would be also different- exactly reversed. Furthermore, the game is not able to deliver a varied set of gameplay loops informed by narrative evolution, simply due to the narrative being so short and simple, not featuring any major changes during gameplay.

3.5 What can be learned from the case studies?

This subchapter will summarise the pieces of information gained from the above case studies, and mainly answer one of the questions posed in the beginning of this work: What is narrative-and-theme-informed game design? I.e.: What are the typical, and edge cases thereof? Furthermore, some suggestions and considerations will be collected.

When attempting to gather the extent of possibilities for narrative-and-theme-informed game design it became apparent that some classification is required. This summary therefore proposes the axis eluded to in the case studies, from visceral to analytical elements, which divides the concepts into Interaction, Logic, and Gameplay Loops. The following figure (Figure 5) depicts this relationship.



Figure 5. The axis of Visceral to Analytical game elements.

3.5.1 Visceral versus Analytical

Visceral elements deal with the almost physical feeling of playing the game. How the player interacts, and executes their will in-game falls in this category.

Narrative-informed design made in this space is not often expected, and often resisted, considered intrusive by players. This is partly due to the strong effect of familiarity on subsequent control scheme designs, and the need for intuitive controls, so that the instant nature of interaction is preserved. Partly, the resistance to novel controls is also due to cost inferred by the player, as the control of any game usually requires some manner of peripheral hardware, and purchasing new hardware can be prohibitively expensive. And lastly, the resistance is due to many novel designs being less optimal at actual control, for some other effect to be achieved.

Control designs can be grouped into those that seek to introduce new controls in order to make the player take entirely new actions, those that combine existing control schemes to create a hybrid, and those that use the cognitive topology of an existing control scheme to deliver a message in this language. These categories can also exist within the same product, as a game might first create a novel control scheme, and then express something through it once the player is reliably familiarised with it, as we have examined with *Brothers: A Tale of Two Sons*.

Narratives that use such game designs often revolve around the agency of the in-game character, or express relationships in-game as spatial relationships on the control device. Therefore, the cognitive topologies of space, and power or agency become study subjects of interest. A wide range of possibilities exists within these topologies, and therefore game designers still reach for controls when attempting novel game design, despite the risk. It is also notable, that the most recognisable modern icon for “game”, is a console gamepad, which both signifies the visceral nature of this design space, and its resistance to change.

Analytical elements of game design deal with what the player considers, and what course of action they decide on. Narrative-and-theme-informed design is very much expected in this end of the axis, and considered less intrusive when novel. This is partly due to the fact that fundamentally all games are numerical, and so any means of making sense of variable numerical data is a help to the player. Same applies to non-numerical, but logical relationships: The more the consequences of narrative and gameplay elements are cohesive, the less the player will resist the functional design of the game.

Whenever numeric values are exposed to the player to make decision based on, they also deliver meaning to the player. This meaning is what needs to harmonise with the game's theme and narrative. Important in-game entities can be drawn attention to with modified numbers, whatever those numbers denote. From a cognitive metaphor perspective, the simplicity of this topology becomes abundantly clear. Higher numbers tend to be good, lower numbers bad. Loss in numbers is negative, increase is positive. The degree of the change denotes importance. This one-dimensional topology can be made more interesting with more variables, and inverse relationships between them. It is also highly important to keep in mind that numerical systems often merely serve to simplify real-life counterparts, as is the case with numerical progression systems. Such systems most often aggregate chances of success for the player to make decisions based on. Therefore, it becomes dangerous to replace well-functioning abstractions with inferior ones to satisfy genre expectations.

From a logical perspective the area of interest becomes the consequential nature of the narrative or theme. Each event or state in the game which the player needs to reason about needs to exhibit some degree of internal consistency, and reasons for diverging from the expected result. The case studies revealed this being disregarded in Tom Clancy's: *The Division*, where bullets are not given enough reason to be so ineffective. This can also be surpassed by not having the player make any decisions based on a logical conflict, as is the case in *Overwatch*, where the player is never asked to consider the narrative relationships between characters in order to win a match.

The player can be made to consider numerical and consequential relationships more intensely, if these are codified into game elements, and made to be interacted with. Therefore, the cognitive topologies of such relationships are the main focus of game design in the analytical end of the previously proposed axis. The design in this space is the most straightforward, and tweakable by the development team, and therefore is the most usual area for games to differ in.

3.5.2 Gameplay Loops

The gameplay loop of any moment in a game is the combination, and sequence of the above described interaction-based and consideration-based game elements the player “visits”, or devotes their attention to. Essentially, gameplay loops are what the player finds themselves doing, while playing and attempting to succeed at the game. Guardiola would perhaps describe these as “In Game Actions” and “Out Game Actions” signifying that the game is not interacted with, when the next move is being considered. However, for our purposes the detailed examination of these kinds of game loop elements yielded insights into the vastly different cognitive topologies they deal with. Gameplay loops can and often do replace each other throughout the game.

Perhaps the most important question to ask about the gameplay loops of any particular narrative-focused game, is if the gameplay loop changes by being affected by narrative beats. Does the player choose their playstyle, and/or considerations, as if the narrative was important to their playing of the game? Furthermore, if the overall progression of the narrative informs the progression of playstyle. The change in the gameplay loop itself should be logical, resulting in appropriate momentary gameplay loops based on narrative beat. We have seen both the momentary gameplay loops, and the evolution thereof neglected in *The Elder Scrolls V: Skyrim*.

Another useful lens to view gameplay loops through is that of game design patterns. Game design patterns are an attempt to create a functional language to

be able to discuss the work done by game designers (Björk et al. 2003). These patterns act as quanta of game design, which carry meaning, and interact with other patterns. Essentially, if the quantum of painting is the brush stroke, of music the musical note, then the smallest meaningful (and interchangeable) unit of game design is the game design pattern.

