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Masters Thesis

Video Games & Cognition:
Deep- and Hyper Attention in World of Warcraft

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__Abstract__

This thesis investigates N. Katherine Hayles' proposed cognitive modes of deep- and hyper attention, and their possible relations to the video game *World of Warcraft.* It is an interdisciplinary study between game studies and cognitive/psychological studies, to create a comparative understanding of the cognitive activity within video games in relation to Hayles' theoretical proposals. Game theorists like that of Jesper Juul and Tanya Krzywinska provide the guidelines and theories for video game research, and cognitive theorists like Anne Treisman are the theoretical foundation for discussing cognition.

To include research where these fields are united, it also applies the theoretical perspective of Astrid Ensslin, as her research on *literary gamin*g in terms of the relationship between literary and ludic elements have connections to Hayles' cognitive theory, and discusses the possible implications of her cognitive modes in this relationship.

The purpose has been to investigate how the different cognitive modes of Hayles are stimulated in *World of Warcraft,* based on their described characteristics. As such, it takes a close look at how *World of Warcraft* presents information to its players, what information this is, and how it relates to the players current gameplay activity. From these observations, it makes a comparative look to the characteristics described in Hayles' theory to discuss how the cognitive modes are stimulated within the video game.

Furthermore, it theorizes the cognitive relation between inside and outside video games, as the emergence of cognitive activity between the real world and the world of make believe are elusive to conclusive results. This is an issue in game studies as a whole, and as such I lean on Huizinga's terms of *the magic circle* and Salen & Zimmerman's *immersive fallacy* to provide possible theoretical solutions to this issue.

Norwegian Abstract (Sammendrag)

Denne oppgaven undersøker de foreslåtte kognitive modusene; dyp- og hyper oppmerksomhet av N. Katherine Hayles, og deres forhold til dataspillet World of Warcraft. Det er en tverrfaglig studie mellom spillstudier og kognitive/psykologisk forskning, med mål for å skape en omfattende forståelse av den kognitive aktiviteten i dataspill i forhold til Hayles foreslåtte teorier. Spillforskere som Jesper Juul og Tanya Krzywinska gir retningslinjer og teorier om kvalitativ forskning på dataspill, og kognitive teoretikere som Anne Treisman er det teoretiske fundamentet for diskusjonene om kognisjon.

For å inkludere forskning der disse feltene møtes, anvender oppgaven også det teoretiske perspektivet til Astrid Ensslin, ettersom hennes forskning på *litterære spill* i henhold til forholdet mellom litterære og ludiske elementer har tilknytninger til Hayles kognitive teori, og diskuterer de mulige implikasjonene disse kognitive modusene kan ha i dette forholdet.

Målet har vært å undersøke hvordan de forskjellige kognitive modusene til Hayles blir stimulert i *World of Warcraft*, basert på de teoretiske kjennetegnene. Som sådan, undersøker oppgaven hvordan *World of Warcraft* presenterer informasjon til spillerne, hva slags informasjon dette er, og hvordan dette forholder seg til deres aktuelle spillaktivitet. Fra disse observasjonene, drar oppgaven sammenligninger til Hayles sin teori for å diskutere hvordan de kognitive modusene blir stimulert i dataspillet.

Videre, vil oppgaven komme med diskusjoner om det kognitive forholdet mellom utsiden og innsiden av dataspill, ettersom utmerkelsen av forholdet til den kognitive aktiviteten mellom virkeligheten og fiksjon kan gi mangelfulle konklusjoner. Dette er et kjent problem innen spillforskning, så jeg trekker derfor inn Huizingas ide om *den magiske sirkel* og Salen & Zimmermans *immersive fallacy* som mulige teoretiske løsninger til dette problemet.

Foreword

As I sit here writing this, I have my computer screen separated into three different widgets. The left side is for this document, whilst the right side is divided into my music player in the top right and an article I read five minutes ago in the bottom right. My right foot is thumping the tempo of the rhythm of the song I'm listening to in 4/4 time, whilst my head is bobbing along in 2/4 time. I only have the right earplug in my ear, so as to be able to listen to the ambient sounds of the library I am currently working in at the same time as my music. This has been my work environment for many years now, and it is amusing to see the subject of my thesis so visible in these actions.

I want to give thanks to my supervisor Håvard Vibeto, for his reviewing eye and both encouragement and critical views to my academic opinions. Thanks also to Programme Coordinator Bård Uri Jensen for the help sorting out the Appendixes.
A great thanks must be given to my cohabitant Rikke Cedervall, for her unwavering support and for pushing me to achieve the best that I can do. And last but not least, thanks to all the people I have played *World of Warcraft* with over the years, but especially Sondre Brakalsvålet, Marius Hauger, and Martin Samsonstuen.

1. Introduction

In primary school and junior high school I was often complimented by teachers for my above average comprehension of the english language in comparison to my age, using a more developed structure and more complicated words than the current curriculum required of us as students. While I cannot deny that I owe some credit to my tutors and peers at the time, I learned most of my english from all the video games I have played in my free time - which did not feature norwegian language - forcing me to adapt to english. But while I learned a lot of english language while playing, this was not the purpose for my playing of the game. I played games for the sole enjoyment they provided, and gave little to no thought about what I learned during my playtime. I received and processed the information in an unconscious way, making me learn without a specific attitude or preparation to actually learn, only to play games.

Video games used for educational purposes have for a long time received acclaim for its possibilities from within the comparatively small academic field of game studies, both for their new ways of rendering information to students and their modern possibilities of developing and making use of technology to activate the students cognitive skills. Researchers like Gee, propose that video games can be great learning environments, as good commercial video games are built with good learning principles as well as offering better motivation for its tasks (Gee, 2008, p. 198). Their way of presenting information and motivating learning seemingly being very different, and possibly better for young students, in comparison to the traditional blackboard-lectures of most schools. But what does this change encompass?
The inspiration for this thesis is N. Katherine Hayles' hypothesis of a generational shift in cognitive modes, which suggests that the younger generation handles information flow differently than their predecessors, preferring many streams of information which presents a topic quickly and generalizing, rather than fewer streams of information presenting topics slowly and meticulously (Hayles, 2007). She proposes two cognitive modes for this; deep attention and hyper attention.

Deep attention is categorized by focusing on one information stream for a long time, whilst hyper attention flickers their attention between several information streams and tasks at the same time. The basis of Hayles' theory is traditional education in comparison to digital media habits of the students of today, where the possibility for customization and adaptation of the information flow is far greater in the latter, allowing students to streamline the flow of information to fit their own cognitive mode of thinking. Media researchers like Hayles (Hayles, 2007) and Tapscott (Tapscott, 2009) have agreed that younger generations definitely prefer a faster flow of information than older generations, being more flexible, adaptable, and multimedia savvy (Tapscott, 2009, p. 98).

It is interesting then, to see how the flow of information happens in video games, one of the largest parts of digital media and preferred platform of entertainment for many students, as well as the cradle of game researchers new educational theories. Are they as customizable and rapid as other digital media, as fit for Hayles hypothesis? Are they designed to follow the trend of multitasking and task-switching mentioned by Tapscott? And if this turns out to be true in the case for video games, might this be a reason for Gee's appraisal of video games as an educational tool? The results of this thesis will hopefully bring some possible answers to these questions.

The original interest for this thesis was the gamification of education, and how a possible change in cognition might affect this, but has developed to a much broader concern than that.

The interest to research how cognitive modes are stimulated in video games regards both game design, cognition, psychology, and education, and the result of this thesis could be interesting for their academic fields. Finding out how video games present information and make their players think will allow for more conclusive data on, for example, effective learning, and allow for new perspectives on the possible problems already existing in the academic world of these disciplines regarding this topic. But the most important goal for this thesis is to chart how cognition happens within games, and which cognitive modes are stimulated as a result.

To create these new perspectives, we need to find out - which cognitive modes are used while playing video games?

1.1 What am I going to do & Research Questions

The focus of this thesis is to find out how N. Katherine Hayles' cognitive modes of deep- and hyper attention are stimulated in the video game; *World of Warcraft* by *Blizzard Entertainment*. I want to achieve this by researching how *World of Warcraft* presents game relevant information for its players and enables different player activities through different game systems, and analyze which cognitive mode is most probable in use in each system based on their theoretical descriptions.

As the topic of this research is to research the cognitive modes in use while playing *World of Warcraft*, the research questions regards how information flows and is presented within the game, and how the players might be expected to handle it.

1. How is information presented in World of Warcraft?
2. How is information related to different tasks?
3. How are different cognitive modes stimulated in World of Warcraft?

These questions build upon each other to answer how the presentation of information is handled by the players' cognition, and which mode of cognition is in use while doing it.

To reliably conclude what effects the different systems have on cognition, I will cross reference the results with critical views from different theories of both psychology and game design, and comparatively analyze the results in accordance with Hayles' theory of the use of cognitive abilities within modern digital media.

1.2 Research Background

Two of my central theorists, Hayles, N. K. and Ensslin, A., both use video games as a prime example of hyper attention ((Hayles, 2007) (Ensslin, 2014, p. 38)), emphasizing their rapid pace and fragmented experience. The research background for this thesis is thus my interest in these theories and my love for video games.

While being relevant theories about both cognition and video games, there are several aspects of which I believe are inaccurate. For example, online chess is a video game, but does not fit under the stipulation of hyper attention, but rather of deep attention. Tetris is fast paced, but requires the players unwavering focus. The lines between deep and hyper attention blur when discussing video games, and, as I will propose, are not as easily categorized as first described by Hayles and Ensslin.

Another factor is a note from Mortensen, which regards psychology as a field that has room for more exploration with researching video games, and that very little of what is being produced today is being written by people who know and understand gaming as well as they understand psychology (Mortensen, 2009, p. 155). This thesis will be the opposite, as I am more familiar with video games than I am with psychological theory, which might result in some new perspectives. As I mentioned prior, Hayles and Ensslin have a distinctive view on video games and cognitive modes, but both my experience with video games and existing research from relevant theorists show signs of other possibilities. My hypothesis is then, that video games can feature more than one cognitive mode, depending on what activity the player does.

1.3 Research Methodology & Theory

To answer the questions put forward by my hypothesis, I will lead the research through *close playing* of World of Warcraft, which is very similar to the methodology of *close reading.* I will dive deep into three systems of the game, to see how the system presents game-relevant information to the player. This information, and the way it is presented, is what I will use to determine how the cognitive modes of Hayles' are stimulated in *World of Warcraft.*

My theoretical foundation is a variation of game studies articles regarding *World of Warcraft* and the study of video games, and psychological and cognitivist theories. This was originally also grounded in educational theory, as there is interest in the implementation of video games, both practically and theoretically, into educational institutions. The possible cognitive variations that might come with such an implementation, are then of equal importance to research.

But despite the abundance of articles, journals, and books about how great video games can be for education, ((Abt, 1987), (Anderson, 2010), (Gee, 2008; 2013), & (Mendoza, 2014)), there are fewer studies that actually test the theories practically in the field, especially their cognitive implications. Any theory might sound very plausible in written form, but when the unaccounted for factors of physical application get added to the mix, the results might appear quite different. This possible cognitive difference is the thing I highlight here. This will be on my mind for the entirety of this study, especially around Hayles' central theory, to be critical to relevant theory that is still 'unblooded', or otherwise only tested with small amounts of empirical data.

The theoretical framework for this thesis consists of central theories within game design, psychology, digital media, cognition, and attention, using game design as a foundation for the analyses of the apparent cognitive and attentive factors within *World of Warcraft*. An interdisciplinary approach is required when researching a phenomenon not native to the field of research, and I hope that in my variety of theoretical approaches I can cover the subject of the thesis from several angles. The theoretical disciplines of game studies and digital media will be used to create a descriptive understanding of the phenomenon, whilst psychology, cognition, and attention will play the role as the analytical tools to the descriptive data.

But despite the innovative nature of Hayles' hypothesis, there are several indefinite marks and loose definitions within it which renders it elusive for research. I will remark on problems that might arise from these, and seek to fill the gaps in definitions and perspectives presented in Hayles' theory by adding interdisciplinary theoretical approaches to create a more solid theoretical foundation. And in places where I am unable to specify or limit Hayles' theory as a whole, I will describe how I choose to specify the theory to my research within the framework of this thesis.

Theory of cognition and attention from the field of psychology has been included to both compliment and criticize Hayles' hypothesis, and I hope to further our understanding of cognition within video games through my research.

1.4 Relevance of the thesis

There are several reasons for why this study is important, but the greatest reason is to understand some of the cognitive modes which are apparent in the lives of people today, how to recognize them, and how they might affect their performance in different institutions. Perhaps most directly related to this are educational- and work-environments, where the cognitive modes visible in people's free time are possibly different than the ones used in these institutions, forcing them to change between different modes of thinking several times a day.

In terms of gamification of education and integration of video games in traditional schools, problems might occur both in its integration and execution if the two factors have completely different cognitive structures. In a paper by Lacasa, P., Martínez, R., & Méndez, L., where they introduced The Sims 2 into a classroom as an educational tool, a conclusion they came to was that:

> *"It is not enough to introduce new instruments in the classrooms; it is also necessary to look for new methodologies which, as in everyday life, ease the way towards more symmetrical relationships between children and adults."* (Lacasa et al., 2008, p. 114).

The learning methods in the traditional classroom does not account for different elements of video games that children might be used to from their free time, thereby limiting both its

integration and effect as an educational tool. In the case of this article, as with many others, the teachers and the young students handled the information of the very game differently. My theory, then, is that this difference in cognitive modes, deep and hyper attention, is a central cause for this, and its effects and representation needs to be understood in order to lead more conclusive studies of video games and education.

While there are several articles and studies that separately research attention and cognition in video games in a general fashion, there are fewer who dives deep into one case to investigate empirical data about a specific game. The framework of theoretical game design is often still in its ontological phase, philosophizing about what games are and how to define them, and it might be rash to dive into deeper studies without having this framework in place. Many definitions of games have emerged in the academic field, both before and after what Espen Aarseth describes as Year One of Computer Game Studies (2001)(Aarseth, 2001) but at this point in time I deem it 'safe' to move further with different research on video games as long as one describes the definition of a game relevant to the research.

The result of this thesis would be interesting for a variety of disciplines and researchers. For example, it will be interesting for my own campus, Høgskolen i Innlandet, as one of their main conducts of research is gamification of education. As I mentioned earlier, my thoughts are that the result of this thesis might give us an understanding on how to easier integrate the different elements of games into school- and work locations.

In the larger academic field of game studies, gamification, and education, it is also important to have a collected understanding of how cognition and attention functions within different media. I have found that several researchers hints to such an understanding in different articles, describing phenomenon similar to Hayles' deep- and hyper attention within both video games and education, but as each researcher uses their own terms and definitions for cognition and other phenomenon, it is hard to come to a collected understanding of cognition and attention within video games. Individual articles spread over different academic fields need to be patched together. Several of these articles will be used as theoretical references for this thesis, and I hope

that this can be a step towards creating a universal lexicon for further research on the same subject. Hinting at Perron and Wolf's notion of the challenge of *agreed-upon terminology* within game studies for the importance of this (Perron, B & Wolf, M. J. P., 2009, p. 6). Furthermore, in the field of psychology there are terms and definitions that are either the same as, or very similar to, Hayles' terms; deep- and hyper attention, proving that her hypothesis is both relevant and plausible.

Having a deeper understanding of the connections and effects between cognition, video game systems, and information, can help us create a picture of how we can make them work together for larger benefits and the possible development of research on cognition and attention for the future.

1.5 Thesis Structure

The thesis is predominantly divided into three parts, not including this introduction.

The first part presents the theoretical foundations for the research, regarding the two central approaches of the thesis; game studies theory and psychological/cognitivist theory. The second part presents the methodological approach to the collection of analytical data, and the analytical process of how they will be interpreted. And the third part includes the analyses and discussions regarding the data collected according to prior theory. The analyses and discussion chapters are written as to be read together, where the discussions begun in chapter 4. Analyses are continued, developed, and concluded in chapter 5. Discussion. The discussion as such also includes my conclusions to the thesis as a whole, and its academic additions to the field of research, along with suggestions about how to continue in the future.

Finally in the Appendixes, I have included documentation that was unfit to include in the thesis' body text and supplementary documentation, including; References for literature, video games, and images & figures (A), Research Playtime Log (B), WoW Characters & Playtime (C), Glossary (D), as well as the Gameplay Research Sheets for the data recordings (E). While Appendix E is of considerable size, it is a decision made between me and my educational institution to include them in the thesis in this way.

2. Theory

The first part of my theoretical expositions regards theory on video games, generally and specifically *World of Warcraft,* and will describe how I will interpret the game. The second part describes cognitive theory both from the field of psychology, and my central theorists of Hayles and Ensslin.

2.1 Video Games in Theory

The first signs of what we can contemporary describe as research on games happened in the mid-twentieth century, where philosophers and scholars like Ludwig Wittgenstein (Wittgenstein, 1953), Johan Huizinga (Huizinga, 1938), and Roger Caillois (Caillois, 1961) began to write about the presence and importance of play and games in culture. A developed understanding of games comes through ceaseless study and research of the phenomenon, in attempts to find defining and recurring factors of how games function.

In this early stage of games research, focus was heavily weighted towards the act of playfulness and its sociological and cultural implications, studying children's play and the way we can perceive games (Egenfeldt-Nielsen et al., 2016, p. 32-39.) Wittgenstein was a philosopher, Huizinga a culture historian, and Caillois was a sociologist. General definitions of games did not arrive in the academic field until much later, when scholars like Parlett (1999) and Suits (1978) attempted to define games to pursue questions about the games themselves. It was not before the 21st century where game studies was even recognized as an emerging academic field, when Espen Aarseth coined 2001 as Year One of Computer Game Studies (Aarseth, 2001). These early general definitions however, were largely from the fields of other academic disciplines, while formal definitions of games that regard games from the perspectives of game studies, which will be the theoretical groundwork for this thesis, are still relatively fresh to the greater world of academia. At this current time, the discussion on the core elements of games and how to research them is still on-going, and will possibly continue to do so into the future according to Perron, B.

& Wolf, M. J. P.s discussion in *Video Game Theory Reader 2* (Perron, B. & Wolf, M. J. P., 2009, p. 6-15).

In this chapter I will account for the most prominent theories and practices about what games are, and I will cover different methodologies in use for this thesis in chapter three. Before I take a closer look at the video game that is used for the purposes of this study, I will make it clear about how I will review the game in my analyses, and how additional interdisciplinary theories will work in cohesion with video games.

2.1.1 What is a Game?

In a research project which regards video games, a definition about what video games are is absolutely required. In *Understanding Video Games*, they state that if we as game researchers are not specific about our definition of a game before starting the research, we run the risk of using both wrong terminology and models for analysis and discussion (Egenfeldt-Nielsen et al., 2016, p. 32). Game studies is, although young and arguably still small, an academically developed field, and has laid the groundwork for further studies of games. The terminology and models already existing within this field has set uses and requirements, and it is expected to extrapolate former results in the research for possible new theories. A set definition of games makes way for this.

Also Frans Mäyrä discusses how instrumental definitions are to a formalist study, as it guides the focus of the research within its academic discipline (Mäyrä, 2008, p. 33), and broadens our understanding to avoid claims like 'all games' and 'all players' (Mäyrä, 2008, p. 154). The definition is what the discussions of the research will use as a theoretical foundation of what the game inherits, and limits what is actually included within the games parameters, and what could be understood as the games effects or other phenomenon. In this cognitivist study of games, I will anchor my discussions to the set definitions of what games are or can be, to analyse the possibilities of what effects they can have.

Egenfeldt-Nielsen, Smith, and Tosca also make a point that having an unspecific definition could make us blind to the bias of our predetermined perspective, thus making the results of our

analysis an instance of ethnocentrism. Previous experience with the game can, for example, lead to personalized predetermined results, not criticized enough through the methodology of the research or the specifics of definitions and terminology. The importance of a thorough *objective self-reflection* and the possible effects of predetermined bias I will discuss further in chapter 3.1.1 - A Player Researching his Game, while the definition of video games and how to interpret them will be discussed here.

2.1.1.1 Jesper Juul's Definition of Video Games

Game scholar Jesper Juul uses the term *video games* as an umbrella term to describe digital games, such as console-games, PC-games, or arcade-games where a computer is responsible for upholding the rules (Juul, 2005, p. viii), but still seeks to categorize these games under the same game definition as with for example board games, where the task of upholding the rules lies with the players. The structure and function of video games and board games should theoretically remain the same, the only difference in this example being which entity is enforcing the rules, the human or the machine, thereby being no ontological difference in their definition. The purpose of a definition is to create a formal understanding of a phenomenon or object, and the developed definition of games will help guide the understanding of the results of the analyses for this research, following Egenfeldt-Nielsen et al., and Mäyrä's points.

The field of game studies features several different definitions of what games are, as I noted earlier in this chapter, varying slightly in what and how they include elements like the players, goals, and the game system, but the common goal for each of these definitions is to create a formal holistic definition of games based on set criteria.
In *Rules of Play: Game Design Fundamentals,* game scholars Katie Salen and Eric Zimmerman make a comparative look at eight different game definitions that come from a variety of disciplines, and pick them apart in an attempt to find recurring elements in how scholars formulate game definitions. These authors include Huizinga (1938), Caillois (1961), Abt (1970), Avedon & Sutton-Smith (1971), Suits (1978), Crawford (1984), Costikyan (1994), and Parlett

(1999), which are all important scholars from the early days of game studies. Throughout these definitions, some fundamental issues appear, such as differentiation of games from similar phenomena, articulating the unique qualities that makes a game a game, and separating games from play (Salen, K. & Zimmerman, E., 2004, p. 73). They also point out that there is a distinct difference between defining *games themselves* and defining the *act of playing a game*, which makes the issue of how to for example include the player into a definition of games themselves somewhat problematic. The results of Salen and Zimmermans comparative look, features 15 different elements of what a game contains as described in each of the definitions, where 10 of the 15 elements are shared by more than one author (Salen, K. & Zimmerman, E., 2004, p. 79). These elements are what the authors describe as fundamental parts of games, essential to the understanding of games and their distinction from other phenomena. But apart from games containing *rules* and *goals*, there was no majority agreement of any of the other elements, including player roles.

This is where we as researchers must be open to interpretations of games, where the different elements can appear in different forms or carry with them further different meanings than any set definition could hope to contain. Mäyrä notes how using an all-inclusive definition of games or play carries with it different challenges, like how the flexibility, ambiguity and diversity of the phenomena may become easily oversimplified in the process of using a definition (Mäyrä, 2008, p. 33). The elements that were regarded as 'unnecessary' for Salen and Zimmerman's definition are still possible parts of games, but can be researched and discussed as important parts of the understanding of games through the perspective of a set definition. In this way, the definition of games is not set to limit the possibilities of what games are, but rather serve as an origin of theories and discussions, and to anchor our new theories to the developed understanding of games in the academic field.

In his book; *Half-Real: Video Games between Real Rules and Fictional Worlds*, Jesper Juul similarly builds on seven definitions by previous writers, including aforementioned Huizinga (1938), Caillois (1961), Avedon & Sutton-Smith (1971), Suits (1978), Crawford (1984), Kelley

(1988), and Salen & Zimmerman (2004), to create his own definition of games, working around the assumption that a good definition should describe these three things: (1) the system set up by the rules of a game, (2) the relation between the game and the player of the game, and (3) the relation between the playing of the game and the rest of the world (Juul, 2005, p. 28). With this in mind, his definition goes;

> *"A game is a rule-based system with a variable and quantifiable outcome, where different outcomes are assigned different values, the player exerts effort in order to influence the outcome, the player feels emotionally attached to the outcome, and the consequences of the activity are negotiable"* (Juul, 2005, p. 36).

As with other definitions, Juul makes an attempt to find the core elements of games, and use them as criteria to define whether different activities are games or not. If an artifact or activity contains these features; (1) Rules, (2) variable quantifiable outcome, (3) valorization of outcome, (4) player effort, (5) player attachment to outcome, and (6) negotiable consequences, we can, following Juuls definition, describe it as a game. This definition does not mean that as all games contain these features, they must function the same way, but rather provides an opportunity to distinguish how games are different from each other through these common criteria.

This definition is thoughtful and conclusive, but is of course not immune to criticism. Egenfeldt-Nielsen et al. mentions how Juuls definition is more concerned with describing the players attitude towards the game than the nature of the game itself (Egenfeldt-Nielsen et al., 2016, p. 47), which brings us back to the important distinction brought up by Salen and Zimmerman of defining games themselves in comparison to the act of playing a game.

I would argue that Juul's definition includes the players attitude towards the game to describe the inherent effect that games might have on their players, which all games do have, regardless of that effect being trivial or significant in its effect. Games affect us, but that effect might as well just be to serve as a time-waster.

Thus, when I mention games throughout this thesis it will be from the perspective of Juuls definition, and my discussion of the game's inherent effects will develop from its six core

elements of what the game contains. This definition will help me describe the structure of the research object of this thesis, *World of Warcraft,* and how this structure controls our experience of the game and what effects we might derive from it.

2.1.2 The Game: *World of Warcraft*

To begin with, I'd like to address a formal description about the game *World of Warcraft* before continuing. To get the most basic facts out of the way.

World of Warcraft is an MMORPG released by *Blizzard Entertainment* in November 2004. Since then, the game has received seven expansions which were released approximately every two years, adding new gameworlds, characters, stories, and gameplay. The current expansion; *World of Warcraft: Battle for Azeroth,* was released in August 2018, with the next expansion, *World of Warcraft: Shadowlands,* being scheduled for release in 2020. All writing, data collection, and analyses for this thesis was conducted when *World of Warcraft: Battle for Azeroth* was the current expansion.

In *Digital Culture, Play, and Identity*, Corneliussen, H. G. and Rettberg, J. W. describe *World of Warcraft* as an MMOG, or *Massively Multiplayer Online Game.* On *Blizzard Entertainment's* webpage, the game is more specifically described as an MMORPG (Blizzard Entertainment, 2019).

So what is an MMORPG? The acronym stands for *Massively Multiplayer Online RolePlaying Game*, and is a type of game which sets players in a digital world with different opportunities for things to do. The players create and control a character within this world, and set out to accomplish whatever they wish to achieve, be it exploring, leveling, socializing, or competing. This is my compressed description of an MMORPG, as the amount of possibilities for player activity within the game goes way beyond the scope of structured game design. Some players for example are active in an MMORPG primarily because of the human interaction, having little to no interest in the games gameplay or narrative. From a statistical factor analysis of why players play MMORPGS by psychologist Nicolas Yee, he compacts the answers of 6700 respondents into five core factors (Yee, 2002);

- The desire to form and sustain supportive and meaningful relationships.

- The desire to accumulate power in different forms.

- The desire to be immersed in a fantasy world.

- The desire to taunt, annoy, or irritate other people.

- The appeal of group strategy and coordination.

As MMORPGs draw the attention of these interests and provide motivation for their execution, the amount of content for player experiences and, perhaps more importantly, player opportunity, are of an exceptional amount. *World of Warcraft* has existed for more than 15 years at this point, and is continually adding more content for the players to experience and experiment with. Because of this, MMORPGs can be an arena for studying more than just game design directly, and has been a platform for disciplines like anthropology (Mendoza, 2014), economics (Castranova, 2005), education (Anderson, 2010), psychology (Blakely, D. P, Boot, W. R, & Simons, D. J, 2011), and sociology (Bainbridge, 2010). The interest of researching *World of Warcraft* have then transgressed past Juuls definition of what a game contains, into the fields of sociology and culture which emphasizes Egenfeldt-Nielsen et al.'s concerns with Juuls definition in the first place; the players attitude towards the game and the games effect on its players. But as this is research on the effects of the games inherent systems, it works from the origin of the definition of video games, rather than observing an ontological difference in *World of Warcraft* from other games.

The result of this is that the body of research and scholarly articles about *World of Warcraft* are indeed wide and varied in their topics and emerging disciplines. Scholars like Rettberg, S. and Bainbridge W. S made studies about the sociological parts of the game, with Bainbridge, W. S. noting that *World of Warcraft* is a virtual world that includes thousands of games, rather than simply being a game itself (Bainbridge, 2010, p. 6). Krzywinska, T., and Rettberg, J. W., studied how narrative and storytelling happens within *World of Warcraft*, where Rettberg, J. W. derives from playing that; the narrative experience of *World of Warcraft* is of a fragmentary expression, cumulating through small experiences into a rich and storied world (Rettberg, 2007, p. 310). These observations will be central to my interdisciplinary study about the game, but are just prominent examples of studies concerning *World of Warcraft*, as the body of research is too large to be mentioned here in full. While my sources are primarily from the discipline of game studies,

I will highlight both interdisciplinary and multidisciplinary studies regarding *World of Warcraft* as well.

One important thing to note about prior research about *World of Warcraft* is that the game is ever changing with the release of new expansion packs. As prior mentioned, the game is about to receive its eight expansion, which can radically change the experience of the game for players. This might affect the relevance of former research, as the system which they have analyzed might have been overhauled, changed, or removed from the game in later versions. Bainbridge's sociological study about the game is from 2010, when *World of Warcraft: Wrath of the Lich King* was the current version of the game. Five expansions have been released since then. Similarly, Rettberg, J. W. studies about the games' questing system and narrative is from 2007, when *World of Warcraft: The Burning Crusade* was the current content. Six expansions have been released since then. Major technological advancements, may have affected the game since then,

It is important to look at these studies as the results from the game at the time, and be observant to any possible changes that might have been added to the systems analyzed. While some systems might not have been updated, the studies are still old in an academic perspective, and will be scrutinized accordingly.

Another thing to understand about the game itself is that it currently exists in two different versions. In August 2019, *Blizzard Entertainment* released *World of Warcraft: Classic,* a version of the game which excludes the content of all the added expansions, rendering it the same game as released back in 2004. This version of the game runs parallel with the 'modern' version, but is separate in terms of which of your characters you can play and what server you play on. They are, in terms, two separate games.

To avoid confusion about this thesis, my research only regards the version of the game with all the expansions included, which is currently *World of Warcraft: Battle for Azeroth.* While it would be interesting to include data from the *Classic* version of the game, either for comparison or other means, I will not seek to achieve this within the confines of this thesis. This would, though,

be interesting to possibly do in the future. In the games community, these versions are distinguished as *Classic* and *Retail,* relating to *World of Warcraft: Classic* and *World of Warcraft: Battle for Azeroth* respectively. But for the content of this thesis, every time I name *World of Warcraft*, I am talking about *World of Warcraft: Battle for Azeroth.*

World of Warcraft: Battle for Azeroth, being the latest version of the game, contains more modern systems than prior expansions, in terms of technology,
In comparison to the games state during earlier expansions, the game's systems are now more complex and interconnected than ever before. This includes individual gameplay mechanics, but also instances of the gameworld, player agency and rewards, and many other segments of the game. I will briefly discuss what this affects in the next two chapters, before ending with a summary about *World of Warcraft* as a whole. The theories regarding cognition will then follow, before I conclude my theoretical bedrock by discussing how *World of Warcraft* and cognition will be discussed together.

2.1.2.1 Gameworld vs Virtual World

When relating to the game World *of Warcraft,* I find it important to make a clarification about the terminology used for describing the games' different states. What I mean by this is that when playing the game, the player always begins in the open world, called Azeroth, free to explore and do as they please. This is the planet of *World of Warcraft,* containing its landmasses, oceans, kingdoms, and people. But for different systems within the game, the player is placed within independent instances of the game's content, separating them from the open world which all players share. These can be as small as a single room within the world, to a large outdoor area, and can contain its own gameplay mechanics. I will discuss how these instances may work more closely in chapter 2.1.2.3 - The Game and Subsystems, and it is principal for my analyses, but for now it is important to understand that the player experience happens in two different ways; either in the open world shared with all players on the server, or within instanced areas either alone or shared with a small team.

To clarify the terms used for these phenomena, I will discuss the thoughts of Mäyrä, F., Aarseth, E., and Jørgensen, K. on this subject. Mäyrä notes; how it is more appropriate to call these games (MMORPGs) 'virtual worlds' instead of 'online games', since "*these are environments for cultivating an online life and persona, and thus not primarily designed for unconnected moments of gameplay"*(Mäyrä, 2008, p. 128). He emphasizes the freedom of opportunity which the open world of these games provides for its playerbase, and that they thus function more as a 'virtual world' than a carefully designed world for gameplay. In terms of the two states I described earlier, Mäyräs distinction regards mostly the open world of the game, but fails to describe the other states. In these separated states, there is always some gameplay system that is in focus. There is no doubt that the open world of MMORPGs gives the players the opportunity to cultivate an online life, but it is not designed solely for this purpose either. Rather, the purpose of the open world of MMORPGs is to complement the gameplay happening within it, as much as providing opportunity for player exploration, which is why Aarseth leans more towards calling them 'gameworlds'.

Aarseth highlights that the world of *World of Warcraft* is small in size, and game systems like global chat channels and the minimap undermines the virtual worldliness. Indeed, the title of his article, *A Hollow World, World of Warcraft as Spatial Practice,* highlights that *World of Warcraft* lacks the depth and substance needed in a fictional world, and that instead it is a functional and playable 'gameworld' (Aarseth, 2008, p. 118). Aarseths distinction can be compared to both the open world of the game, and its instanced subsystems, calling them both gameworlds. The systems for gameplay are obviously apparent in both states, and can thus not be regarded as a virtual world based on realistic principles. But calling both states gameworlds leaves the clarification I am after here, lacking.

In her book, *Gameworld Interfaces,* Jørgensen, K. discusses how games present relative game information to the player through different modalities. These modalities can be the game systems highlighted by Aarseth, but also those only directed at individual players. An example that Jørgensen emphasizes, is when your character "talks" to you as a player, with remarks like "*Inventory is full*" or "*I need to get closer to interact with that*". It is obvious that the player character is directing this information towards the player itself, but Jørgensen argues that players

interpret this as the game just providing information, without breaking the narrative immersion. She notes how both the game interface and the gameworld are integral parts of the presenting of information to the players, and that; "*there is a tight, functional relationship between the gameworld environment and the game system that lies beyond the interaction and governs it*" (Jørgensen, 2013, p. 2).

She continues this thought with the following definition; *"Gameworlds are world representations designed with a particular gameplay in mind and characterized by game-system information that enables meaningful player interaction*" (Jørgensen, 2013, p. 3). With this in mind, we can discuss that both the world itself, and its integral game systems, are a part of what gives an MMORPGs world its worldliness. Multimodality is a core part of *World of Warcrafts* gameworld, and gives the impression that this is a world ripe with opportunity.

In the open world of *World of Warcraft*, there is a variety of different gameplay in mind, and contains enough game-system information that allows for both meaningful player choices, and gameplay direction. The instanced states, have a stricter direction of its game-system information, only relevant for the gameplay happening within the instance.

The information direction, then, either through the gameworld or modalities in the game interface, is integral to the players experience of the game, defining what opportunities exist in either of the games' states.

To wrap up this terminology discussion, I will remark the open world of *World of Warcraft* as its *gameworld,* and its separate system-states as *instanced gamworlds.* The main distinctive difference being the obvious direction of goals within instanced gameworlds. In this way, I hope to leave space for all three theorists' view of the gameworld of MMORPGs, but at the same time underline how its presentation of information defines player experiences.

World of Warcraft is an open game in terms of which tasks players want to complete and what they want to accomplish, and its different game-systems vary in how specific its relevant information is to its execution and end-goals. Some require a lot of focus and a lot of information, while others are trivial. This variety allows the game to interlace these different

tasks both within the gameworld and the instanced gameworlds, and interconnect its systems through rewards, progression, and player agency in its gameplay.

2.1.2.2 Gameplay in a Gameworld

I have mentioned several times already that there are several opportunities for player interaction within the gameworld, both dictated by game rules and whatever players choose to do. But one of the main activities within *World of Warcraft*, apparent in almost all of its systems, is the element of combat. Combat is directed by players using different abilities available to their character to defeat enemies, which work together to create a certain "flow" of gameplay. The number of abilities available to the player depend on the class they are playing, but varies around 20; all with different effects and functionalities. They vary in how much damage they do, and how they work together dictates how well a player might be able to use them to the best of their abilities, no pun intended. In addition to this, the enemies players face often have their own abilities that they need to deal with, making combat a balance of players using their own abilities in the right order and in the right situation, reacting to the opposing abilities of the enemy, and navigating and reacting to changes in the gameworld.

Figure 2.1 - The World of Warcraft Actionbar featuring different abilities.

While combat is not the only form of gameplay within *World of Warcraft,* it is an integral part of almost all its systems; and as such, has received this more developed exposition. Combat is an essential part of all the systems I analyse in this thesis, but having said that, it will not be the focus of analysis in it of itself. Even so, I will remark how they play a role in the different systems which I will analyze, which differ in their direction of gameplay; and as a result, the direction of combat.

2.1.2.3 The Game and Subsystems

So how do you play *World of Warcraft*? In terms of the games' varied content, every session might have a completely different goal with different gameplay to accomplish it, combat being only the most common of them. In Bainbridges sociological study of the game, he concluded that in terms of game description; "*World of Warcraft is a virtual world that includes thousands of games, rather than simply being a game itself*" (Bainbridge, 2010, p. 6). We see here that Bainbridge too argues that *World of Warcraft* transcends the game category to become a virtual world, though it is most definitely a game. While Bainbridge might exaggerate with the claim of thousands of games, *World of Warcraft* includes many *subsystems* that function like games, in various different forms of emergence, resulting in the games structure. In terms of this thesis, these will be referred to as subsystems within the game of *World of Warcraft.*

I mentioned before that players always start in the shared *gameworld*, alongside other players on the server. In this gameworld, the game features its most, relatively, simple systems. The players can fight monsters and beasts that appear in the world, they can fight or cooperate with each other, or they can travel around the world collecting resources, completing quests, or meeting characters. These systems result in experience used for leveling your character, gold, and pieces of equipment which makes your character stronger. John Staats, a 3D-Modeler who worked on the earliest versions of the game, notions in his book on the production of the original World of Warcraft, *The Warcraft Diary: A Journal of Computer Game Development,* that; *"the core gameplay is 'players improving their character by acquiring better gear'"* (Staats, 2019, p. 130). This remark, might be interpreted as a development of the idea that combat is the core gameplay. Systems feature combat, which leads to better gear. This is, in terms, the game's simple progression structure. In general, these "outdoor" activities are trivial in terms of their complexity, and fragmented in their experience. Small tasks interconnected within a large gameworld. The challenge of these tasks are equal to the quality of their rewards, and if players want a greater pay-off, they need to enter subsystems that have a more specific goal and reward structure.