Game design patterns, as we have seen with the Upkeep design pattern and Frostpunk, in themselves define gameplay loops which can be analogous to the narrative. Analogous meaning that they are more extensive than metaphors, encompassing a process, rather than single bits of information. The way game designers can achieve narrative-gameplay analogies is by giving the player a narratively-informed in-game goal, and adding the tools to achieve it accordingly. This leads to the player actively choosing between these tools informed by narrative factors. This tends to focus the experience, usually fixating it on a single goal. This might not work well for open-world games, unless all the side activities the player takes part in can be made subservient to the eventual flow of the narrative. Game design patterns can define both these goals, and the tools available to achieve them.

What becomes apparent when examining gameplay loops and game design patterns, especially while keeping in mind the visceral-analytical scale of game elements, is that these facets of game design are very interconnected. In any case, the end product of game design will be some form of gameplay loop, or succession of gameplay loops. However, the road to designing one informed by narrative and/or theme leads through either a careful examination of interaction and analysis elements, or the design patterns that will create said elements, or preferably, both. Ultimately, these considerations are tools for the game designer to use in the crafting of gameplay loops.

4 INTERDISCIPLINARY ANALYSIS OF CONCEPTS

The obvious disciplines that intersect when analysing narrative-informed game design are game design (examined at length above), psychology, and

storytelling. The first two have reason and methods of being scientific (that is, following the scientific method) and measurable. Storytelling, however, whilst being perhaps the oldest art humanity has, does not boast much scientific literature to be examined. What exists is “writing advice”, various opinions, musings, and essays, as well as examination of what narrative **is**, as opposed to what are its goals and functional considerations (Hyvärinen 2007). Words and sentences can be analysed factually, but the closest we have to the scientific study of narrative is narratology, which mainly examines the structure of narrative, and is not nearly as clear cut as linguistics.

On the other hand, psychology has long been looked to for solutions to game development problems and goals, not always with benevolent intent or in the interest of the consumer (Hopson 2001). It produced consistently reproducible effects in the form of more engaged, more satisfied or more financially unreasonable players, prompting game design professionals to label desired mental states they intended to induce in consumers with psychologically-informed terminology, like “Flow”, or “Immersion” (Chen 2006). The previously used concept of cognitive metaphors can also be attributed to cognitive psychology.

This chapter will attempt to examine relevant established fields of study and reconcile their concepts and language with narrative-and-theme-informed game design. Concepts will be critically examined as to their merit in creating narratively focused experiences.

4.1 Narratology

In his Introduction to the Structural Analysis of Narrative, (Barthes & Duisit 1975) Roland Barthes asserts that much like linguistics deals with sounds, which form words, which form sentences (the sentence being the largest unit linguistics deals with) similar units must exist for narratology. In his model the smallest meaningful units are the function and the index, which form actions, which then form the narrative. Complicating factors exist as functions can be cardinal functions or

catalyses, and they can fall in both categories, but that is marginally relevant to this thesis.

Can this narrative structuralism be used for narrative-informed game design? Can we perhaps pair the quanta of narrative, as defined by narratology scholars with game design patterns, or game elements and gameplay loops? At first glance it would seem that functions (lighting a cigarette, shaking a hand) map onto visceral game elements, interactions, moment-to-moment actions, and logical elements map onto indices (attributes, traits). If so, the cognitive topologies of these pairs can be informers of game design, resulting in a narrative-informed design philosophy. The author is sceptical. The difficulty in reconciling these two dichotomies comes from the difference of subject: While the model proposed by Barthes is agent-centric, our model of in-game and out-game actions is player-centric, meaning that a non-player agent might perform a narrative function (attack player), but the player experiences it when they perform an out-game action (look at screen).

However, Barthes describes this dichotomy in terms eerily similar to the previously proposed axis diagram with Visceral and Analytical actions with gameplay loops as a combination thereof. In his description he asserts that some narratives can be predominantly functional, or predominantly indicial, just as gameplay loops can be interaction-heavy, or consideration-heavy (Figure 6). Perhaps a narratology-informed dichotomy of game elements is therefore needed? Can we divide gameplay loop actions to metonymic and metaphoric elements, where some relate to action, and others relate to state of being? The main difference this dichotomy would introduce is make gameplay loops agent-centric. Gameplay loops in this case would include only expressions of agents performing certain actions, regardless if the agent is a player or computer. This, in a way, excludes interaction from analysis of in-game narrative. It is no longer relevant how the narrative is experienced, or by whom, the narrative is restricted to the state presented within the mediator (the screen, the game board, or the imagination, excluding narrative-informed game controls entirely). This approach

also contains a dangerous assumption: that the player actively analyses all actions happening within the mediator as narrative.

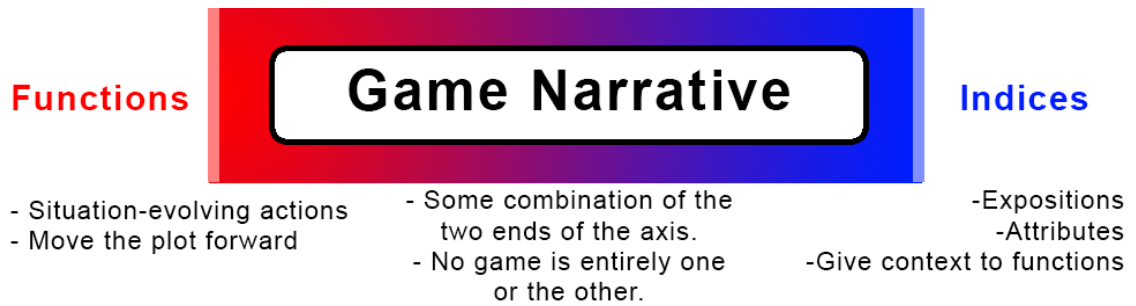


Figure 6. The axis of Functions to Indices.

The above figure does make a strong case for the parallel nature of functions and indices to visceral and analytical (or in-game and out-game) game elements as a question of metaphor versus metonymy. It implies that visceral elements are metonymic, rather than metaphoric, meaning that they have function regarding action (as opposed to state of being). The player does not press a button because that's how people jump in real life (for example), but because that specific button represents their character jumping. This way the action of jumping is placed on the physical topology of the game controller, and therefore mapped onto its cognitive topology. As an example, *Brothers: A Tale of Two Sons* "places" both characters on two sides of the game controller, giving them "ownership" of physical buttons. Once one of the brothers dies, the actions they could take also become absent from the controller.

Barthes also identifies the near endless way narratives are expressed in, not all of them verbal or written, but image-based too. Is it not then reasonable to assume that narrative itself is also expressed through gameplay? Narrative not being a separate entity the gameplay references, but gameplay being another part of the overall expression of narrative. If so, the eventual narrative of a game is not what the writers wrote ("The witcher saved his surrogate daughter, and with her help, stopped the Wild Hunt."), but what the player eventually experiences as a whole ("The witcher spent a few weeks looking for treasure, running errands, and trying to get his horse to go where needed, before he finally got around to saving his surrogate daughter."). However, players usually identify the distinction

between narrative and gameplay, and do not consider their interactions as “canon” within the story, not expecting the game to have scripted, acted, and art-wise executed reactions to the way they play the game. This means that they experience and accept what is too often called “Ludonarrative Dissonance”. (Hocking 2007) However, Ludonarrative Dissonance ceases to be a meaningful term if the ludic elements of a game are also the narrative, and the aforementioned players simply experience said narrative selectively. All this is to say, on one hand the intuitive way to view gameplay is as a part of narrative, but the accustomed player will recognise it as separate from narrative. Is the latter the natural state of game consumption, or is it simply a compromise made because game designers, quite prosaically, fail at narrative-informed game design?

Is it more important to consider game elements as metaphors of narrative actions, or to consider gameplay as said narrative actions in itself? Are these approaches mutually exclusive? Are these meaningfully distinct design philosophies? The first approach is an implicit admission that games as a medium are considerably different from written word or cinema. The second approach is an admission that no matter the medium, the end product is some sort of narrative, which the creator team crafts as a whole. Therefore, these are not mutually exclusive approaches, rather the second, more general philosophy contains the first, more specifically game design oriented one. It is this thesis’ assumption that with sufficiently consistent narrative-informed game design even the players who are most accustomed to a dissonance between narrative and gameplay can be re-taught to seek the narrative in the play itself.

Narratology can be a useful tool of designing narrative-focused game experiences. However, it is particularly useful in shining a light onto the limitations of narrative expression through games. Essentially, any game that is played (all games) is a narrative from first person: an avatar-based game, regardless of the nature of that avatar (person, colour or state) (Adams 2010). It requires a game-independent view to experience any narrative actions which the player does not interact with, and all things the player interacts with are instantly affected by

strategic thought. They imply function, and a “me versus others” mentality. Some narratives might be way better expressed through a passive medium like literature, but interaction does a number of beneficial things for us game designers that make it worthwhile to contend with possible dissonances it might introduce. What the game designer must consider, however, is that everything the game contains comprises its eventual narrative, even if some of these elements are intentionally obfuscated, or culturally disregarded.

4.2 Flow, Telepresence, utility of “popular” psychological concepts

This subchapter examines some psychology terms that have been recently popularized in the industry, and their implications for narrative-informed game design. It seems both logical and intuitive to look to psychology for answers to game design problems. That being said, scepticism is justified towards the following ideas. The utility of these popular concepts will be examined from the perspective of the titular design philosophy.

4.2.1 Telepresence

Telepresence (or Presence) is a theory combining psychology with other fields such as communication and computer science which describes *a mental state in which the perceiver of a mediated experience (for example a computer simulation, or video chat) is not conscious of the experience being mediated.*

Essentially, the subject in question feels as if they were actually in the environment and context presented to them by the medium in question.

Telepresence is more commonly known within the games industry as Immersion, and is an almost universally desired quality of video games. Within the body of research on Telepresence as described by Lombard and Ditton Immersion is just a certain category thereof, however. This definition of Immersion is also not what most within the industry would imagine it to be, as it largely denotes the amount of senses that are captivated by a mediated experience. This subchapter will use the term Telepresence as defined above to avoid confusion, but the experienced

gamer or game developer can understand it as Immersion. (Lombard & Ditton 1997.)

The reason for which Telepresence is a desired quality of game experiences is fairly obvious, as it not only improves engagement with the game's presented fantasy, but consumers explicitly seek it in their game experiences. As a result, it becomes a very attractive marketing phrase and a popular target dimension for review. Not all games are expected to be immersive, the phenomenon being mostly used to describe games set in detailed three-dimensional environments with fully realized and rich visuals and sound design. Not surprisingly as most factors affecting Telepresence have to do with the size, detail and multi-sensory nature of the mediator. The question therefore becomes: What are the ways in which narrative-informed game design can induce or maintain Telepresence? Furthermore, is it really universally desirable to strive for Telepresence, perhaps regardless of the kind of narrative we have?

Which requirements of Telepresence apply to the work of a game designer? Certainly, the ones that focus on size of medium, quality, and multidimensionality do not. Let us focus then on *interactivity*, *consistency*, and *detail* (or cognitive challenge).

Interactivity is perhaps the most powerful way of inducing Telepresence. What this means, however, is the introduction of the will of the subject into the experience. With this comes a strategic view thereof; as once the subject (player) has the motivation to interact they obviously interact to execute those motivations. Strategic viewing of game experiences is not to be underestimated, as it will almost inevitably tint the reading of the narrative contained within. This is especially the case if the player is experiencing Telepresence, and is transported into the mind of the entity or force they play as within the game. This makes avatar-based (first person) narratives as easy to express in gameplay, as it is difficult to express impartial ones, perhaps even meaning an inverse relationship between Telepresence and critical thinking. Some games quantify, and therefore gamify even the most arbitrary of narrative actions, making this strategic view

inescapable even at moments when the player could be allowed wider reflection, as we often see with “morality systems” (Macgregor 2019).

Another insight of Telepresence research regarding interactivity is one already expressed in this work: mapping of controls ranging from arbitrary to natural (Steuer 1992). It is more conducive to a state of presence if the way the player expresses their will in the game in a way that is closer in physical nature to the action done in-game. For example, looking around via using one’s gaze itself is more analogous than using a joystick to do so, which in itself is more analogous, than having to type in “look” as a command to an adventure game, like in *Colossal Cave Adventure* (Crowther & Woods 1977).