These subsystems happen within the games *instanced gameworlds*, and are instanced systems with slight variations in set rules and goals. With more strict rulesets and victory conditions, these instances require more focus and attention from the players, which are then rewarded for their work if they emerge successful. This again makes them able to take on harder challenges, following the game's progression structure.

These subsystems are wide and varied in their content and requirements, creating many possibilities for player progression, tailored to suit their own preferred playstyle.

This varied gameplay might create situations in which players need to do active-decision making in many parts of the game, possibly varying from simple choices to complex problem-solving. This might result in an infinitely varied gameplay session, where requirements for information and focus might be immense or next to naught, depending on the subsystem in play. But regardless of the player activity, there will almost always be some form of progression within one of the games systems, resulting in a productive game session.

2.1.2.4 A Cognitive view on World of Warcraft

> *"When we play WoW, we get blissed out by our own productivity - and it doesn't matter that the work isn't real. The emotional rewards are real - and for gamers, that's what matters"* (McGonigal, 2011, p. 61).

This comment about *World of Warcraft* from Jane McGonigal's *Reality is Broken: Why Games make us better and how they can change the world,* I think is a key factor to why playing *World of Warcraft* is a fun and satisfying experience for young adults. Tapscott's research on what he calls the 'net generation' in the workforce (Tapscott, 2009, p. 149), reveals that young adults are viewed as being accustomed to instant gratification and a varied and entertaining workplace by, usually older, employers.

This description very accurately fits the varied experience of *World of Warcraft,* tied to its predictable reward system and opportunities for preferred gameplay. It might be relevant then, to argue that *World of Warcraft* follows the developed design patterns of digital media, making it an attractive game for people used to working, interacting, and playing within the digital sphere. To

further find evidence for this, it is therefore interesting to research the emergence of Hayles'
cognitive modes within the game, as she argues that "*an obvious explanation for the shift,*
(between cognitive modes)*, is the increasing role of media in the everyday environments of
young people.* (Hayles, 2007). *World of Warcraft* is a part of digital media, and to analyze how its
game-systems and subsystems are designed in terms of information processing, decision making,
and attention allocation, all parts of Hayles cognitive theory, will give us a more accurate idea of
how video games might be represented in the cognitive development in digital media.

2.2 Cognition and Information

The central theory for this thesis, Hayles' Cognitive Shift, is a rather new perspective on
psychological theories that has not seen too much development. The idea of a change in
cognitive modes emerged from her posthumanist work on digital literature, and regards the
hypothetical shift in cognition between more traditionalist perspectives on general education and
the emergence of a more technologically developed generation. While I will delve deeper into
her theory in later chapters, it is useful to have a general idea of her thoughts during my
exposition of cognitive psychology theory, which is why I made a brief description of this in the
introduction to this thesis. In this chapter, I will first discuss general psychological theory
regarding cognition and attention to create a foundational understanding of the phenomena,
before I discuss the new perspectives emerging from literature and digital literature by N.
Katherine Hayles and Astrid Ensslin respectively.

Cognition is a very broad term, and can carry different meanings or purposes depending on the
discipline carrying out the research. Education, cognitive science, neuroscience, and psychology
all regard cognition as to have to do with thinking and information, but include or exclude
processes like attention, memory, perceptions or emotions depending on their disciplines.
Central for this research, are the principles of information processing itself, which I regard as the
act of cognition; and attention, and I will only seek to answer the *how* of the process, not the

where or *why.* I will therefore exclude factors like emotions in this thesis, as it is not a defining factor of the processing of information itself.

Also, I will make an account for different psychological terms that will be used in the exposition of different theories and discussions relevant to the subject of research, so as to discuss the new theories of cognition from a developed theoretical standpoint.

To begin with, the Encyclopedia of Human Behavior describes cognition as;

> *"A general term associated with thought processes, including information processing, storage of knowledge, and reasoning"* (Bell, 2012, p. 765).

Thus, in the field of psychology, cognition is not a specific term about a specific thought process, but rather an umbrella-term used about how we handle information, be it acquisition, processing, or storage.

As cognition is an umbrella term for many processes working with information, there are times when different psychological terms get jumbled together or used in different ways.
In her works, Hayles alternates between the terms cognitive *modes* and cognitive *styles* seemingly at random when discussing her theories, the two terms obviously meaning the same thing. In similar fashion, when discussing deep- and hyper attention, Astrid Ensslin switches between describing them as *cognitive styles* and *attention types*, which again carries with them the same meaning in her writings. As these two theorists are both discussed in this thesis, I will make a resolution about the terms for the same phenomenon when discussing their theories to create a cohesive understanding.
To make a clarification between the uses of terms like cognitive modes, styles, and attention modes, I will use the term *cognitive modes* when describing the phenomena of deep attention and hyper attention, as I see this term as the best descriptor. Wherever the term *cognitive styles* are used in the source literature for this thesis, I have replaced it with *cognitive modes* in my writings, similarly with *attention types*. Their meaning being the same. Furthermore, I find it useful to separate the terms of cognition and attention in discussions of cognitive modes, as

attention is a separate process from cognition that happens within a cognitive mode. How this process happens within the two cognitive modes is indeed different, but it is not a defining part of cognition in itself. I will discuss this further in chapter 2.2.1 Thinking and Information Processing.

Cognition then, as I will discuss it as within this thesis, is *the processing of information within the human brain*. This description is very similar to The MIT Encyclopedia of Cognitive Sciences' definition of psychology, which reads; *Psychology is the science that investigates the representation and processing of information by complex organisms.* (Holyoak, 1999, p. xil)*, hence I describe this thesis as an interdisciplinary research project on video games with psychological theory. Attention on the other hand, is *the prioritization of the processing of certain stimuli relative to others* (Spence, 2012 p. 211). Together, the two processes create a cognitive mode which can handle information processing differently.

2.2.1 Thinking and Information Processing

The research on cognition and attention inquire how exactly the processing of information happens within the mind, and the theories that seek to answer this provides a set of principles and functions that are deemed necessary in cognitive models. Such theories describe the *cognitive architecture* of the mind, and strive to provide an exhaustive survey of cognitive systems, a description of the functions and capacities of each, and a blueprint to integrate the systems (Sloman, p. 124). These theories are influenced by the development of the computer in the 1950s and 1960s, where the computer became a metaphor for human mental processing (McLeod, 2008). Indeed, the development of cognitive architecture derives much of its inspiration from computer architecture, its most common being the von Neumann architecture of 1945 (Sloman, p. 124). The cognitive architecture I will discuss here is one of the advancements of the von Neumann architecture of digital computer processing, called the *information processing theory.* The models for this class of theory assumes that the processing of information happens through different stages set in a sequence, ranging from sensory inputs to an executive output, much in the same way as computers function. The model which I will use to explain information processing from this class of theory, is called the Atkinson-Shiffrin Memory Model. I will

discuss both the terms of cognition and attention, before I make a cohesive exposition of different cognitive modes.

2.2.1.1 Cognition

At this point, I have already discussed what the term cognition is about. Here I want to take a closer look at this process, as described in the information processing theory.

The most central functions of a cognitive architecture is the input and how it is processed. Inputs, are sensory stimuli that come from the surrounding environment and the task we are currently undertaking. These are small or large pieces of information that carry with them different meanings depending on their relation to our current activity, and needs to be processed in our minds before we can properly understand what to make of them. For video games, this can be as simple as audio cues for different events, to complex narratives. In the *Information Processing Model*, the piece of information travels between different buffers that processes the information differently and makes decisions about whether this is worthy of our attention or not, prioritizing and focusing as it goes. Note that when I say travels here, I do not mean physically throughout the brain, but theoretically through the information processing model.

A visualization of this process would look like this:
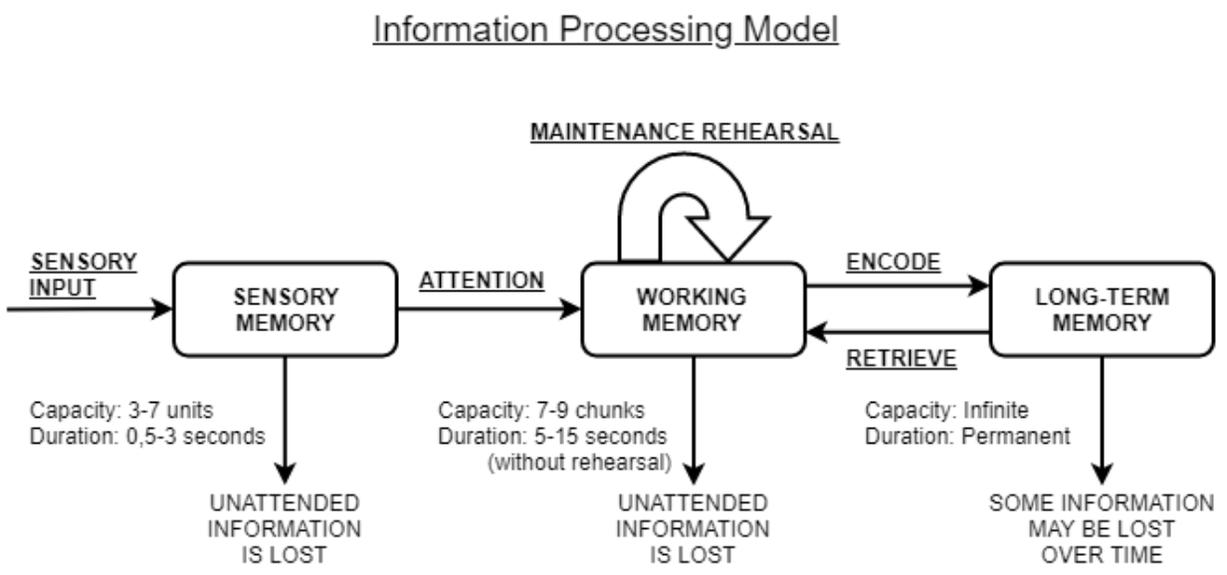
Figure 2.2 - Atkinson-Shiffrin's Model of Information Processing

The process of cognition starts with sensory inputs, coming from all five human senses, which is processed by sensory memory. Sensory memory is our immediate perception of sensory stimuli, and does not need to be tied to further cognition. Within **Sensory Memory**, *iconic memory* processes visual inputs while *echoic memory* processes auditory inputs (Clark, 1987). This separation is important because of how we prioritize our attention towards different sensory inputs, as some are regarded higher in prioritization than others, and that we may react and learn differently depending on which sense the information input comes from. The processing of these inputs within sensory memory is very quick, and focuses our attention on which sensory input we want to process further at any given time, reacting constantly to new inputs. The sensory input which we give our attention to will be processed subsequently within working memory, while the process of sensory memory continues in the background.

Within **Working Memory,** the information that holds our attention from sensory memory is processed further within different storage buffers, that actively maintains goal-relevant information in the service of complex cognition (Spence, 2012, p. 211). What is considered goal-relevant information depends on the task we are currently focusing on, and indeed what is the most important type of information for that specific task. These buffers process this information into meaning, and this process is what we in regular speech simply describe as the act of thinking. In some cognitive models, researchers have separated the auditory inputs and the visual inputs into two different subsystems, like that of Baddeley and Hitch (Baddeley, 2010), to handle the two sensory inputs as two different processes within working memory. The differences in the modalities of the information, and the way we react to them, again makes it useful to separate them in the act of processing information. Visual information, taken in by the iconic memory of sensory memory, is processed within the *Visuo-Spatial Sketchpad*, and auditory information, from echoic memory, is processed within the *Phonological Loop* (Baddeley, 2010). These terms have a lot of psychological theory concerning them, but the important thing to know in regards to this thesis is that different modalities of sensory information are processed separately within these subsystems of working memory. Equal amounts of visual and auditory information might then be processed parallelly. In addition to these subsystems, theorists also describe working memory as containing a *central executive,*

which distributes attentional resources for strategic management of the cognitive processes involved in problem solving and other varieties of deliberative thought. (Holyoak, 1999, p. xlvi). I will discuss the central executive in more detail in chapter <u>2.2.2.1 - The Process of Working Memory.</u>

Finally**, Long-Term Memory is** where the processed information is encoded, stored, and retrieved for further use. I will not discuss this part of the information processing model further within this thesis, as my research regards the immediate processing of information, concerning only sensory memory and working memory.

This model displays cognition in the way of *serial processing*, meaning that one process has to be completed before the next one starts (McLeod, 2008). While this is the case in the processing of information for computers, the human mind is able to execute *parallel processing,* as noted earlier through the Visuo-Spatial Sketchpad and the Phonological Loop, where more than one process involved in a cognitive task can happen simultaneously. A closer look at parallel processing will be discussed under <u>2.2.2 Cognitive Modes and Information Streams.</u>

2.2.1.2 Attention

> *"Everyone knows what attention is. It is the taking possession by the mind, in clear and vivid form, of one out of what seem several simultaneously possible objects or trains of thought. Focalization, concentration, of consciousness are of its essence. It implies withdrawal from some things in order to deal effectively with others (William James 1890: 403–404)."* (Duncan, 1999, p. 39).

In the exposition of the Information Processing Model, I described attention as being a central part in the processing of information, happening both within sensory memory and working memory. While it is not a direct part of the handling of information itself, attention regards the prioritization of different sensory inputs and the focus on different pieces of information in relation to others. How much attention we have to pay to a task depends on the complexity of the task itself, and on the amount of additional task-irrelevant information available. Harder tasks, like mathematical equations or demanding literary works most likely require all of our attention in order to be processed correctly and understood, while simpler tasks like writing a text message

or listening to simple music does not require a lot of attention, allowing us to do several of these tasks at a time. These are Hayles' examples of tasks relating to different cognitive modes.

In psychology, it is theorized that we have a set amount of *attentional resources* available to us, which is divided among the different tasks and information inputs we are currently experiencing (Spence, 2012, p. 211). These 'prioritization' resources are what shifts our processing of information from one piece to another, and decides what is the focus of our cognition at any given time. While most often there is only one task or piece of information that is our focus, we are able to process several pieces of information simultaneously, just paying less attention to each of them while doing it. Furthermore, psychologists think that all of these resources are always fully engaged in the processing of any incoming sensory information, thus when a person's primary task is not overly demanding, any spare attentional resources will be available for the processing of other stimuli (Spence, 2012, p. 211). We can thereby not turn our attention off, but rather only shift its resources between different tasks.

In the different stages of the information processing model, attentional resources 'exist' both within sensory memory and working memory. In sensory memory, I would derive that we can describe the main task of our attentional resources as being the prioritization of the different sensory inputs, while in working memory it has the task of keeping the processing of the current information in focus. It is not however, required that these attentional resources should exist in only one of the stages at a time, and can be used to be aware of the different sensory inputs of our environment, without processing them within working memory, at the same time as focusing on the separate process happening within working memory. How aware we can be of our surrounding environment, depends on the amount of attentional resources that are not in use in working memory. Thereby, we can note that attentional resources can be used in the sequences of sensory memory and working memory at the same time.

The balance of dividing attentional resources can yield in a variety of ways of processing information, but there are mostly two ways in which attention is divided. The field of psychology describes the ability to process multiple streams of information, or to perform multiple tasks at the same time, as *divided attention*. (Spence, 2012 p. 211). Concerning the myth of people being

able to multitask, I will not regard the activity of multitasking as something people actually do. Instead, where it will be relevant in my analyses, I will discuss people's ability to rapidly switch their *attention* between different tasks. In this way, one may think that we are able to do several things at the same time, while in reality we are just rapidly switching our attention between different tasks and information streams that are parallel within our working memory, or indeed sensory memory, as much as our cognitive load allows us to.

On the contrary to divided attention, we have what psychology describes as *focused attention.* Focused attention is the ability to process a particular subset of the available incoming sensory information while simultaneously ignoring other distracting - or currently task-irrelevant - information (Spence, 2012 p. 211). In these situations, we can estimate that the majority of our attentional resources are within working memory, focusing on processing the complicated task at hand, leaving little attention to our surrounding environment.

This mode of information processing is often combined with the principle of *sustained attention,* also described as 'vigilance', which is the ability to focus one's attention to a repetitive and/or boring task over a prolonged period of time (Spence, 2012, p. 211).

These distinct modes of dividing attention between the different sequences of the information processing model, can bring up the question often discussed by cognitive-psychology theorists of whether attention is paid early or late in the information processing. Is it before or after working memory processing has happened? To answer this, there are several *selection models* which regard either *early* selection models of attention, or *late* selection models of attention as happening in the processing of information (Driver, 2001, p. 58). There are test results that prove each of these models might be true, that of Broadbent for *early selection* (Broadbent, 1958) and Gray and Wedderburn for *late selection* (Gray & Wedderburn, 1960), but no conclusive evidence for either of the selection models have yet to emerge.

The Information Processing Model by Atkinson and Shiffrin has imprints of Broadbent's *early selection* (Sloman, p. 125)*,* in the distinction between sensory memory and working memory, and I will thus regard this mode of selection higher.

To briefly describe Broadbent's early selection model; Broadbent stated that sensory stimuli is processed first by its basic physical properties, like color, size, pitch, or loudness. It is during this initial processing that our attention is directed at certain stimuli, filtering out the others, before more detailed processing of the selected stimuli happens later. This is different from Gray and Wedderburn's late selection, where attention is paid after the meaning of the stimuli is processed within working memory.

A development of Broadbent's theory that came from Anne Treisman, states that the attentional resources used in the prioritization of different stimuli rather functions as an attenuator of the information than a filter (Treisman, 1960). Unattended stimuli is not blocked in the likes of Broadbent's model, but perceived at a lesser strength,
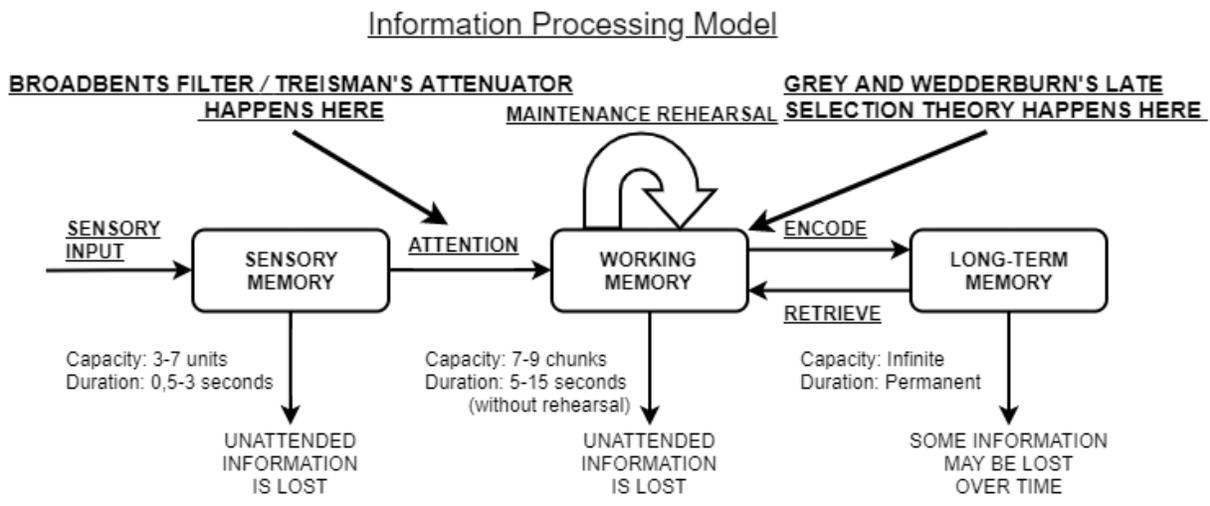
Figure 2.3 - Information Processing Model locating Broadbent's Filter and Treisman's Attenuator, as well as Grey and Wedderburn's late selection theory.

Treisman's attenuator theory is interesting as it implies that unattended sensory information is not disregarded with the lack of attention, and are possibly able to be tapped into at a later state of cognition. This also makes Hayles' cognitive modes a more plausible theory, as it reinforces the principles of *hyper attention.* I will discuss how this might happen together with the principle of parallel processing in 2.2.2 Cognitive Modes and Information Streams

As with cognitive architecture, these selection models are different theories of a phenomenon we don't yet fully understand, and even though early selection models are more prominent in my selection of theory, I will be open for both *early selection* and *late selection* models of attention in my analyses.

In my exposition so far, I have discussed that attention exists in several stages of the information processing sequence, but can be interpreted as different through their tasks of either *prioritization* or *focus.* In this way, attention is a central part of the act of processing information, without being a function of the actual processing itself. The processing is the act of cognition, and together with attention, they can create different cognitive modes.

These cognitive modes are what processes the streams of information that comes from our tasks and surrounding environments, and one should be able to extrapolate their effects through the earlier theories of cognitive architecture, information processing, and attention selection models. I will now dive deeper into the functionality of cognitive modes, with these earlier psychological theories in mind, before I make a detailed exposition of their uses as described by Hayles and Ensslin.

2.2.2 Cognitive Modes & Information Streams

Information relating to different tasks or objects, are described as information streams, information sources, or just simply streams. These streams communicate the information outputs from the surrounding environment to a person's receptive input senses (McLeod, 2008), where they are prioritized to make meaning of our current situation or task. In regards to cognition, these information streams are what, as described earlier, travels through the Information Processing Model. A song, with its different tunes, rhythms, and lyrics, is one information stream. An online article, with its different words, meanings, and chapters, is another information stream. Thereby, if one were to listen to music while reading an online article, there would be two streams of information processing in the cognitive architecture. How much meaning that could be derived from each stream, depends on its complexity and how much attentional resources one allocates to each of them. If one task requires a lot of attention to be processed

correctly, we have little resources for processing anything else. And on the other hand, if we are only processing simpler tasks, we might be able to do so simultaneously. Note how this distinction correlates to the psychological terms *focused attention* and *divided attention* respectively, as well as Hayles' *deep attention* and *hyper attention.*

This brings us back to the distribution of attentional resources, and the two early selection models of attention from Broadbent and Treisman. I want to briefly discuss how they are different theoretically, before moving on to information streams within working memory.

In the book; *Perception and Communication,* Broadbent discusses how we can create meaning of information through it passing the cognitive filter of his model in succession (Broadbent, p. 252), which is very similar to the idea of *serial processing* used in computers. In serial processing, one task needs to be completed, or in this case; one stream of information needs to be processed, before the next one can begin (McLeod, 2008). Broadbents theoretical model, see below, is meant to support this statement, where unattended messages from sensory memory are completely blocked from entering working memory, awaiting prioritization.
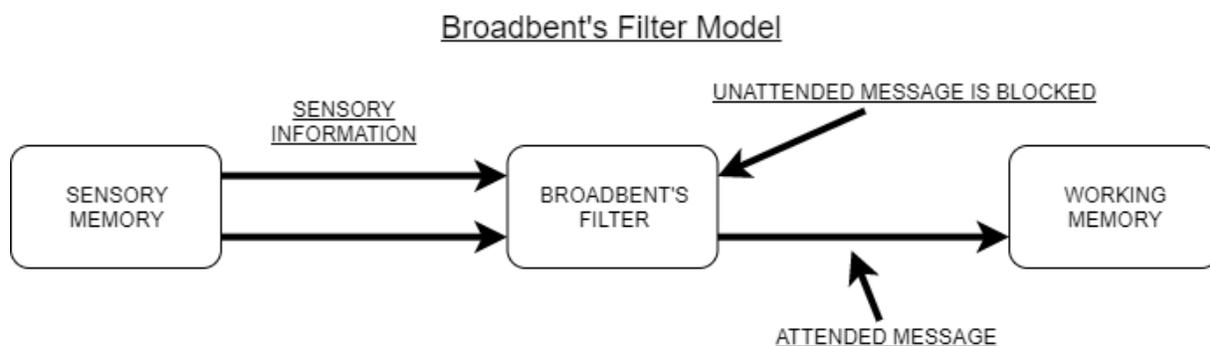
Figure 2.4 - Broadbent's Filter Model

Following this model, there is little possibility for the phenomenon of *divided attention*, or the process of taking in several streams of information at once, which in human perception we know is practically possible. To justify this issue, Broadbent argues that; "[...] *we should say that the need for filtering only exists in so far as a large amount of information is presented to the organism: if there is only a little reaching the senses it may all pass the filter even though not all*

of it is being used to control response" (Broadbent, p. 250). This creates a situation where it might be hard to distinguish when the cognitive filter is actually in function, and how it is required for a set amount of *cognitive load* to be apparent before the theory is relevant. *Cognitive load,* also called *perceptual load* or *attentional load*, is "*the amount of information flowing into our working memory at any given moment*" (Carr, p. 125), and when the theoretical maximum amount of information is reached, we have to accelerate our prioritization of information to not become overwhelmed. This statement seems to be in support of Broadbent's theory, but the fundamental weakness of this is that "*no objective measure of '(cognitive) load' has yet to be provided."* (Spence, p. 212), thus making it hard to measure, and to find any empiric data to support Broadbent's model.

In comparison to this, Treisman's Attenuation Model looks like this:

Treisman's Attenuation Model

UNATTENDED MESSAGE IS STILL PROCESSED (WEAKER)

SENSORY INFORMATION

SENSORY MEMORY → TREISMAN'S ATTENUATOR ⇢ WORKING MEMORY
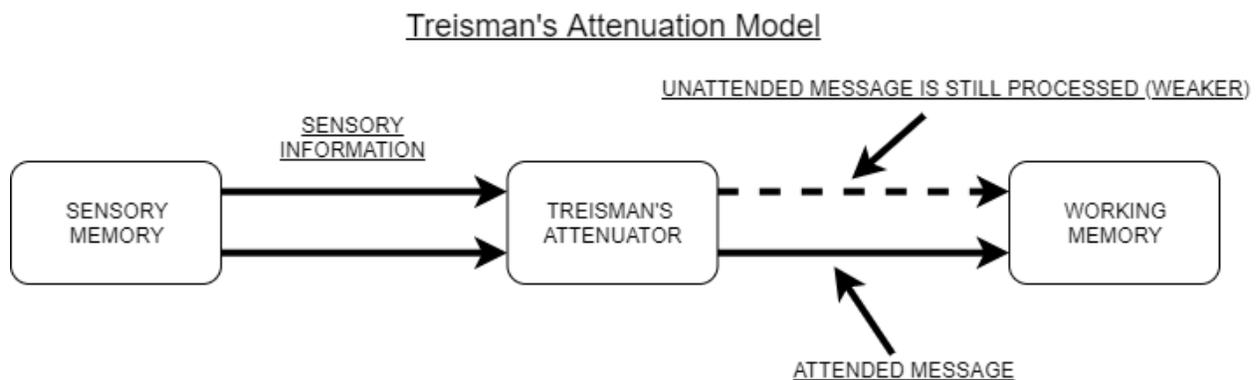
ATTENDED MESSAGE

Figure 2.5 - Treisman's Attenuation Model

In this model, a development of Broadbent, the unattended message is not being completely removed from cognition after is prioritization within sensory memory like in Broadbent's Model, but is processed parallely with the attended message in working memory, albeit in a weaker state (Treisman, 1960). In correlation to earlier described theory of attentional resources, this model is plausible following the claim that all of our attentional resources are in use at all times. I believe that few to no tasks require the absolute capacity of our attentional resources in order to be processed, thus making us able to perceive at least minimum information of our surrounding environment at the same time. As such, Treisman's Model does not 'kick in' only if a certain

amount of cognitive load is reached like Broadbent's, but is continuously working regardless of the amount of information perceived.

To discuss these two early selection attention theories against each other, I want to correlate Treisman's Attenuation theory with the act of *divided attention* and *hyper attention*, and Broadbent's Filter theory with the act of *focused attention* and *deep attention.*

In comparison; Hayles' hyper attention is more susceptible to the unattended information streams, and is likely to tap into them during cognition in working memory. The attentional resources flicker back and forth between different information streams, to derive meaning from them at the same time. Deep attention on the other hand, will most likely use its attentional resources to tune these out, focusing on the single information stream that regards its current task.

In the act of deep attention, we can see where Broadbent's Filter Model of attention might be a plausible phenomenon, as the irrelevant information streams are seemingly blocked from our cognition. But as we focus on a hard task, we are still not completely ignorant of other things happening around us. If there is a loud sound, we react to it. As I discussed earlier with the use of attentional resources for the task of *focus* within working memory*,* it is then more reliable to use Treisman's Attenuation model to describe the occurrence of information streams within cognition, where both the acts of *focus* and *prioritization* for attention is possible within the model.

2.2.2.1 The Process of Working Memory

Now that I have discussed the process of sensory memory and the early selection models of Broadbent and Treisman, I want to dive into what theoretically happens within working memory of the two cognitive modes, in order to be able to understand it better for my analyses.

The main difference between the two cognitive modes that I regard in this thesis, apart from the early selection models of attention, is the way they process information within working memory. Primarily the difference between serial processing and parallel processing. Even though I mentioned how Broadbent's model might be plausible in some situations, when describing

working memory here, and in figures, I do so from the perspective of Treisman's Attenuation Model, where unattended streams of information are not disregarded.

As I noted earlier, working memory stores and processes the different representations of information in "buffers", for example modules of phonological and visuospatial codes (sound and sight), to create an understanding . In the model below, where I describe how multiple information streams might occur within working memory, I have limited these modules to just *information*, for explanatory reasons. In reality, these information-modules might be auditory or visual in nature (or in other cases, even olfactory or somatosensory). This distinction also excludes the subsystems of the Visuo-Spatial Sketchpad and the Phonological Loop, but as I am discussing the processing of information streams in general, it is not necessary to go into the kind of detail that these subsystems provide.
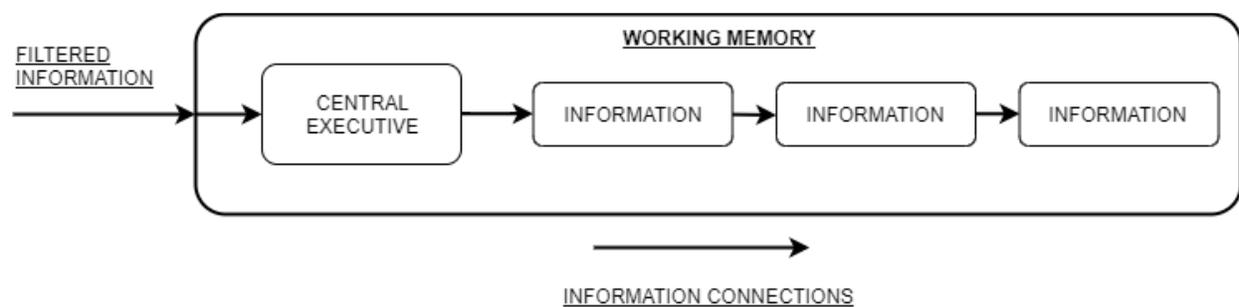
Figure 2.6 - Serial processing within working memory

Of the two terms regarding processing within working memory, serial processing is the comparatively simple and basic version. During cognition, it regards only one stream of information at a time, and I have thus used it here to simply explain the process happening within working memory. In this figure, the information prioritized by Treisman's attenuator is further processed by the central executive within working memory. This executive allocates the attentional resources, as explained earlier, ranging from the tasks of focus and prioritization, depending on the amount of information streams and the task at hand. The central executive can be compared to Treisman's Attenuator in itself, but in regards to psychological theory, they are two different entities within the processing of information. It might be compared to a

representation of an early selection model of attention in information processing models, without neglecting any of the different theories in benefit of another. A representative of early selection. But through the theories I have discussed, they are two separate phenomena with different tasks. In this figure, attention is given to the single information stream at hand, which includes several modules which perhaps do not all occur at the same time. Meaning then, is derived from the continuous processing of this stream of information. Additional information, further down the stream, might enforce or change the meaning already processed, making it a step-by-step process.

With this simple exposition, I will move on to parallel processing, which is the more realistic way humans process information (McLeod, 2008).
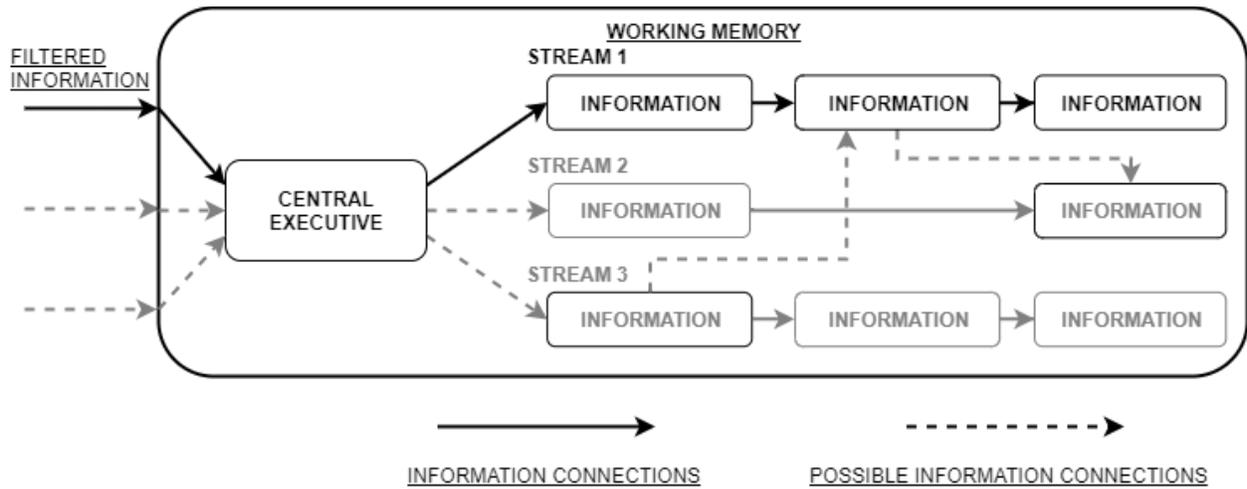
Figure 2.7 - Parallel processing within working memory. The central executive divides attention between the different information streams which are all being processed, but at different strengths depending on the amount of attentional resources allocated.

The immediate difference of this figure and the last, is the amount of information streams within working memory. In parallel processing, the unattended messages from sensory memory are as much in working memory as the attended messages, resulting in several information streams within working memory at the same time. This is where the attentional tasks of *prioritization* and *focus* are principal to create coherent meaning of the different streams, distributed through the

central executive. In this figure, Stream 1 is prioritized and where the current focus is directed, whilst Stream 2 and Stream 3 receive little attentional resources.

The dotted grey lines explains that the information streams that are currently not in focus are able to be tapped into if prioritization is shifted, as well as the possible connections they might have to each other within the process of cognition. To describe the difference between serial and parallel processing, McLeod uses an example of typing a sentence. A skilled typist might think several letters or even words ahead (parallel processing), whilst a novice might only think of one letter at a time (serial processing) (McLeod, 2008). This example of parallel processing regards processing two parts of the same task separately, *typing* and *what is going to be typed*. But in terms of Hayles' cognitive theory of hyper attention, parallel processing also regards situations where you process two different tasks at the same time, as described in her exposition of hyper attention (Hayles, 2007). For example, listening to music and writing an article. The two tasks have no correlation between each other, but you are able to process the lyrics of the music as well as typing your own words.

With several concurrent information streams within working memory, the issue of the capacity of our cognitive load might set a halt to the amount of information we are able to derive from each of them. As we take in a lot of sensory information, and being open to more of it, we are prone to distractions. Actions and information that are irrelevant to the tasks we are currently doing. Carr notes that; "*when our brain is overtaxed, we find distractions more distracting*" (Carr, 2011, p. 125), and in parallel processing and hyper attention, our brains are indeed more taxed than with serial processing. Carr continues to discuss that "*as we reach the limits of our working memory, it becomes harder to distinguish relevant information from irrelevant information, signal from noise*" (Carr, 2011, p. 125). A discussion that might develop from this is that as we take in more information, we might become slower at completing tasks and processing meaning. And with too much sensory and working stimuli, "*we become mindless consumers of data*" (Carr, 2011, p. 125). This brings up a point of distinction that I want to discuss further.

It is important to take note of the difference of how many information streams are *active* in working memory at one time, and how many are *available* to be tapped into in working memory

at any given time. A person could be in a hyper attention environment, where much sensory stimuli is apparent, while still utilizing a deep attention mode of cognition, what psychology describes as focused attention. In this situation, the person actively uses attentional resources to tune out 'unwanted' sensory stimuli, and focus on the stream of information that is the most relevant. Here we can say that there are plenty of information streams *available*, but perhaps just a few that are *active* within working memory.

Differently, if a person utilizes a hyper attention mode of cognition, more of these *available* information streams will be *active* in working memory. It is in these cases where Carr's argument of our diminishing ability to distinguish relevant information might have consequences for our ability to complete complex tasks, which is emphasized in Hayles' description of hyper attention. The result of hyper attention then, might be that we are only able to complete simple tasks that require little information, whilst more complex tasks would be too difficult to grasp.

This discussion brings up the relevance of *focus* within cognition, a point discussed much by psychological theory, but not as much by Hayles.

Then, in my analyses, I will attempt to make a point of how focus plays a part in the different cognitive modes of Hayles' theory.

With the theory of the terms of cognition and attention well in place, as well as an exposition of information streams, I will round off this chapter by discussing two theories of interpreting the representation and stimulation of different cognitive modes. As I just noted with Hayles, both of these theories have some limits in terms of psychological exposition and terminology, which makes my discussion on this theory all the more important before I discuss the theories regarding the cognitive modes themselves.

2.2.3 Understanding Cognitive Modes

In my exposition of cognition and attention, I have described their functions within the act of processing information. The cognitive modes I will now discuss are theories of how these two phenomena might appear together in different forms to create different modes of processing information.

I will also discuss how the earlier psychological theory is represented in the theoretical cognitive modes, making a point out of weaknesses and strengths of the theory.

2.2.3.1 Hayles Cognitive Theory

The theoretical root for this thesis is N. Katherine Hayles' article; *Hyper and Deep Attention: The Generational Divide in Cognitive Modes,* and it is from here our understanding of her two cognitive modes and their effects originates. To refresh our memories from the introduction, the cognitive modes of deep- and hyper attention are described as follows by Hayles:

*"**Hyper attention** is characterized by switching focus rapidly among different tasks, preferring multiple information streams, seeking a high level of stimulation, and having a low tolerance for boredom."* (Hayles, 2007, p. 187).

*"**Deep attention**, the cognitive style traditionally associated with the humanities, is characterized by concentrating on a single object for long periods (say, a novel by Dickens), ignoring outside stimuli while so engaged, preferring a single information stream, and having a high tolerance for long focus times."* (Hayles, 2007, p. 187*).*

In her theories, Hayles does not provide a model or method for recognizing the different cognitive modes, but explicit descriptions that are depictive enough for us to theorize about their stimulation through an analysis of the information streams in different activities. Deducting from the characteristics of focus, amount of information streams, and tolerance for boredom, we can discuss whether the requirements of an activity is leaning towards either deep- or hyper attention.