The third dimension of interactivity that is eminently important to analyse is responsiveness. The simplest technical aspect thereof is speed of reaction, the player’s will to be carried out without any visible delay. The more challenging area being preparedness to react, which is a design and content creation issue. It is only satisfied by the game having an adequate reaction to any interaction the player can perform. Therefore, it is not enough to give the player wider, more analogous controls, as it creates more work for the designer: to create the game’s reactions to those interactions in any given context.

Consistency is another challenge for Telepresence in games. In the most archetypical case of a game, it is no challenge at all, as it is definitely easier to make consistent game rules, than ones with exceptions. In fact, introducing exceptions into games is a content creation issue, it requires additional design and implementation. However, as expressed through case studies, a narrative in the context of a game requires the gameplay loop to evolve with said narrative, constantly creating smaller or bigger inconsistencies. Therefore, the challenge lies in establishing a design language complex enough to express narrative actions logically, i.e.: consistently. The game systems in the *Civilization* series are a good example of a design space that can accommodate all the minute or monumental changes in the “flavour” of different factions (it is not, however, an extraordinary example of narrative, nor is it good at Telepresence).

Detail and cognitive challenge have to do with the complexity of the game systems designed by the game designer. A more complex game serves as a better model of reality than a simple one, and this seems a fairly uncontroversial way of inducing Telepresence through game design. This is a kind of engagement of multiple senses, in which the medium engages the experiencer's critical thinking as much as possible.

The phenomenon of telepresence often elicits questioning about ethics and protection of those of weak mental resilience. No real evidence exists of gamers mistaking a mediated experience for an unmediated one completely, one could say that real Telepresence has never been achieved. However, some studies into the effect of fantasies on real-life actions exist, with results that are hardly ethically relevant (Ortiz de Gortari 2016). It is however worth contemplating, whether expressing narrative in a context which temporarily inhibits critical thinking is an ethical prospect, and considering the march of progress, what will the possibility of real Telepresence bring about. Any sufficiently real-seeming depiction of the real world could have hidden messages (either malevolent or good-intentioned, but non-consensual) within it that would affect the player in this challenged mental state (W 2017).

From a practical perspective on narrative-informed game design, Telepresence is also not the universal goal. As already eluded to, the agency-oriented nature of interactive experiences makes impartial reading of the experience difficult, if not outright prevented. Some "high concept" narratives might simply lend themselves better to a passive reception, the same way emotional ones would probably work better with an active and engaged audience. However, aspects of Telepresence are universally useful as considerations, such as the analogy between action and control, consistency, and detail. As for narrative-informed game design inducing Telepresence, it seems that the main aspects that can be manipulated to this end are the analogy between game elements and their real life counterparts, which is greatly supported by the complexity and responsiveness thereof.

4.2.2 Verfremdungseffekt

When considering Telepresence, and other ideas about placing the player in a less conscious, more visceral state, the idea of the Brechtian Verfremdungseffekt⁶ becomes an obvious counterbalance. Bertolt Brecht, 20th century German playwright, wrote plays in his “Epic Theatre” format, which had the goal of achieving the exact opposite of Telepresence or Immersion (Encyclopædia Britannica 2018). The viewer was supposed to examine the play critically, completely conscious of the language of theatre, and the fact that it is a mediated experience. This idea is not a psychological one, or rather, it was created in the discipline of theatre at a time when psychology wasn’t yet as established.

Regardless of the ideas being presented, the goal seems nobler, more honest than requiring the audience to suspend their disbelief or scepticism. Moreover, it certainly opens up opportunities of novel narratives being presented: ones that require careful, conscious examination by the viewer. For the purposes of this thesis it serves as a good counterpoint to the idea of Telepresence, and it being a universally desirable quality of media.

Verfremdungseffekt also opens up the conversation about the level of agreement between game developers and their customers: If customers are invited to critically examine the message given to them, the question if whether the narrative is “good”, can morph into a question about the narrative being “right”. This can potentially both fracture the market, and increase player engagement with the medium.

4.2.3 Flow

Flow is a concept coined, or discovered by Mihály Csíkszentmihályi, and is a fundamental theory within positive psychology. *Flow is a subjective state that people report when they are completely involved in something to the point of*

⁶ “Distancing Effect”, or “Alienation Effect”.

forgetting time, fatigue, and everything else but the activity itself

(Csíkszentmihályi 2014). It has been often held up as the holy grail of game design, the ultimate goal of player engagement.

Positive psychology is a good intentioned field of psychology which stands on questionable foundations. In fact, when the author was attempting to find resources on Flow, he had to wade through volumes barely scientific “self-help” books, with actual empirical science being scarce, and often mutually exclusive (Cheruvu 2018). The fundamental problem with positive psychology, however, can be found in its standing on assumptions of quality of life and perhaps even morality (by implication). It attempts to differentiate itself from the mainstream of psychology by not asking “what is wrong?” about the study subject, instead asking “what is right?” (Lopez & Gallagher 2011). However, while “what is wrong?” might not even be an accurate description of what psychology asks, (perhaps “what is abnormal?” would be more accurate), the question posed by positive psychology requires definitions for good, and the field itself uses phrases like “optimal experience”.

Flow, according to authorities on the subject, requires a number of conditions to be met about the context of the activity the subject takes part in, in order to occur. These are most often cited as a participating, active subject, who is challenged in a way that is just pushing their comfort, and is fully informed as to their goals and the conditions in which they act. Flow is described as a number of symptoms, which include loss of self-consciousness, a sense of control, and an altered sense of time.

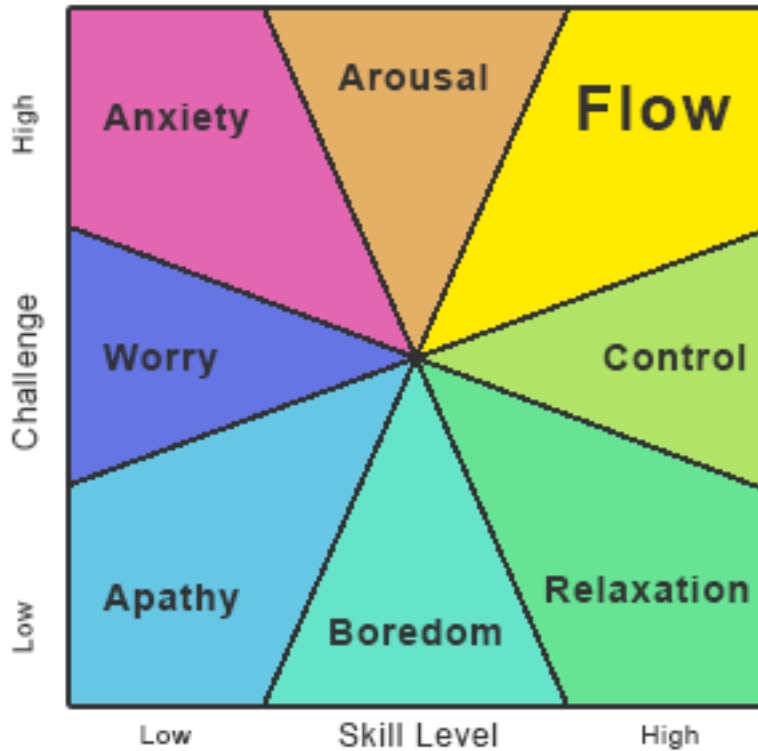


Figure 7. The most detailed diagram of Flow with related mental states. Based on Csíkszentmihályi, 2014.

It can be argued, that while the above described state of mind is absolutely desirable for a certain subset of games, narratives often require fundamentally different mental states, and therefore certain game experiences are un conducive to flow, with good reason. However, the analysis of flow presents an opportunity to explore these different narratives, and point out how they differ from flow-compatible ones (Figure 7). Note how most of the mental states indicated in the diagram can be valid goals for any given narrative.

4.2.4 Different kinds of narrative through the lens of Flow

There are three requirements of Flow as three dimensions which can possibly exclude narratives from being expressed through game design. These are, challenge, full information, and participation by the experiencer. Participation is the most difficult dimension to question, as games universally include interaction. However, if we consider the question of participation from a narrative angle, we can ask whether the player is participating in creating the narrative, as opposed to being presented one. As described with narratology, the interaction by the

player often conflicts with the narrative the writers try to present, but some games feature narrative almost solely created by player actions. The most obvious example is not from the realm of video games: table top role-playing games. Games like the Civilization series also create narratives emergently, by featuring mechanics that are conducive to narratives known from history textbooks. However, most developers of narrative-focused video games seem to view the player as an almost passive receiver of the narrative they created. It is safe to say that a “Flow” approach to narrative creation would require input from the player as to the substance of the narrative, which might always remain an unrealistic fantasy.

The dimension of full information is much easier to challenge from a narrative angle. It is fairly obvious that mysteries, and atmospheres of confusion clearly suffer from too much information being given to the experiencer. The player might not need to know the goal of their protagonist, they might not need to know what threats and challenges they are supposed to be defeating, and changing the rules of the game during gameplay can be done deliberately to deprive the player of a feeling of control, all for narrative impact. Arguably, the most interesting type of information is how honest the game is about its systems with the player. It is analogous to the Brechtian *Verfremdungseffekt*. The same conflict persists in games that are very open about their inner workings, versus ones that only inform the player about very specific things for narrative effect. Consider how the popular game series Starcraft (Blizzard Entertainment 2010) depicts an epic struggle between spacefaring civilizations, yet the game’s players describe their experiences in the game with almost sports-like phrases such as “Zerg Rush” or “Base Trade”. This is due to the fact that the players only make decisions based on the game’s exposed numeric values, most often competitively, and not based on any narrative or theme. The players are distanced from the game’s world by an abundance of analytical game elements, and full information actually serves to erode the game’s narrative aspect. This often just leads to the phenomenon already described with narratology: the players not identifying gameplay as narrative, instead opting to use gameplay as means to unlocking snippets of the codified story (if at all interested).

Optimal challenge, as defined in Flow is also not always the goal of game designers, and definitely not analogous to a vast set of narratives. Some games, mostly of a dark disposition, offer an above realistic challenge to express their themes of hopelessness, as well as to teach the player new, counterintuitive modes of thinking (FromSoftware 2011). Other games are specifically made sub-difficult or lacking in any challenge whatsoever, to offer the player relaxation, or to not distract from the narrative with the possibility of failure (The cannery sequence in *What Remains of Edith Finch* being a good example).

What narrative **is** conducive to Flow-targeted game design? What decisions are necessary to complete the checklist of requirements? The greatest challenge is probably the participation aspect. Other than table top RPGs, where any input can be handled dynamically, games have no real way of giving the player the power to create narrative freely. This is often circumvented by branching storylines, where the player has the power to essentially choose from a number of pre-scripted narratives. The optimal challenge is often achieved through a narrative of growth, usually some rendition of the hero's journey, as outlined by Joseph Campbell (Campbell 1949). It allows for a gradual complication of game mechanics as the player masters old ones, and outgrows initial challenges. For the purpose of fully informing the player games often front-load basically every mechanic they feature, as well as the eventual goal, and only slightly complicate these established elements throughout the game, never changing what is already learned.

It is clear that flow-oriented game design is very restrictive to the set of narratives the gameplay can express. However, it is a worthwhile exercise to identify which aspects of flow are in harmony or conflict with the narrative to be expressed, so that as many of these aspects can be achieved as possible, if otherwise not conflicting with narrative.

5 ACTIONABLE CONSIDERATIONS OF NARRATIVE-AND-THEME-INFORMED GAME DESIGN

This chapter finally gathers all the considerations suggested by the above-presented research, and outlines relationships between these considerations, after revealing their utility. The author hopes this chapter serves as a sufficient guide for the reader to attain a mindset of narrative-informed game design, and some inspiration as to how to implement this design philosophy in practice. Optimally, this chapter also makes a good case for the ultimate utility of the titular concept.

5.1 What narrative-informed game design can do for you

The utility of the titular design philosophy is justifiably questioned: this study failed to find a strong correlation between the presence of narrative-informed game design and financial success or any other metric (Figure 8). It is clear that game design juggles so many factors, that a single aspect of it will not make or break a game. The following graph is a barely scientific (mainly intended for internal use), but still shows that this line of reasoning is not available.