The exposition of these cognitive modes in her article, is a part of her hypothesis of a generational divide between them. The older generation tends to execute the cognitive mode of deep attention more often, while the younger generations increased use of digital media leans them more towards hyper attention.

The statement of students tending towards hyper attention are based on anecdotal evidence from Hayles visits to many institutions (Hayles, 2007, p. 188), which is fine for the basis of a theory about the situation, but in terms of conclusive evidence there are few empirical studies about the

phenomenon conducted by Hayles. It is here I will connect earlier psychological theory, to extrapolate if Hayles' theory is plausible and existent within the institutions she discusses. Seeing that these theories still have little empirical basis, I have been critical to the origins of her theories, hypotheses, and terms, and have thereby included the amount of psychological theory that I have to support and criticize this. Both here, and in my analyses. Firstly, the term *cognitive mode* (or *cognitive style* in some of her writings), is the category which deep- and hyper attention falls under, but no etymology or academic origin of the word is provided.

Another issue are the terms themselves; deep- and hyper attention. Why use the terms deep- and hyper attention when psychological terms already existed of similar phenomena?

As Hayles mainly discusses these terms with the act of reading, she correlates these cognitive modes with the reading strategies of *hyper reading* and *close reading*, tying them to hyper attention and deep attention respectively. The reason for this, is that these reading strategies have similar characteristics to the cognitive modes Hayles discusses. **Hyper reading** "*consists of skimming through texts in a fragmented way, [...] aiming to conserve attention by quickly identifying relevant information, so that only relatively few portions of a given text are actually read.*" (Hayles 2012, p. 12). And "***Close reading** [...] focuses on a single cultural object for a relatively long time, and has a high tolerance for boredom* (Hayles, 2012, p. 12)*.

The naming of the cognitive modes then originates from Hayles' interest in the influence that digital media might have on our daily lives, primarily reading, and the theories of their stimulation, effects, and administration within educational institutions.

Another of Hayles' perspectives to keep in mind (and criticize); is her view on the term cognition. Even though Hayles arguments regard cognition in nature, there is little exposition of psychological theory within her writings other than annotations to studies by neuropsychology, mostly regarding the reading of hypertexts and digital media. In her book, *Unthought, The Power of the Cognitive Unconscious,* she delivers her following definition of cognition:

"*Cognition is a process that interprets information within contexts that connect it with meaning.*" (Hayles, 2017, p. 22).

Though slightly more specific than the definition provided from psychology, it mostly regards the same thing, the processing of information to create meaning. Her different cognitive modes, describes *how* meaning is created through cognition, and has different strengths and weaknesses. In an interview with Louise Amoore and Volha Piotukh, following the publication of her book, *Unthought: The Power of the Cognitive Nonconscious,* she further discusses her views on cognition as:

"[...] cognition as I define it is a much more capacious activity that far exceeds the bounds of human conscious thought. For humans and other conscious organisms, cognition extends beyond the brain into the body and environment, and for nonconscious organisms, it extends throughout the entire biological realm of all lifeforms, including plants. Once cognition is seen not to require consciousness, it also extends to computational media in all its forms, including networked and programmable machines." (Amoore, L., & Piotukh, V., 2019).

This arguable "curveball" of a statement, is meant to "*expand* (our thoughts on cognition) *outward to include technical as well as biological cognition*" (Hayles, 2012, p. 22).
In terms of the pre discussed psychological theories on cognition, there are several ways in which Hayles' discussion is both innovative and problematic. It might be interesting to theorize about how cognition can create a "assemblage of information processing", what Hayles describes as a "*planetary cognitive ecology*" (Hayles, 2017, p. 3), through its possible extension to our surrounding environment and apparel. But this makes the threshold to regard something as cognitive rather low. Besides, Hayles mentions how she was able to "*rethink the terms of cognition*" (Amoore, L., & Piotukh, V., 2019), which is a pretty bold claim, and brings with it a lot of issues compared to developed cognitive theory. I will not state that Hayles discussion completely disregards former cognitive theory, but her new perspective seeks to stretch these to areas where there might not be existing research, as with for example plants. As I do not seek to travel into these same areas, I will only use her theories in correlation to other, pre existing theory.

As I have stated, when talking about cognition in this thesis I am solely discussing its occurrence within the *human* mind, disregarding its possible occurrence within plants and technology. The

cognitive modes of her theory are an excellent basis to research digital media's possible effect on human cognition, and her hypothesis is plausible in correlation to other studies and research. Thereby, I will use her descriptive theories about cognitive modes as a method of recognizing them within other activities, but for the terms of cognition I will use what originated from psychological and cognitivist theory. I will also use pre existing psychological theory to possibly further develop our understanding of the phenomena she discusses. As Hayles cognitive theories are as relevant as they are, other theorists have used her perspectives in their own developments of literary-ludic activities. Primarily, for this thesis at least, is Astrid Ensslin.

2.2.3.2 Ensslin's Theory, Methodology, and Cognitive Continuum

In her work, *Literary Gaming,* Astrid Ensslin writes about; "*what happens when we interact with digital artifacts that combine so-called ludic and literary elements*" (Ensslin, 2014, p. 1). She calls this form of digital gameplay *literary gaming*, where characteristics of both video games and traditional printed literature meet in the same digital medium. In this situation, she uses Hayles' cognitive theory to discuss how the different characteristics, ludic or literary, are also interpreted differently by the reader/player. This spans from mechanics like the rules and the gameplay of the game/text, to literary stylistics in dialogue, narrative, and other elements. In her writings about this, Ensslin furthers the discussion on Hayles' cognitive modes by remarking that they "*are not as clear cut as it may seem prima facie,* [but] *it is a useful working theory when we try to conceptualize the main phenomenological differences between reading and gaming"* (Ensslin, 2014, p. 39). In other words, an artifact of either literature or game design is not divided into the cognitive mode of either deep attention or hyper attention, but different elements within them can stimulate different cognitive modes in their interpretation. Ensslins research is then very useful when I seek to use Hayles' theory on a game like *World of Warcraft*, where the different systems are very different in their experience, and might then be different in the cognitive modes of which they evoke.

To analyze the literary-ludic artifacts of her research, Ensslin has created an analytical toolset called *functional ludostylistics*. She describes this as having integrated elements of narratology, poetics/stylistics, semiotics, mediality, and ludology (Ensslin, 2014, p. 51), drawing on

Marie-Laure Ryan's tentative idea of "*functional ludo-narrativism",* (Ensslin, 2014, p. 51), which is an approach to game studies "*that studies how the fictional world, the realm of make-believe, relates to the playfield, the space of agency"* (Ryan, 2006, p. 203).

Ensslin claims that her analytical approach widens the toolset to approach everything from; "*purely narrative games to games (narrative, abstract, and poetic) that integrate verbal art and digital literature (of any genre) that features ludic structures.*" (Ensslin, 2014, p. 52). Through her analyses of different literary computer games she proves that her methodology can be a useful tool, but she also remarks some weaknesses. As we might derive from looking at her list of analytical tools included in her functional ludostylistics, they do lean more towards the ludic end of the literary-ludic scale. She notes this as the *ludostylistic toolkit does not work equally well with all types of so-called ludic digital literature, specifically those ludoliterary texts that do not exhibit any ludological elements in the sense of ludic mechanics* (Ensslin, 2014, p. 54). It is thereby a good toolset for analyzing the interpretation of literary elements within video games, but not equally as much for analyzing the interpretation of game elements within digital literature.

As with Hayles then, Ensslin does not provide a distinct model of recognizing cognitive modes in either video games or digital literature. But, she does propose a method for analyzing game-like elements in comparison to literary functions, and visa-versa, and what coherent cognitive mode might be correlated to each of them.

Furthermore, instead of separating deep- and hyper attention as two entirely different entities, Ensslin proposes a continuum that depicts how the two cognitive modes are rather different ends of a spectrum of attention (Ensslin, 2014, p. 44), correlating to literary and ludic elements. Or more precisely, how the different elements of the artifact she analyzes distributes our attentional resources between the two cognitive modes. She calls this the *Literary-Ludic Continuum*. The conceptual boundary between the two cognitive modes are still existent within this continuum, but in lesser effect than the 'brick wall' in Hayles' cognitive model, rather serving as the 'tipping point' between the two modes.
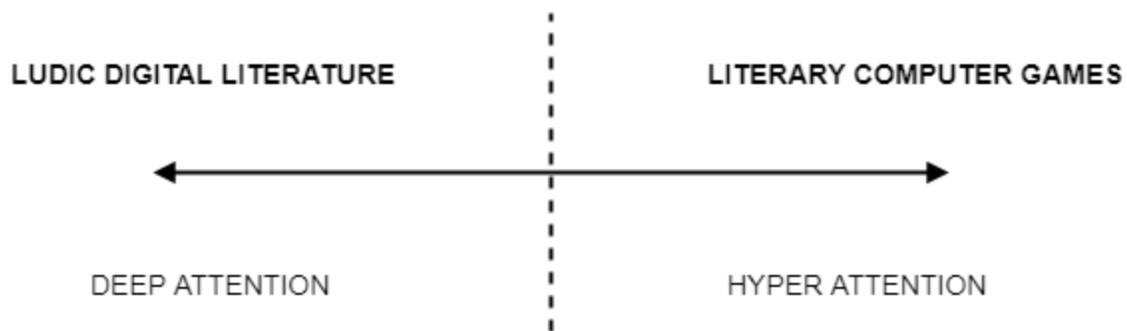
Figure 2.8 - Ensslin's Literary-ludic continuum, combined with a spectrum between deep and hyper attention (Ensslin, 2014, p. 44).

In this continuum, both ludic and literary elements can exist on both sides of the conceptual boundary between the two cognitive modes, but with literary elements being most prominent on the left side, and ludic elements on the right side.

Literary elements, most prominent in ludic digital literature featured on the left side of the conceptual boundary, is primarily read and foregrounds overstructured oral and/or written language (Ensslin, 2014, p. 44). Ludic elements*,* in terms of Ensslin's functional ludostylistics, refers to both cognitive-ergodic and/or ergodic ludicity and/or ludic mechanics (Ensslin, 2014, p. 44). Ergodic is a term originally from physics, but *ergodic literature* was coined by Espen Aarseth in the groundbreaking book, *Cybertext,* and is defined as literature where "*nontrivial effort is required to allow the reader to traverse the text*" (Aarseth, 1997, p. 1). In other words, the cognitive-ergodic ludicity which Ensslin speaks of are parts of digital texts where the reader must make some nontrivial effort to progress in the narrative, often through some game-like mechanics. In general explanatory situations of these types of literature, *interactivity* can also be used to describe the phenomenon of ergodicity. Regardless, literary computer games on the right side of the conceptual boundary are primarily played and often explicitly referred to as games in their title or front matter (Ensslin, 2014, p. 45).

From these distinctions, Ensslin remarks that ludic digital literature primarily demands deep attention, while literary computer games "*demands deep as well as hyper attention and requiring*

close reading or, rather, close play for deep understanding, analysis, and reflection" (Ensslin, 2014, p. 45). This statement follows much of what Hayles discussed in her cognitive theory. Reading being the prime example of deep attention, whilst hyper attention getting more and more prominence following the rising amount of ludic elements in the artifact. At the end of this development are "normal" video games, where both Hayles and Ensslin agree that hyper attention is almost undisputed.

Now, in terms of Ensslin's methodology, different elements of literary gaming invoke different cognitive modes. To successfully complete a given task, the player/reader must in some cases "*choose between the two to either play the game successfully or close-read it to comprehend its literary forms and meanings."* (Ensslin, 2014, p. 39). Sometimes, this forces the player to take what Ensslin describes as metastance towards the game/text and their interaction with it, switching between the two cognitive modes depending on the task at hand, or in fact which task the player/reader wants to achieve.

Through such situations, she discusses how these types of literary games "*confront players with the seemingly irreconcilable clash between hyper and deep attention"* (Ensslin, 2014, p. 39). Furthermore, Ensslin notions that the phenomenon of a cognitive clash between hyper and deep attention is improbable in game types other than literary- or art-, primarily *maximally immersive, mainstream blockbuster games* (Ensslin, 2014, p. 39). These are the types of games which Hayles and Ensslin use as examples of hyper attention, where they tend to require multitasking and emphasizes multimodality. Examples could be popular games like *Call of Duty: Modern Warfare 2* (Infinity Ward, 2009), *DOOM* (iD Software, 2016)*,* or indeed; *World of Warcraft.* I theoretically want to disagree with this statement, as I see no reason for why larger, ludic-focused games should not feature any mechanics or systems which invoke deep attention, following Ensslins discussion of how different elements evokes different cognitive modes. Hayles uses examples like mathematical equations and musical compositions as examples of deep attention as well (Hayles, 2012, p. 69), as descriptors of complex tasks. It is nowhere stated that tasks that require deep attention must be only literary, or to either include literary, mathematical, or musical elements and disregard ludic elements. This is perhaps the most

important discussion for this thesis as a whole, as I seek to analyze how maybe both cognitive modes might be induced from the information streams of a mainstream blockbuster game. This is a discussion I will continue after my analyses, but remarking my perspective here will perhaps make it more clear why I have discussed Hayles' and Ensslin's theories so thoroughly.

Now in terms of my research object, *World of Warcraft,* Ensslin's methodology cannot be seamlessly applied, as it is not described as a literary game in any shape or form. Rather, it would fall under Ensslin's description of "most video games", as *"achievement-oriented"* and demanding hyper attention (Ensslin, 2014, p. 150). It does of course feature literary elements within its narrative and dialogue, but is not described as a literary computer game in terms of Ensslin's distinctions, and if applied to Ensslin's literary-ludic continuum directly as a whole, it would in no doubt explode out on the ludic side. But, as I will analyze different systems within World of Warcraft individually, with a focus more on presentation and processing of information rather than the apparent literary or ludic elements, the result of where these might be placed on the cognitive continuum of deep and hyper attention, not the literary-ludic continuum mind you, may be quite different. As Ensslin notes how different elements of artifacts might correlate to different cognitive modes, I will argue that entire systems within video games might function in the same way. This is a hypothesis which I will discuss after my analyses, as even while World of Warcraft cannot be described as either ludic digital literature or a literary computer game, I nevertheless find Ensslins methodology useful for my type of research, and I will discuss further how it might be applicable to my analyses in chapter 3.3.4 Data Interpretation and Cognitive Continuum.

2.3 Existing Research on Video Games and Cognition

To sum up this chapter, I will quickly give an exposition about existing research on video games and cognition, and explain my reason for this thesis.

As I mentioned in the introduction, there exists several studies on the subject of cognition and video games; (Blakely, D. P, Boot, W. R, & Simons, D. J (2011); Oei A. C., Patterson M. D.

(2013); & Van Eck (2010)), mostly regarding if action video games can improve cognition. The idea of how the fast paced gameplay found within many action video games can somehow improve our cognitive processing may seem plausible at first glance, regarding how fast action video games like *Call of Duty: Modern Warfare 2* (Infinity Ward, 2009), *DOOM* (iD Software, 2016) or *Hotline Miami* (Dennaton Games, 2012) demands the player to make their decisions. Most of these studies however, that regard cognition and video games specifically, are made by psychologists, which might or might not have reasonable enough experience with video games to account for their intrinsic effects. Mortensen then notes how psychology is a field with room for more interdisciplinary exploration within game studies, as; "*very little of what is being produced today is being written by people who know and understand gaming as well as they understand psychology.*" (Mortensen, 2009, p. 155). Even though this note was made ten years ago, I got the same impression by looking at the psychological studies of video games today.

There are also studies, psychological or not in nature, that hints to what can be similarly described as Hayles' cognitive modes of deep attention and hyper attention (Ensslin (2014); Rettberg (2007); & Tapscott (2009) and their apparent relevance for game and media studies research, which makes me able to discuss the phenomenon with a large variation of studies as a basis. These "hints" come from discussions of media experiences (Tapscott), gameplay (Rettberg), or player tasks (Ensslin), and I will discuss how the perspective of Hayles' cognitive modes might be emergent in their discussions. The most apparent of these comes from Rettberg, in her article *"A Network of Quests in World of Warcraft"* in *Second Person: Role-Playing and Story in Games and Playable Media:*

> *"On the surface, video games might appear the exact opposite of today's fragmentary expression. They routinely last for at least forty hours of play, and the popular image of the gamer is of a person in deep, continuous concentration. Indeed, a recurring story reported in newspapers is of the gamer who dies from having played too long, too intensively. This would appear to be precisely the sort of concentration on a single cultural object of which protectors of traditional novel reading have lamented the loss (Birkerts 1994). Look more closely, though, and you'll find that a game is a network of fragments, most of which are not necessary to experience the game fully, and yet which cumulate into a rich experience of a storied world"* (Rettberg, 2007, p. 310).

This synergistic combination of the two cognitive modes can be compared to the cognitive clash described by Ensslin as happening within literary video games, but instead of the clash being within the game, Rettberg observes the differences between inside and outside of the game. This distinction will be a point of discussion for this thesis, as the focus mentioned by Rettberg is apparent in the examples of hyper attention by Hayles and Ensslin, but it will not be the main topic. To discuss this more clearly, the researcher would have to observe people playing *World of Warcraft* to get a view of what is happening *outside* the game, which I will not do here. My focus rather, both on discussed theories and methodology, will be to discuss what is happening *inside* the game.

3. Methodology

In the following chapters, I will describe my process of collecting data for this thesis, and how I will interpret them according to the prior discussed theory.

3.1 Researching Games

When researching games, Aarseth emphasises that there are three main ways of acquiring game knowledge about any kind of game (Aarseth, 2012, p. 181). The first is the study of the design, rules and mechanics of the game from the outside, by for example talking to the game designers. The second, is to observe others play. And the third, which Aarseth notes is clearly the best, is to play the game ourselves.

In this chapter, I will discuss how I have played *World of Warcraft* to acquire the knowledge and data I needed for this thesis.

3.1.1 A Player Researching his Game

Altogether on my World of Warcraft account, I have amassed 5556 hours of gameplay between all my different characters, which varies in races, classes, and factions. I then have a substantial amount of prior experience with the game. I have amassed this data in a spreadsheet, *WoW Characters & Playtime,* which I have included in the appendix of this thesis. Keep in mind that

this gametime is only from the characters that I still have active on my account, and does not include characters that have later been deleted. I regrettably must admit that this would have amassed a fair amount if included. I want to make it clear that the data in this spreadsheet is time spent within the game that is solely for entertainment purposes. While I have always had a genuine research interest in *World of Warcraft*'s different systems, and dabbled in research articles before, this pre-established game experience originates from entertainment purposes. Playtime used for the research of this thesis, is logged in the document; *Research Playtime Log*, also found in the appendix.

Nevertheless, since I have a developed history with the game, and a continued interest, I must reflect upon how this might affect my thesis. As Juul describes; "*The video game researcher is usually (and arguably should be) a big fan of video games, and hence the game researcher enters the field with preferences of specific types of games, and the selection of games influences the researcher's arguments*" (Juul, 2005, p. 17). This thought is specifically in terms of Game Studies, as prior mentioned by both Egenfeldt-Nielsen et al., and Mäyrä, but the french sociologist Pierre Bourdieu's thoughts on an objective scientific reflection (Bourdieu & Wacquant, 1993, p. 60) and the german philosopher Hans-Georg Gadamer's discussions on *prejudice* from the field of hermeneutics (Kvarv, 2014, p. 81), are equally important in terms of the scientific method. In this chapter I will reflect on these facts, as well as make a quick exposition about my personal player history.

As per Juuls comment; yes, I am a big fan of video games, and yes, I have preferred *World of Warcraft* over other MMORPGs, and MMORPGs over other game genres. In terms of MMORPGs I have played a variety of other games in the genre; like *Lord of the Rings Online* (Turbine & Standing Stone Games, 2007)*, Wildstar* (Carbine Studios, 2014), and indeed *EverQuest,* but *World of Warcraft* is the only game I have played consistently throughout the last decade. This does not mean however, that I only play MMORPGs, as I am a big fan of other game genres as well, and enjoy games like *DOOM* (iD Software, 2016)*, Warcraft III* (Blizzard Entertainment, 2002)*,* and *Hotline Miami* (Dennaton Games, 2012)*.*

Within *World of Warcraft* though, my player experience has varied throughout the years. As I began playing in 2005, I was a mere 8 years old, and interacted with the game through little else than completing simple quests and slaying monsters. As the game developed though, I became a better player, and started to challenge the game's more complex systems. During *The Burning Crusade* (2007) I played more with PvP (Player versus Player); during *Wrath of the Lich King* (2008) I challenged Heroic Dungeons; and in *Cataclysm* (2010) I got my proper taste of Raiding, the most challenging, team-oriented system in *World of Warcraft.* While I have now played almost all of the game's systems, there are two principal parts of the game which I most enjoy. The first is to experience the game as a single player, narrative and exploratory experience through its gameworld and quest systems. The second, is the challenging multiplayer dungeons, where the challenge lies in teamwork, execution of mechanics, and strategy. During the first part of *World of Warcraft: Battle for Azeroth,* the guild I was playing in was in the top 70 of the best guilds on one of the largest servers in Europe in terms of progression, as calculated by Warcraftlogs.com (Warcraftlogs.com, 2020) and Raider.io (Raider.io, 2020). With my amount of experience with the systems selected for analysis, I do have the knowledge of how they function, a defined skill level in their execution, along with my personal preference of which system I like the most in terms of entertainment and challenge.

Pierre Bourdieu, in the work *An Invitation to Reflexive Sociology*, discusses the idea of *participant objectivation* (Bourdieu, P. & Wacquant, L. J. D., 1993, p. 236). While Bourdieu as a sociologist used this practice in cohesion with human-on-human interaction, it is useful in other types of research as well. The idea is to objectify both yourself as a researcher, and the research object that you will interact with, prior to the research, to break down your interests, prejudices, experiences, and knowledge that you might bring into your discussions and analyses. In terms of *World of Warcraft*, this ties much to both my history with the game and possible prejudices I discuss here, the exposition of the game in chapter 2.1.2 The Game: World of Warcraft, and my exposition of data collection in chapter 3.3.1 Close Reading of Video Games. These paragraphs together, results in what I would argue to be a justified objectivation of both the ludic artifact; *World of Warcraft,* and myself; as both a player and a researcher.

Also in the field of hermeneutics, such prior experience and prejudice of the research object is a primary discussed topic, as hermeneutics regards the core of research within humaniora as being interpretation of something that inherits meaning (Kvarv, 2014, s. 73). Now, interpretation cannot be done without some prior knowledge or thoughts about the subject in question, which results in prejudice in some form or another about the topic, research object, or research results. The philosopher Hans-Georg Gadamer discussed that such prejudice is not inherently bad. It was, during the 19th century, a prime subject to overcome one's prejudice in the service of scientific research, as prejudice could limit your perspective and interpretation. Gadamer, however argued that prejudice also can be used as a resource in interpretation (Kvarv, 2014, p. 81), as inherent knowledge can fuse with the new knowledge discovered through analysis to create a better understanding. This principle is called the *fusion of horizons* (Kvarv, 2014, p. 82). My prior experience with the games' different systems might then allow me to dive deeper into understanding them in terms of my research questions, than if I had to learn the systems from scratch at the start of this research project. This prior experience can fuse with my new experiences, through scientific analysis and method, to understand the phenomena through more than one perspective. As a player, and as a researcher.

Through the experience which my spreadsheet of collected hours within *World of Warcraft* proves, I cannot reject my *'dasein'*, my inextricable prejudice which the philosopher Martin Heidegger discusses is indispensable to our ability of interpretation and research (Lægreid, S. & Skogren, T., 2014, p. 87). But in terms of Gadamer's thoughts, I can use this prior player experience to formulate hypotheses of my research questions, and understand the new data from analyses with a more developed researcher perspective.

But as my research regards the presentation of information from the game itself, neither my personal playstyle or preference about the systems should interfere greatly with the collection of research data. The modalities of which the game presents information, and what information has been presented, has also not been a central interest to me when playing the game for entertainment purposes, as the process of interpreting this has been subliminal. In my analyses,

however, I must put the player-aspect of me aside, and interpret the data as nothing more than data. In this way, I am both a player and a researcher of *World of Warcraft*, and able to use the advantages of both aspects to create a deeper understanding of the game's systems.

3.2 Selection of Research Object

In Frans Mäyräs exposition on MMORPGS and virtual worlds in *An Introduction to Game Studies*, he uses *EverQuest* by Verdant Interactive and 989 Studios as the main example, as *"EverQuest is one of the more popular games of this kind",* and *"because it has already a long enough history to benefit from a body of dedicated research." (Mäyrä, 2008, p. 127).* In the same year as Mäyräs book release, *World of Warcraft* was about to release its third expansion, *World of Warcraft: Wrath of the Lich King,* and was on pace for their top recorded subscriber numbers of about 12 million (Donovan, 2010, p. 307). At this time, it was still a young game in comparison to *EverQuest*, which had time to ripen and materialise concretely within academia, and thus did not have the same body of research and empirical data as *EverQuest.* But it was during *Wrath of the Lich King* that the majority of academic articles on *World of Warcraft* began to emerge, and is now a much more relevant MMORPG, both in academia and in the games industry, than *EverQuest.*

In combination with my experience with the game, this is why I chose to write about *World of Warcraft* for this thesis. But in terms of just the topic of the thesis, cognitive modes in video games, any MMORPG, or other genres of games in a limited way, could have served the purpose of being the research object. In this chapter, I will account for why I selected *World of Warcraft* from the pool of existing video games, as well as the individual systems within *World of Warcraft.* Why I have selected video games in general, I explained in the introduction of this thesis. I will also account for possible weaknesses with the research object.

In his exposition, Mäyrä, again, uses the term *virtual world* when discussing MMORPGs, but as discussed earlier I will avoid this term. Nevertheless, Mäyrä captures much of the essence of what these games contain, and how they can both be an opportunity and a challenge to research.

The obvious first challenge is that there is no proper end-goal in MMORPGs, making it impossible to define a single purpose for playing it. Rather, Mäyrä explains that; "*these games are multi-modal in the sense that they try to accommodate a wide range of play modes and player preferences.*" (Mäyrä, 2008 p. 132). I want to add to this explanation, a citation from Staats;

> "*WoW was never a game with innovative technology or unique features. It was a game with enough meaningful and elegant systems that were flexible enough to provide abundant content, giving players the opportunity to choose how to play. WoW was not just a combat or exploration game. It was not just a treasure hunt for ingredients or a footrace to the best loot. It wasn't just a solo, social, or community game, It was an interconnected gestalt of these things, so that there were too many ways to play.*" (Staats, p. 318).

MMORPGs are then hard to nail down in terms of researching them. Both in terms of play modes and game activities, to terms of player activity, and what Mäyrä notes as the *duality and dynamics between character-based fantasy and core gameplay mechanics* (Mäyrä, 2008, p. 136). But this duality and variation of content, while presenting a substantial challenge for research, is also proof to the wide variety of possible interesting research. This is where the MMORPG really shines as a subject for research of cognition and attention; in its variety of activities and tasks. A large variety of interactions and tasks for the players, opens up the possibilities to investigate cognitive modes in a variety of different systems, actions, and behaviors. If a game has only one task for the player, for example the 'shoot-all-the-enemies' incentive of most first person shooters, there will most likely only be one system for analysis of cognition with only one result. The flexibility of an MMORPG, especially one as large as World of Warcraft, provides a larger selection of things to analyze and a wider spread of data, which will lead to more grounded results of the thesis as a whole.

But a baseline understanding of how the game functions is a fundamental requirement. One of the most accurate paradigms of this phenomenon comes from Jesper Juul, which describes MMORPGs as *games of emergence* (Mäyrä, 2008, p. 138). What he means by this is that even though the large gameworld, both open and instanced, is governed by certain rule systems (character statistics, skills, levels, class systems, etc.), this does not dictate the way one should

play within it (Mäyrä, 2008, p. 138). Rather, certain strata of gameplay styles and strategies emerge from this substratum, this platform of opportunity.

For this reason, I have selected systems which are extensively controlled by game rules, where the principle of human preference or human rule-enforcement in gameplay does not play as a central part as in, for example, role-playing. How you do a quest for example might allow for some variation, but in terms of rules you either complete the criteria of the quest or you don't. I then hold the *core gameplay mechanics* from Mäyrä's note in higher regard than the *character-based fantasy,* other than the games' constructed narrative.

This thesis will approach World of Warcraft through its different gameplay systems, with a focus on, from Jørgensen, how game-system information enables meaningful player interaction. I have then chosen to only analyze a few selected systems qualitatively, to create a deep understanding of their function in terms of Jørgensens description, which can be used to create an inductive understanding of the cognitive modes of the game as a whole.

3.2.1 Selected Systems

One of my concerns when selecting these systems was to cover a certain diversity from within the game, in terms of gameplay, structure, and player-tasks. The three systems I have selected are; Quests, Island Expeditions, and Dungeons & Raids. These systems vary from only being relevant for the current expansion, to being a core part of *World of Warcraft*s gameplay since its genesis. *Questing* and *Dungeons & Raids*, are part of *World of Warcrafts* core gameplay structure, as I will describe in more detail. *Island Expeditions* however, is a new system introduced in *World of Warcraft: Battle for Azeroth,* and it is fair to think that this is a system which will only play a part in the current expansion, and will not be a relevant system in later additions of the game.

The reason for this variety, is to analyse both the modern version of old systems from within the game, and a new system which originates from the games most modern design philosophy. The older systems might then have some limitations in how they provide information, as they were originally designed nearly 15 years ago, while the newer system is not affected by this possible limitation. I think this is a good way to research the MMORPGs flexible potential in use of

cognitive modes, and possibly show hints of both Tapscotts notes on increasing flexibility in media experience (Tapscott, 2009, p. 78), and Hayles generational divide in cognitive modes. I have been careful to choose systems from the game that could both confirm or refute my hypotheses, as emphasized by Aarseth in *Playing Research: Methodological Approaches to Game Analysis* (Aarseth, 2012, p. 189). As I will explain later, I hypothesize that these systems stimulate a variety of cognitive modes, which disputes both Hayles and Ensslins description of video games as purely hyper attention environments. Ensslin proved that it was plausible that certain types of games could feature an *irreconcilable clash between hyper and deep attention,* through her study of specifically literary games and digital literature, but as prior mentioned, disregarded games in the like of *World of Warcraft.*

It is therefore entirely plausible that my hypotheses prove to be wrong in these video game systems, and further prove the theory that there is little to no correlation between the phenomena of deep attention and video games.

3.2.1.1 Questing

The first system I will analyze, is the various forms in which *quests* emerge in *World of Warcraft.* Accepting quests, completing their objectives, and reaping the rewards, is, usually, the first system players are introduced to within *World of Warcraft,* and serves as the primary system for both leveling and rewards. One of the first things new players see in the game is an NPC (Non-Player Character), with a yellow exclamation point over its head, signifying that they have one or several quests available. Through a brief narrative, the objectives of the quest is explained, and what rewards the player will receive for completing it is listed. If the player accepts, the quest is added to their quest log, which they can use to track the quests' criteria, re-read the narrative description, or look over the rewards of the quest. When the criteria of the quest is completed, the player can, in most cases, return to the NPC which provided them the quest to get the promised rewards.This is a simple description of the normal quest system in *World of Warcraft.* To give a formal definition of quests; I will work from Howards definition from in his book; *Quests: Design, Theory, and History in Games and Narrative*, which reads:

"*A quest is a journey across a symbolic, fantastic landscape in which a protagonist or player collects objects and talks to characters in order to overcome challenges and achieve a meaningful goal*" (Howard, 2008, p. xi).

While being a pretty comprehensive definition, some quests in *World of Warcraft* do feature slight exceptions to it. Through *World of Warcrafts* development, questing has evolved from a relatively simple structure to a system which is wide and varied in its emergence. In addition to the described *normal* quests, there are categories like; daily quests, world quests, group quests, and others that are different in the requirements, execution, and completion of quest objectives. According to Wowhead.com, the most prominent database for *World of Warcrafts* content, there are currently over 29.000 quests available to players in the game across all categories (Wowhead.com, 2020).

In my analysis of this system I will cover a variety of these, to create a broad understanding of what the systems can require of the player in different instances. Both in terms of information processing, and of task management. In terms of cognitive modes in use while questing, my hypothesis is that the variety of different quest types invoke a variety of cognitive modes.

Figure 3.1 - Questing in World of Warcraft. Screenshot from World of Warcraft.

3.2.1.2 Island Expeditions

The second system in question is Island Expeditions. This is a new system introduced in *World of Warcraft: Battle for Azeroth*, and centers around one of the main mechanics of this expansion; *Azerite*. *Azerite* is a resource which fuels a core gameplay mechanic in this expansion as a whole, which is a piece of equipment that players use, called *The Heart of Azeroth*. The more *Azerite* you collect, the more powerful this piece of equipment is.

It is not necessary to explain how the mechanic '*The Heart of Azeroth*' works for my thesis, but it is important to know that acquiring *Azerite* is an important activity which players need to do within the game. Island Expeditions are a great source for this resource.

Island Expeditions, are instanced gameworlds where a team of three players lead an expedition to an uncharted island. The players do not know what challenges the island will contain, both in terms of enemies, quests, or puzzles, only that completing or defeating them rewards *Azerite*.

The goal is to collect a certain amount of *Azerite* before an opposing team consisting of either other players or NPCs. If you win, you are rewarded with a large amount of *Azerite* currency, with the possibility for other possible rewards as well. If you collect 36.000 *Azerite* through Island Expeditions in a week, you get an additional large reward.

As players never know what the Islands contain, decisions have to be made on the spot regarding what route to take, which activities to do, and how to stop the enemy team from winning.

Through all these small decisions and amount of information the players need to take in, I would argue that Island Expeditions seems like a prime hyper attention environment. The activities are fragmented and sporadic, with small gratifications culminating to a larger reward.

As this is a newer system, there are little scholarly articles about this system in *World of Warcraft,* or similar systems in other games. So while I will use relevant prior research in the analysis of this system, it does not have the same theoretical background as the others.

Figure 3.2 - Island Expeditions in World of Warcraft. Screenshot from World of Warcraft.

3.2.1.3 Dungeons & Raids

Last but not least, are Dungeons & Raids. Along with questing, this is a system which is one of the core gameplay mechanics in *World of Warcraft,* and has been the pinnacle of challenging content in the game since its original release. In Dungeons, a team of five players enter an instanced gameworld which features harder enemies than those found in the open gameworld. These enemies protect boss-enemies, which requires specific strategies and teamwork to defeat, and rewards players with high-quality items that increase the power of their avatar. Most dungeons feature between three to five bosses, and takes around twenty minutes to complete. Raids however, are larger versions of Dungeons, requiring a team of ten to thirty players to cooperate to defeat even harder bosses than those found in dungeons. The quality of rewards are corresponding to the difficulty. Raids usually feature between five to ten bosses, and could take several hours to complete.

An important note about Dungeons & Raids, is that they feature several different difficulty levels. Dungeons have four difficulty levels; Normal, Heroic, Mythic, and Mythic+. Raids also

have four difficulty levels; Looking for Raid, Normal, Heroic, and Mythic. The difficulty levels change parameters like enemy health and enemy damage, but also adds additional mechanics that players have to deal with in increasing difficulty levels.

In my analysis of these systems I will do several different dungeons on several difficulty levels, as well as a Raid on the lowest difficulty. Time requirements and commitment for completing raids on higher difficulties is sadly something I do not have at the time of writing this thesis. The principles I will specifically watch out for in these systems are; problem-solving, focus, and the amount of goal-relevant information.

Dungeons & Raids require a lot of focus from players to execute its challenging mechanics and strategies, but varies in complexity in terms of which difficulty the players choose to challenge. This system is what is most likely to invoke a cognitive mode on the deep attention side of Ensslin's cognitive-continuum, and I hypothesize that this is the result which my analysis will show.

Figure 3.3 - Dungeon in World of Warcraft. Screenshot from World of Warcraft.

3.2.2 The Flexible MMORPG

As noted by the citations from both Staats and Mäyrä earlier, the MMORPG genre is flexible in terms of its content and opportunities for player experiences, and *World of Warcraft* emphasizes this flexibility. The systems which I have selected here, covers only a part of this flexibility, and portrays the game in only a limited way. This raises some academic questions that need to be answered. In this chapter, I will discuss what definitive strengths and weaknesses the research object of this thesis brings along with it, as well as how I will relate to them in my analyses and discussions.

Such flexibility and versatility within a game is both a blessing and a curse for a games researcher, as it creates the issue of specification; how can I as a researcher obtain case-specific data from a game which has a large variety of player activities? How do we know if the data represents the game as a whole? One methodology is to make broad assumptions about the game in a very generalizing manner, through *light play* of all of the game's systems, creating inductive results out of a huge amount of data with great variation. The result of this type of method would be unreliable and inconclusive, as the need of presenting specific and narrowed down data and analyses has not been fulfilled. Rather than this, I will not attempt to make assumptions about the game as a whole through a generalizing look at the entirety of the game, but by analyzing individual systems, in an isolated way, to paint a picture of how individual parts of the game works which I can then use to make further assumptions.

Another weakness about my research is the time of which it happens in terms of the current expansion. *World of Warcraft: Battle for Azeroth* was released in August 2018, with most of its challenging content available on day one. The difficulty of these systems were then scaled to the power of the avatars of the players at the time, to make an appropriate challenge. But as the quality of rewards increase throughout an expansion, the players now have a much higher power level than they did at the beginning of the expansion. The original difficulty level of these first systems might now be trivial to players which have completed the expansions later content,

allowing them to very quickly defeat its enemies and boss-enemies, and complete its objectives. This will make the information processing and task prioritization equally trivial, as the players simply do not have to do it since they are more powerful than the consequences of wrong decisions. A cognitive analysis of this, would undoubtedly only result in definite hyper attention. To counter this weakness, and to research the game in its proper form, I will do the content of the game in appropriate difficulties to the power of the current players, most often the higher difficulties, where information processing and task prioritization are still necessary to successfully complete the content. For questing, I will use a level appropriate character. For Island Expeditions, I will use characters which have just reached the max level, and some that have better equipment. And for dungeons & raids, I will use a character that has the appropriate quality of equipment for the difficulty. Hopefully, this will mostly negate the consequences of the inherent power-creep of the game's current progression, and bring the information presentation and processing to a relevant level.

3.2.2.1 The Addon Issue

"The Addon Issue", is what I have named another potentially problematic instance of *World of Warcraft*, which might create a distinctive, critical perspective on my analyses of the amount of information a player receives in World of Warcraft's different systems, regardless of difficulty or system. In World of Warcraft, there is support for players to create their own additions to the game in the form of small scripts or systems, using a; *"very powerful user interface API (application programming interface, a set of functions that can be used to communicate with the game from a scripting language, in this case Lua) that allows players to script almost every part of the game,"* as written by Paul Emmerich; the author of: *"Beginning Lua with World of Warcraft Addons"* (Emmerich, 2009, p. 2).

While there are some limitations about what these *addons* can do within the game, like automating gameplay mechanics or player movement, there are a lot of options for players to customize both how the game's user interface might look like, as well as *what* and *how* information is provided to them. This can be everything from how damage-numbers appear on the screen, to audiovisual warnings and cues that tell the player that something is happening,

which ordinarily would not be conveyed to them through such means. Now as my analyses will research how the game provides information for the players, this customizability will make every player experience different through their personal setup of the user interface through these addons, *if* they use them.

Figure 3.4 - World of Warcraft without Addons (left) & World of Warcraft with Addons (right).

While I could find no statistics about how many players of World of Warcraft actually use addons while they are playing, it is my general impression through playing the game for many years with a variety of different people that it is expected that almost every player uses some addons while playing. Be it either just aesthetic changes, or additions of new information streams through audiovisual warnings. Potentially then, these addons can in fact increase, or in some cases decrease, the amount of information that the player is receiving from the game, making my analysis of the unmodified expression of the game, perhaps not an accurate description of the actual experiences most players have. While the collected view in game studies of playing video games is that it is experienced differently by every player (Ensslin, 2014, p. 28), and perhaps especially a game like *World of Warcraft* (Hiwiller, 2016, p. 137), I found it important to at least mention this distinction and possible difference from my experience of the game through my analyses, and the experience of most players. In existing research of *World of Warcraft*, this issue is seldom mentioned unless it is the specific topic of the research.

On the other hand, these possibilities of customization and personalization are a central part of Tapscotts discussion of modern media experiences (Tapscott, 2009, p. 78), as well as Hayles' notion of how the younger generation prefers to personally streamline their flow of information

(Hayles, 2014). In this way, it might even be interesting to lead a research project on how addons in *World of Warcraft*, or other video games for that matter, can change the flow of information of the video game, and what changes are most popular within its player base. The result of such research might add to the cognitive discussions of this thesis , and be interesting to video game designers. McArthur et al. 's (2012). *Knowing, not doing: Modalities of gameplay expertise in World of Warcraft addons* and Targett et al. 's (2012) *A Study of User Interface Modifications in World of Warcraft,* are examples of such studies, but are in no way exhaustive. Regardless of this, I want to make it clear that in my playing of *World of Warcraft* for this thesis, no addons will be in use, as I want to look at how an unedited version of *World of Warcraft* provides information for its players. In accord with my research questions, this will make my analyses reflect the presentation of information in *World of Warcraft* as designed by its producers, and investigate how this correlates to Hayles' cognitive modes.

3.3 Data Collection

In these chapters, I will discuss my process of collecting data through close playing, as well as describe which data I will interpret. What data that might be apparent to a researcher of video games depends on many factors, which is exactly why I provide sources for all my *World of Warcraft* characters, and my achievements within the game ((Raider.io, 2020)(Warcraftlogs.com, 2020)). This chapter will describe how my prior relationship might affect the thesis in some ways, and how I went about doing a close reading of the game.

3.3.1 Close Reading of Video Games

As I want to look at how information flows within World of Warcraft, I need to achieve a close relation to the game itself, through hours of 'close playing' the game. My analyses will be based on recorded sessions of the different systems, which are documented in *Research Playtime Log* available in the Appendix. These were recorded on my home computer using a program called *OBS Studio,* and are made available through private Youtube-videos available in the Appendix. The term; *close playing,* or *playing research*, is a method of studying video games discussed by both Mäyrä (Mäyrä, 2009, p. 318) and Aarseth (Aarseth, 2012, p. 176) which shares many

characteristics of *close reading*. This method seeks to use the playing of the game itself as a source of data for analysis, in addition to prior research and empirical data (Repstad, 2007, p. 103). Egenfeldt-Nielsen et al. mentions how there are just a few detailed analyses of individual game titles in the field of game studies which uses this methodology (Egenfeldt-Nielsen et al., 2016, p. 10), but that it is a useful method when performing textual or semiotic analysis of video games.

In Aarseth's discussions about playing games for research, he lists seven strata of playing video games; *superficial play, light play, partial completion, total completion, repeated play, expert play,* and *innovative play* (Aarseth, 2012, p. 188). These strata might all experience gameplay in different ways, and it is important to understand how each different strata affects the data collection whilst playing video games, and reflect on which playstyle you have as a researcher whilst playing. This affects what form of close relation you achieve with the game. *Light play,* can get a superficial and generalistic view of a video game, whilst *expert play* will create a deeper cohesive understanding.

My experience and skill level within *World of Warcraft* most accurately fits the description of *expert play.* I have completed some of the game's hardest content, and the game is very familiar to me before beginning research. A note about this, would be that even though I might have higher skill in the game than other players, and much prior experience, the game always presents the same amount of information. The information-presentation factor is a constant, and is therefore not affected by player skill-rating. The player strata is however, an important part of my reflection, and can decide if the relevant information is presented in representative amounts from which I can conduct analyses. This distinction is important in a close reading of video games. Furthermore, Aarseth notes that even though playing is essential to a research project of this type, it "*should be combined with other sources if at all possible*" (Aarseth, 2012, p. 189). In my different expositions about *World of Warcraft* and its systems, I have included what I deem are the most relevant scholarly articles and studies regarding each game system. This is my collection of earlier data and impressions, which I will use in the discussions and extrapolation of my own findings.

In addition to this, I have described how I will interpret the game as both a formal system, through Juul's definition, and as an artifact which features both ludic and literary elements, through Ensslin's functional ludostylistics and cognitive-continuum.

Before summarizing this exposition, I want to again discuss Ensslin's notion of a cognitive clash within her studies of literary games, but this time from the perspective of close playing video games for academic research. She notes in her discussions, that;

> *"This clash of cognitive styles calls out for new reading and gaming strategies that facilitate both successful gameplay and in-depth close reading and approach to both gaming and reading from a metaludic, metafictional point of view."* (Ensslin, 2014, p. 40).

These possible new reading and gaming strategies are not only required by the players themselves in order to beat, or do well in the game, but also from researchers in order to interpret the game in a reasonable way. This might be a step towards the theorist Gregersen's note of a tailored, cognitive theory of video games, and how this needs to pay attention to both cognition and video game elements (Gregersen, 2016, p. 419). Both in Ensslin's analyses, and later my own, it is the synergistic aspects of ludic gameplay and cognitive processing which is the topic of research, which is represented in the gameplay itself.. And in my close playing of *World of Warcraft*, I will account for relevant data from both of these aspects.

3.3.2 Obtaining Relevant Data

When I discuss *relevant* data, I refer to the research-relevant data of which will be subjugated in my analyses. This is, in the case of this cognitive study of video games, the game-system information apparent in gameplay, as defined by Jørgensen, which is presented in the game's systems. But in the extreme multimodal environment of MMORPGs, this information is represented in a wide variety of means, and possibly for a wide variety of reasons.

Information could be unambiguous to only the narrative, or similarly only to the rules of the system, which realizes the dualistic nature of MMORPGs as discussed by Juul. The narrative

might not be necessary to comprehend to excel in a game system, but might be relevant to know in another. Fiction and narrative plays a different role in different games and game genres, and while some players may be thrilled by the fiction of a game, others may dismiss it as unimportant decoration of the game rules (Juul, 2005 p. 6). I will account for this important distinction in my analyses. Similarly, game designer Chris Crawford describes the aesthetics of a game as another dressing of the game rules, and that "*Many game designers erroneously believe that graphic realism necessarily enhances the entertainment experience.*" (Crawford, 2003, p. 108).

As the game narrative is a factor which gives players agency through game rules, and the aesthetics are dressing of the game rules, they are experienced as literary elements and ludic elements respectively. But are at the same time, relevant to the game experience. Furthermore, either if a player is interested in unraveling the narrative of a system or not, the information is still presented, and thus needs to be accounted for in my analyses.

But as the relevant data for this analysis is the information the game presents in its systems, no matter its intent, would we be able to define what is irrelevant data? In terms of Carr's earlier note on how we are able to distinguish between relevant and irrelevant information (Carr, 2011, p. 125), and how Ensslins and Hayles both note that video games excel hyper attention, it might be hard for both a player and a researcher to decide if any information is irrelevant to a system at all. If video games are indeed prime hyper attention environments, information would be presented as all being relevant to the players experience, and to their ability to overcome challenges and experience narratives. This note supports my decision to account for all types of game-presented information as relevant data for interpretation, both for players, and for this thesis.

In terms of collecting this data of game-relevant information, I will separate the processes of playing the game and analyzing the game. While playing, I will focus on playing the game correctly, and to perform well within the games systems. It is not before my later transcription and analysis of these gameplay sessions, that I will investigate closely how and what information was presented to me as a player, and how it made me take my decisions. To categorize and

interpret this information, I will work through a document I have named *Gameplay Research Sheet.*

3.3.3 Gameplay Research Sheet

The *Gameplay Research Sheet* is a methodological tool I have used in the process of data collection and analysis for this thesis. It contextualizes the theoretical basis of this thesis into a methodological framework of which I will use as the basis for my analyses, with room for expositions about the gameplay in question both as a formal system, and as an analytical object. It is meant to be used in tandem with the gameplay of *World of Warcraft's* different systems, and is designed to answer the following questions:

How to formally describe the system in question?

What types of information was presented in the system?

How were the different types of information presented?

How were the different types of information tied to game-relevant activities?

These sub-questions are meant to create a broad reflection for my research questions, to most accurately answer how information is presented in *World of Warcraft.* To answer these, I have separated the gameplay research sheet into three major parts. The first regards a formal description of the system in question, and the activities of the current session. The second regards what types of information the player has to deal with in the system's information streams, in correlation to what tasks they belong to. The third, utilizes the toolset Ensslin's functional ludostylistics, which contextualizes the data of the system into meaningful player experience. All the *Gameplay Research Sheets* used for this thesis are available in the Appendix.

To more orderly discuss the information presented to the player, I have separated information data into four categories; *numerical data, textual data, visual data,* and *auditoral data.* **Numerical data** is data conveyed in numerical fashion. This might include player scores, damage numbers, or other things connected activities or tasks of a mathematical fashion. **Textual data** is simply text, but of which can have a variety of meanings and values. This can regard both

narrative exposition and other descriptions. This data most often regards literary elements, but is also used in the game interface, which can be categorized as either semiotic or ludic in nature. **Visual data** is a broader category which contains visual information which cannot be described as either numerical or textual. This can regard the game-world itself, animation-cues, level design, or other visual effects. **Auditoral data** is information presented to the player in the form of sound. This is likely the least used form of data, but it is still a relevant type of information. A more detailed description of the analytical process with these data, will be described in chapter 3.4 - Method of Analysis.

In addition to this, I have made room for pre-gameplay notes, during-gameplay notes, and final thoughts of reflection. This will be to capture my immediate experience of the system, both descriptively and analytically. These sheets will not include the complete content of my analyses, but it will feature the principles for analysis and contextualization of both the content of the system and my immediate notes of the gameplay. All completed sheets are added in the appendix of this thesis.

3.4 Method of Analysis

The basis of my analyses will be the recorded sessions of different *World of Warcraft* systems and the notes from the *Gameplay Research Sheets* about them.

To begin with, one of the most important distinctions is how I will discuss the different data types described in the previous chapter. I will not unquestionably correlate any type of data to any cognitive mode, but rather take a close look at how they are apparent in different problems, and how relevant they are to its solution within them. In this way, my emphasis is rather on the role and function of each data-type within the multimodal information network, and not its general cognitive nature, which I think is a very limiting thought to have in the first place. But while I have emphasised that I do not believe that different tasks, or indeed different data-types, indisputably correlates to different cognitive modes, there are general patterns in which cognitive mode they lean towards. Ensslin's work is proof of this.

Generally, if there are few information-streams that are important within a problem, and that there is a limited amount of problems, it will lean towards deep attention, and the opposite with hyper attention. This will be the main way I will distinguish where a system is placed on the cognitive continuum, but other factors like stimulus, focus, and complexity also play a part. If these factors were left out, we could say very simple problems with one source of information would require deep attention, which would be inaccurate.

To visualize how different data can be important in different situations, I will use combat and numerical data as an example. The combat system of *World of Warcraft* is basically just a series of mathematical problems, where specific values in different calculations determine outcomes that become apparent in the gameworld. But there is no need for the player to calculate this manually as they go. The numerical feedback they gain during combat, visualized as damage numbers on the player's screen, is to convey the results of their actions to them in similar fashion to the UI elements of health bars. But, if the players want to find out how to be a better player or how to possibly improve their performance within the game, they need to take these numbers into account and calculate improvements themselves. Where in most cases of the game this is unnecessary, it is generally required in the higher difficulties of Dungeons & Raids, where the performance of players, through these mathematical calculations, is an defining factor in the problems players need to face; the raid bosses. The factor of numerical data is then not relevant in most parts of the game, but a core function in others. As such, numerical data has a high emphasis on deep attention, but not in all situations.

The second distinction of my analyses is the cognitive continuum. One of the most useful tools in Ensslin's work is her literary-ludic continuum, which helps to situate different elements artifacts on the continuum between literariness and ludicty as well as deep or hyper attention. While Ensslin uses the phrase Literary-Ludic Continuum for her work, with the factors of deep attention and hyper attention applied to it, I would rather tweak this slightly and describe it as a cognitive continuum in my analyses, to tear away from the distinctions of literariness and lucidity. With this I place higher emphasis on the cognitive modes, but open up to forms of

stimulation/interaction other than literary and ludic. This is not to say that Ensslin analyses are inherently inaccurate, as it is an academic work on the relation between the two elements, but rather to step away from the focus on only literariness and lucidity within the artifacts and systems. These elements will be discussed, but I will not unquestioningly relate them to deep attention and hyper attention respectively. I will rather discuss different data types in relation to the cognitive requirements of their inherent tasks, to then place them on the cognitive continuum according to the descriptions of deep and hyper attention. The cognitive requirements will be discussed by data interpretation, discussions on the complexity of tasks, and my hermeneutic playing of the different systems.

3.3.4 Data Interpretation and Cognitive Continuum

Video games feature a wide variety of data, and *World of Warcraft* perhaps more than some. Ensslin notes in her analyses that; *what is important about literary gaming and its various textual manifestations is the fact that experiencing them involves a complex array of ludic, narrative, semiotic, and medial elements* (Ensslin, 2014, p.). Ensslin's specific analysis of textual manifestations, with focus on specific elements fitting to her functional ludostylistics, highlights the cognitive requirements for different literary-ludic combinations. In my analyses I have no other specifications than that I analyze a ludic game, and are open to all types of ludic combinations, with any type of functions or data types.

To discuss the complexity of tasks and data-types, I will use the *Information Processing Model* along with the theory of Treisman's Attenuator to place the different sensory inputs in sensory memory and the tasks and problems in working memory, to visualize the possible connections between them. In this way, we can more clearly see what information is connected to what problem, and theorize about how much attentional resources are in use in different parts of players' cognition at given times. How many tasks are apparent in working memory will be a good pointer towards the focus requirements of the tasks, hinting at deep attention, while the amount of sensory stimuli will tell us something about the information connection to different

problems and stimulation, telling us something about hyper attention. These visualizations will be used to create the modules which will be placed on the cognitive continuum.

The figures of the continuum I will use, where the different activities and systems are placed, are not grounded in a specific "part" of the cognitive continuum, but rather serves to visualize how the different tasks and information types/streams might be placed in relation to each other. So if an element is placed towards the deep attention side of the continuum in my analyses, it would be in relation to the cognitive requirements of the other elements of the same figure and not any numerical value. As such, both the median and the end-points of the continuum can change with the implementation of additional data, and it could be described as a modular tool.

As might be obvious from this, is that this continuum does not give clear distinctions if anything requires deep or hyper attention or not init of itself, as it is always in relation to each other, and would require great amounts of data to become accurate. The more reference elements the better. I have done it this way as we still cannot reliably place such elements on the continuum without discussions about their relation to other elements and activities, and I will after my analyses attempt to place them in relation to both Hayles and Ensslin's other elements of mathematical, musical, and literary elements and *literary games*. This I believe is the most accurate way I can utilize the cognitive-continuum to visualize different tasks' cognitive requirements in relation to each other, and to create the most accurate discussion about them with the tools we have at the current time.

4. Analysis

As the systems I will analyse from *World of Warcraft* are very large and complex, there are definite aspects of them which I will not be able to describe in a formal exposition or analysis. I will not be able to describe the systems fully in this chapter, but where unexplained, important details or functionalities emerge in my analyses or discussions, I will attempt to entwine a quick description of the mechanic in question.

These analyses feature three slightly different approaches to the theory of deep- and hyper attention. Analysis one will focus on the relationship of information and tasks within quests. In

analysis two I will attempt to differentiate smaller tasks from a systems total complexity, to chart the systems cognitive requirements. And in analysis three I will look at how task-relevant information is conveyed to the player through different modalities, and how the players might interpret them.

I say, as described on the back cover of *Digital Culture, Play, And Identity: A World of Warcraft Reader,* that the analyses I offer are based on both the first hand experience of being a resident of Azeroth and the data I have gathered and interpreted for the purposes of this thesis (Corneliussen & Rettberg, 2011). This, in cohesion with earlier described theories, formulates my academic views.

4.1 System One: Quests

The focus for the analysis of this system is to look at the possible synergistic relationship between narrative exposition and game-relevant information within quests, and how this ties to the gameplay activities players have to do. From this, I will argue about which cognitive mode this relationship emphasizes.

4.1.1 System Synopsis

Questing is perhaps the most literary system in *World of Warcraft*, as even though it is not entirely focused around it, this is where the narrative exposition of different storylines primarily takes place. This is interwoven with relevant gameplay activities for players to do, to contextualize the unfolding narrative in the gameworld.

Data for this analysis is recorded in the gameplay sessions:

12022020_Questing_BlackEmpireCampaign_01, 13022020_Questing_StormsongValley_02, 25022020_Questing_ClassTrial_03, 25022020_Questing_WorldQuests_04, 26022020_Questing_WorldQuests_05, and *04032020_Questing_Zuldazar_06,* along with Gameplay Research Sheets 1 - 6 in Appendix E.

4.1.2 Quest Types and Gameplay

In the gameplay sessions recorded for this thesis, I have covered a wide variety of quest systems in *World of Warcraft,* ranging from the prior described normal quests, to daily quests, to world quests. These systems all have the same baseline functions, but with slight variations in some mechanics.

In her analysis of quests in *World of Warcraft*, Rettberg notes that *quests in games tend to be used to set the plot in motion*. (Rettberg, 2011, p. 170). While true, this might not be the only function of quests in World of Warcraft.

Rettberg observes that the typical quest is explained in two different ways. She calls the *narrative introduction* the 'in-character' version of the quest, where the player is a formal part of the narrative. The *quest objectives* on the other hand, one might imagine is narrated by the game interface or a narrator standing outside of the fiction, to the player which is also outside of the fiction. (Rettberg, 2011, p. 167).
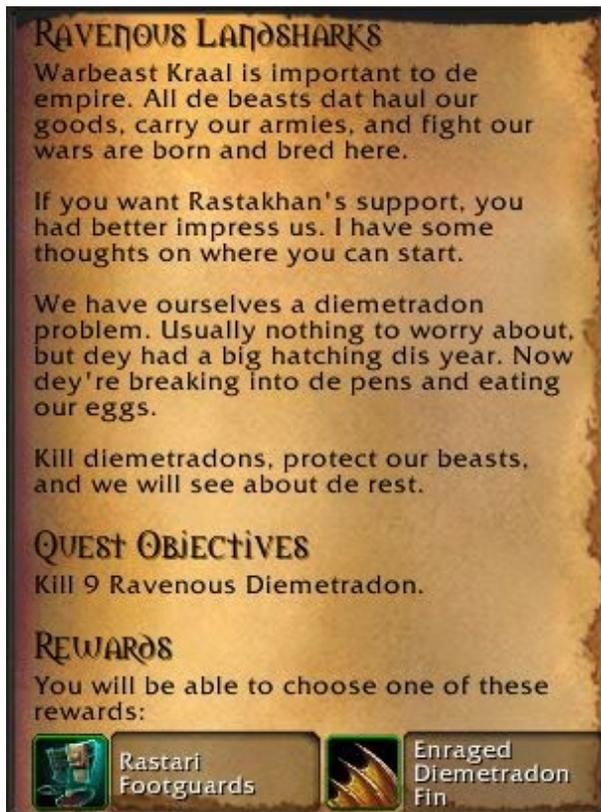
Figure 4.1 - Questlog in World of Warcraft featuring narrative exposition and objective description.

All quests have very specific criteria for completion, consisting of simple activities like '*find this*', '*kill that*', or '*collect these things*', with the interactable objects often highlighted with a yellow glow. There are no complex mysteries that players have to solve in quests, only to follow explicit directions explained in both the in-character narration and the quest objectives. Or in Rettbergs words, *there are no secrets in the quests in World of Warcraft.* (Rettberg, 2011, p. 177). The tasks acquired from quests are then rarely complex enough to be counted as deep attention in nature, based solely on their ease of completion.

After accepting a quest, the player moves into the gameworld to find and complete its objectives. When this is done, they return to the NPC to get their rewards, and the process begins anew with new quests. This simple repetitive gameplay is the baseline mechanic of the questing system. The gameplay within the gameworld is designed in such a way as to be quick to complete and without pockets of inaction. Objectives are placed close together, and there is a certain flow to the players traversal of the gameworld. Visual information like the glow of quest objectives and map markers for quest locations help the player keep up their momentum when doing quests, rendering the information provided in the narrative not essential to their ability to complete tasks. But beside this, narrative expositions have been entwined into the gameplay in spaces where there is place for them, for example when players enter areas, defeat an enemy, or pick up an artifact. These concise narrative interludes are directly connected to the players immediate gameplay, to inform them of the consequences or results of their last action, or what they might be expected to do next. These interludes are often multimodal, utilizing for example the UI and audio mechanics like lowering the game audio when voice narration is playing, to make it easier for players to notice among the whirlwind of activity and information already apparent in the gameplay.

If players want to take in the narrative more deeply, they must routinely take breaks in the gameplay to stop and read quest-text, listen to dialogue, or interact with additional, optional features of the gameworld. These possibilities usually feature only one modality at a time; text or audio, and are disconnected from the flow of gameplay which quests are set up to create, and might require the player to change into a different form of cognition based on their difference in type of activity and data. Krzywinska notes that; *the given long narrative* (of *World of Warcraft*) *is not intended to be easily grasped; instead, it is designed to be pieced together through the course of multiple activities and close readings of quests and other textual features* (Krzywinska, 2009, p. 390). Close reading, like what Hayles uses as a factor for her theory of deep- and hyper attention in the first place. Exceptions to this are where major storylines unfold, like the introductory questline '*The Battle for Lordaeron*' (Research Sheet 3) or the prophecy in the quest '*The Arrogance of Vol'Jamba*' (Research Sheet 6), where features which makes the narrative

almost "unavoidable" in some sense are put into place. Either as ludic mechanics or fast-developing narratives. In *'The Battle for Lordaeron',* the events of the quest are split into narrative 'acts', each with their own ludic criteria for development. When these criteria are met, the narrative developments are played out in the gameworld, through animations and voiced narration, and not through the traditional quest text of normal quests. In other words, quick modalities which more align to hyper attention through their immediacy, and need to play out before the player can continue.

'The Arrogance of Vol'Jamba' more directly uses game mechanics to stop the player from skipping narrative exposition. The objective of this quest is to destroy three masks that cite parts of a prophecy, which players do by walking up to them and clicking them. To counter this, the masks periodically breathe fire that stops the player character or blows the player backwards, forcing the players to wait for an opportunity to approach them. When this opportunity arrives, the voiced narration of the prophecy is already completed, meaning that the players can impossibly miss this narration.

In these cases, the game wants to highlight these explicit details so that the narrative is not wholly unexplored for players who choose to mostly ignore it, so that they can understand the general movements of the narrative and the context of their actions.

Contrarily, some quests negate the current narrative and the immersion of the gameworld by enabling quest mechanics which are of an obvious 'mini-game' fashion. Quests like "*Runelocked Chest*" and *"Make Loh Go"* (Research Sheet 5)*,* I would argue are cases which might further Rettberg's notion that objectives of quests are also described from outside the fiction, to placing the actual gameplay of the quest outside the fiction as well.

Image 4.2 - The quest "Runelocked Chest" (left) and the quest "Make Loh Go" (right).

The quests are played out through UI elements that are obviously not part of the gameworld, and the tasks within them are not part of any game narrative. They are isolated, ludic events for the sole purpose of being a ludic event. Stopping for a game similar to "*Bejeweled*" (PopCap Games, 2001), which the quest *"Runelocked Chest"* promptly mimics, has no place in *World of Warcraft's* fantastical fast-paced narrative, meaning that both the "narrative" for these quests are not part of a larger fiction, and the gameplay is not contextualized in a fictional storyline. These two examples of different quest types highlight that quests in *World of Warcraft* differ in their cohesion to narrative or ludic elements, signifying that the quest systems of *World of Warcraft* can wake a wide variety of activities and cognitive requirements. This might result in different experiences of the questing system as a whole, in as much as they are not purely ludic or narrative, and allow for different ways of experiencing them.

4.1.3 Information and Tasks

The primary information provided about quests, is the quest description. This is the information stored in the characters quest-log, and contains the narrative exposition of the quest, along with its criteria for completion and rewards. These quest criteria are tracked on the right side of the players screen when the quests are accepted, which are the ludic requirements players have to meet. To contextualize these criteria, the narrative provides quick descriptions of why, how, and where players complete different quests. Primarily conveyed by quest text, these narrative parts are limited in their literary complexity by the size of quest windows and the necessity to accurately describe the following gameplay criteria of the quest. Other modalities like images, video, and voice lines are also additionally used in some quest expositions.

Additionally, many UI-elements guide the player on their journey of completing quests. Marked areas on the world map signify where the objectives of different quests can be completed, and arrows on the minimap in the top right of the screen tells the player which way to go. If large amounts of travel are required for a quest, say travel to a different continent, the games make an attempt to find the fastest route for the player to take. The element of travel and location finding is then trivialized through the game information provided and game mechanics of travel, as players are handheld to the precise location of their quest criteria. In similar fashion, the objectives themselves are also trivialized by clearly marking them with a yellow glow, often with a written explanation, signifying that they are the objective of one or more quests players are currently on. The player then does not need to look for specific items or characters, only this representational glow of quest objectives.

There are always some semiotic elements in the game which players can quickly give their attention to guide them in the right direction, be it the UI elements of the world map or the graphical highlights of quest objectives. With this, the most relevant information for players to take in, in order to be able to complete a quest, is the visual information which becomes apparent *after* accepting a quest. Through the UI elements on the World Map and the criteria 'checklist' appearing on the right side of the screen, players are able to complete quests without ever looking at the quest description in their quest log. The narrative then, is an optional amount of information. As quest descriptions are explained by such simple means, players are able to

complete several of them at a time. The game emphasizes this by locating several quests in the same area, so that the player has a variety of activities to do within approximate space of the gameworld (Research Sheet 2 & 6). In the variation of quest objectives and amount of different quests, players change their attention between different tasks all the time. Even in larger narrative events, the activity is divided into many smaller parts, as in for example the Black Empire Campaign.

The questline of the Black Empire Campaign (Research Sheet 1), is a max level quest line which does not yield any significant immediate rewards, but introduces the players to the new narrative developments of the latest content update and demonstrates its new systems. The narratives location, the zone of *Uldum*, is where the new daily quests and invasion systems takes place, and even though the tasks of this questline does not directly feature the same content as these new systems, it indirectly introduces the players to the activities they will do in the future through isolated scenarios. In such cases, Juuls note on how narrative can function as dressing of game mechanics (Juul, 2005 p. 6) becomes clearly apparent. One can argue whether the narrative is designed to fit the game mechanics or visa-versa, but they are undoubtedly designed to function together in a supportive manner. The small narrative events which build up such larger storylines, correlate to following gameplay activities.

Another perspective into *World of Warcrafts* narrative structure in cohesion with its gameplay can be found in Krzywinska's article; "*World Creation and Lore: World of Warcraft as Rich Text*" (Krzywinska, 2011, p. 143-166). In this article, she demonstrates; "*how the game's textual structures and elements drive the logic that underpins World of Warcraft's milieu and provides the context for and of gameplay*" (Krzywinska, 2011, p. 144)*, which might be understood as meaning the same thing that Juul noted, but from a narratological perspective. Regardless, the narrative information in quests provide the deeper contextualization of quest activities, but is not the most helpful tool in the players arsenal for completing them.

4.1.4 Analysis one summary

Questing is perhaps the most literary system in *World of Warcraft*, inasmuch as it has literary features, as even though it is not entirely focused around it, this is where the narrative exposition of different storylines primarily takes place. It features a variety of textual elements, and other multimodal features, to tell a story to the player about the activities they are doing. Nevertheless, I will conclude that quests are primarily ludic in nature based on the observations in this analysis.

From analyzing this close playing, there are primarily two information streams active in working memory at the same time; one regarding the gameplay mechanics and the players active input to the play session, and one regarding the narrative developments of the exposition and results of the quests. Simply put, the gameplay & quest objectives, and the narration and contextualization of said quest objectives. In the figure below, I have visualized how the information streams of quests are apparent in working memory when the players' focus is on the gameplay. In these cases, the narrative elements of quests that are apparent next to the ludic gameplay, are tuned out of cognition by Treisman's attenuator. I would argue that the narrative is still apparent to players to some degree through the ludic gameplay of quest events, by having criteria of quests correlate with the unfolding narrative, allowing players to tune in to the narrative at any given moment.
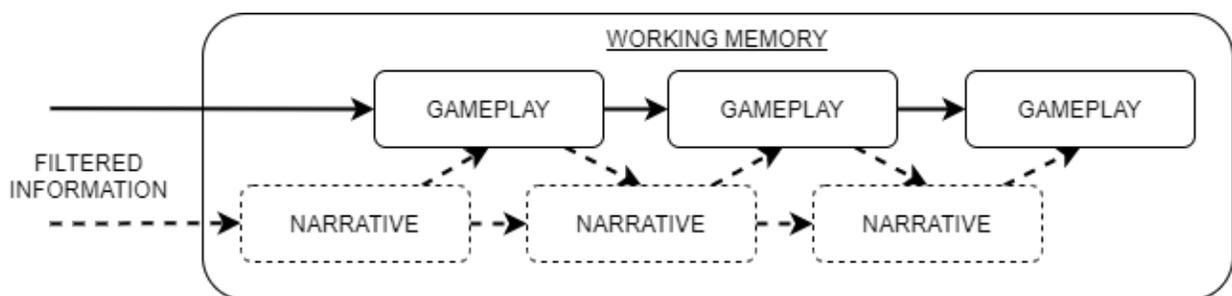
Figure 4.4 - Narrative and Gameplay in working memory, with focus on gameplay.

On the other hand, there are players who seek to focus on the narrative when doing quests, which can be visualized in working memory as the figure below. In these cases, the breaks between each quest is more relevant to players, as this is where the narrative primarily unfolds, resulting

in a more fragmented gameplay session. There are more obvious jumps between narrative and gameplay, instead of a streamlined gameplay session as experienced in the figure above.
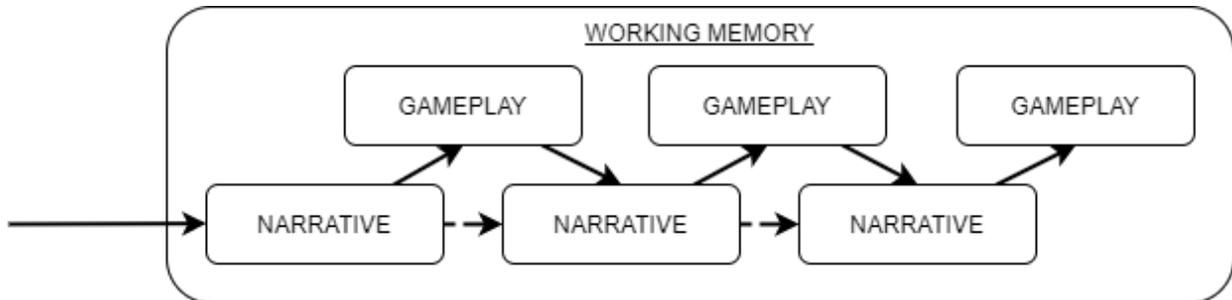
Figure 4.5 - Narrative and Gameplay in working memory, with focus on narrative.

When players decide to take in the narrative as well as the gameplay, as displayed in figure 4.5, there are several ways in which they can go forth with this. The immediate narrative of the game is quickly told to the player to highlight the ludic mechanics and objectives, through quest text and such, but other elements of the game are purely for narrative exposition of the deeper storyline. These provide more details and background information, but are placed out of the way of the gameplay and are primarily optional to investigate. Examples of such elements are item descriptions, interactable objects that provide textboxes, and optional verbal language events whose sole purpose is for narrative exposition.

Next to the specific ludic criteria which quests also provide, like combat or movement within the gameworld, this narrative side of questing provides the option for players to dive into the narrative at several different levels of complexity. They can choose from either to listen to voiced narration, which does not conflict too much with their current flow of gameplay, to seek out and read optional pieces of narrative to further their understanding of the storyline.

This, in addition to the pause of the fast-paced gameplay, reduces the stimulation of the gameplay and demands more focus on single tasks. The information they receive can not be translated to immediate action.

These two ways of interpreting quests, can then feature a variety of different cognitive tasks. In the figure below, I have placed some different elements of quests in Ensslin's cognitive continuum, based on features like focus-requirements, complexity and data-processing dependency, following Ensslin's description and Hayles characteristics of the cognitive modes.
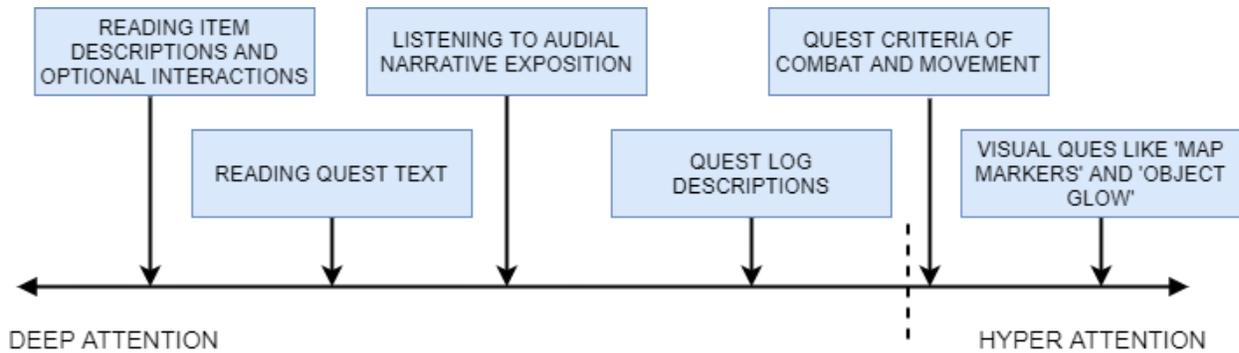
Figure 4.6 - Cognitive Continuum of elements in Questing in World of Warcraft

The elements that land on the hyper attention end of the continuum, are the required tasks and criteria to complete quests. The only thing players **have** to do is to look at their map where the criteria of the quest are located, and complete the ludic gameplay requirements which are easily noticeable. The elements of combat or collection in quests rarely have high requirements of skill. The sporadic nature of these activities, scanning the world for objectives and executing many small tasks, seems to have little cognitive requirements. From the speed of which this can be done, their rapid development, and the stimulation this provides, they are placed on the hyper attention side. The dotted line represents the border of information that is required to be interpreted in order to complete quests.

On the other hand, the elements placed on the deep attention end of the continuum, are literary interactions that purposely are placed out of the way of the ludic gameplay to provide optional narrative exposition. These are always available to the player, but are rarely parts of quest's required criteria. As Krzywinska mentions in *Arachne Challenges Minerva: The Spinning out of Long Narrative in World of Warcraft and Buffy the Vampire Slayer*; "*Even with its provision of a complex and expansive story line, players of World of Warcraft may choose not to engage with it any closer than is absolutely necessary*" (Krzywinska, 2009, p. 388). What could be regarded as

absolutely necessary in terms of narrative engagement changes from quest to quest, but seems to be predominantly almost non-existent. But regardless if the player seeks to take in the narrative or not, they are required to complete every ludic quest criteria. With this distinction, we can assume that quests might be primarily designed to accommodate entertaining gameplay, and not the narrative. The narrative then, becomes an optional stream of information that provides varying possibilities of complexity.

Quests are required to satisfy both types of players; those who are interested in narrative and those interested in gameplay, at the same time. I mentioned prior that researchers like Yee found that there is great variation in why players play MMORPGs (Yee, 2002), and there have been attempts to chart player behavior within these games. The article *Hearts, Clubs, Diamonds, Spades: Players who suit MUDs* by Richard Bartle, is an attempt to chart how players interpret their experience of games and separates players into four main categories; Killers, Achievers, Socialisers, and Explorers (Bartle, 1996), each with their own obvious interest factor. It might be interesting then, to look at how games are created to accommodate all these types of players, and how this might have a cognitive effect on how the game presents information. In *World of Warcraft* at least, this results in two information streams which are required to be simple, so the player can choose to take in both at the same time if they choose, or focus on one of them, depending on their interest in the game. A noticeable enactment of this, is Rettbergs prior note of how quests are explained both for the player as a narrative actor, and as just a player of video games (Rettberg, 2011, p. 167). Additionally, the two elements, ludic or narrative, are also required to have enough depth and complexity if players want to dive deeper into one of them, inasmuch as to provide challenges or information that takes longer to solve or interpret, tuning out the other information stream in the process. The ludic elements do this by varying the quest objectives, and players can seek to complete the criteria in the fastest way by utilizing their characters full potential. This has the least possibility for deep attention of the two, based on the appearance of Hayles' criteria for deep and hyper attention. And the literary elements allow for different levels of complexity based on the player's curiosity, by providing optional sources for narrative exploration. From this analysis, I will discuss further that the questing systems of *World*

of Warcraft point towards being primarily hyper attentive in nature, but provides options for deep attention activities if the player so chooses.

Different players do quests both for the narrative and the gameplay, and as such, Rettbergs note that quests are used to set the plot in motion, might be developed to something like; *quests are used to contextualize the gameplay within an underlying, optional, narrative*. At least, in current *World of Warcraft*.

4.2 System Two: Island Expeditions

This analysis will focus on a rather sporadic system, with no distinct way of how to go about completing it. I will then focus on attempting to differentiate the different activities players do within this system, to look at their individual complexity as well as the complexity of the system in its entirety.