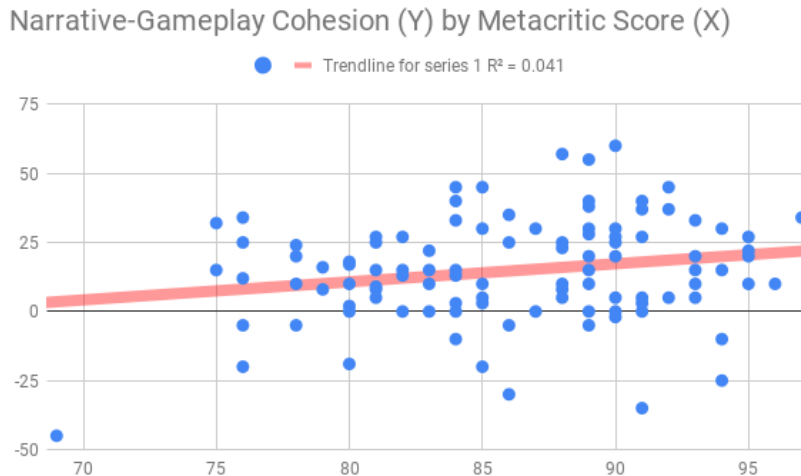


Figure 8. Lack of correlation between Metacritic scores and the author's own judgement of cohesion between narrative and gameplay elements in 103 video games.

However, it is still arguable that narrative-informed game design is always beneficial (to some degree). It is also important to remember, that this multiplicity of factors makes this work a fairly limited-focus study, which mainly offers another

tool to add to the already numerous considerations a game designer can and should handle.

5.1.1 More possible narratives

This thesis identifies a problem with the seemingly universal approach to game narratives which currently dominates the industry: Narratives are made to fit a tried-and-tested gameplay loop (often badly), instead of attempting to make game systems which match a desired narrative. The author is convinced that the herein described design philosophy widens the possible narratives game developers can express.

Most current game narratives focus on growth, violent conflict (or conflict over tangible outcomes), and a single protagonist or perspective. This is so due to these narratives having to accommodate the usual game design patterns of resource and power gaining, zero-sum conflict, and positive progression. These emulated game systems are also most often unchanging throughout their respective games, due to design and content creation costs, which further hinders narrative expression, and progression thereof.

5.1.2 Focus, and effectiveness of expression

There exists a persistent conflict between what modern games attempt to express as narrative, and what messages the gameplay actually expresses. This creates a problem in when consuming modern video games: The player often actively has to look past the gameplay to receive a narrative. They cannot, (and due to habit, do not) look for narrative information in gameplay, often having to ignore direct contradictions between the intended narrative and game systems.

Much as related psychological concepts (such as Telepresence) indicate, a high level of consistency between the cognitive topologies of gameplay and intended narrative increases player engagement, and player understanding of the intended message. Obstacles which stem from gameplay and hinder the narrative

message can be eliminated, often without greatly hindering the end product's marketability.

5.1.3 Ease of teaching the game

The last, but not at all trivial benefit of narrative-and-theme-informed game design has to do with intuition and logic. Simply put, a game system which follows the intended narrative's logic can be taught simply by expressing the narrative itself, needing minimal tutorial time. This often has to be balanced with existing industry standards, as any divergence from established conventions directly goes against ease of tutoring.

This aspect is too often used to justify the opposite of what this work is about: Changing the intended narrative, so it can serve as a tutorial for some very ludic mechanic, which finds no other justification than to serve as an activity for the player to do. Any recent game by Ubisoft serves as a good example of this, as the protagonist is often asked to do busywork with minimal narrative significance for a good portion of games in the Assassin's Creed or Far Cry series.

5.2 The significance of the narrative nature of gameplay

This chapter serves to point out the importance of considering gameplay (and as a matter of fact, all elements of a game) as functions and indices of narrative, as narratology would describe these. Consider the two diagrams below (Figure 9):

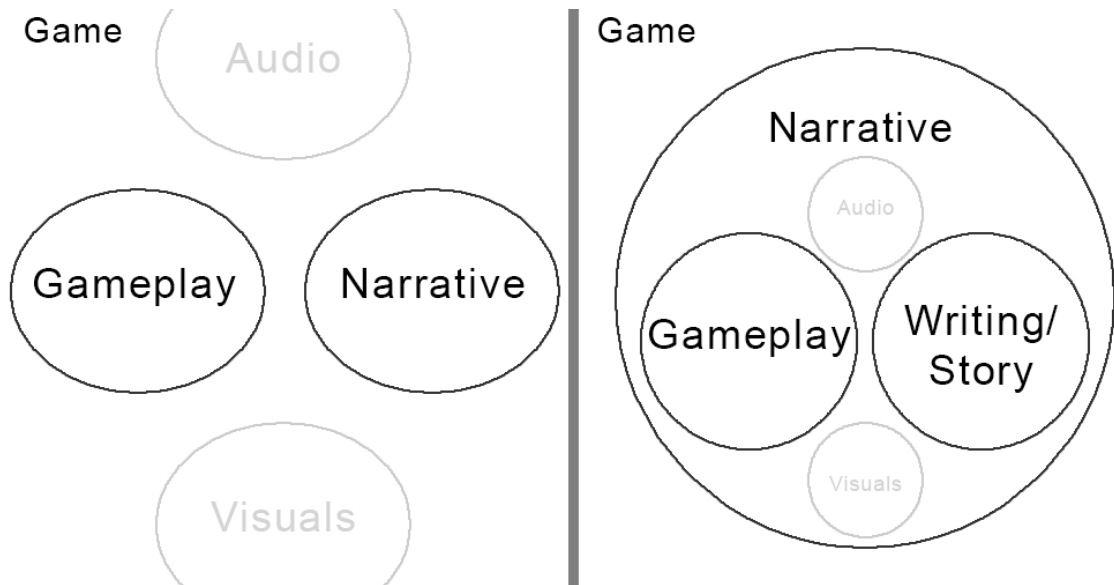


Figure 9. Difference between a segregated and integrated view of narrative and gameplay. The scale and opacity of the depicted circles only serves to highlight information important to the point made, not importance to the end product.