4.2.1 System Synopsis

The newest out of the systems analyzed for this thesis, Island Expeditions feature a sporadic instanced gameworld with a lot of different player activities. The system itself has a relatively simple game architecture, with a lot of different types of criteria for completion.

Data for this analysis is recorded in the gameplay sessions: *11022020_IslandExpeditions_01, 11022020_IslandExpeditions_02, 26022020_IslandExpeditions_03,* and *04032020_IslandExpeditions_04,* along with Gameplay Research Sheets 7 - 10 in Appendix E.

4.2.2 Expedition Agency and Gameplay

Island Expeditions are pseudo-random systems which feature a variety of ways to complete a main objective; to gather a set amount of *azerite* (the resource required to win) on an unexplored island. The amount of resources needed to win varies with difficulty settings, and yields increasing amounts of rewards for the player. A weekly goal for Island Expeditions is to collect a total of 36.000 units of the resource, to complete a quest called *"Azerite for the Horde"* (or *Alliance* depending on faction), which yields a large amount of resources needed for another

gameplay system called *The Heart of Azeroth.* I will not describe this system here, but simply put; the more of the resource *azerite* a player acquires from Island Expeditions the better.

To address the pseudo-random factor of Island Expeditions, there are some parameters which Island Expeditions depend on. Every week, there is a set of three pre-selected Islands that groups of three players can visit, from a total pool of 11. These islands have a random set of enemies, items, and events, which are randomly placed about the Island for each new Expedition. The amount of resources these objectives yield are the same in every Expedition, meaning that there are possibilities for taking choices and making strategies before entering. The required amount of resources in order to win is also unchanging, depending only on difficulty.

When the players arrive at an Island, there is a comical narrator, which in narrative context is the captain of the ship the players arrive in, telling the players about what they might face, new developments of the island, and of their progress within the system as they collect resources. This is a mechanic which makes it easier for players to comprehend all the changes of an Island, as it develops quite rapidly (Research Sheet 7), and to understand what they are currently dealing with. Features that they might be expected to interact with are:

An enemy team to compete with, interactable objects that increase or decrease their power, weapons to be picked up, quests to complete, NPCs to meet, chest to unlock, treasures to uncover, portals to investigate, ore to mine, optional objectives to achieve, and enemies to defeat. Additionally, all islands feature at least one *invasion,* which introduces new enemies and features about midway through an Expedition. All of which have a variety of difficulty, and yield different amounts of resources.

For this analysis, I completed the weekly Island Expeditions goal with four different characters. These have a varying quality of equipment, ranging from pretty decent to pretty terrible, which plays a part in what types of challenges the characters might be capable of taking on. Characters with bad equipment are often worse at tackling combat, while characters with good equipment might prefer this task. Through this, I noticed that difficulty levels and equipment quality severely changed the task prioritization of players in different Island Expeditions. On lower

difficulties, where it is normally expected that players do not have good equipment, there was a much higher emphasis on completing the challenges as a team (Research Sheet 9 & 10). As none of the players were able to tackle the harder enemies of the island successfully alone, they were 'forced' to either team together, or focus on tasks that did not have hard combat as a challenge. For example, players can complete quests in island expeditions. These are further compressed versions of regular quests, which are already exceedingly compressed as noted in the previous analysis, that sets simple premises like "*Get me out of this cage*!". In one of my expeditions (Research Sheet 9), I came across just such a quest, called; "*Arwan needs help*!". This quest had the exposition, execution, and reward all at the same place, and took me less than 10 seconds to complete. The objective of the quest appeared on the right side of the screen when I entered the area, the same place as in normal quests, and the item I needed to find, which in this case was a key, was highlighted with the standard yellow glow. Located about two steps from the cage it belonged to. Additionally, there was a spotlight directed at the key, making it even easier to notice. I collected the key and freed Arwan, and was promptly rewarded with some azerite resource. With this, even the elements of manually accepting and completing quests went automatically, to keep the momentum from slowing down. For this is the case with most tasks in Island Expeditions; they tend to take a very short time. The completion of tasks go rapidly, resulting in a type of gameplay that seems almost jittery. The island is littered with interactable objects and enemies, everywhere you look there is something you can do something with, which all give some form of progression within the system. As such, *how you make progress* in island expedition tasks mostly remain the same within every island, but the elements of *what tasks are available* and *where they are located* have a great deal of variation.

4.2.3 Information and Tasks

The multimodal way in which information is presented about tasks within the island expedition system, emphasizes the fact that players should not have to stop and think too much about the problems they face. New developments are conveyed to the player visually through changes in the gameworld, auditory through voiced narration, and textually through "subtitled" narration. Additionally, their progress is recorded in numerical data apparent in many features of the

system, for example the tracker on the top of the screen and the values appearing when completing an activity. The most important information players require for Island Expeditions, is *what* is on the island, which is conveyed through different means.

They have most of the information they need available to them at all times, through the narration and the world map. The only feature which I would argue limits the players ability to tap into all the available information, is the way the world map functions at the beginning of every expedition. In this system, there is introduced a fog-of-war mechanic, where most features of the island are hidden on the world map until one player reveals them by being in close proximity. Each player has a certain diameter around their avatar that reveals features on the world map, which are shared with all players on the team. To help players on their way, the map features red X'es marking locations of interest before anything has been discovered.

Different features of the Island Expedition are signified by different icons, which players can use to read the gameworld through the perspective of ludic mechanics. Specific tasks can as such be targeted by the players. Enemies have their symbol, mining nodes have another, and so forth.

Figure 4.7 - Island Expedition World Map (Note the yellow exclamation-symbol for a quest in the bottom left and the location of the enemy team in the middle).

What tasks they might seek to accomplish, might vary as discussed in the previous chapter, but from this World Map the players have a good idea about what the island contains and where things are located. In comparison to quests, the amount of objects the players can interact with are similar to having many quest objectives in a compressed area, where all elements work towards one quest or another. What the players want to do is optional, but they can go about things knowing that they will almost always be productive in one way or another. Furthermore, the amount of resources each task provides, are in many cases, when logically possible, correlated to their aesthetics, which I regard as visual information. For example, enemies that yield large quantities of resources are often physically larger and with a gold-blue hue over them, making them easier to notice in the populated gameworld. This is an example of how Broadbent's theories on how sensory stimuli are first processed by simple physical properties are used to translate game mechanics into visual information. As these enemies are easy to notice, they are also usually harder to defeat than normal enemies. Players with good equipment, who seemed to prefer this type of challenge, utilized this visual information to navigate the gameworld and seek out these challenges (Research Sheet 7 & 8). Players with worse equipment, who would rather find smaller tasks, use this information to avoid these enemies (Research Sheet 9 & 10). Smaller tasks, like quests or mining, might be harder to notice because of their reduced size and smaller emphasis. If players want to find these, they might have to slow down to scan the gameworld, finding the smaller semiotic elements that make them apparent. But regardless of this, the islands are littered with these smaller tasks, resulting in the island being densely covered with semiotic elements of various activities.

From the variation of tasks provided during Island Expeditions, I have organized them into three major categories based on their activity type; combat, collection, and discovery. Below I have listed which activities I include in each category. This is not exhaustive to all the content of Island Expeditions, but features the most prominent and recurring activities.

Combat: Enemies, Enemy Team, Rare Enemies, and Invasions.

Collection: Mining, Azerite Extractor, Chests, and Azerite Ruptures.

Discovery: World Map, Quests, Chests, Items, and Weapons.

This is an attempt to assemble the activities of Island Expeditions into broader gameplay-type categories. These can be loosely compared to the prior mentioned classifications of different player types by Richard Bartle; namely Achievers, Explorers, Socializers, and Killers (Mäyrä, 2008, p. 126), where Explorers and Killers are the most prominent within this system. From this categorization of tasks, we can more simply understand what types of information belong to which, and what challenges they provide for players. Collection and discovery seems to be the simpler of the categories, containing quests like "*Arwan needs help!*" and the collection of chests which does not require the player to make any hard choices or solve complex problems. Combat on the other hand, has a variety of complexity based on the enemies players face. Fighting the enemy team on an island, which are NPC's meant to mimic other players as best as they can, requires the player to react more to their abilities and movement than regular enemies. Killing large groups of enemies is harder than killing a few at a time, and might require strategies or uses of different mechanics which helps keep the players alive. And the final example, killing rares are harder than regular enemies as they have more health and deal more damage. As such, combat cannot be easily defined as either deep or hyper attentive in nature within Island Expeditions, as it varies depending on the challenges the different enemies provide for the players. But no matter what activity players choose to do, the game provides enough information for them to make quick assessments about their challenge, risk, and yields.

4.2.2 Analysis two summary

There are too many features in Island Expeditions to make a proper account for all of them in this analysis, so I have chosen to highlight some of the most apparent. I have done this through my categories of combat, collection, and discovery, and by detailing some activities within these categories. Islands contain many subsystems from other instances of the game, like quests, combat, and mining, but makes them all work around a single objective; collecting the resource *azerite* used to win the system. As I am unable to account for all the features of the system within the confines of this thesis, we can assume that the players of *World of Warcraft* also must adhere to them the same way, by having them react to new events as they appear.

In comparison to the visualization of working memory in analysis one, I here needed to break down the factor of "gameplay" into smaller pieces, as this system features gameplay in a slightly different structure. Whereas in quests there are several different goals with varying objectives, Island Expeditions only feature one goal with a wider variety of means for completion of said goal. It is also different in that it provided enough information to complete all the tasks available on the island, whereas only a few would be completed during one session of the system. Nothing concise was in apparent focus through game rules, so players could actively choose what they want to focus on, at any given time. There was, so to speak, no real structure to the gameplay, but rather a free-for-all mashup of a variety of activities located in a small area.
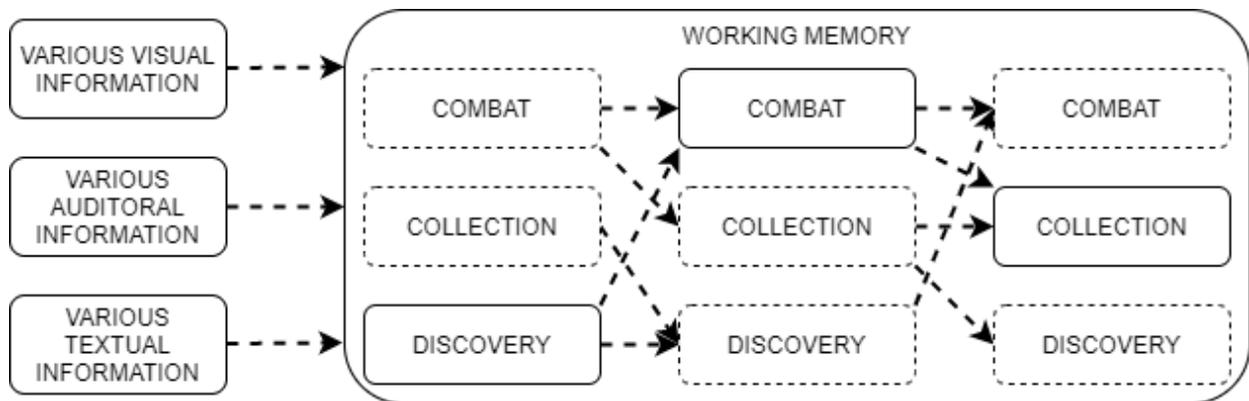
Figure 4.8 - Categorized information-streams of combat, collection, and discovery within working memory. Note that sensory stimulation in this figure does not lead to specific tasks, but into working memory in general. All this stimulation might be used for any task.

Most types of information, visual, auditoral, and textual, leads to all three categories. For instance, when an island is invaded by new enemies, this is displayed through visual changes in the gameworld, auditory through voiced narration and other sound effects, and textually through "subtitled" narration. This invasion brings with it new tasks that fill out all of the categories. There are new enemies to face in combat, new chests appear to be collected, and new objectives to discover on the world map.

No matter if players had either combat, collection, or discovery in focus; most tasks intermingled with other types of tasks by their proximity and correlation. Killing enemies leads to the accessibility of chests for example, or collecting weapons leads to easier combat. Thus, I have

visualized that all of these categories are within working memory at the same time, which varies in their requirements and attribution of attentional resources. Still, I would argue that Island Expeditions rely more heavily on sensory memory than working memory. As players take in all the information about the Island and make rapid decisions about what to do, I think these operations of processing the actual content of the island requires more attentional resources than actually completing most of its tasks.
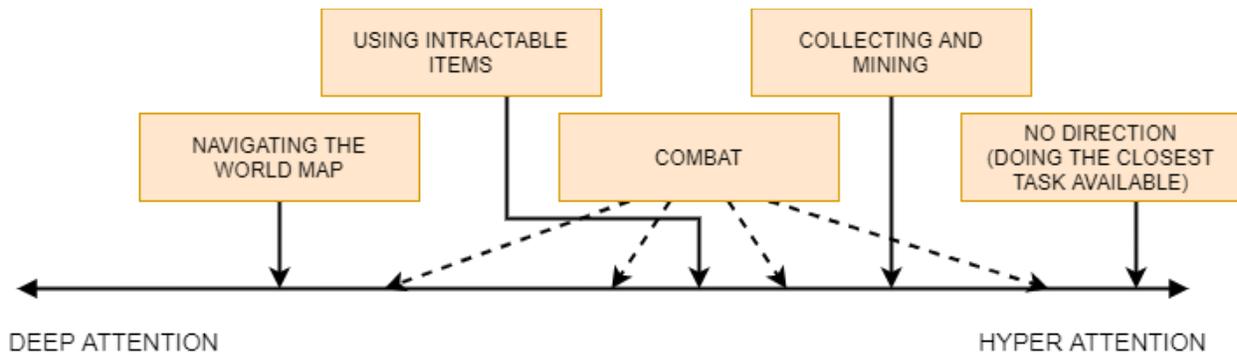
Figure 4.9 - Cognitive Continuum of elements in Island Expeditions in World of Warcraft

There is a lot of information apparent in both working memory and sensory memory in Island Expeditions, and a lot of tasks being completed. In the continuum above, I have noted down some of the activities of Island Expeditions based on the amount of decisions needed to do them successfully. Island Expeditions open up for a type of gameplay where direction is not needed, and I have thereby placed the element of "No Direction" on the far end of the hyper attention side. This "activity" features no decisions for players to make about what to do, as they simply follow the visual crumb-trail which the game creates by highlighting relevant objects and activities. Of course, this would perhaps feature elements which I would otherwise categorize as more deep attentive, like combat, but my placement of this regards the general cognitive mindset players are enabled to have within this system. If they fail harder challenges they come across by randomly roaming the Island, they suffer no consequences for their failure, and are free to continue as they please.

Combat, as prior explained, features a variety of challenges, and as a result cannot be properly nailed down on the cognitive-continuum without neglecting some of its elements. I mentioned that in some cases I would regard it as drifting towards deep attention, but this is not apparent in

all cases. It is thereby visualized as spanning a range of the continuum, depending on the current challenge. The other activities placed towards the deep attention end of the scale, regards information which is not immediately apparent to the players, and require that they give their attention to them for a longer amount of time. Interactable items need to be understood before they can be used correctly, and the World Map is an ever-changing font of information that players should keep track of.

Through the sporadic activities of players, the amount of immediate relevant information, and the general low cognitive threshold of completing tasks within Island Expeditions, I find it very safe to say that Island Expeditions are hyper attention environments. Through the fast-faced and fragmented gameplay, it fits Hayles' description of being both stimulating and by switching focus rapidly among different tasks (Hayles, 2007, p. 187). While it does feature some challenges and tasks that might align with deep attention in some cases, in comparison to the deep attention elements that Hayles and Ensslins emphasizes in their theories, or indeed the results of my analysis on Quests, it is not really comparable.

4.3 System Three: Dungeons & Raids

The systems for this analysis are what I hypothesise as being the most aligned to the criteria of deep attention out of all of *World of Warcraft's systems.* The focus will be on how different modalities provide information for the players about the problems they have to solve, and on how the problems rely on the players cognition in order to be solved.

4.3.1 System synopsis

The instanced gameworlds of dungeons and raids face a team of players against different challenging enemies, and provide some of the best rewards the game has to offer. My recordings are of the easiest difficulty of these instances, which does not feature all the possible mechanics. Data for this analysis is recorded in the gameplay sessions:

11022020_Dungeons&Raids_NyAlotha_01,
120202020_Dungeons&Raids_TempleofSethraliss_02,
04032020_Dungeons&Raids_NyAlotha_03, 10032020_Dungeons&Raids_NyAlotha_04,

10032020_Dungeons&Raids_Freehold_05, and *16032020_Dungeons&Raids_NyAlotha_06*, along with Gameplay Research Sheets 11 - 16 in Appendix E.

4.3.2 Instance Types and Gameplay

This analysis indeed features two systems; Dungeons and Raids, which share many similarities. Dungeons are instanced gameworlds filled with harder enemies than found in the open gameworld that yield good equipment, and are designed for teams of five players. Raids on the other hand, are the most challenging instanced gameworlds players can face, and are designed for teams of ten to thirty players. The raid instance will increase or decrease in difficulty based on the amount of players. They both feature 4 four difficulty settings, and share the difficulties of *Normal, Heroic,* and *Mythic.* Raids have a difficulty below *Normal,* which is called *Looking for Raid.* This automatically creates groups of players to defeat a part of the raid, and all of the gameplay sessions for this thesis was recorded at this difficulty. Dungeons feature the additional difficulty of *Mythic+,* which is a time-trial type version of the system that gets progressively harder. For the purposes of this thesis, Dungeons were recorded at *Normal* difficulty. For both these systems, Dungeons & Raids, the character used had appropriate level and gear quality for the challenge these difficulties created. The dungeons I completed are called *Freehold* and *The Temple of Sethraliss,* and the raid is called *Ny'Alotha: The Waking City.*

The main goal of both dungeons & raids, simply put, is to defeat boss-enemies which yields good equipment for the player. The harder the difficulty, the better the equipment quality. These boss-enemies have a specific set of abilities they use in a specific order, that needs to be countered by player actions. Moving from certain areas, using abilities at the right time, keeping track of different numerical values, having responsibility for different tasks, killing specific enemies at specific times, or communicating locations, are examples of tasks players have to do, all the while playing to the limit of their ability for their role within the group composition, be it either doing or negating damage. There are three different roles players can take within dungeons and raids, each with different responsibilities; tanks control the enemies and take the brunt of outgoing damage, DPS deal damage to kill said enemies, and healers negate enemy damage done to their teammates.

The bosses of dungeons and raids vary in their designed difficulty, with the first bosses of a raid or dungeon being relatively simple, with the following bosses progressively getting harder. This can be either through harder mechanics (which is the abilities of a specific boss that players have to deal with), increased amounts of mechanics, or other requirements of the players like high damage output or high damage negation, often relating to either player skill or equipment quality. And in the same fashion as with raid/dungeon difficulty, the later bosses of dungeons and raids often yield the best equipment. The raid for this thesis features twelve bosses, while each of the dungeons features four bosses.

While the main attention, both in the game and this thesis, is on the bosses of dungeons and raids, they do feature other, lower difficulty, enemies that populate these areas. These might have some mechanics that need to be dealt with in a similar fashion to bosses, but are generally not a challenge in comparison. Additionally, these do not drop any guaranteed equipment to players. The main role for these then, is as mentioned to populate the instanced gameworlds of the dungeons and raids, and to help build towards the progression of them.

The main gameplay of dungeons and raids is to learn the abilities of bosses, figure out strategies on how to defeat them, and to practice them enough to overcome the challenges.

4.3.3 Information and Tasks

Most boss abilities, usually called mechanics, are governed by certain parameters. These can be either a certain order; one ability follows another, different triggers; like percentage of boss health or other mechanics, or timers; an ability for example happens every two minutes. In this way, the challenge the bosses create does not change with every attempt made by players to defeat them, but the emphasis is rather on players learning how to deal with the mechanics of each boss and memorizing their dynamics. But regardless of what parameters the mechanics are governed by, information about them is always conveyed to the players through different means. This can be either *when* the ability is cast, *where* the ability will affect, *who* it might affect, and *what* it will do. In most cases, mechanics are expressed in four different ways; auditory through voicelines, visually through VFX and animation, and textually through text warnings.

For example, the ability *'Incineration'* cast by the first boss of the raid *Ny'Alotha,* always features the voiceline; *"All will be incinerated!"*, animations and VFX both on the boss and the afflicted players, and the text notification *"Flames gather around you for [Incineration]!"* (Research Sheet 11). The visual effect of this ability creates a circle around the affected players, and they must move so that no other players are within this circle within a specific time limit. If they do not do this, all players within the circle will take significant damage.

These four different warnings all notify the players of the same thing, but provides an option for how players want to take the information on. They might for example prefer to pay attention to the auditory warnings for some abilities, and visual cues for others. I would argue that a possible reason for this is that there is already a lot going on during these types of boss fights, and if the abilities were conveyed through only one modality for example, it would be too easy for players to miss the warning and suffer the consequences without being able to even attempt to counter it. There is rarely only one thing going on in a boss fight, and by saying this I am not even counting the individual tasks players have to do with their character in combat situations, by using their abilities in the right order and the like.

To give an example, I will briefly discuss the required mechanics to defeat *Drest'agath*, the seventh boss of the *Ny'Alotha* raid (Research Sheet 14). This boss is centered around what abilities he casts, and which additional enemies are active in the fight at that time. Players cannot do damage to the boss itself without an active effect, which they gain for thirty seconds after killing a smaller enemy during the bossfight. This effect is called *'Void Infused Ichor'*. The idea is then to focus on killing the smaller enemies, to then burst down the boss in small windows of opportunity between them. The boss itself casts three main abilities. *'Void Glare'* is a large frontal laser. *'Entropic Crash'* is a large area-of-effect (AoE) slam. And *'Mutterings of Insanity'*, which slows players before doing a large amount of damage to the closest ally of each player and stuns them. During the fight, the boss summons three different enemies that players need to kill, the ones required for *'Void Infused Ichor'*, which individually mimics specific abilities of the boss. The enemy; *'Eye of Drest'agath'* for example, mimics *'Void Glare'*, resulting in it

potentially doing way more damage. The players must then control the amount of each different enemy, to not be too high.

Lastly, when players kill a certain amount of these enemies, the boss does a destructive AoE to the entire group, meaning that the players must also be careful of how many enemies they kill. As you might have noticed, this 'brief' exposition isn't exactly brief, and there is a complex balance which needs to be maintained during this specific bossfight. To begin with, this might seem like a lot to keep track of. But as players attempt the fight several times, noting their failures and points where they can improve, their skill and ability to defeat it increases. In similar fashion, a complex mathematical theorem or literary function would be similarly incomprehensible to the unlearned. This fight emphasizes the fact that boss fights consist of many different mechanics, which all work together to put forth a challenge to the players. As boss fights are significantly different, the cognitive mode in use by players might vary for each specific boss, depending on what type of tasks, and the amount of tasks that are required. The information streams are indeed different for each individual boss mechanic, varying in the content of the modalities, but are in no doubt connected to the same problem; the required strategy of defeating the boss in question. Players must comprehend these mechanics and know what active responses each of them requires

Where dungeons can mostly be completed over and over to gain the desired rewards, raids have what is called a weekly lockout. Each boss of a raid on each difficulty only has a chance to yield equipment to each player once per week, and if the player is unlucky enough to not get anything from a boss, they must wait until the next week to try again. In this way, the raids of *World of Warcraft* often take several months to progress through, as the players slowly amass more power through the lucky rewards they gain from the bosses they manage to defeat. And even when they are able to defeat the final boss of a raid, they might still want to return to acquire the rewards that they have not yet been lucky enough to obtain. As such, raids do not give any guaranteed immediate rewards to the players.

4.3.4 Analysis summary

Dungeons and raids provide complex problems for players to solve, and yields some of the greatest rewards the game has to offer as an incentive to complete them. In the process of figuring these problems out, players might end up asking; What went wrong? How can we improve? What changes must we make?, in order to comprehend the complex problem put before them and their required improvements as players. If the players commit to the long-term solving of these problems, they will eventually harvest some rewards for their efforts.

Raid tiers usually last for months, with a slow reward-structure for each individual player. Raids give no instant gratification, but greater rewards for long-term commitment.

The bosses of raids feature mechanics that require specific actions from players, and notifies them about when, what, and where they will go whenever they are cast. This information is presented in many ways so as to be able to be noticed among all the other different information and tasks which players have to do. They cohere to a single task or event, which is a part of a larger strategic requirement. In the figure below, I have visualized both the sensory memory and working memory of players within dungeons and raids.
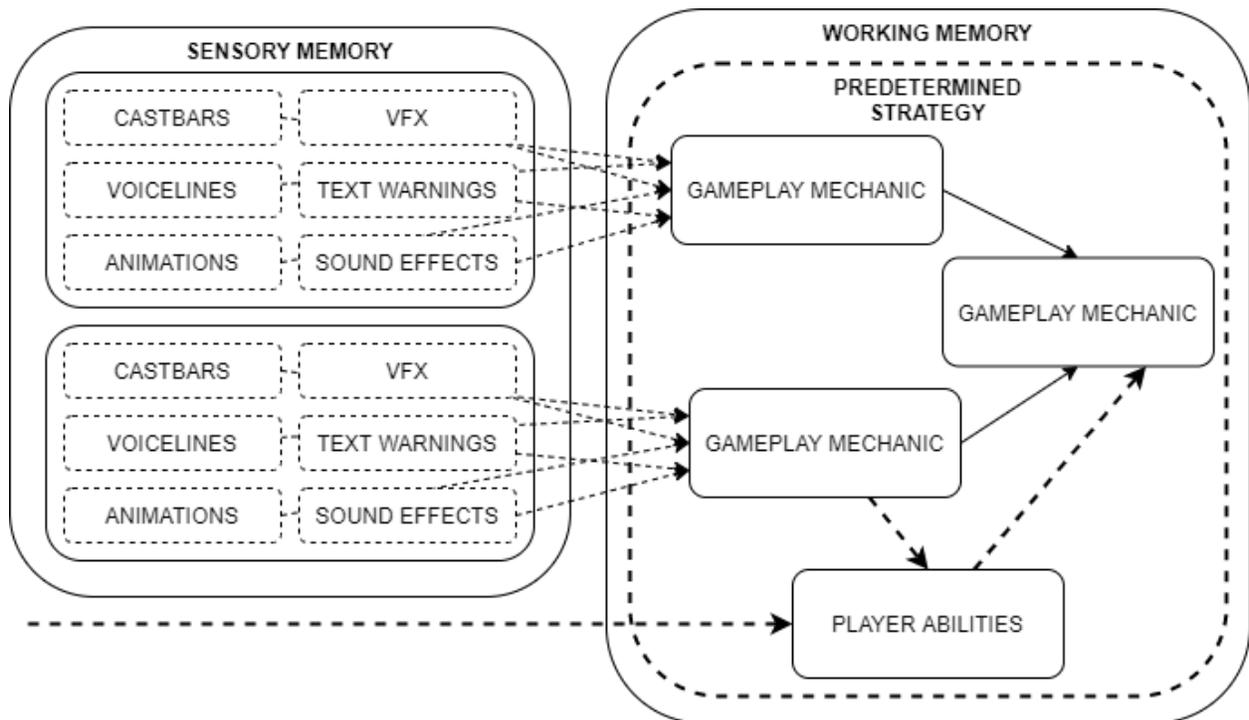
In sensory memory, the players take in all the different warnings of mechanics and events occuring during a boss fight, and use these to formulate decisions about different gameplay mechanics within working memory. These mechanics might or might not be connected to each other in terms of effects, but are all parts of how the players must cope with the bossfight in its entirety. Underlying all this, is the tasks players have to do with their character regardless of the current boss mechanic, which is their usual rotation of abilities and playstyle.

As both of these elements are important during dungeons and raids, data information of different types and tasks to do and solve, I have therefore included them both in my look at the cognitive continuum for this system featured below.
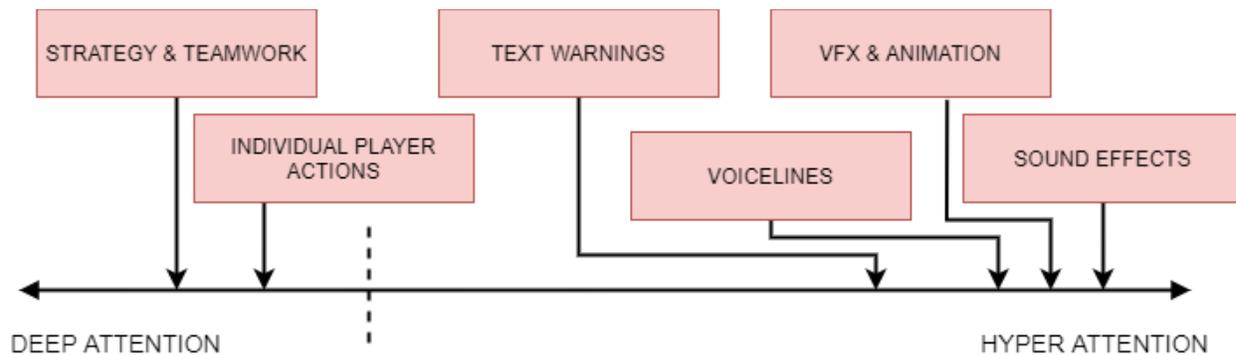
Figure 4.11 - Cognitive Continuum of elements in Dungeons & Raids in World of Warcraft.

In this continuum I have placed a variation of both information-streams and tasks. The information streams are placed in relation to the type of data they present to the player, and how much processing it requires for meaning, whilst the tasks are placed depending on how much focus they require of the player. Of the information types, *sound effects* are placed on the far right as they are short and immediate signifiers, followed by *VFX* and *animation* which is similarly quick in its conveying of information, only visually. Additionally, this is what Clark notes is the first information we process in sensory memory. Voicelines and text warnings are placed further towards deep attention because they require more processing to be understood, but

even though they might be literary in their aesthetics, voicelines definitely so, they are still short and immediate. This is why I still correlate them to the hyper attention end of the continuum, instead of deep attention. But on the deep attention side, are the tasks that players have to perform. The *individual player actions* are what players have to do to perform their own role, whilst the *strategy & teamwork* are the tasks they have to do in relation to their team and the boss mechanics. These tasks rely both on the information streams covered on the hyper attention end of the continuum, the focus and knowledge of the predetermined strategy, and each player's ability to solve problems appearing on the fly. *Drest'agath's* ability *'Mutterings of Insanity'* is an example of how players must react to something unspecific happening in the gameworld, and react accordingly.

In similar fashion to Quests, I will discuss further that this analysis points towards a synergistic relationship between deep and hyper attention, but where the Quest system leaned more heavily towards hyper attention, Dungeons & Raids lean more towards deep attention. Furthermore, in this system, neither one of the hyper attention or deep attention elements are optional, as they are both required parts of the complex problems players face. The tasks themselves are in a deep attention fashion, but the information about them is conveyed through different means which might more align to hyper attention theoretically.

5. Discussion

In this chapter, I will take the observations made in my three analyses into deeper discussions regarding my selected theory, and come to a conclusion about my research questions.

5.1 Analysis outcomes

In my analyses, I have taken a close look at three systems of *World of Warcraft,* each with their own qualities, incentives, rewards, and gameplay. Each of them highlights different characteristics of cognitive modes as described by Hayles, in some cases from both deep

attention and hyper attention, and challenges the perspectives on ludicity and literariness in comparison to the cognitive modes as described by Ensslin.

In Quests for example, where a narrative is a seemingly large part of the system, a closer look reveals that we can separate it as an optional part of a primarily ludic system, as it is not required to be interpreted to complete the core functions of the system. That being the gameplay requirements of completing different criteria. Even so, the narrative aspects of the system features a variety of ways for the player to be exposed to the narrative, so as to be able to be perceived on a simple level while the player is still primarily focusing on the ludic aspects of the system. The temporality of the game is twisted through the various story progressions and repeatable quests, and the physical locations of players and NPC characters does not so much matter as to provide immediate game-relevant information to the player, which emphasises its ludic nature. The floating text boxes used in all the systems analyzed are good examples of how the game emphasizes the flow of gameplay more than to mimic the attributes of temporality and location in a "realistic", non-virtual, manner. In this way, the narrative follows the ludic requirements of progression and gameplay.

Figure 5.1 - Character narration for a quest appears even though the character in question (Odyn) is not present.

As such, the quest system of *World of Warcraft* does not have the narrative as its core function. They are optional and reward driven, and indeed designed primarily as a supplement and contextualization to the ludic quest feature to the game.

As a result of this, players must make an active choice if they want to participate in the narrative by utilizing deep attention, to take in the stimulus that is predominantly optional within the system. Note the similarities here between the metastance described by Ensslin in games featuring literary elements. Otherwise, they mostly utilize the hyper attention structure of quests.

The second system, Island Expeditions, highlights the increased emphasis on hyper attention in video games from Hayles and Ensslin, where the gameplay encompasses an almost endless stream of small tasks with a constant flow of multimodal information. Differently from this, the third system of Dungeons & Raids only has a single problem to solve, that being the defeat of the current boss in question, but with a lot of different information streams regarding different mechanics within it. This situation does not conclusively fit within either established cognitive mode, similar to Quests, but I will discuss that Dungeons & Raids lean towards deep attention, and Quests towards hyper attention.

The reason for this difference, depends on the different cognitive tasks' importance to the problems within the system. The cognitive elements which I regard as deep attention in the quest system, primarily the deeper literary functions, are optional parts of the system implemented for the possibility of increased player interaction to the narrative. The questing system itself is primarily hyper attentive, through the fast-paced gameplay and comparatively simple tasks. Contrastingly, the cognitive elements regarded as deep attention in Dungeons & Raids, primarily the different gameplay mechanics of bosses, are integral problems of the system which players need to solve through different means. Therefore, the system itself is of a deep attentive nature.

While I have now mostly highlighted the cognitive differences of the systems analyzed, there are several similarities within them as well, dictated by the rules or architecture of the game *World of Warcraft* itself. The game strives to provide distinct and direct information through a multitude of modalities in immediate fashion to the problems of its various systems, and emphasises that the only limiting factor of being able to complete different problems are the players' own cognitive abilities and the quality of their collected equipment. These requirements for these factors vary from system to system.

The analyses of the different systems of *World of Warcraft* thus highlights that the variation in the cognitive requirements of tasks and activities in the games different systems shows; that to assign a specific cognitive mode to the game as a whole would be an imprecise explanation of the actual cognitive occurrences within it.

With how the current cognitive theories mostly seek to categorize different activities wholly on the deep- or hyper attention side, *World of Warcraft* seems to feature such variation as to not be simply categorized by either cognitive mode. Thus, a more nuanced approach is required.

5.2 Deep Attention and Hyper Attention in *World of Warcraft*

In this chapter, I will take the aspects of deep and hyper attention in *World of Warcraft*'s systems in a comparison of other examples of deep and hyper attention. My objective here is to take the discussions from my analyses and the prior chapter into the larger theory of the cognitive modes, to create a more conclusive perspective on their stimulation in comparison to other artifacts.

It seems like the general trend of tasks in *World of Warcraft* are that they are simple to execute successfully on a basic level, but allows for further complexity for possible higher results, optional information, and bonus rewards if the player decides to give it more attention. The difficulty settings of Dungeons and Raids is a banal example of this, as its higher difficulties provide greater rewards, but also requires more focus from the player. But in systems like Island Expeditions where the gameplay is of a more simple nature, the player *could* figure out different, and possibly better, ways of completing the system by lifting their head and seeing the greater picture. Reading into statistical data about resource yield and timing factors, all which are optional and "outside of the games' architecture" mind you, could heighten the players understanding of the system and how best to solve its problems. This is not a unique situation in any shape or form, either within or without video games, but it does prove that some video games do not solely lean towards the one cognitive mode of hyper attention. So what does this mean for the theory of cognitive modes?

These analyses do highlight some aspects of the cognitive theory, both imposing and contesting some claims. The most interesting aspect of which is how the game presents its game-relevant information, in relation to the characteristics of information-streams and task switching.

The different problems of *World of Warcraft* are almost always multimodal in the way they convey game-relevant information, but with different emphasis on what these modalities convey and how they convey it. In narrative settings, textual and auditory data might convey the most important information according to the system, while in combat encounters they are only used as cues for different numerical triggers. The general trend in *World of Warcraft* seems to be that all data types are used to convey information about the same problem, so that players have options in how they choose to take in the information. Dungeons & Raids are perhaps the most obvious example of this. In some cases, numerical data is a core function of understanding and solving a problem, and in others it is almost irrelevant. As such, players are in many cases bombarded with information, where it is obvious that they should not take it all in at once, and must actively prioritize this information regarding the current task at hand. Note that this information could relate both to many different tasks or the same one.

Furthermore, another principal aspect to take away from my analyses is the correlation, or rather lack thereof, between cognitive modes, ludic and literary features, and data types. As prior noted, Ensslin correlates literary features with deep attention and ludic elements with hyper attention, but I will argue that this simply is not the case. For example; even though both Island Expeditions and Dungeons & Raids can feature quests in some fashion, which is a task that can feature some literary elements and vary in their cognitive requirements, they are integrated in such a way as to not change the systems core functions and gameplay, but rather work as an extra incentive. The objective of quests in Dungeons & Raids is most often "*Kill X boss"*, which is the original goal of dungeons & Raids in the first place. In Island Expeditions they have slightly more variation, but key features of the original Quest system are either tuned down, or out completely, in such a way as to fit the system of Island Expeditions, rather than transferring the feeling of Quests into Island Expeditions.

So even though there are some elements of literary features in these systems, from the narrative elements of quests and other features, it is to such a small, and optional, extent that it cannot be regarded as a core function of the systems. What we have then, are two primarily ludic systems that value different cognitive modes in their gameplay; where the sporadic Island Expeditions lean towards hyper attention, while the planned and calculated Dungeons & Raids lean towards deep attention, unrelated to literary elements. The integration of literary elements as such does not dictate the cognitive requirements of the task, as it is the way the information is used in relation to the activity which sets the cognitive requirements. Features like literariness and ludicity then cannot be used as a description of which cognitive mode is in use init of itself, as a more nuanced approach is required to precisely see how the information in question, in relation to the task, affects cognition.

Below, I have visualized the spans of the three systems together in the cognitive continuum, taken from the observations of my analyses. Dungeons & Raids lean mostly towards deep attention, but elements of the system are apparent on the hyper attention side as well. Questing has equal amounts of activities on either side of the fictional separation between the cognitive modes, as argued between the relationship of narrative and gameplay. And Island Expeditions are solely placed on the hyper attention side, as all aspects of it fit with these characteristics.
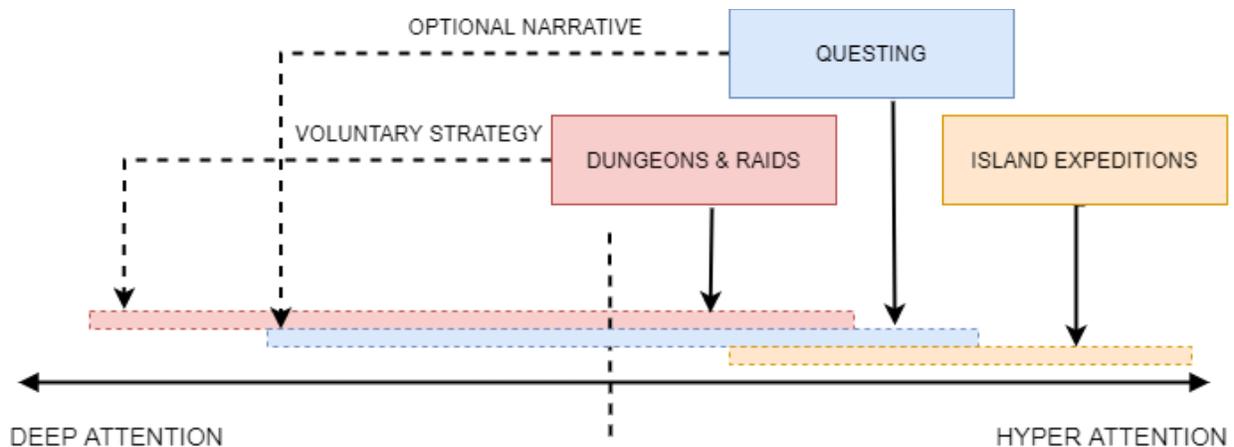
Figure 5.2 - Deep and Hyper Attention ranges in the different systems analyzed, relative to each other.

This continuum, again, is visualized as the spread between deep and hyper attention elements of systems in relation to each other, and is not, as Ensslin also notes, grounded in any numerical value. This moves away from the strict separation between literary and ludic elements in relation to cognitive modes, to display that different systems in video games have variations in their cognitive requirements. To know if these cognitive requirements are different from other artifacts and activities, digital or not, we must compare them to other such artifacts and activities on the same continuum, which highlights another problem.

There simply does not exist enough accurate research on Hayles and Ensslins theories regarding this topic, or more specifically this model, that I can accurately fill this continuum out with other reference points, but below I have made an attempt to place Ensslins work on literary-ludic artifacts, from her own figure (Ensslin, 2014, p. 45), as well as Hayles examples of deep attention tasks (Hayles, 2007), on to the same cognitive continuum as my analyses. But I remark that the only features of this continuum which I can accurately position are the subsystems of *World of Warcraft* analyzed in this thesis.
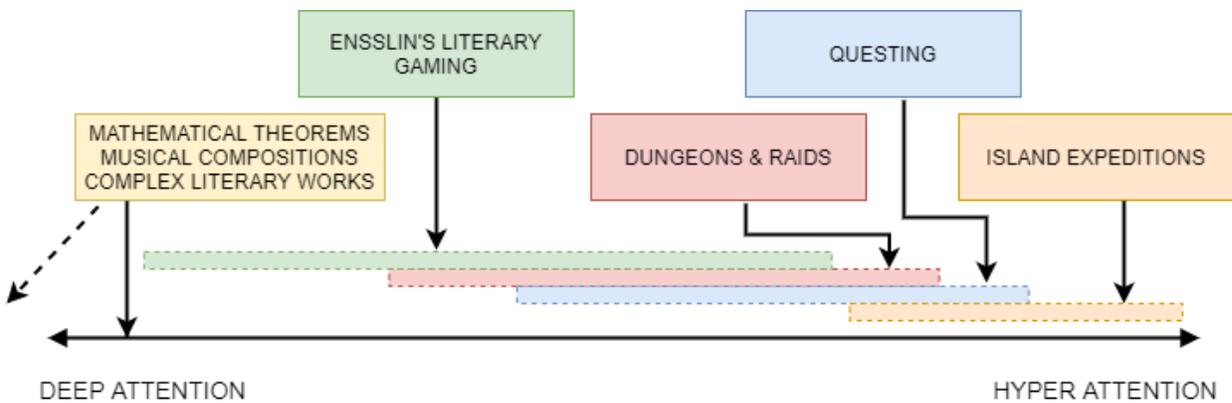
Figure 5.3 - Deep and Hyper Attention ranges in the different systems analyzed, and proposed locations of Ensslin's Literary-Ludic Continuum and Hayles examples of deep attention.

I have placed Ensslin's work in *Literary Gaming* further towards the deep attention side not because the artifacts feature more complex tasks or require more focus from the players than in *World of Warcraft*, but rather because they do not feature the same stimulation and amount of information as happens in, for example, dungeons and raids. As such the different criteria of

Hayles' description of the cognitive modes have different relevance in the different activities placed here. The ludo-literary artifacts of Ensslin which lands more towards the hyper attention side does so not because of the characteristics of multiple information streams, but rather because of task-switching and low boredom thresholds. Differently, the elements of Dungeons & Raids that land towards the deep attention side *do* feature multiple information streams, but have high requirements for focus and the filtering of outside (or non-relevant) stimuli. Another note about these proposed locations is that Hayles' examples for deep attention might also have a variation in requirements for focus and attentional resources, possibly in some cases creeping towards the hyper attention end of the continuum as a result. I note this as a proposal, as my studies do in no way regard these activities closely.

The visualization of this continuum highlights a few different problems, most obviously that the cognitive "ranges" of the different elements does not accurately classify or encompass the specific characteristics of deep and hyper attention. There is more opportunity for nuance in the model as it appears in this way, but makes it harder to precisely discuss different cognitive activities as either only deep- or hyper attentive because of the variation in stimulation and focus requirements.

Because of these different parameters, focus and stimulation, apparent in the exposition of both of Hayles' cognitive modes and indeed of my increased emphasis on it in this thesis as noted in chapter 2.2.2.1, it would be helpful to create a model in two dimensions rather than one. In the figure below, I propose a way to implement this through a Y dimension in the continuum. This proposed new dimension to the continuum, will account for these parameters. Ensslin made an attempted version of this, in having the elements of literariness and ludicity vary along a numerical Y parameter (Ensslin, 2014, p. 45). This somewhat breaks away from the black-and-white categorization of literariness and ludicity according to deep and hyper attention, and is a first step in formulating more clear expositions about both the artifacts in question and the features of different cognitive modes. But instead of assigning focus and stimulation to a numerical value between zero and ten in the same fashion as Ensslin, I have rather made another continuum along the Y axis, which I call the *focus-stimulus continuum.*

In the figure below, I have visualized how the same artifacts as in the continuum above would be positioned with the additional parameters of focus and stimulus.
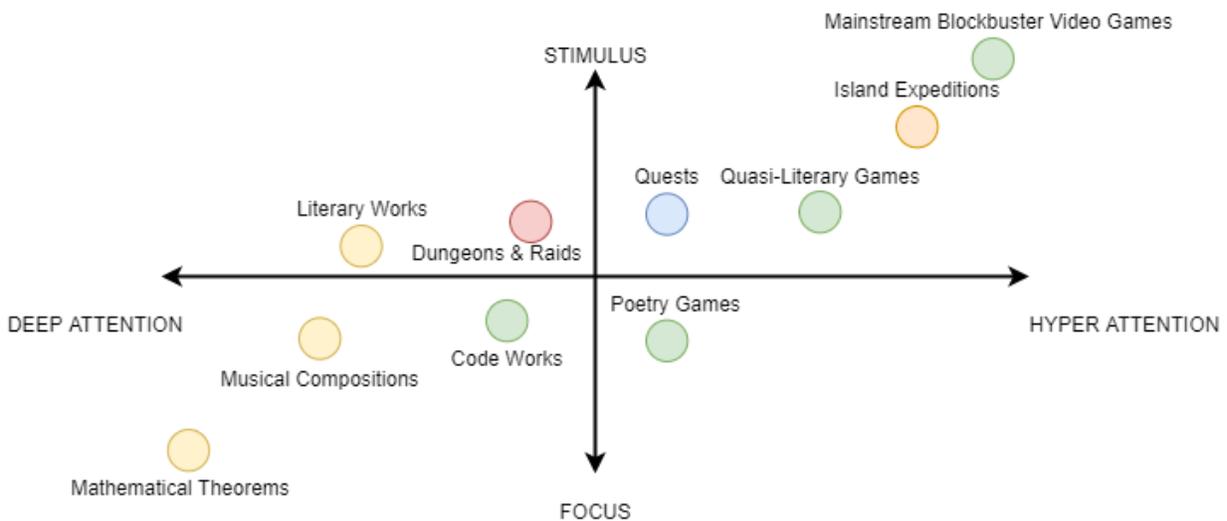
Figure 5.4 - The Cognitive Continuum with the addition of a Focus-Stimulation Continuum. Elements featured both from Hayles' theory (Yellow), Ensslin's analyses (Green), and my own analyses (Red, Blue, and Orange).

With such an addition, the aspects that required systems to be visualised as cognitive ranges; the differences in focus and stimulus, can be more accurately placed on the graph.

The main reason for this addition is to assess the vacant segment of Hayles' theory regarding stimulating deep attention situations and focused hyper attention situations, some of which was highlighted in my analysis, and to propose a possible solution. To describe the additional aspects focus-stimulus continuum, I will give in similar fashion to Hayles' description of deep and hyper attention;

Focus: *The action of tuning out unwanted stimulation, and focusing on task relevant information. Characterized in concentrating on few tasks at a time, often of a more complex fashion.*

Stimulus: *The action of being susceptible to all sensory stimulation, regardless of current task-relevance. Characterized as handling many tasks at a time, often of a simple fashion.*

These descriptions draw from both Hayles' cognitive modes and the psychological terms of *divided-* and *focused attention,* but steps away from hard separations between the two to allow for increased emphasis of different characteristics. The aspects of Hayles' deep and hyper attention, apart from focus and stimulus, directs the location on the horizontal cognitive continuum, and the aspects of focus and stimulus directs the location on the vertical focus-stimulus continuum. Tasks can as such have characteristics of deep attention and stimulus, where there might be few tasks in working memory but with a lot of sensory information relevant to it. The placements of the modules do not differ from their previously established range on the cognitive continuum along the X axis, but allows for further specification along the Y axis.

As I do not currently have any modules that might fit the far space between hyper attention and focus, or the far space between deep attention and stimulation, this aligns with the fact that even though I have separated focus and stimulus from deep and hyper attention, they do still have the most similarities with their respective cognitive modes.

An obvious shortcoming of this addition, is the fact that we cannot measure either stimulation or focus, similar to features like complexity and cognitive load, but rather make observations about their apparent values based on set criteria in the same fashion as deep attention and hyper attention. Hence I created another continuum on the Y axis instead of assigning numerical values, as Ensslin does in her figure visualizing the emergence of literary and ludic features. These numerical values she assigns have no real meaning, but is rather a tool to distinguish the two elements from each other. A fine formulation of this issue is formulated by Ensslin herself in her critique of her own methodology and cognitive-continuum, so instead of rewriting her words here, I rather cite her formulation in full;

> "*Finally, despite the replicability and systematicity mentioned with regard to analytical methodology, there is no denying that the L-L spectrum as schematized in figure 3.2 is an introspective representation of the field under investigation. Neither the 0– 10 scale nor the literariness and ludicity lines are based on empirical or mathematical principles. They schematize the mental image resulting from my very own hermeneutic activities and are therefore duly prone to attract criticisms of various kinds. I believe, however, that a more arithmetically inclined approach would have been inadequately positivistic. After*

all, hermeneutic activity simply isn't measurable to the same degree as, for instance, aspects of authorial language use (e.g., lexical frequencies and dominant grammatical patterns). (Ensslin, 2014, p. 163).

But in the greater world of cognitive and psychological theory, this is not an uncommon occurrence. Spence highlights that there is no way to measure cognitive load (Spence, 2012, p. 212*),* and in similar fashion there is no way of measuring a task's complexity to any sort of numerical value.

To sum this up, I am still unsure if focus and stimulus are the most accurate aspects to focus on in the Y axis, as in some cases it might seem that they are both highly apparent. For example in situations where you must focus on processing a large amount of information at a time for a single problem, which again highlights the same problematic relationship between deep and hyper attention. I argue that this is an apparent *focus* situation, where you need to focus to comprehend all the information streams as in my characteristic description. The origin of both continuum's, the center of the figure, might then indeed be a strange and elusive cognitive state to put into words. But *focus* as used here describes the action of tuning out unwanted stimulation, and focusing only on task-relevant information-streams in the process, thereby being an accurate polar opposite to stimulation. With this, we can discuss further how deep attention might be apparent in what would seem to be obvious hyper attention environments, and vice-versa, as how which cognitive mode is in use is an active decision by both players and people.

If video games were hyper attentive in nature, you could argue that players might be able to focus on several things outside the game while still performing well within it, which in the case of most video games, but certainly *World of Warcraft,* simply is not the case. Even if the gameplay within the game might be very hyper attention oriented. As such, I note that Hayles and Ensslin's account of video games being only hyper attention oriented, lack nuance to such fashion as to be rendered incorrect.

5.3 Conclusion

So in relation to my research questions, how does this thesis provide some answers? Firstly, I have taken a close look at how *World of Warcraft* presents information to its player base, and how this varies in being gameplay-relevant or of optional contextualization. Furthermore, I have taken these observations into a discussion about how they correlate to cognitive modes different characteristics, and thus discussed how we might interpret the games stimulation in relation to cognition.

What is clear, is that video games strain Hayles' definitions of the cognitive modes of deep attention and hyper attention, as well as divided attention and focused attention from psychology, as they break away from the boundaries of both defined cognitive modes. The characteristics of either cognitive mode seems to not accurately describe the cognitive process happening within the game, resulting in video games being placed in some form of *cognitive no-man's-land* within current cognitive theory.

To say that cognition, and modes of cognition, is not a simple subject would not be a bold claim. But, if I were to make a bold claim, I suggest that we could, and should, interpret the cognitive modes proposed by Hayles as being apparent in varying forms of cognitive emergence, and not specific confines of cognitive activity. To give an example of this; my analysis of Questing points towards that it is hyper attentive in nature, with optional deep attention tasks. As the player might switch between hyper and deep attention within this system, this might be interpreted as hyper attentive init of itself. At least if we do not look closely at the individual tasks. Furthermore, as the players focus on the questing in the video game *World of Warcraft*, they seem to be in a deep attentive state of mind for the game itself, tuning out stimuli from outside the game. In this case, the player would be in three different states of mind at the same time; the focus on the game over the real world, the focus on which system to do within the game, and the focus of what activity to do within the system. To describe this situation as three different states of mind is not something I would recommend, as it provides no conclusive distinctions. Rather, we can discuss the different tasks' relation to each other and the synergistic

relationship between the different cognitive modes, which may have various forms of emergence. I remark that this observation regards the applicability of Hayles' theories to the game *World of Warcraft,* and as such I can only provide conclusive arguments about this event, but that it is a problem with relevance external to the subject of my thesis as well.

This interpretation of deep and hyper attention plays back to one of the original notes by Rettberg which I brought forth in chapter 2.3 Existing Research on Video Games and Cognition; that video games are of a fragmentary expression, but the player is a person in deep, continuous concentration, possibly highlighting a new relationship between deep and hyper attention. While Rettbergs analysis was focused on the narrative of quests, it seems that this emergence is apparent in *World of Warcraft's* other systems as well to some extent. Note that this is not an isolated case with video games, and would maybe be apparent in all phenomena where Hayles' theory would be applied to media artifacts. An issue with such a process however, in similar fashion to Broadbents cognitive filter, is to distinctively limit where the inception and conclusion of such a process would take place. I have no specific answer to this other than that individual researchers should be clear about the limits of their own research. In the case for this thesis, my analysis only regards what happens within the systems of *World of Warcraft,* and does not touch the systems relation to either other activities within the game or outside the game, other than this discussion.

This issue already has some relevance within game studies, as it has become apparent in different perspectives of other types of game studies as well. A result of this, is the term *immersive fallacy*, described by Salen and Zimmerman as; *"(...) the idea that the pleasure of a media experience lies in its ability to sensually transport the participant into an illusory, simulated reality."* (Salen & Zimmerman, 2004, p. 451). This immersion, again highlights the difficulty in separating the cognitive activity within the game and without. They continue by noting that the immersion a game creates does not happen in the manner the immersive fallacy implies, but that the process of playing a game is an occurrence of double-consciousness in which the player is well aware of the artificiality of the play situation (Salen & Zimmerman, 2004, p. 451). Again, notice the similarities to the metastance described by Ensslin.

This description can also be compared of how Treisman's Attenuator describes that we can perceive unattended stimuli (Treisman, 1960) even though our focus lies elsewhere, and that we would be able to perceive a loud sound in our house even if we are immersed in a complex situation in a digital game. But in terms of the cognitive modes of Hayles this does not provide any more answers about how to classify these situations, but we may use the term to describe the cognitive occurrences differently in terms of their relation to the immersive fallacy.

All challenges in World of Warcraft are in the gameplay, which is a ludic element, which can be both deep- or- hyper attentive in nature, depending on the system played and its difficulty setting. Other elements within the game, open up for further deep attention through optional means, like the narrative additions in quest systems. Other systems might primarily highlight hyper attention. As such, we cannot categorize *World of Warcraft* as either an artifact of deep- or hyper attentiveness from within the suspension of disbelief the game creates, but highlight that different features and systems emphasises different cognitive requirements. As it is the case that hyper attention is very much apparent in *World of Warcraft*, and then possibly video games as a whole, the physiological changes in the brain which Hayles emphasises (Hayles, 2007) by the increased exposure to hyper attentive environments might be something to discuss further. But as her theory does not account for a possible synergistic relationship between cognitive modes within video games as described here, and the possible new effects this might have, it requires more analyses in similar fashion to this one to more accurately describe what cognitive-processing is actually apparent in different forms of digital media. If they do not feature the primarily hyper attentive environments that Hayles describes, we cannot account for possible physiological changes to the apparency of hyper attention alone, but rather the possible new synergistic cognitive requirements of digital media. This would be a multidisciplinary focus from both game theorists, media researchers, and neuropsychologists.

5.4 The way forward

Many of the features that I discuss in my analyses of *World of Warcraft's* systems are not exclusive to this game alone, and as such, these observations have the possibility for extrapolation to other games with similar features. While I can only decisively apply my conclusion about the game of which I have completed a close reading, this thesis shows some signs about what types of cognitive processing is actually apparent within video games, which is different from the original thoughts of Hayles and Ensslin.

It may be that *World of Warcraft* is not the type of game Hayles and Ensslin were talking about in their theories, but rather first-person-shooter or platformer type games. I made a note about how I find their theories more accurate with this distinction earlier, as the incentives and tasks of first-person-shooter games might more clearly point towards hyper attention in theory. But if this is the case they have severely limited what they mean by video games, disregarding so many genres and types, so much that their note about how they believe video games are prime examples for hyper attention does slightly fall apart. *World of Warcraft* seems to feature a more synergistic relationship between the two cognitive modes, while other video games might possibly disregard hyper attention or deep attention entirely. Ensslins takes the theory a step further by separating what she calls *literary games*, providing further and more detailed research about these, but again it is odd to only separate out these types of games. What she regards as a *literary game*, is also inconclusive, going as far as categorizing *Braid* (Number None, 2008)*, Myst* (Cyan, Inc., 1994)*,* and *Fable* (Big Blue Box Studios, 2004) as literary games (Ensslin, 2014, p. 49). While there is no doubt that these games feature literary elements, they cannot be categorized solely on these aspects. This is an issue of categorization and genre within game studies as a whole (Perron & Wolf, 2009, p. 6), and not just Ensslin's theory, but its problems regains its apparancy through such distinctions. As such, one must also be careful when "assigning cognitive modes" to different activities and systems as well.

In this thesis, I have formulated several approaches and takeaways from my analyses to the concept of cognitive modes, without any of them being either theoretically or functionally prominent over any others. The addition of the *focus-stimulus continuum* and highlight of the *variation of emergence* being what I would argue to be the most relevant for the subject. Furthermore, I have highlighted what I believe are the fundamental issues that should be in focus of future research on the subject of cognitive apparancy in video games below:

1. The step away from 'sticky' characteristics of different cognitive elements and data-types, like ludicity and hyper attention and literariness and deep attention. I have noted Hayles and Ensslin's possibly hasty conclusions about this, and how it might limit our understanding of the different phenomena. **2.** The formulations and degrees of approaches to cognitive tasks and research. To feature clear separations and limitations of what the cognitive research comprehends, and how deep they seek to investigate the cognitive phenomenon in question in separation to other tasks. This issue is indeed apparent in my own conclusions, as I vary in placing artifacts and activities, like poetry games and mathematical theorems, next to the subsystems of artifacts, like Dungeons & Raids, on the same cognitive continuum, like in figure 5.2 and 5.3. This springs back to the divide between systems and subsystems, tasks and objectives, as noted in my conclusion, and is followed up by my next point. **3.** The divide between inside and outside the game in terms of cognition, which can draw on the concepts of *the immersive fallacy,* and *the magic circle,* which in turn is a development from Johan Huizinga's analysis of play in culture in *Homo Ludens,* notably on page 10 (Huizinga, 1938, p. 10). *The magic circle* is an observation that games create a suspension of disbelief which separates the game from the outside world, and this note was further developed and applied to video games in *Rules of Play* by Katie Salen and Eric Zimmerman (Salen & Zimmerman, 2004, p. 93), and is now a subject of some academic conflict within game studies. Egenfeldt-Nielsen et al. remarks that as the magic circle describes games as "*special contexts where particular rules apply, (...) we can apply this definition to a wide array of utterly different activities: work, family life, university classes etc.*" (Egenfeldt-Nielsen et al., 2016, p. 34). While this argument could be a restrictive factor to the theory of the magic circle when applied to games, I would argue that it is a paramount perspective when doing video game research in the nature of this thesis. Similarly, the concept of the *immersive fallacy*, or the

difference in suspension of disbelief between the game and the outside world, also noted by Salen and Zimmerman (Salen & Zimmerman, 2004, p. 451), would be of equal relevance. Hayles and Ensslin describe video games as hyper attentive in nature, while Rettberg describes a video game player as someone in deep focus on a single task. The hyper attentiveness might be apparent when analyzing the players activities inside the game, but from the outside it is clearly an occurance of deep attention. Both seemingly being correct in different cases. The distinction of inside or outside the magic circle and the concept of immersive fallacy then is a way of categorizing these phenomena, but might just be a band-aid solution. The observation difference and seemingly cognitive clash is still apparent, but may be more accurately described through the addition of the *focus-stimulus continuum* to the *cognitive continuum* between deep and hyper attention, and the close analysis of tasks and systems as done in this thesis.

Appendix:

A. References

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References: Images and Figures

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Figure 4.4 - Working memory of Questing, with focus on gameplay. Made using *diagrams.net.*

B. Research Playtime Log

This document lists the time spent collecting data from the game *World of Warcraft: Battle for Azeroth* for the thesis; Video Games & Cognition: Deep and Hyper Attention in World of Warcraft, by Markus Sebastian Bakken Storeide.

The thesis was written in the period of 2019 - 2020 at Høgskolen i Innlandet, and the data was collected in the time period of 11.02.2020 - 16.03.2020, and transcribed in the period 19.02.2020 - 03.04.2020. This document works in cohesion with the *Gameplay Research Sheets,* which is found in Appendix E.

Recording Date:	Session Purpose:	Playtime:	Recording & Gameplay Research Sheet:	Transcribed:
11.02.2020	Island Expeditions	00.20.56	Youtube Video: *11022020_IslandExpeditions_01* Research Sheet: Gameplay Research Sheet (Island Expeditions 01)	19.02.2020
11.02.2020	Island Expeditions	00:33:50	Youtube Video: *11022020_IslandExpeditions_02* Research Sheet: Gameplay Research Sheet (Island Expeditions 02)	19.02.2020
11.02.2020	Dungeons & Raids (Raid)	00:41:51	Youtube Video: *11022020_Dungeons&Raids_NyAlotha_01* Research Sheet: Gameplay Research Sheet (Dungeons & Raids (Ny'Alotha) 01)	19.02.2020
12.02.2020	Dungeons & Raids (Dungeon: Temple of	00:18:46	Youtube Video: *12022020_Dungeons&Raids_TempleofSethraliss_02* Research Sheet:	19.02.2020

	Sethraliss)		Gameplay Research Sheet (Dungeons & Raids (Temple of Sethraliss) 01)	
12.02.2020	Questing (Legendary Quest)	00:26:17	Youtube Video: *12022020_Questing_BlackEmpireCampaign_01* Research Sheet: Gameplay Research Sheet (Questing) 01	26.02.2020
13.02.2020	Questing (Normal Quest)	00:33:30	Youtube Video: *13022020_Questing_StormsongValley_02* Research Sheet: *Gameplay Research Sheet (Questing) 02*	20.02.2020
25.02.2020	Questing (Class Trial & Introduction)	00:43:01	Youtube Video: *25022020_Questing_ClassTrial_03* Research Sheet: *Gameplay Research Sheet (Questing) 03*	26.02.2020
25.02.2020	Questing (World Quests)	00:11:59	Youtube Video: *25022020_Questing_WorldQuests_04* Research Sheet: *Gameplay Research Sheet (Questing) 04*	26.02.2020
26.02.2020	Island Expeditions	00:31:02	Youtube Video: *26022020_IslandExpeditions_03* Research Sheet: *Gameplay Research Sheet (Island Expeditions 03)*	02.03.2020
26.02.2020	Questing (World Quests)	00:22:41	Youtube Video: *26022020_Questing_WorldQuests_05* Research Sheet: *Gameplay Research Sheet (Questing) 05*	02.04.2020

04.03.2020	Dungeons & Raids (Raid: Ny'Alotha)	00:45:39	Youtube Video: *04032020_Dungeons&Raids_ NyAlotha_03* Research Sheet: *Gameplay Research Sheet (Dungeons & Raids (Ny'Alotha 02) 03)*	02.04.2020
04.03.2020	Island Expeditions	00:57:45	Youtube Video: *04032020_IslandExpeditions_ 04* Research Sheet: *Gameplay Research Sheet (Island Expeditions 04)*	19.03.2020
04.03.2020	Questing (Normal Quest)	00:24:10	Youtube Video: *04032020_Questing_Zuldazar _06* Research Sheet: *Gameplay Research Sheet (Questing (Normal Quests) 06)*	10.03.2020
10.03.2020	Dungeons & Raids (Raid: Ny'Alotha)	00:42:51	Youtube Video: *10032020_Dungeons&Raids_ NyAlotha_04* Research Sheet: Gameplay Research Sheet (Dungeons & Raids (Ny'Alotha 03) 04)	11.03.2020
10.03.2020	Dungeons & Raids (Dungeon: Freehold)	00:16:33	Youtube Video: *10032020_Dungeons&Raids_ Freehold_05* Research Sheet: Gameplay Research Sheet (Dungeons & Raids (Freehold) 05)	11.03.2020
16.03.2020	Dungeons & Raids (Raid: Ny'Alotha)	01:17:43	Youtube Video: *16032020_Dungeons&Raids_ NyAlotha_06* Research Sheet: Gameplay Research Sheet (Dungeons & Raids (Ny'Alotha 04) 06)	03.04.2020

C. WoW Characters & Playtime

Last Updated 01.05.2020
This document lists all my current World of Warcraft characters, and the amount of play-hours on each. Characters below level 10 will not have a link to WoW-Armory.com *World of Warcraft's* official registry of online characters.

Server: Twisting Nether		
Character	Class	Hours
Storeide	Warrior	2255
Shockoffrost	Shaman	35
Quaop	Monk	136
Plipp	Priest	221
Vazq	Rogue	239
Lilleide	Warrior	22
Jinqo	Warrior	1
Neshphet	Warrior	2
Gright	Warrior	2
Destructobul	Death Knight	61
Divahauger	Paladin	48
Fluffbird	Druid	5
Corpseblaste	Warlock	325
Propudd	Demon Hunter	22
Targetspot	Hunter	34
Bellcauniel	Mage	3
Total:		3411

Server: Bloodhoof		
Character	Class	Hours
Storeide	Warrior	246
Ornstone	Paladin	19
Mortaron	Death Knight	6
Ornek	Hunter	295
Lilleide	Warrior	13
Dorne	Warrior	8
Ankron	Warrior	3
Robute	Warrior	3
Sanguinar	Warrior	1
Argonne	Paladin	1
Áuriel	Druid	86
Aliassm	Death Knight	374
Creazure	Warlock	13
Omegon	Rogue	49
Anzael	Monk	15
Total:		1132

Server: Magtheridon		
Character	Class	Hours
Kharaz	Rogue	155
Tryingagain	Shaman	46
Gothicalias	Rogue	13
Talresa	Warrior	9
Total:		223

Server: Grim Batol		
Character	Class	Hours
Gothicalias	Hunter	127
Góthícalías	Paladin	26
Góthícalías	Druid	16
Barlox	Rogue	13
Uvol	Mage	16
Hacher	Warlock	5
Total:		203

Server: Quel'Thalas		
Character	Class	Hours
Lorthean	Death Knight	417
Total:		417

Server: Stonespine (Classic)		
Character	Class	Hours
Storeide	Paladin	134
Lilleide	Warrior	24
Bakken	Hunter	6
Hordean	Druid	6
Total:		170

Total (All Servers):	5386
Total (Retail + Classic):	5556
Total (Days):	231.5

D. Glossary

Addon: Addons are user created scripts which change how some parts of the game functions, primarily aesthetics, UI, and presentation of information.

AoE: Acronym for 'Area of Effect', and are abilities and effects which do damage or healing in a larger area of the gameworld, which players can move either in to or out of.

Attention: Attention is the prioritization of the processing of certain stimuli relative to others.

Cognition: A general term associated with thought processes, including information processing, storage of knowledge, and reasoning. Regards the processing of information within the human brain within this thesis.

Cognitive Mode: A type of categorization of how we process information streams in different situations, depending on attention, amount of information, stimulation, and task complexity.

Daily Quest: A type of quest in *World of Warcraft* that can only be completed several times, but only once a day. These types of quests mostly progress towards end-game rewards.

Deep Attention: A cognitive mode formulated by N. Katherine Hayles, and is characterized by concentrating on a single object for long periods, ignoring outside stimuli while so engaged, preferring a single information stream, and having a high tolerance for long focus times. Can be compared to the term *focused attention.*

DoT: Acronym for 'Damage over Time' and are abilities which cause lasting effects on targets, either through healing, damage, or other effects.

DPS: Acronym for 'Damage per Second', and are often used in two ways. The DPS a player does is the average damage they do each second, and players assigned to do damage to bosses and enemies are often just called 'a DPS'.

Divided Attention: Divided attention is the ability to process multiple streams of information, or to perform multiple tasks at the same time. Can be compared to Hayles' *hyper attention.*

Dungeon: A dungeon is an instanced gameworld populated by elite enemies and bosses, which provide greater rewards in terms of experience points and equipment to players than normal enemies. It is designed to be tackled by a team of five players.

Experience points: A way for video games to track the players experience and progression into a numerical value used for calculating the power of their avatar.

Focused Attention: Focused attention is the ability to process a particular subset of the available incoming sensory information while simultaneously ignoring other distracting - or currently task-irrelevant - information. Can be compared to Hayles' *deep attention.*

Gameworld: Gameworlds are world representations designed with a particular gameplay in mind and characterized by game-system information that enables meaningful player interaction.

Healer: A healer is a player role in dungeons, raids, and PvP. This role is responsible for keeping their teammates alive by negating damage and healing them back up after taking damage.

Heroic Difficulty: Difficulty setting for different systems within *World of Warcraft.* Heroic difficulty applies to Dungeons, Raids, and Island Expeditions.

Hyper Attention: A cognitive mode formulated by N. Katherine Hayles, and is characterized by switching focus rapidly among different tasks, preferring multiple information streams, seeking a high level of stimulation, and having a low tolerance for boredom. Can be compared to the term *divided attention.*

Information Stream: Information streams communicate the information outputs from the surrounding environments tasks and objects, to a person's receptive input senses.

Instanced Gameworld: Instanced gameworlds are isolated gameworlds which often have their own game rules and limit player numbers to a set amount.

Island Expedition: Island Expeditions is a game system set in an instanced gameworld. Two teams of three players compete to see who can collect a set amount of the resource *Azerite* first.

Looking For Raid: Difficulty setting in Raids in *World of Warcraft*. This difficulty is easier than Normal difficulty, and automatically creates groups of players to tackle different parts of raids. Different mechanics are either added or removed to make the encounters easier to defeat.

Mythic Difficulty: Difficulty setting for different systems within *World of Warcraft.* Mythic difficulty applies to Dungeons, Raids, and Island Expeditions.

Mythic+ Difficulty: Difficulty setting for different systems within *World of Warcraft.* Mythic+ difficulty applies only to Dungeons.

Normal Difficulty: Difficulty setting for different systems within *World of Warcraft.* Normal difficulty applies to Dungeons, Raids, and Island Expeditions.

NPC: Acronym for Non-Player-Character; a character within a game that is controlled by pre-programmed scripts, and not a real player.

Parallel Processing: Parallel processing allows for the processing of several pieces of information at the same time, determining meaning from multiple information streams at once. This is most accurate to how humans process information.

Quest: A quest is a task with specific criteria given to players, and yields a predetermined reward when completed. Also contains a narrative description for contextualization of the activity.

Raid: A raid is a large dungeon, with even harder enemies and bosses. This is the most difficult content *World of Warcraft* offers, and yields the best rewards. It is designed to be tackled by a team of ten to thirty players.

Serial Processing: In serial processing, one process of determining meaning to information has to be completed before the next one starts. This is the way computers process information. '

Tank: A tank is a player role in dungeons, raids, and other player versus environment scenarios. Their role is to keep the attention of enemies, so that they dont target and attack either DPS or healers, and negate as much damage as they can.

Video Game: A video game is a game where the rules are enforced by a computer.

World Quest: A world quest is automatically given to a player when they enter a certain area of the gameworld, and rewards items for max level progression. The player must be max level for world quests to appear.

E. Gameplay Research Sheets

In this appendix, are included all the Gameplay Research Sheets used for my analyses, and links to the videos of recorded sessions. The decision to include the documents and recordings in such a way was an agreement made between me, my supervisor, my research coordinator, and my educational institution.

System	Gameplay Research Sheet	Session Recording (Youtube)
Quests	*Quests 01*	*12022020_Questing_BlackEmpireCampaign_01*
Quests	*Quests 02*	*13022020_Questing_StormsongValley_02*
Quests	*Quests 03*	*25022020_Questing_ClassTrial_03*
Quests	*Quests 04*	*25022020_Questing_WorldQuests_04*
Quests	*Quests 05*	*26022020_Questing_WorldQuests_05*
Quests	*Quests 06*	*04032020_Questing_Zuldazar_06*
Island Expeditions	*Island Expeditions 1*	*11022020_IslandExpeditions_01*
Island Expeditions	*Island Expeditions 2*	*11022020_IslandExpeditions_02*
Island Expeditions	*Island Expeditions 3*	*26022020_IslandExpeditions_03*
Island Expeditions	*Island Expeditions 4*	*04032020_IslandExpeditions_04*
Dungeons & Raids	*Dungeons & Raids 1*	*11022020_Dungeons&Raids_NyAlotha_01*
Dungeons & Raids	*Dungeons & Raids 2*	*12022020_Dungeons&Raids_TempleofSethraliss_02*
Dungeons & Raids	*Dungeons & Raids 3*	*04032020_Dungeons&Raids_NyAlotha_03*
Dungeons & Raids	*Dungeons & Raids 4*	*10032020_Dungeons&Raids_NyAlotha_04*
Dungeons & Raids	*Dungeons & Raids 5*	*10032020_Dungeons&Raids_Freehold_05*
Dungeons & Raids	*Dungeons & Raids 6*	*16032020_Dungeons&Raids_NyAlotha_06*

Gameplay Research Sheet 1: Quests 01

Date:	*12.02.2020*
Game:	*World of Warcraft: Battle for Azeroth*
Game Version:	*Version 8.3.0.33237*
Server:	*Bloodhoof - EU*
Character:	*Storeide*
Race - Class Combination:	*Human Warrior*
System Played:	*Questing - Black Empire Campaign (Legendary)*
Playtime:	*00:26:17*
Name of Recording:	*12022020_Questing_BlackEmpireCampaign_01.mp4*

Pre Gameplay Notes:

With every new patch, the narrative is continued in the forms of new quests. In this expansion especially, this was done through individual campaigns. This campaign, The Black Empire Campaign, tells the story of the ending of this expansion. This is a legendary type quest.
These types of quests center around singleplayer narrative experiences, converging around the current developments in the games narrative, with the player as one of the main characters.
I expect that the literary elements will be more emphasized here than in normal quests, but that they are still mainly ludic in nature.

Notes:

As soon as I logged in, I received a quest. This is a function that makes it impossible for players to miss these types of quests, as they are necessary to either describe or unlock the new features of the game. If I would have declined and ignored this quest at this time, it would appear in the same fashion the next time I log on.

The first exposition is quick, just travel to Stormwind Keep to experience the narrative introduction. This is conveyed to the player both in the normal quest log on the left side of the screen, and in a speech-bubble on the bottom of the screen. These both say the same thing, albeit slightly different. Note that the quest is automatically accepted.

When I arrive at the Keep, I speak to the glowing NPC. This triggers a cinematic, which shows the most important part of the patch; the current antagonist. When the cinematic is done, my avatar is left where the action of the cinematic ended, on a balcony looking at a cathedral. In this sense, I am to believe that my character was a part of the cinematic, even though it was not shown.

The next quest I receive, is to travel to Silithus, which is on the other side of the world. What follows is frantic teleportation. With such travel quests, the game will seek to help the players in finding the fastest route. At 05:34, the quest description in the top right corner has an optional objective to travel to the Wizard's Sanctum. This, I know from experience, is a room with several portals to different parts of the world, and I assume it would have further told me to take a portal to the city of Boralus. But as I am familiar with the fastest ways of travel already, I instead use a teleportation device called the 'Hearthstone' to travel there directly. When I arrive there, note that the objective is updated to the next part of my travel. When I arrive at the location, there are more narrative quests, with ludic elements to keep me as a player occupied, and to feel like I am part of the action. This event tells us of our next objective.