The above diagram shows the conclusion one can reach by examining the titular concept through the lens of narratology. It depicts the difference between the most usual segregated view of game features, and the view which is necessary to fully understand narrative-informed game design. The former gives rise to a compartmentalisation of development teams in the view of the observer, somewhat lifting the responsibility of narrative expression from game designers and anyone not specifically employed “for narrative reasons”. It also leads to concepts like “Ludonarrative Dissonance” being coined, which implies contrary to the illustrated point, that only the features which are not ludic can be narrative. The latter diagram is an admission, that all the elements of a game, including the gameplay, together create the narrative which is eventually presented to the player. This is the case even if modern games routinely teach their players to disregard one half of the game when judging the other.

To explain this let us respond right to the source of “Ludonarrative Dissonance”, Clint Hocking: Within this view a game’s narrative cannot be in dissonance with its gameplay, as the gameplay **is** narrative. This is to say, whether Bioshock has a coherent narrative or not depends on the interaction between the gameplay, writing, and audio-visual elements, and the writers do not get to decide upfront

what the narrative will be, without involving all other features into expressing said narrative. Therefore, the use of the term “intended narrative” becomes necessary to differentiate from the de facto narrative.

The previously expressed dichotomy does not imply, however, that the two views of games and game development are mutually exclusive, or that one is superior to the other. It simply points out that the integrated view of game narratives is what is necessary for this particular game design philosophy. Game design and writing are still governed by vastly different constraints and cognitive topologies, and as previously stated, cohesion is only one factor which contributes to the quality of both.

5.3 The construction of narrative-informed game design

Consider the following diagram (Figure 10):

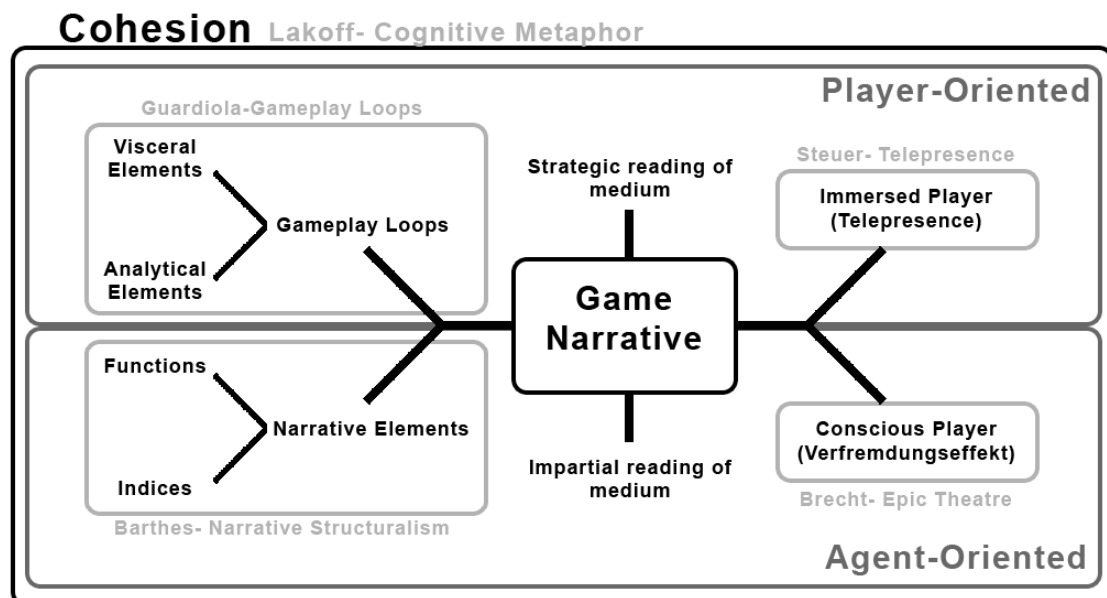


Figure 10. Breakdown of the different considerations which feed into Narrative-Informed Game Design.

The above diagram depicts the many often conflicting factors and frameworks of thought which ultimately contribute to the creation of a game’s narrative. It is the culmination of the prior research done for this thesis. Areas of it are labelled with the theories which inspired them. Inspired being a key word, as vocabulary had

been sometimes changed (for example, Guardiola would use In-Game and Out-Game actions, where Visceral and Analytical had been used). This subchapter will attempt to unpack this diagram into actionable considerations, using as general and universal terminology as possible.

The obstacle that lies before the successful expression of narrative through gameplay is twofold. The first issue deals with cohesion between elements which are governed by different cognitive topologies. The second issue is the nature of the player as one who performs both the role of agent in a set of rules, and recipient of a message. These issues are two sides of the same coin, however, as one could say both of them exist because of the other. The goal of this design philosophy therefore becomes to reconcile the language of the passive and contemplative medium of storytelling, with the active medium of games, which always impose some form of strategic thought on the player.

This reconciliation, among other factors, is what the outermost layer of the above framework deals with: cognitive metaphor. Whenever narrative-informed game design is attempted, game designers can use the vocabulary of cognitive metaphor to conceptualise their designs. This vocabulary consists of cognitive topologies, and the mappings between considered cognitive topologies. The end product of aligning the cognitive topologies of gameplay and the intended narrative will be a sense of “sameness” and/or logical consequence.

The second layer of the above framework is the distinction between Agent-Oriented and Player-Oriented narrative presentation. That is, whether the player is intended to read what is presented through a strategic lens, or an impartial one. The player will either view any situation unfolding in their game as “I versus the game contents”, or “Each agent within the game acting according to their motivations”. The final narrative will be experienced in a way that is a combination of the above, however, the ratio in games is often heavily favouring the strategic approach, often to the detriment of narrative expression. In general, whenever the player is presented with information that is important to their ability to progress in the game, it is tinted by strategic thought. This also can be used for

narrative expression, but only if the game designer is conscious of this fact. For example, the strategic thought in *Bioshock* or *Frostpunk* is a natural part of the narrative. Conversely, morality systems in many RPGs, which grant special abilities to characters who choose a certain way most often warp the underlying morality.