At 09:15, I technically only needed to travel a small distance within the gameworld to my new quest, but it was nonetheless faster to take three different portals across most of the gameworld to reach my destination. Again, the game did provide a suggested route to my destination.
As I arrive, I enter an instanced singleplayer scenario, where more narrative is explained.
I will not give an exposition about the narrative development of the scenario here, but rather describe the ludic and narrative mechanics the game uses to convey the situation to the players.
As with normal quests in World of Warcraft, the narrative develops incredibly rapidly. The dialogue is simple, and the action is fast. Problems appear and get resolved very quickly. This scenario is divided into eight stages, similar to Ensslin's description of The Path.
For narrative interaction, there are always objectives for the player to do, so that they are not sidelined to spectators when dialogue is happening. This was, in this case, anything from small bossfights, puzzles, or other interactive objectives.

When this scenario is complete, it begins a new questline that highlights the gameplay features of this content update. This, I will not go into here.,

Information Types and Descriptions

Information Type	Description
Numerical	***Damage Numbers:*** - *White numbers are the damage from the avatars auto-attacks, which is constantly ticking in the background when in combat with enemies, as long as you are close enough.* - *Yellow numbers are the damage of the avatars active skills, and are controlled by which abilities the player uses.* - *Orange numbers are damage from NPC's connected to the player. Things like pets do this kind of damage.* - *Green numbers are the incoming healing created by the player, or other players in their group which affects them.* ***Health:*** - *All characters and enemies have a certain amount of health, signified by the green bar and corresponding numerical value placed on it, in the user interface.* - *Resources for player and boss abilities are displayed in the same way as health. This is featured below the health-bar.* *Most quests require players to do something a certain amount of times, be it either kill a certain amount of enemies or collect a certain amount of items.*
Textual	*All narrative is delivered in both textual and auditoral form. The text appears both in boxes over the characters heads, and in textboxes on the bottom of the screen.* *Rewards for completing world quests, both reputation and others, are listed in the chat box on the bottom-right side of the screen.* *Reputation rewards are in blue text.* *Allied reputation rewards are in blue text.* *Gold rewards are in yellow text.* *Other rewards are in green text, with the color of the received item highlighted.*

Visual	**_Healthbars:_** - _Player health is displayed on the interface in the top left corner. This also displays the characters resource bar, which in this case is a red bar for the resource rage._ - _The selected enemy displays a health bar right next to the player health bar, with all the same characteristics._ **_Abilities_** - _All player abilities have their own animation and sound. More important abilities have a larger visual for the player to notice them properly._ - _Some abilities require a cast-time. In these cases, a progress bar appears above the character action bar at the bottom. This also applies to enemies, but enemy cast-bars appear beneath their health-bar. If such a progress-bar has a shield around it, it means that it is not interruptible by player efforts._ _Items, objects, or NPCs which are part of the criteria of completing a quest or part of a scenario, have a glow effect._
Auditoral	_When you accept a quest, a small sound cue is played._ _When you deliver a quest, a small sound cue is played._ _All narrative, apart from quest text, is delivered in both textual and auditoral form._ _When an enemy begins to attack you, a small sound cue is played._ _All player- and enemy abilities have their own sound cues._

Ensslin's Functional Ludostylistics

Component	Aspect	Description
Ludology	*Gameplay*	*The gameplay of quest varies with quest objectives, but mostly follows basic game mechanics like combat and collection.*
	Game Architecture	*Quests have a very clear progression system. One quest leads to another. These individual pieces are events within a larger storyline.*
	Feedback	*Quests provide both textual, auditory, and numerical feedback for players progression within the system.*
Ludosemiotics	*Text and Discourse*	*Text and dialogue narrates the same narrative information, but varies in how optional they are.*
	Multimodality	*Quest descriptions use several modalities to convey game-relevant information, both in the exposition and gameplay of quests.*
	Verbal Language	*Some quests, most often the ones which are central to the narrative, provide voiced character interactions that play out the contents of the quests.*
		This session also has several literary elements in it, but I will not go into detail here.

Final Thoughts:

As this is a new content update, it is more relevant for players to know what is going on and what they might expect than in normal quests. This questline both explains the new unfolding narrative and the ludic systems introduced, and combines the elements in the same way which quests convey narratives.
Even so, there is more highlight on the narrative side here, as this session features more structured settings and developments, played out in instanced gameworlds.

These instanced gameworlds feature several acts, to somewhat give the impression of a 'hollywood-model' experience of the game narrative.

Gameplay Research Sheet 2: Quests 02

Date:	*13.02.2020*
Game:	*World of Warcraft: Battle for Azeroth*
Game Version:	*Version 8.3.0.33237*
Server:	*Bloodhoof - EU*
Character:	*Ornek*
Race - Class Combination:	*Dwarf Hunter*
System Played:	*Questing - Stormsong Valley (Normal)*
Playtime:	*00:33:30*
Name of Recording:	*13022020_Questing_StormsongValley_02.mp4*

Pre Gameplay Notes:

This character is near max level, but I do not remember where I left him since the last time I played him. I believe he is close to finishing all the storylines in the zone he is in.
The quests I will do here are normal type quests which players find out in the open gameworld, and yield rewards like experience points, gold, and better equipment.
This system is hard to place in the cognitive-continuum, as it is an amalgam of both literary and ludic elements. Every quest comes with a brief narrative, but it is the gameplay which are their main feature.

Notes:

I load into the town of Deadwash in the zone Stormsong Valley. I have completed some of the quests in this town already, and are then somewhere in the middle of a storyline about some pirates hunting for treasure.

One thing to note about this session is that I have the ability to use flying mounts. This is a feature which has normally been made available about halfway through an expansion, when players have explored most of the world on foot already. These quests are then originally designed to be completed by foot, but having flying should not have much more impact than being able to travel around faster and avoid more enemies. And the coincidental flying follower.

The first set of quests I accept are located in the same area, just outside of town.
The next set of quest sends me further out of town, to an area bordering that of the first set of quests. In this way, World of Warcraft's quests are almost always close to where you accept them, and slowly develops throughout the surrounding area.

At 10:57, I find a quest in the middle of the current questing area I am in. These quests are usually obviously placed so that they would be hard to miss. As in this case, this was the planned continuation of the questing narrative of the area.

At 14:03 I completed the current storyline I was on. And was left "stranded" without any further quests available. I check the map, and notice another yellow exclamation point further in the zone. Such marked quests on the world map, most often signifies either the beginning of a new storyline, or important parts of storylines the player might have missed. The quest I accept, is a form of continuation of a prior storyline in the zone, where the Horde attacked a human town. This new storyline is the counterattack.

For the quests I begin at 16:00, I gain the ability to throw sticks of dynamite at enemies. This does a lot of damage, and can be used in quick succession, so I end up prioritizing this over my class abilities. This stick of dynamite can also be thrown at piles of Blackpowder Ore lying around, for even more damage.

At 20:25, the NPC that gave me the quests I have completed changed location to be right outside the area I had just been. In narrative sense she is infiltrating the base, and in a ludic sense she makes my questing experience more streamlined and quick.

At 28:01, I accept the last quest of the last storyline. I gain control of a large mech, and wreak havoc on an enemy base. With all new abilities, visuals, and gameplay, this is both a cinematic and satisfying ending to a storyline.

At 32:45 I complete the last storyline of the zone, and I gain the achievement "Stormsong and Dance"

Information Types and Descriptions

Information Type	Description
Numerical	***Damage Numbers:*** - *White numbers are the damage from the avatars auto-attacks, which is constantly ticking in the background when in combat with enemies, as long as you are close enough.* - *Yellow numbers are the damage of the avatars active skills, and are controlled by which abilities the player uses.* - *Orange numbers are damage from NPC's connected to the player. Things like pets do this kind of damage.* - *Green numbers are the incoming healing created by the player, or other players in their group which affects them.* ***Health:*** - *All characters and enemies have a certain amount of health, signified by the green bar and corresponding numerical value placed on it, in the user interface.* - *Resources for player and boss abilities are displayed in the same way as health. This is featured below the health-bar.* *All accepted quests get a number in the players quest log, so as to be easier to separate.* *Most quests require players to do something a certain amount of times, be it either kill a certain amount of enemies or collect a certain amount of items.*

Textual	*In a quest description, all quests include a title, a narrative exposition, a list of quest objectives, and a list of rewards.* *Accepted quests are listed in the players quest log.* *Accepted quests have their titles and objectives listed on the right side of the screen.* *Enemies that need to be killed for a quest, have a yellow glow around their feet. Similar to objects. If the player hovers over them with their mouse, they get a small textbox with some information about the enemy, and what quest they are an objective of. This also marks the quest progression. This box appears in the bottom right corner.* *At 14:03 I get a pop-up box that marks an Achievement Progression. In this case, I had completed one of the full storylines of the zone of Stormsong Valley, called "Treasure in Deadwash".* *When you progress in quest objectives, a small message noting your progression appears in the middle of the screen in yellow text. For example "Lumber Pile Burned ⅚"* *When all the objectives of a quest are complete, a small message in yellow text saying; "Objective Complete" appears in the middle of the screen.*
Visual	*Yellow exclamation points signify that an NPC has one or several quests available.* *Grey exclamation points signify that your character is not high enough level yet to accept that quest.* *Yellow question marks signify that you are able to deliver a quest to an NPC.* *Grey exclamation points signify that you are able to deliver a quest to an NPC when all the quest objectives are completed.* *Blue areas on the map and minimap mark the area where the objectives of quests can be completed. This is combined with the number of that quest in the players quest log. This option can be turned off.*

	Quest objectives glow in the gameworld to be easier to spot by players. NPCs that interact with a quest have a glow around their feet. This option can be turned off.
	At 14:03 I get a pop-up box that marks an Achievement Progression. In this case, I had completed one of the full storylines of the zone of Stormsong Valley, called "Treasure in Deadwash".
	Healthbars:
	- *Player health is displayed on the interface in the top left corner. This also displays the characters resource bar, which in this case is an orange bar for the resource focus.*
	- *The selected enemy displays a health bar right next to the player health bar, with all the same characteristics.*
	Abilities
	- *All player abilities have their own animation and sound. More important abilities have a larger visual for the player to notice them properly.*
	- *Some abilities require a cast-time. In these cases, a progress bar appears above the character action bar at the bottom. This also applies to enemies, but enemy cast-bars appear beneath their health-bar. If such a progress-bar has a shield around it, it means that it is not interruptible by player efforts.*
Auditoral	*When you accept a quest, a small sound cue is played.* *When you deliver a quest, a small sound cue is played.* *When an enemy begins to attack you, a small sound cue is played.* *All player- and enemy abilities have their own sound cues.*

Ensslin's Functional Ludostylistics

Component	Aspect	Description
Ludology	*Gameplay*	*The gameplay of quest varies with quest objectives, but mostly follows basic game mechanics like combat and collection.*
	Game Architecture	*Quests have a very clear progression system. One quest leads to another. These individual pieces are events within a larger storyline.*
	Feedback	*Quests provide both textual, auditory, and numerical feedback for players progression within the system.*
Ludosemiotics	*Text and Discourse*	*Text and dialogue narrates the same narrative information, but varies in how optional they are.*
	Multimodality	*Quest descriptions use several modalities to convey game-relevant information, both in the exposition and gameplay of quests.*
	Verbal Language	*Some quests, most often the ones which are central to the narrative, provide voiced character interactions that play out the contents of the quests.* *This session also has several literary elements in it, but I will not go into detail here.*

Final Thoughts:

Quests are very hard to nail down in terms of cognitive modes. They feature literary elements, but are presented in such a way that it is very simple to comprehend. Rettbergs note about quests in World of Warcraft are still very accurate. The narratives are ridiculously simple, and are experienced in a very fragmented way.

It is hard to argue that questing in World of Warcraft features any literary elements that would be regarded as deep attention in their interpretation, as they are so directly connected to the ludic experience of the game. They are meant to direct the gameplay, contextualize the activity, and enhance the player experience with a narrative setting. The entire first storyline in this session, about the pirates stealing treasure, would probably not even fill out one page of script. The player was asked to steal treasure and kill pirates, and then they enjoyed the rewards. There are however events that hint to the larger development of the storied world.

One of the quest givers the players return treasure to, run off with the treasure yelling the message; "We'll meet up later in town and split this up!". This is shortly followed by one of the quest NPCs asking; "I always thought Deadwash was the other direction?". In the narrative, the player and their companions have been cheated for a large reward, but in the ludic sense they got all the rewards they were promised.

In realistic terms, this encounter is also quite silly, as the town would probably only be thirty meters or so away from the interaction, which emphasizes Aarseth's note on how small the gameworld of World of Warcraft really is.

Gameplay Research Sheet 3: Quests 03

Date:	*25.02.2020*
Game:	*World of Warcraft: Battle for Azeroth*
Game Version:	*Version 8.3.0.33369*
Server:	*Bloodhoof - EU*
Character:	*Magetest*
Race - Class Combination:	*Human Mage*
System Played:	*Questing - Class Trial & Battle for Azeroth Introduction*
Playtime:	*00:43:01*
Name of Recording:	*25022020_Questing_ClassTrial_03.mp4*

Pre Gameplay Notes:

In World of Warcraft, there is the option to use microtransactions to level your character instantly to level 110, jumping straight into the action of the latest expansion. But before making this choice, players can test out the game's different races and classes through a Class Trial. In these trials, the players will receive a quick introduction to how a class functions. In this recording, I will do a class trial with the mage class. Which is the class I believe I have played the least.
After this quick introduction, the players are put into the introductory quests of the latest expansion, in this case Battle for Azeroth, to catch up with the latest narrative settings and developments. As this is the introductory questline to the expansion, I have prior done this when Battle for Azeroth was launched in August 2018. These quests are heavily narrative in nature, but highlight ludic elements. This would be one of the first experiences new players will have with the game at this current time, if they choose to start at level 110.

Notes:

When choosing a class trial, you also have to select a specialization for your class. This is one of three paths (sometimes two or four) the players can take in terms of playstyle and aesthetics for their character, but in these class trials only one is available. Short introductions of the other two are provided when choosing however. In this case, only the frost specialization is available.

When loading into a class trial for the first time, the character is placed on an airship somewhere off the front lines, where a general will give you your quick combat training. While giving the player guidance in a narrative way, the NPC still uses mechanical terms like "Use 'Summon Water Elemental' to summon your pet" (01:28), to make it clear from a game mechanics standpoint. This is very similar to Jørgensens note on character lines like; "Inventory is full!".
Glowing actionbars and arrows are interface elements which helps the player get through this introduction, but does not feature all gameplay elements. During the exposition of 'Fingers of Frost' (02:55) for example, the effect is featured in the top right corner. No arrows or glow effects highlight this, except on the spell 'Ice Lance' itself. This is how it functions in the open gameworld as well. In addition to this, there are different interface elements for both 'Fingers of Frost' and 'Brain Freeze' that appear in the middle of the screen, providing the information of these effects without looking at either your buffs (top right) or your actionbar (bottom). 'Fingers of Frost' has icy bars on the left and right, while 'Brain Freeze' is at the top.
When learning about new spells, the player is required to cast them a certain amount of times to complete the training. This is very similar to the quest system of the game, functioning as a soft introduction to this system.

When the introduction to the players' most important spells is complete, the airship is attacked by the rival faction; the Horde (07:00). Now, the players get to try out their arsenal of spells in 'real' combat. When this fight is complete, the player is urged to explore their Spell Book and Talent tree for additional abilities. Introductions to these systems are not provided.
With this, the gameplay introduction is complete, and the players enter the introductory questline for the expansion; The Battle for Lordaeron.

This introductory questline is a scenario set in an instanced gameworld (09:54). Players are put into groups between two to thirty players to complete it, and are led through a strict narrative development through ludic mechanics. At this moment in time, there are not a lot of players at this state of the game, resulting in just me and one other player teaming up for this scenario. The scenario regards the Alliance siege on an old human capital, now controlled by the Horde, with the goal of retaking the city. The players are put right outside the gates at the beginning of the siege in this scenario.
If the players that have completed the class trial choose to open their Spellbook as they were recommended to do, they will find, in my case, 18 new spells available to them. Keep in mind that they only had about 8 minutes to learn their first 9 spells. Similarly with the Talent Tree, where seven choices between three different spells might be taken. In this case, the talent tree is already pre-selected into only passive effects, meaning that the gameplay the players just learned would not be too different.

Nevertheless, this is a lot of new elements thrown at the player in rapid pace, in the beginning of a new narrative scenario. As I have prior experience with both this scenario and the Spellbook with mage spells, I quickly put the spells I want down on the actionbar when following an NPC to the beginning of the battle.

I will not give an exposition about the narrative development of the scenario here, but rather describe the ludic and narrative mechanics the game uses to convey the situation to the players.
As with normal quests in World of Warcraft, the narrative develops incredibly rapidly. The dialogue is simple, to the result of being mostly one-liners and cliché fantasy tropes. "Kill this! Kill that!", "For the Alliance!", and "This is where the fun begins!". But the narrative exposition functions also as pointers to the ludic criteria the players must complete in order to progress the narrative.
The ludic criteria for progression is marked on the right side of the screen, the same place as the quest log.
In the case of story elements, most are expected to be known to the playerbase beforehand, as there are no introductions or expositions of them. Examples of this are the characters, the locations, or abilities and events like; The Blight or Arcane Magic.
For the larger, more fantastical events of the battle (18:45 & 29:17), pre-rendered cinematics are shown to show things that might not be possible, or look as good, within the gameworld itself.

After the final cinematic of the scenario, the player is automatically teleported to Stormwind City, which is almost on the other side of the continent from where the Battle for Lordaeron played out. Instantly after finishing this large scenario, the player receives a quest to travel to the other side of the world, in Silithus, to be introduced to the other major storyline of the expansion. And with this narrative exposition, also learn and acquire the main mechanic of the expansion; The Heart of Azeroth.

Information Types and Descriptions

Information Type	Description
Numerical	***Damage Numbers:*** - *White numbers are the damage from the avatars auto-attacks, which is constantly ticking in the background when in combat with enemies, as long as you are close enough.* - *Yellow numbers are the damage of the avatars active skills, and are controlled by which abilities the player uses.* - *Orange numbers are damage from NPC's connected to the player. Things like pets do this kind of damage.* - *Green numbers are the incoming healing created by the player, or other players in their group which affects them.*

	Health:
	   - *All characters and enemies have a certain amount of health, signified by the green bar and corresponding numerical value placed on it, in the user interface.*
	   - *Resources for player and boss abilities are displayed in the same way as health. This is featured below the health-bar.*
	
	Most quests require players to do something a certain amount of times, be it either kill a certain amount of enemies or collect a certain amount of items. This is the same for scenario objectives.

Textual	*In scenarios, progressions and objectives are listed on the right side of the screen, where the quest list usually is.* *All narrative is delivered in both textual and auditoral form. The text appears both in boxes over the characters heads, and in textboxes on the bottom of the screen.*

Visual	***Healthbars:***
	   - *Player health is displayed on the interface in the top left corner. This also displays the characters resource bar, which in this case is a blue bar for the resource mana.*
	   - *The selected enemy displays a health bar right next to the player health bar, with all the same characteristics.*
	
	Abilities
	   - *All player abilities have their own animation and sound. More important abilities have a larger visual for the player to notice them properly.*
	   - *Some abilities require a cast-time. In these cases, a progress bar appears above the character action bar at the bottom. This also applies to enemies, but enemy cast-bars appear beneath their health-bar. If such a progress-bar has a shield around it, it means that it is not interruptible by player efforts.*
	
	Items, objects, or NPCs which are part of the criteria of completing a quest or part of a scenario, have a glow effect.

Auditoral	*When a scenario objective is completed, a small sound cue is played.*
	All narrative is delivered in both textual and auditoral form.
	When an enemy begins to attack you, a small sound cue is played. *All player- and enemy abilities have their own sound cues.*

Ensslin's Functional Ludostylistics

Component	Aspect	Description
Ludology	*Gameplay*	*The gameplay of quest varies with quest objectives, but mostly follows basic game mechanics like combat and collection.*
	Game Architecture	*Quests have a very clear progression system. One quest leads to another. These individual pieces are events within a larger storyline.*
	Feedback	*Quests provide both textual, auditory, and numerical feedback for players progression within the system.*

Ludosemiotics	*Text and Discourse*	*Text and dialogue narrates the same narrative information, but varies in how optional they are.*
	Multimodality	*Quest descriptions use several modalities to convey game-relevant information, both in the exposition and gameplay of quests.*
	Verbal Language	*Some quests, most often the ones which are central to the narrative, provide voiced character interactions that play out the contents of the quests.* *This session also has several literary elements in it, but I will not go into detail here.*

Final Thoughts:

There is no room to take a breath in World of Warcraft's structured narrative experiences, as the players will struggle to keep up if they choose to do so.

For new players, I suspect this first narrative scenario, The Battle for Lordaeron, to be slightly confusing if they do not already know the story of the game. At the same time, they are attempting to come to grips with the game's most basic mechanics like combat and spells. In fact, even the mechanics of using 'Mounts' are not explained, and if the new players are not able to figure this out quickly, they will even struggle to keep up with the NPC's and other players!

With locations, the nature of travel in World of Warcraft is also of a rapid pace. For this session alone, the player traveled from Lordaeron, to Stormwind City, to Silithus, which simply put are on opposite sides of the world. This travel all happened instantly, and did not give the impression of size, space, or time.

Gameplay Research Sheet 4: Quests 04

Date:	*25.02.2020*
Game:	*World of Warcraft: Battle for Azeroth*
Game Version:	*Version 8.3.0.33369*
Server:	*Twisting Nether - EU*
Character:	*Storeide*
Race - Class Combination:	*Zandalari Troll Warrior*
System Played:	*Quests - World Quests*
Playtime:	*00:11:59*
Name of Recording:	*25022020_Questing_WorldQuests_04.mp4*

Pre Gameplay Notes:

World Quests are types of quests which unlock at max level, and yields rewards for max level progression. This can be reputation with certain factions of the game, gold, equipment, azerite, crafting materials, or other things. These are located out in the gameworld, and are featured on the world map. If a player moves within the area of the World Quest, they automatically accept it. If they then leave the area, the quest is removed from their quest log. In addition to this, there is a system which is called 'Emissary Quests'. Every day, there is a new emissary quest for one of the factions of the current expansion. If a player completes four, sometimes three, world quests in the zone which the faction recides, they will receive an additional reward in the form of equipment and reputation.

Some of these quests are repreats or continuations of normal quests from the zones they are in, meaning that players will find some familiarity within these quests. In this session, I will do World Quests in the zone of Vol'Dun, with an emissary quest for the factions 'The Vulpera' and 'The Tortollans'.
While these could be compared to normal quests, they usually are even simpler and with more specific criteria. They are also experienced more as 'mini-games' than normal quests, and are not a part of a larger narrative.
Vol'Dun is one of the introductory zones for the current expansion, and I expect the World Quests will be easy to complete.

Notes:

First of all, a zone always has more world quests available than necessary to complete an emissary quest, usually around eight to fifteen. Additionally, every zone, from the last two expansions, has world quests within them, regardless of there being an emissary quest for that faction that day. For most emissary quests, it only requires the player to complete world quests in a certain zone. In this case, The Vulpera requires that I complete four world quests in the zone Vol'Dun.

As I enter Vol'Dun, I open the map to see what World Quests are available. As I land, I see that there is a world quest right in the area, signified by the large warning in the middle of the screen. This first quest, is called; "Work Order: Storm Silver Ore". This requires me to deliver a certain amount of the crafting material Storm Silver to a local NPC, and as I already have the ore in my inventory, I complete the quest instantly. This quest is delivered in the same way as normal quests.

The next world quest (01:10) is called "Instructions Not Included", and comes with a brief narrative description as I enter the area. The objective is to kill 8 enemies in the area, regardless of method. I received an extra skill that is a type of ranged attack for this quest, to make it easier to target flying enemies. This I presume is the weapon the narrative talked about, and could be a helpful tool to complete the quest. But, as the criteria is only to kill eight enemies, I do this without much use of this extra skill. When the eight enemies are defeated, I automatically complete the quest and receive my reward. A brief narrative exposition also comes with its completion.

The two next world quests I complete are from the Tortollan faction, which do not have requirements for which zone you complete them in. Rather, they are rarer world quests littered around several zones, and they only require the player to complete three of them to complete an emissary quest. These types of world quests, are often different in their criteria compared to normal quests, as seen in; "Make Loh Go!", "The Cycle of Life", and "Calligraphy".
After I have completed "Make Loh Go!" and "The Cycle of Life", I have completed the four required world quests for the Vulpera faction. All the checkboxes in the bottom left of the world map are now completed, and there is a yellow question mark on the map where I can collect my emissary reward. This yield a large amount of reputation, Azerite, and a high quality weapon.

After this I head over to the final required tortollan world quest, called "Calligraphy". The emissary quest for this faction, is located in another zone, so I travel over to collect my reward. On the way, I look over the new weapon I recieved, to make a decision whether it is better for me than the weapons I already have. The gearing system is not something I will dive into, but it is deeply mathematical in nature.
The tortollan emissary quest, rewards me with War Resources, Azerite, and reputation.

Information Types and Descriptions

Information Type	Description

Numerical	***Damage Numbers:***
	- *White numbers are the damage from the avatars auto-attacks, which is constantly ticking in the background when in combat with enemies, as long as you are close enough.*
	- *Yellow numbers are the damage of the avatars active skills, and are controlled by which abilities the player uses.*
	- *Orange numbers are damage from NPC's connected to the player. Things like pets do this kind of damage.*
	- *Green numbers are the incoming healing created by the player, or other players in their group which affects them.*
	Health:
	- *All characters and enemies have a certain amount of health, signified by the green bar and corresponding numerical value placed on it, in the user interface.*
	- *Resources for player and boss abilities are displayed in the same way as health. This is featured below the health-bar.*
	Most quests require players to do something a certain amount of times, be it either kill a certain amount of enemies or collect a certain amount of items. This is the same for world quests.
Textual	*All narrative is delivered in both textual and auditoral form. The text appears both in boxes over the characters heads, and in textboxes on the bottom of the screen.*
	Rewards for completing world quests, both reputation and others, are listed in the chat box on the bottom-right side of the screen.
	Reputation rewards are in blue text.
	Gold rewards are in yellow text.
	Other rewards are in green text, with the color of the received item highlighted.

Visual	**Healthbars:**
	- *Player health is displayed on the interface in the top left corner. This also displays the characters resource bar, which in this case is a red bar for the resource rage.*
	- *The selected enemy displays a health bar right next to the player health bar, with all the same characteristics.*
	Abilities
	- *All player abilities have their own animation and sound. More important abilities have a larger visual for the player to notice them properly.*
	- *Some abilities require a cast-time. In these cases, a progress bar appears above the character action bar at the bottom. This also applies to enemies, but enemy cast-bars appear beneath their health-bar. If such a progress-bar has a shield around it, it means that it is not interruptible by player efforts.*
	Items, objects, or NPCs which are part of the criteria of completing a quest or part of a scenario, have a glow effect.
Auditoral	*When you accept a quest, a small sound cue is played.* *When you deliver a quest, a small sound cue is played.*
	All narrative, apart from quest text, is delivered in both textual and auditoral form.
	When an enemy begins to attack you, a small sound cue is played. *All player- and enemy abilities have their own sound cues.*

Ensslin's Functional Ludostylistics

Component	Aspect	Description
Ludology	*Gameplay*	*The gameplay of quest varies with quest objectives, but mostly follows basic game mechanics like combat and collection.*
	Game Architecture	*Quests have a very clear progression system. One quest leads to another. These individual pieces are events within a larger storyline.*
	Feedback	*Quests provide both textual, auditory, and numerical feedback for players progression within the system.*
Ludosemiotics	*Text and Discourse*	*Text and dialogue narrates the same narrative information, but varies in how optional they are.*
	Multimodality	*Quest descriptions use several modalities to convey game-relevant information, both in the exposition and gameplay of quests.*
	Verbal Language	*Some quests, most often the ones which are central to the narrative, provide voiced character interactions that play out the contents of the quests.*
		This session also has several literary elements in it, but I will not go into detail here.

Final Thoughts:

It seems that in world quests, as there is even less space to narrate quests than in normal quests, that they just explain the quest objectives with narrative terms. Instead of just reading "go there and do this" from a UI element, it is explained by a character from within the narrative instead, as to not be too obvious as just a small activity with limited impact on the world.
Exceptions to this, are the Tortollan quests, which do not seek to hide their obvious mini-game expression. They rather embrace it, and make attempts to contextualize them as much as possible. The activity itself however, will be forever ludic.

Gameplay Research Sheet 5: Quests 05

Date:	*26.02.2020*
Game:	*World of Warcraft: Battle for Azeroth*
Game Version:	*Version 8.3.0.33369*
Server:	*Twisting Nether - EU*
Character:	*Storeide*
Race - Class Combination:	*Zandalari Troll Warrior*
System Played:	*Quests (World Quests)*
Playtime:	*00:22:41*
Name of Recording:	*26022020_Questing_WorldQuests_05.mp4*

Pre Gameplay Notes:

World Quests are types of quests which unlock at max level, and yields rewards for max level progression. This can be reputation with certain factions of the game, gold, equipment, azerite, crafting materials, or other things. These are located out in the gameworld, and are featured on the world map. If a player moves within the area of the World Quest, they automatically accept it. If they then leave the area, the quest is removed from their quest log. In addition to this, there is a system which is called 'Emissary Quests'. Every day, there is a new emissary quest for one of the factions of the current expansion. If a player completes four, sometimes three, world quests in the zone which the faction recides, they will receive an additional reward in the form of equipment and reputation.

Some of these quests are repreats or continuations of normal quests from the zones they are in, meaning that players will find some familiarity within these quests. In this session, I will do World Quests in the zone of Nazjatar, with an emissary quest for the factions 'The Unshackled'.
While these could be compared to normal quests, they usually are even simpler and with more specific criteria. They are also experienced more as 'mini-games' than normal quests, and are not a part of a larger narrative.
Nazjatar is a zone which was added about halfway through the current expansion, at 26.06.2019 in "Rise of Azshara", and features more challenging content than the original zones of the expansions.

Notes:

As the emissary quest I received for the day was for the faction; "The Unshackled", I travel to the zone in which the world quests take place. The only way to reach this zone is through a portal.

In addition to regular world quests, there are two other quest systems apparent in this zone which I use during this session.
One is called daily quests, and are displayed as a blue exclamation point over an NPCs head. It being blue, signifies that this quest will just be available for that day. The next day, perhaps other daily quests will be available. This is a type of quest which has been in the game for a long time, and usually functions as a good way to earn reputation with a faction.
The second quest system is new for this zone. I blow a large horn in the middle of a cavern, which opens a menu that features three possible allies for the day. When I request one of them, they will follow me throughout the zone for that day and aid me in combat. Along with this, each ally has their own experience bar, which the player can progress by doing allied daily quests. These are specific daily quests that are affiliated to each ally, and only become available if the player selects an ally for the day. These appear out in the gameworld, and can be found on the world map.

So as I begin doing world quests in this zone, I am also doing normal daily quests and ally daily quests. Additionally during this session, there is an event happening in the zone. Enemy generals are littered throughout the gameworld, marked by silver skulls on the world map, and yields additional rewards if defeated. These do not respawn, so the players must be quick to get to them to acquire the extra rewards. These are tougher enemies, and usually need several players to defeat. At 08:34 a warning appears in the middle of the screen, saying that all Naga Commanders have been defeated.

Two of the daily quests for this session, "Requisition: A Few Cone Shells" & "Requisition: More Cone Shells", regards collecting 'Impregnable Cone Shells' which lie scattered on the ground throughout the zone. As this is not limited to a specific area, I constantly scan the ground I travel over for these objects.

This session highlights the many different ways in which quests can have different criteria. World quests like "Frozen Winds of Zhiela" require the player to only kill a certain enemy. "She Sells These Shells" sends the player to collect items from a certain area. "Murloc Mayhem" has a progress bar that can be filled by doing a variety of tasks. "Misdirection" requires the player to look through many shells in order to find a hidden treasure. This location is random. And world quests like "Give 'Em Shell", "Runelocked Chest", and "Leylocked Chest" have a very mini-game impression.
"Runelocked Chest" is particularly interesting as it is basically just a game of Bejeweled. It might be apparent in the recording that I have not played this game a lot.

Information Types and Descriptions

Information Type	Description
Numerical	***Damage Numbers:*** - *White numbers are the damage from the avatars auto-attacks, which is constantly ticking in the background when in combat with enemies, as long as you are close enough.* - *Yellow numbers are the damage of the avatars active skills, and are controlled by which abilities the player uses.* - *Orange numbers are damage from NPC's connected to the player. Things like pets do this kind of damage.* - *Green numbers are the incoming healing created by the player, or other players in their group which affects them.* ***Health:*** - *All characters and enemies have a certain amount of health, signified by the green bar and corresponding numerical value placed on it, in the user interface.* - *Resources for player and boss abilities are displayed in the same way as health. This is featured below the health-bar.* *Most quests require players to do something a certain amount of times, be it either kill a certain amount of enemies or collect a certain amount of items. This is the same for world quests.*
Textual	*All narrative is delivered in both textual and auditoral form. The text appears both in boxes over the characters heads, and in textboxes on the bottom of the screen.* *Rewards for completing world quests, both reputation and others, are listed in the chat box on the bottom-right side of the screen.* *Reputation rewards are in blue text.* *Allied reputation rewards are in blue text.* *Gold rewards are in yellow text.* *Other rewards are in green text, with the color of the received item highlighted.*

Visual	**Healthbars:** - *Player health is displayed on the interface in the top left corner. This also displays the characters resource bar, which in this case is a red bar for the resource rage.* - *The selected enemy displays a health bar right next to the player health bar, with all the same characteristics.* **Abilities** - *All player abilities have their own animation and sound. More important abilities have a larger visual for the player to notice them properly.* - *Some abilities require a cast-time. In these cases, a progress bar appears above the character action bar at the bottom. This also applies to enemies, but enemy cast-bars appear beneath their health-bar. If such a progress-bar has a shield around it, it means that it is not interruptible by player efforts.* *Items, objects, or NPCs which are part of the criteria of completing a quest or part of a scenario, have a glow effect.*
Auditoral	*When you accept a quest, a small sound cue is played.* *When you deliver a quest, a small sound cue is played.* *All narrative, apart from quest text, is delivered in both textual and auditoral form.* *When an enemy begins to attack you, a small sound cue is played.* *All player- and enemy abilities have their own sound cues.*

Ensslin's Functional Ludostylistics

Component	Aspect	Description
Ludology	*Gameplay*	*The gameplay of quest varies with quest objectives, but mostly follows basic game mechanics like combat and collection.*
	Game Architecture	*Quests have a very clear progression system. One quest leads to another. These individual pieces are events within a larger storyline.*
	Feedback	*Quests provide both textual, auditory, and numerical feedback for players progression within the system.*
Ludosemiotics	*Text and Discourse*	*Text and dialogue narrates the same narrative information, but varies in how optional they are.*
	Multimodality	*Quest descriptions use several modalities to convey game-relevant information, both in the exposition and gameplay of quests.*
	Verbal Language	*Some quests, most often the ones which are central to the narrative, provide voiced character interactions that play out the contents of the quests.*
		This session also has several literary elements in it, but I will not go into detail here.

Final Thoughts:

As prior mentioned, even though my focus of this session was the questing system 'world quests', there were two other apparent questing systems.
Ally daily quests provided a choice of which ally to take along with you as you quest through the zone for the day, leveling them up by doing specific daily quests. This grants another form of daily progression.
Normal daily quests can be compared to world quests, only that it is required to accept and deliver the quest at a certain NPC. These provide the same rewards as world quests do.

Watching back the recording, the way I scan the environment for quest objectives seems frantic and jittery. I struggle to keep up when only watching. Again, I do not know if this is because I am not in a Deep or Hyper Attention state, but I will discuss this thoroughly.

Gameplay Research Sheet 6: Quests 06

Date:	*04.03.2020*
Game:	*World of Warcraft: Battle for Azeroth*
Game Version:	*Version 8.3.0.33528*
Server:	*Twisting Nether - EU*
Character:	*Destructobul*
Race - Class Combination:	*Tauren Death Knight*
System Played:	*Questing - Zuldazar (Normal Quests)*
Playtime:	*00:24:10*
Name of Recording:	*04032020_Questing_Zuldazar_06.mp4*

Pre Gameplay Notes:

This character has only completed the introductory questline to this expansion, meaning that he has no progression in any quest systems or storylines from the newest expansion of the game.
As a change of pace, I will do this session by only using ground mounts, with no flying. This is the way these quests were originally designed to be completed, as flying was not added in this expansion before much later.
Questing is never meant to be hard, but emphasizes an entertaining leveling experience for the players. Narratives are simple and straightforward, and are meant to be easy to grasp. They highlight ludic gameplay while at the same time being entertaining as a literary element. I seek to finish one small storyline in this session, no matter how long or short this might be, to have a concrete analytical session.
I will begin the storyline of the zone 'Zuldazar' in this session.

Notes:

To prepare for this session, I have positioned my character right where I select which storyline I wish to pursue as a player. Just to remove travel time from the recording session.

At this starting point, I as a player can select between which of the three new zones I wish to adventure in. The choices are; Vol'Dun, Nazmir, and Zuldazar, which each have their own introductions and inherent storylines. For this session, I selected the zone Zuldazar.

As mentioned, every zone has an introduction, to kick off the setting and the narrative exposition. In this case, I talk with Princess Talanji to get an audience with the king of this new city we explore as players. This is a continuation of the larger expansion storyline, which I will not detail here. In short; my faction requires new allies in a large scale war.

While it is noted that the king is slow in trusting new allies, he immediately puts me to work with different quests. Now that introductions are complete, I receive three new quests. These I believe are the beginnings of different storylines within the zone, and I can select which one I choose to pursue first from this introduction. While I accept all the quests, I choose "Tal'Gurub" as my first quest, where I will handle a situation with the mystic Prophet Zul.

An interesting note here, is that the situation of the quest was explained in the quest text, where apparently King Rastakhan was talking to me directly. But after I accept the quest, it seems that this conversation never took place, as the same narrative event happens between him and Prophet Zul. The quest text was the ludic introduction of the quest gameplay, while the narrative event after whas the literary/narrative emergence of the story.

The other quests I accept after this, do not have such a narrative setting. This gives me the impression as a player that the quest regarding the Prophet Zul is the most important within the narrative.

As I travel to the quest area, I find that it is located just a stone's throw from the city where I accepted the quest. As I arrive, another narrative event unfolds. It is important to note here, that the player is not required to listen to this narrative, and can just continue with his quests if that is what they choose to do. But in this recording, I listen to the story, as I am genuinely interested.

As I enter the area where the quest objectives are located, I find an additional, optional, quest in the area. This quest is not required to continue the narrative I have already begun, but can add additional narrative information and additional rewards if completed.