The last layer of the framework deals with specifics of design and/or storytelling. The comparison between game design by gameplay loops and story design by narrative elements (functions and indices) serves to point out primarily, that each of the lowest level elements are governed by different cognitive topologies. The ability of this work to supply specific solutions to specific designs ends at this level. However, the case study portion of this work has provided a large array of examples of approaches and possible problems. Visceral elements mainly denote interaction and player agency within the game (*Guardiola's In-Game actions*), while Analytical elements denote considerations made based on the game (*Out-Game actions*). Another possible avenue of choosing the correct design for the goal is considering Game Design Patterns, as defined by Björk et al. For this to be viable one would have to revise said Game Design Patterns, and then devise how they relate to narrative.

The most concretely actionable consideration in this area is the recognition of difference between metaphor and metonymy. Metaphor has function regarding state of being and is mainly the mechanism of Indices and analytical game elements (or out-game actions). Metonymy regards action, and is the domain of narrative functions and visceral game elements (in-game actions)⁷. In essence metonymy is removed from the actual action by the tool used for the action. In the case of video games this tool will be the input device the player uses, and the processes in which narrative is moved forward. Therefore, before considering the cognitive metaphors implied by the game's controls, it is worthwhile to identify the metonymic relationships they have. For example, players will refer to the

⁷ Good examples of metonymy are "The pen is mightier than the sword", or "Lend me your ears." (Encyclopædia Britannica 2016).

Spacebar as jump, and say “Press jump!” completely naturally, denoting the metonymical relationship between the two.

On the other side of the subject diagram is the dichotomy of conscious versus immersed media consumption. This duality is more about the amount and kind of information the media consumer is given, than what they do about it. In a way, the state of Telepresence is a challenged intellectual state, but it can be leveraged to make the media experience more enjoyable through consensual immersion. On the other hand, if the previously stated bigger variety of expressible narratives is the goal, narratives requiring an impartial, conscious consumer are not to be disregarded. Brecht preferred to engage the thinking side of his audience’s minds, as he genuinely believed that his position is the reasonable one (engaging the *logos*, instead of the *pathos*). Perhaps game players will also require a kind of *Verfremdungseffekt*, to forget strategic thought (and therefore, biases) to grasp and enjoy certain game narratives. More likely, and more elegantly, however, it’s the strategic incentives in the game, that need to align with the intended narrative. The player needs to be presented with a gameplay contract, which is conducive to the creation of the intended narrative, regardless of the level of conscious consideration it requires. As Frostpunk shows us, if the game’s mechanics work on an upkeep basis, a city-building game can become about survival.

5.4 Additional considerations

All of the above frameworks need to be considered to fully grasp exactly how any given game design affects the end narrative of the game. More ways to view this problem surely can exist, but this collection gives a well-rounded view of it. For the purposes of actually designing games it is difficult to gauge just how useful this framework is. This is mainly because a large portion of game design considerations that actually are handled during development are standardised, or very intuitive, and questions of common sense. An academic work will naturally analyse the problem down to the minutest detail, which is analogous to how

enormous studies can be written on how humans run, even though it comes naturally to most. It is however clear, that some run better than others.

This work is not claiming that the titular design philosophy is supreme above any other. It cannot, as literally no metric exists by which this claim could be falsified. Nor should any designer trying to think in the above described terms forget any other (well working) aspect of their game design. There are a number of realities, expressed in part in the case studies, which can make design impossibly expensive, or simply lesser in aspects not related to storytelling. It can however be stated, that if the research done for this thesis is any indication, mistakes can be avoided as well as novel benefits can be gained by employing narrative-informed game design.

6 CONCLUSION

It can be argued that the currently prevalent view of game development as an interdisciplinary, yet disciplinarily segregated endeavour is restricting to the range of expression achievable by games. This thesis finds fault and potential within the field of game design, which is (perhaps naturally) underdeveloped, compared to disciplines like writing, music, or fine art. This fault is demanding that all other disciplines should bend to the rules of game design, while game design often finds itself unable to innovate past what are currently easy to develop and market gameplay loops. This thesis sought to create a framework within which a game designer can “catch up” to the intended narrative of their game with their designs, as opposed to warping their narrative to fit gameplay.

It became clear, that if an integrated view of game narrative is created, it naturally imposes a symbiosis on gameplay and other game features. Therefore, it is also not possible to put the entire duty of change on the game design. This way gameplay simply “joins” the set of features that are considered narrative in nature in any given game. This view is consistent with all research done for this work, and is mainly inspired by narrative structuralism.

This thesis set out to create an actionable set of considerations for game designers who intend to follow the philosophy contained within. For this purpose, the responsibility of change had been squarely put on the game designer's shoulders. Firstly, language had been established in order to be able to usefully converse about the concepts important to this thesis. This language is the theory of Cognitive Metaphor, as defined by George Lakoff. Whenever cohesion is sought between feature of a game, this theory supplies sufficient vocabulary to verbalise points.

Gameplay Loops as defined by Guardiola and Game Design Patterns as defined by Björk et al. had been designated as the end product, which the game designer creates and arranges in their work. These are essentially the entities that need to be informed by narrative and theme.

To support this theory a relatively wide interdisciplinary study was conducted ranging from theatre (Bertolt Brecht and V-effekt) through narratology, to cognitive and positive psychology. This was done to further bolster the available vocabulary and set of concepts one can use to define their game design, as well as evaluate the utility of established concepts (like Flow). The restrictive view of game development had again been shone a light onto, as many of these concepts revealed how many more modes of thinking game designers can partake in.

While the definition of narrative-and-theme-informed game design had been achieved, it is questionable, whether a truly actionable "guide" to it had been composited. The last chapter of this work mainly serves as an "inspiration" in its current state. It is unclear, whether it can guide a designer to a more narratively coherent design. This issue mainly stems from the fact that any more specificity in the last chapter would serve to further box in thought about game design, exactly contrary to the intended goal. It is however the hope, that an optimal balance had been struck between specificity and general applicability.

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