During the quest "Arrogance of Vol'Jamba" at 10:40, the quest objectives highlights the narrative exposition in the player experience. As the player approaches to destroy different masks, they cite paragraphs from a prophecy that is important to the narrative. They are programmed in such a way that the player cannot miss what is said. Ludic mechanics, like how the player cannot approach the masks when they are breathing fire, adds some non-trivial effort on the gameplay side.

The quest "Zul's Ethical Dilemma" highlights an option for player choices. The objective is to free 9 mindslaves, but there are two different ways the player can do this. They can either use a chant they have received to properly free the slaves, or they can kill them. Both counts as quest progression. There are two different enemies that this can be done with. Some that are simple to kill, and others that are harder. The player is equipped with means to easily take care of both, but chooses their method themselves.

Also in this area, there is another optional quest.

For the final quest; "Plot Twist", all the preparations made by the players in the former quests help them defeat the final enemy. The enemies they freed fight with them, and the potion they tampered with weakens the enemy instead of strengthening them.

After this conclusion, the player is sent back to the place where they accepted the beginning of the questline. This rounds of the narrative, grants a larger reward, and sets the player up to begin their new questlines.

Imagine here that if I did not accept all the quests in this area right away, I would have the possibility to do so now.

Information Types and Descriptions

Information Type	Description
Numerical	***Damage Numbers:*** - *White numbers are the damage from the avatars auto-attacks, which is constantly ticking in the background when in combat with enemies, as long as you are close enough.* - *Yellow numbers are the damage of the avatars active skills, and are controlled by which abilities the player uses.* - *Orange numbers are damage from NPC's connected to the player. Things like pets do this kind of damage.* - *Green numbers are the incoming healing created by the player, or other players in their group which affects them.* ***Health:*** - *All characters and enemies have a certain amount of health, signified by the green bar and corresponding numerical value placed on it, in the user interface.* - *Resources for player and boss abilities are displayed in the same way as health. This is featured below the health-bar.* *All accepted quests get a number in the players quest log, so as to be easier to separate.* *Most quests require players to do something a certain amount of times, be it either kill a certain amount of enemies or collect a certain amount of items.*

Textual	Introductory narrative exposition:
	"Zuldazar
	Earn the trust of King Rastakhan and the Zanchuli Council"
	With the quest text:
	"King Rastakhan is an ancient ruler who is not quick to trust new allies.
	We must earn his trust if we are to earn his fleet.
	Zuldazar is the seat of power for the Zandalari empire and a good place
	to start in winning over these potential allies."
	In a quest description, all quests include a title, a narrative exposition, a list of quest objectives, and a list of rewards.
	Accepted quests are listed in the players quest log.
	Accepted quests have their titles and objectives listed on the right side of the screen.
	Enemies that need to be killed for a quest, have a yellow glow around their feet. Similar to objects. If the player hovers over them with their mouse, they get a small textbox with some information about the enemy, and what quest they are an objective of. This also marks the quest progression. This box appears in the bottom right corner.
	When you progress in quest objectives, a small message noting your progression appears in the middle of the screen in yellow text. For example "Voodoo Totem $\frac{1}{8}$"
	When all the objectives of a quest are complete, a small message in yellow text saying; "Objective Complete" appears in the middle of the screen.
Visual	*Yellow exclamation points signify that an NPC has one or several quests available.*
	Grey exclamation points signify that your character is not high enough level yet to accept that quest.
	Yellow question marks signify that you are able to deliver a quest to an NPC.
	Grey exclamation points signify that you are able to deliver a quest to an NPC when all the quest objectives are completed.

Blue areas on the map and minimap mark the area where the objectives of quests can be completed. This is combined with the number of that quest in the players quest log. This option can be turned off.

Quest objectives glow in the gameworld to be easier to spot by players. NPCs that interact with a quest have a glow around their feet. This option can be turned off.

The animations of quest NPCs often follow what is written in the quest text, at 10:32 for example the NPC laughs in the gameworld when the quest text says he chuckles.

Healthbars:
- *Player health is displayed on the interface in the top left corner. This also displays the characters resource bar, which in this case is an light blue bar for the resource 'runic power'.*
- *The selected enemy displays a health bar right next to the player health bar, with all the same characteristics.*

Abilities
- *All player abilities have their own animation and sound. More important abilities have a larger visual for the player to notice them properly.*
- *Some abilities require a cast-time. In these cases, a progress bar appears above the character action bar at the bottom. This also applies to enemies, but enemy cast-bars appear beneath their health-bar. If such a progress-bar has a shield around it, it means that it is not interruptible by player efforts.*
- *Some abilities have a chance to trigger a special effect, called a 'proc'. When this happens, UI elements appear in the middle of the players screen. In this case, icy elements on the left and right means that "Obliterate" will do more damage. Icy elements on the top means that "Howling Blast" will do more damage. These are also marked with positive effects on the top right of the screen.*

Auditoral	*When you accept a quest, a small sound cue is played.*
	When you deliver a quest, a small sound cue is played.
	When an enemy begins to attack you, a small sound cue is played.
	All player- and enemy abilities have their own sound cues.
	Some narrative exposition has voice-lines triggered when players accept a quest or progress within an area.

Ensslin's Functional Ludostylistics

Component	Aspect	Description
Ludology	*Gameplay*	*The gameplay of quest varies with quest objectives, but mostly follows basic game mechanics like combat and collection.*
	Game Architecture	*Quests have a very clear progression system. One quest leads to another. These individual pieces are events within a larger storyline.*
	Feedback	*Quests provide both textual, auditory, and numerical feedback for players progression within the system.*
Ludosemiotics	*Text and Discourse*	*Text and dialogue narrates the same narrative information, but varies in how optional they are.*
	Multimodality	*Quest descriptions use several modalities to convey game-relevant information, both in the exposition and gameplay of quests.*
	Verbal Language	*Some quests, most often the ones which are central to the narrative, provide voiced character interactions that play out the contents of the quests.*

Final Thoughts:

This session highlights the games process for narrative exposition very well. There is a dynamic between the gameplay and the narrative which seeks to emphasize both; the ludic gameplay immerses the player in the narrative, and the narrative provides contextualization to the ludic gameplay. They both want to be apparent and clear to the player, meaning that they are in some cases oversimplified. The narrative is straightforward and the gameplay is of low complexity.

It becomes apparent here that some questlines have a very clear progression. It begins with narrative exposition, then the ludic gameplay which yields some rewards in form of loot and experience from killing monsters, before the final large reward at the end of the quest.
In larger storylines, these small progressions cumulate to harder challenges and greater rewards. Not as much apparent here as in the Black Empire Campaign quest session.
I have made a graphic to display this progression, as well as displaying how smaller narratives function within larger narratives.

Small Questlines

```
                    LOOT / GOLD /            GOLD / EQUIPMENT /
                    EXPERIENCE               EXPERIENCE
                        ↑                         ↑
                        |                         |
   QUEST  →   ACTIVITY   →   REWARD   →   NEW QUEST
```

Larger Questlines

```
   ┌─────────────────────────────────────────────────────────────┐
   │                         QUESTLINE                            │
   │                                                              │
   │  STORY FRAGMENT → ACTIVITY → STORY FRAGMENT → ACTIVITY        │
   └─────────────────────────────────────────────────────────────┘
                             ↓
                  STORY ENDING → LARGE REWARD
                             ↓
   ┌─────────────────────────────────────────────────────────────┐
   │                         QUESTLINE                            │
   │                                                              │
   │  STORY FRAGMENT → ACTIVITY → STORY FRAGMENT → ACTIVITY        │
   └─────────────────────────────────────────────────────────────┘
```
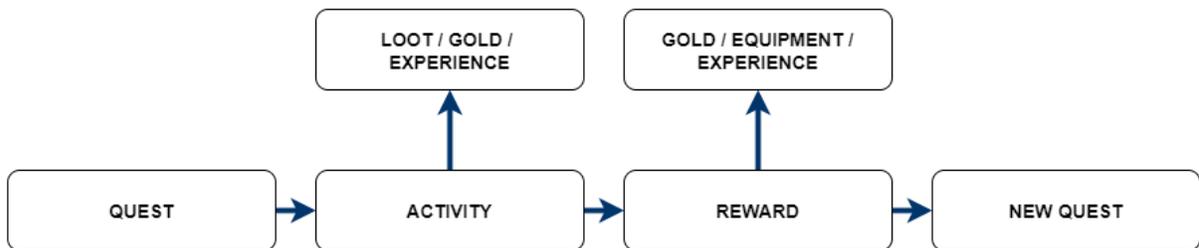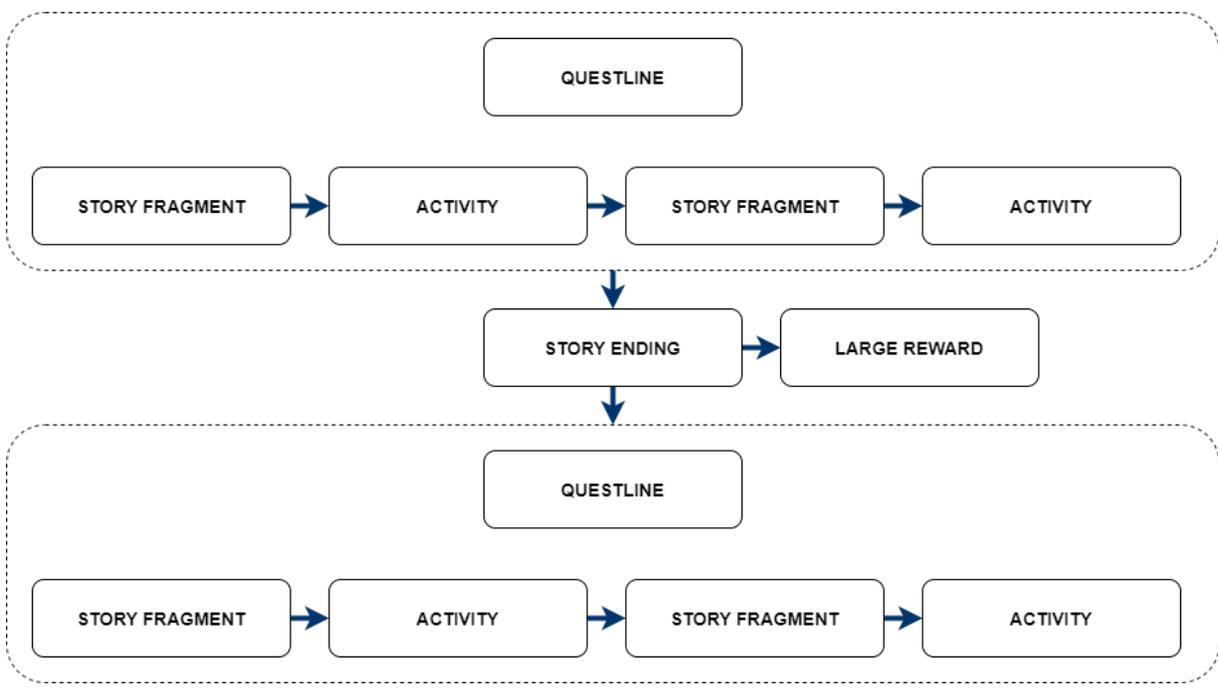
Gameplay Research Sheet 7: Island Expeditions 01

Date:	*11.02.2020*
Game:	*World of Warcraft: Battle for Azeroth*
Game Version:	*Version 8.3.0.33237*
Server:	*Twisting Nether - EU*
Character:	*Storeide*
Race - Class Combination:	*Zandalari Troll Warrior*
System Played:	*Island Expeditions (Heroic Difficulty)*
Playtime:	*00:20:56*
Name of Recording:	*11022020_IslandExpeditions_01.mp4*

Pre Gameplay Notes:

In this first recording, I will focus on doing my own tasks, and not rely too much on the two players on my team. The character which I play here has very decent equipment, and should be able to take on the challenges of the Island Expedition on its own. I also play a warrior, a damage dealing class with a great amount of self sustain. I will of course, adhere to my team if they express a wish for it, but otherwise leave them alone for the most part.

I expect to be sporadic in my task-completion here, doing the tasks which are closest to me at any given time. I also expect that the tasks themselves will vary greatly in terms of their criteria and inherent elements, leading to many different activities.

For this session, I had already completed one of the Island Expeditions necessary for the weekly reward, which is the reason I only did three playthroughs instead of four. These were all on Heroic difficulty, which means you can still automatically get a group through the games' queue system. The teammates I will play with are therefore random.

Notes:

1st Expedition (01:39): We are placed on the map "Verdant Wilds", and are a team consisting of a Blood Elf Demon Hunter and an Orc Death Knight in addition to myself. We are up against the team "Light's Vengeance", and are invaded by the taunka and the faceless.
This expedition went abnormally fast, which makes me believe that the two other players on my team had very good equipment. The tasks were thrown at me way faster than I could complete them, and I only saw a handful of what was explained to me.

2nd Expedition (07:20): We are placed on the map "Jorundall", and are a team consisting of a Troll Death Knight and a Goblin Shaman in addition to myself. We are up against the team "Razak's Roughriders", and are invaded by fire elementals. Immediately after leaving the starting area, new enemies appear on the island. This shows how quick the content of the island can change. This one was not as quick as the first expedition. I especially noticed here how I changed my attention very rapidly between different tasks and objects, and completed several tasks very quickly. I also felt like I needed to adapt a lot in the different activities, as I learned new mechanics and found new items.

3rd Expedition (15:20): We are placed on the map "Snowblossom Village", and are a team consisting of a Troll Druid and a Blood Elf Warlock in addition to myself. We are up against the team "Dark Iron Demolishers", and are invaded by twilight dragons.
This felt the slowest of the three, but I still believe it went very quick. In this expedition, there was a lot of space between the different tasks and activities, making me run around a lot.

When I have completed four Island Expeditions for the week, I turn in a quest called "Azerite for the Horde" for a large reward of Azerite resources, used in the Heart of Azeroth system.

Information Types and Descriptions

Information Type	Description
Numerical	**Damage Numbers:** - *White numbers are the damage from the avatars auto-attacks, which is constantly ticking in the background when in combat with enemies, as long as you are close enough.* - *Yellow numbers are the damage of the avatars active skills, and are controlled by which abilities the player uses.* - *Orange numbers are damage from NPC's connected to the player. Things like pets do this kind of damage.* - *Green numbers are the incoming healing created by the player, or*

	other players in their group which affects them. ***Health:*** - *All characters and enemies have a certain amount of health, signified by the green bar and corresponding numerical value placed on it, in the user interface.* - *Resources for player and boss abilities are displayed in the same way as health. This is featured below the health-bar.* - *The healtbar of the other members of the group, are placed below the player's on the left side of the screen.* ***System:*** - *Each time a player kills an enemy, mines some ore, or completes an objective, the amount of Azerite they receive appears in beige text. Azerite collected by the player has large text, and Azerite collected by teammates have smaller text.* - *At the top of the screen, it lists that the players need to collect, in this case, 9000 Azerite to win the Expedition. It also tracks both teams' progress to this goal.*
Textual	*Narrative exposition is used in Island Expeditions to convey both the players progress, and to inform of new events on the island. Here are the events of the first expedition.* *At 02:29, we are being told that we can create a mech to help us on the expedition if we collect spare parts. This was an optional quest for this specific Island Expedition, and one which we did not complete.* *At 02:57, we are informed that the opposing team is also on the Island. As this is against NPC's, there are a set amount of teams the players can face, and this short introduction tells them which team they are currently up against. Each team has certain strengths and weaknesses. In this case, we are up against the team "Light's Vengeance".* *At 03:29, we are informed that new invaders have come to the island. Which marks new X'es on the map.* *At 04:00, enemies called "The Faceless" invade the island. Creating even more red X'es.*

		At 04:13, we are informed that we are halfway to our 9000 Azerite goal.
		At 05:24, we are informed that we are almost at our goal. This usually happens around the 8000 Azerite mark.
		When we win, at 05:38, there is a small narrative round-off while the rewards of the Island Expeditions are listed, before the game ends.
		Status effects, like stuns or fear, are informed to the player in the middle of the screen. Like at 03:58.
	Visual	**Healthbars:**

Healthbars:
- *Player health is displayed on the interface in the top left corner. This also displays the characters resource bar, which in this case is a red bar for the resource rage.*
- *Just below the character health bar, is the group interface. In Island Expeditions, no specific roles are assigned, and the players are listed in alphabetical order.*
- *The selected enemy displays a health bar right next to the player health bar, with all the same characteristics.*

Abilities:
- *All player abilities have their own animation and sound. More important abilities have a larger visual for the player to notice them properly. In this case for example, an animation of a helmet and a sword appears when the player uses their most damage-enhancing ability.*
- *Boss and enemy abilities are displayed by large visual cues, most often in simple geometrical shapes that players need to interact with.*
- *Some abilities require a cast-time. In these cases, a progress bar appears above the character action bar at the bottom. This also applies to enemies, but enemy cast-bars appear beneath their health-bar. If such a progress-bar has a shield around it, it means that it is not interruptible by player efforts.*

Status effects, like stuns or fear, are informed to the player in the middle

of the screen. Like at 03:58.

Map:
- *In Island Expeditions, the map is a very useful tool. Before the Expedition begins, at 02:21, I open the map to see what the Island Contains. Each player has a certain "vision range" on the world map in Island Expeditions, and must reveal the content of the island in order to make it appear on the map. This is shared between all players.*
- *Red X'es, marks locations where large amounts of resources can be obtained. It does however not say how the players can get the resource.*
- *When new events happen on the island, these are marked with new X'es.*
- *Smaller quantities of Azerite is marked with a blue and gold diamond.*
- *Rare enemies are marked with a small silver skull.*
- *Portals or teleportation devices are marked with a small blue portal.*
- *Azerite Ruptures, where players can fight over a drill that automatically harvests Azerite , are marked with a large silver skull on a bronze star.*
- *Quests are marked with a yellow exclamation point, as with normal quests.*

Gameworld:
- *Interactable items and objects glow.*
- *Important enemies or enemies which yield a large quantity of Azerite, glow with a blue and gold hue.*
- *Larger enemies sometimes drops small blue and gold orbs, which if collected yields additional Azerite, heals the player for a large amount, and increases their damage by a significant amount for a short duration.*

Auditoral	*Voice lines are also used for **narrative exposition** in several ways. This contains both text and voice-lines. All narrative messages as explained under Textual data, is also delivered with voice-lines.*	

Ensslin's Functional Ludostylistics

Component	Aspect	Description
Ludology	*Rules*	*Same as in open gameworld. Different activities provide different amounts of resources required to win the system.* *Some activities, like mining, does not require the player to have the 'Mining' profession, which is required in the open gameworld.*
	Gameplay	*The gameplay might vary from session to session, depending on the Islands content.*
	Risks and Challenges	*The risks and challenges might vary from session to session, depending on the Islands content.*
	Game Architecture	*The subsystem is very obviously a subsystem. In literal terms, it is experienced as an isolated event, one expedition out of many.*

Ludosemiotics	Interface Design	Aesthetic values like size, color, and shape, signify how much azerite different activities and monsters award the player. Signs on the world map, informs the player about the situation and content of the Island.
	Multimodality	Both visual, literary, and auditoral information are connected to most events.
	Verbal Language	Verbal language from the 'Expedition Leader' and opposing team, inform the player of new events and developments on the island. Used primarily as a game mechanic, but dressed as narrative setting.

Final Thoughts:

Island Expeditions is a pseudo-randomized system, where players face new challenges each game. What challenges or tasks the players need to face in order to collect enough resources to achieve victory is unknown to them before they enter the game session, meaning that they have to make decisions as they go. They can make prior decisions like; "I want to focus on combat and mining", but how much azerite this decision will yield varies from expedition to expedition. On some islands for example, there could be little resources to mine, forcing the player to change their playstyle if they want to collect a larger amount of resources for a faster completion time.

Because of this characters' high quality of equipment, combat was an appropriate challenge to undertake. This session then, regarded mostly just big brawls with large amounts of enemies, with fast-paced gameplay avoiding damage through different enemy mechanics while doing the most damage in return. I did some other tasks, like mining, in between combat sessions, but my main focus was seeking out packs of enemies that awarded large amounts of resources. The visual information from the enemies themselves, like their aesthetics, size, or other elements signifying that these were either hard to defeat or awards high amount of azerite resource, was then very useful for my playstyle.

The tasks in Island Expeditions are meant to be simple and quick to complete, functioning as small interest-points the players interact with on every island. The variation in tasks is meant to provide opportunity for player choice, allowing them to decide what content to complete and what to avoid. Factors that might affect this, are the character's skill level, their equipment-quality, their teamwork, or just preference.
There are no other larger goals than acquiring the predetermined resource amount, and no other rewards able to be gained within the system itself. All rewards, constant or random, are awarded at the end of the game.

There is a large amount of information going around in Island Expeditions, and a lot to be discovered if the players search the gameworld thoroughly. It can also be completed by quickly rushing over the most immediate content of the island, paying little mind to the visual, literary, or mechanical elements of the content.

Gameplay Research Sheet 8: Island Expeditions 02

Date:	*11.02.2020*
Game:	*World of Warcraft: Battle for Azeroth*
Game Version:	*Version 8.3.0.33237*
Server:	*Bloodhoof - EU*
Character:	*Storeide*
Race - Class Combination:	*Human Warrior*
System Played:	*Island Expeditions (Heroic Difficulty)*
Playtime:	*00:33:50*
Name of Recording:	*11022020_IslandExpeditions_02.mp4*

Pre Gameplay Notes:

This character does not have as good equipment as the first one who did Island Expeditions. The two characters have the same name, but are different. I hope this is not too confusing.
As this one has worse equipment, I can not rely as much on completing tasks on my own, and will therefore stay closer to my team. Perhaps then, we choose to challenge more difficult enemies, or more enemies at the same time. Regardless, I still believe killing enemies will be the main focus.
If this does not happen, I believe I will choose to complete tasks on my own, by avoiding most combat. In this session, I will complete four Island Expeditions, as I have not done any on this character for a while.

Notes:

I first needed to travel to where the Island Expeditions began, which went very quickly through the games' different travel systems. In this case, I just teleported to the main city where the system begins.

__1st Expedition (02:45):__ We are placed on the map "Jorundall", and are a team consisting of a Lightforged Draenei Warrior and a Human Death Knight in addition to myself. We are up against the team "The Raptari", and are invaded by undead vrykul.
This expedition went rather slowly. I did smaller tasks that were scattered throughout the island, but no large challenges or big decisions were made.

__2nd Expedition (12:09):__ We are placed on the map "Verdant Wilds", and are a team consisting of two Night Elf Demon Hunters in addition to myself. We are up against the team "The Highborne", and are invaded by island trolls.
At the start of this expedition, I wanted to quickly mine a large chunck of azerite before moving on. But this quick stop was foiled by some nearby goats, which attacked me in a serial fashion. Annoyed by this interruption, I changed my efforts to killing large groups of enemies. I followed one of my teammates around the island, to defeat larger amounts of enemies together. At the end of this expedition, I accidentally ran into the opposing team all by myself. As this was on heroic difficulty, and my equipment was of an average quality, these would be a challenge to defeat alone.
These island expedition teams are programmed specifically to mimic other players, both in their movement and in their gameplay, similar to normal PvP (Player versus Player). To be able to defeat them more easily, I should have targeted the healer first. They all have voice-lines and visuals to help the players identify which target is which, with the healer having voice-lines like "Tsk, tsk. Let me fix that", while channeling a healing spell to their allies. Right before I died to this opposing team, my teammates collected enough resources to win the expedition.

__3rd Expedition (19:40):__ We are placed on the map "Jorundall", and are a team consisting of a Dark Iron Dwarf Mage and a Night Elf Demon Hunter in addition to myself. We are up against the team "Greenbelly's Raiders", and are invaded by fire elementals and saurok.
At the start of this expedition, I interact with a "Pillar of the Watchers", which gave me a buff that increases my healing done and taken. As a warrior, I have decent self-healing, and with this buff I challenged harder enemies. Unfortunately, I grew too overconfident with this buff, and ended up dying. I returned then, to playing more carefully. But, even later, I again picked up a buff. This time from a "Primal Totem", which increased my damage by a significant amount. I then changed back to killing larger enemies.
This expedition was interesting as it changed my playstyle three times.

__4th Expedition (27:08):__ We are placed on the map "Snowblossom Village", and are a team consisting of a Human Warrior and a Lightforged Draenei Warrior in addition to myself. We are up against the team "Greenbelly's Raiders", and are invaded by the mantid.
Not extremely interesting. I activated the Azerite Extractor late in the game, meaning that it did not

achieve much. For a better use of it, I would seek this out first, and let it mutter on in the background as I went and did other things.

As I completed four expeditions, I got a large reward.

Information Types and Descriptions

Information Type	Description
Numerical	***Damage Numbers:*** - *White numbers are the damage from the avatars auto-attacks, which is constantly ticking in the background when in combat with enemies, as long as you are close enough.* - *Yellow numbers are the damage of the avatars active skills, and are controlled by which abilities the player uses. This usually only hits enemies, but at 05:18 I am afflicted by a boss mechanic, and we can see the same damage type is done on friendly players.* - *Orange numbers are damage from NPC's connected to the player. Things like pets do this kind of damage.* - *Green numbers are the incoming healing created by the player, or other players in their group which affects them.* ***Health:*** - *All characters and enemies have a certain amount of health, signified by the green bar and corresponding numerical value placed on it, in the user interface.* - *Resources for player and boss abilities are displayed in the same way as health. This is featured below the health-bar.* - *The healtbar of the other members of the group, are placed below the player's on the left side of the screen.* ***System:*** - *Each time a player kills an enemy, mines some ore, or completes an objective, the amount of Azerite they receive appears in beige text. Azerite collected by the player has large text, and Azerite collected by teammates have smaller text.* - *At the top of the screen, it lists that the players need to collect, in*

		this case, 9000 Azerite to win the Expedition. It also tracks both teams' progress to this goal.
Textual		*Narrative exposition is used in Island Expeditions to convey both the players progress, and to inform of new events on the island. Here are the events of the third expedition.*
		At 21:00, we are informed that the opposing team is also on the Island. As this is against NPC's, there are a set amount of teams the players can face, and this short introduction tells them which team they are currently up against. Each team has certain strengths and weaknesses. In this case, we are up against the team "Greenbelly's Raiders".
		At 22.03, we receive a bonus objective called "Gregg needs Help!", which requires us to collect a key and free Gregg from a cage. One of my teammates completed this objective.
		At 22:52, we are informed that new invaders have come to the island. Which marks new X'es on the map.
		At 23:16, enemies called "Saurok" invade the island. Creating even more red X'es.
		At 23:39, we are informed that we are halfway to our 9000 Azerite goal.
		At 25:15, we are informed that we are almost at our goal. This usually happens around the 8000 Azerite mark.
		When we win, at 25:39, there is a small narrative round-off while the rewards of the Island Expeditions are listed, before the game ends.
		Status effects, like stuns or fear, are informed to the player in the middle of the screen.

Visual	**_Healthbars:_**
	- _Player health is displayed on the interface in the top left corner. This also displays the characters resource bar, which in this case is a red bar for the resource rage._
	- _Just below the character health bar, is the group interface. In Island Expeditions, no specific roles are assigned, and the players are listed in alphabetical order._
	- _The selected enemy displays a health bar right next to the player health bar, with all the same characteristics._
	Abilities:
	- _All player abilities have their own animation and sound. More important abilities have a larger visual for the player to notice them properly. In this case for example, an animation of a helmet and a sword appears when the player uses their most damage-enhancing ability._
	- _Boss abilities are displayed by large visual cues, most often in simple geometrical shapes that players need to interact with._
	- _Some abilities require a cast-time. In these cases, a progress bar appears above the character action bar at the bottom. This also applies to enemies, but enemy cast-bars appear beneath their health-bar. If such a progress-bar has a shield around it, it means that it is not interruptible by player efforts._
	Status effects, like stuns or fear, are informed to the player in the middle of the screen.
	Map:
	- _In Island Expeditions, the map is a very useful tool. Before the Expedition begins, at 02:21, I open the map to see what the Island Contains. Each player has a certain "vision range" on the world map in Island Expeditions, and must reveal the content of the island in order to make it appear on the map. This is shared between all players._
	- _Red X'es, marks locations where large amounts of resources can be obtained. It does however not say how the players can get the resource._
	- _When new events happen on the island, these are marked with_

	new X'es. - *Smaller quantities of Azerite is marked with a blue and gold diamond.* - *Rare enemies are marked with a small silver skull.* - *Portals or teleportation devices are marked with a small blue portal.* - *Azerite Ruptures, where players can fight over a drill that automatically harvests Azerite , are marked with a large silver skull on a bronze star.* - *Quests are marked with a yellow exclamation point, as with normal quests.* ***Gameworld:*** - *Interactable items and objects glow.* - *Important enemies or enemies which yield a large quantity of Azerite, glow with a blue and gold hue.* - *Larger enemies sometimes drops small blue and gold orbs, which if collected yields additional Azerite, heals the player for a large amount, and increases their damage by a significant amount for a short duration.*
Auditoral	*Voice lines are also used for **narrative exposition** in several ways. This contains both text and voice-lines. All narrative messages as explained under Textual data, is also delivered with voice-lines.*

Ensslin's Functional Ludostylistics

Component	Aspect	Description

Ludology	Rules	Same as in open gameworld. Different activities provide different amounts of resources required to win the system.
		Some activities, like mining, does not require the player to have the 'Mining' profession, which is required in the open gameworld.
	Gameplay	The gameplay might vary from session to session, depending on the Islands content.
	Risks and Challenges	The risks and challenges might vary from session to session, depending on the Islands content.
	Game Architecture	The subsystem is very obviously a subsystem. In literal terms, it is experienced as an isolated event, one expedition out of many.
Ludosemiotics	Interface Design	Aesthetic values like size, color, and shape, signify how much azerite different activities and monsters award the player.
		Signs on the world map, informs the player about the situation and content of the Island.
	Multimodality	Both visual, literary, and auditoral information are connected to most events.
	Verbal Language	Verbal language from the 'Expedition Leader' and opposing team, inform the player of new events and developments on the island. Used primarily as a game mechanic, but dressed as narrative setting.

Final Thoughts:

This session was varied in its content, from pretty non-changing expeditions to frantically evolving gameplay. If anything, this session is a sound example to how different island expeditions can be each time.

In the third expedition for example, I received two different buffs that changed my playstyle after I read their effects. This negated, or at least changed, the fact that my player equipment was of a mediocre quality. My strategy of primarily staying close to my team did not matter as much, as there were several ways for me to solve the problems of combat without the help of my teammates.

Gameplay Research Sheet 9: Island Expeditions 03

Date:	*26.02.2020*
Game:	*World of Warcraft: Battle for Azeroth*
Game Version:	*Version 8.3.0.33369*
Server:	*Bloodhoof - EU*
Character:	*Áuriel*
Race - Class Combination:	*Night Elf Druid*
System Played:	*Island Expeditions (Heroic Difficulty)*
Playtime:	*00:31:02*
Name of Recording:	*26022020_IslandExpeditions_03.mp4*

Pre Gameplay Notes:

This character has only just reached max level, meaning that its equipment will be on a significantly low standard. I do not know how great my combat abilities will be during these Island Expeditions, meaning that I will seek to find tasks that my character can handle more easily. Maybe mining, exploring, or doing side missions.
I expect that the variety of tasks will be greater in this session, than in the last two.

Notes:

__1st Expedition (00:05):__ We are placed on the map "Skittering Hollow", and are a team consisting of a Human Paladin and a Night Elf Demon Hunter in addition to myself. We are up against the team "Warbraves", and are invaded by twilight dragons and saurok.
I first test my combat skills against the first group of enemies, and find them very limited. Luckily, I teamed up with my group to defeat them quickly. After this, I decided to focus on collecting items instead. Being a druid, I am able to travel around very fast. A later, failed combat attempt, proved that this was a good idea.
As my combat skills are limited, I find that the items I pick up are even more helpful than in the other session. At 05:17 I pick up an "Essence of Dragon's Breath" which does a huge amount of damage to enemies. I will look for more such items in the next expeditions.

2nd: Expedition (08:32): *We are placed on the map "Havenswood", and are a team consisting of a Night Elf Demon Hunter and a Human Paladin in addition to myself. We are up against the team "Greenbelly's Raiders", and are invaded by saurok.*
This time, I am more careful when choosing my encounters. I am so generally playing more defensively, using my powerful abilities and healing spells. I also team up with one of my teammates most of the time. At 11:03, I see a marked quest on the world map. This is not featured in the gameworld, but its objectives are listed under 'Bonus Objectives' in the bottom right. I find an easily marked key, it glows and has a huge light on it, and free a prisoner, which rewards me with a large amount of azerite. This type of activity fits the power level of my character.

3rd: Expedition (15:42): *We are placed on the map "Skittering Hollow", and are a team consisting of a Human Rogue and a Night Elf Demon Hunter in addition to myself. We are up against the team "The Highborne", and are invaded by naga.*
At the start of every Island Expedition, there is a vendor which sells the players certain bonuses they can use on the expedition. For this expedition, I purchased a "Flashfire Brew" and a "Pandaren Herbalist's Kit" which increases my critical strike damage & healing, and healing received respectively. Immediately after starting, I spot a "Pillar of the Watchers", which I know increases damage and healing of players by a significant amount. This helps me tackle combat much easier. With this in mind, I explore more on my own.

4th Expedition (24:15): *We are placed on the map "Molten Cay", and are a team consisting of a Gnome Warrior and a Human Paladin in addition to myself. We are up against the team "The Headhunters", and are invaded by azerite elementals and black dragons.*
Again, I spot a "Pillar of the Watchers" which I pick up immediately. And again, this made the element of combat not as threatening.

Information Types and Descriptions

Information Type	Description
Numerical	***Damage Numbers:*** - *White numbers are the damage from the avatars auto-attacks, which is constantly ticking in the background when in combat with enemies, as long as you are close enough.* - *Yellow numbers are the damage of the avatars active skills, and are controlled by which abilities the player uses.* - *Orange numbers are damage from NPC's connected to the player. Things like pets do this kind of damage.* - *Green numbers are the incoming healing created by the player, or other players in their group which affects them.*

	Health and Resources: - *All characters and enemies have a certain amount of health, signified by the green bar and corresponding numerical value placed on it, in the user interface.* - *Resources for player and boss abilities are displayed in the same way as health. This is featured below the health-bar.* - *The healtbar of the other members of the group, are placed below the player's on the left side of the screen.* *System:* - *Each time a player kills an enemy, mines some ore, or completes an objective, the amount of Azerite they receive appears in beige text. Azerite collected by the player has large text, and Azerite collected by teammates have smaller text.* - *At the top of the screen, it lists that the players need to collect, in this case, 9000 Azerite to win the Expedition. It also tracks both teams' progress to this goal.*
Textual	*Narrative exposition is used in Island Expeditions to convey both the players progress, and to inform of new events on the island.*
Visual	*Healthbars:* - *Player health is displayed on the interface in the top left corner. This also displays the characters resource bar, which in this case is a blue and purple bar for the resources mana and lunar power.* - *Just below the character health bar, is the group interface. In Island Expeditions, no specific roles are assigned, and the players are listed in alphabetical order.* - *The selected enemy displays a health bar right next to the player health bar, with all the same characteristics.* *Abilities:* - *All player abilities have their own animation and sound. More*

important abilities have a larger visual for the player to notice them properly.

- *Boss and enemy abilities are displayed by large visual cues, most often in simple geometrical shapes that players need to interact with.*
- *Some abilities require a cast-time. In these cases, a progress bar appears above the character action bar at the bottom. This also applies to enemies, but enemy cast-bars appear beneath their health-bar. If such a progress-bar has a shield around it, it means that it is not interruptible by player efforts.*

Status effects, like stuns or fear, are informed to the player in the middle of the screen.

Map:
- *In Island Expeditions, the map is a very useful tool. Each player has a certain "vision range" on the world map in Island Expeditions, and must reveal the content of the island in order to make it appear on the map. This is shared between all players.*
- *Red X'es, marks locations where large amounts of resources can be obtained. It does however not say how the players can get the resource.*
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- *Smaller quantities of Azerite is marked with a blue and gold diamond.*
- *Rare enemies are marked with a small silver skull.*
- *Portals or teleportation devices are marked with a small blue portal.*
- *Azerite Ruptures, where players can fight over a drill that automatically harvests Azerite , are marked with a large silver skull on a bronze star.*
- *Quests are marked with a yellow exclamation point, as with normal quests.*

Gameworld:
- *Interactable items and objects glow.*
- *Important enemies or enemies which yield a large quantity of*

		Azerite, *glow with a blue and gold hue.*
		- *Larger enemies sometimes drops small blue and gold orbs, which if collected yields additional Azerite, heals the player for a large amount, and increases their damage by a significant amount for a short duration.*
Auditoral		*Voice lines are also used for **narrative exposition** in several ways. This contains both text and voice-lines. All narrative messages as explained under Textual data, is also delivered with voice-lines.*

Ensslin's Functional Ludostylistics

Component	Aspect	Description
Ludology	*Rules*	*Same as in open gameworld. Different activities provide different amounts of resources required to win the system.*
		Some activities, like mining, does not require the player to have the 'Mining' profession, which is required in the open gameworld.
	Gameplay	*The gameplay might vary from session to session, depending on the Islands content.*
	Risks and Challenges	*The risks and challenges might vary from session to session, depending on the Islands content.*
	Game Architecture	*The subsystem is very obviously a subsystem. In literal terms, it is experienced as an isolated event, one expedition out of many.*

Ludosemiotics	Interface Design	Aesthetic values like size, color, and shape, signify how much azerite different activities and monsters award the player. Signs on the world map, informs the player about the situation and content of the Island.
	Multimodality	Both visual, literary, and auditoral information are connected to most events.
	Verbal Language	Verbal language from the 'Expedition Leader' and opposing team, inform the player of new events and developments on the island. Used primarily as a game mechanic, but dressed as narrative setting.

Final Thoughts:

These island expeditions were severely different, for several reasons. As this character had just reached max level, not only did it have equipment with very low quality, but it also did not have certain mechanics available to it. Examples are systems like, which I will not give an exposition to, Azerite Armor, The Heart of Azeroth, and Corrupted Gear. In addition to limiting the characters damage output, this also changes the gameplay of the character itself quite drastically.

As a result of this, I sought after challenges that were appropriate for my characters abilities, which in many cases were different than in the other sessions. For example, I kept an eye out for and completed quests more actively than in the other sessions. These are in fact very productive in the sense of collecting the resources required to win, but seems slow when playing my other characters that can handle combat easily. In reality, they would of course be just as useful to do.

I noticed especially in this session how I scanned the gameworld and world map for different tasks to do, more than just 'which is the closest one'. I made choices of what to do, and executed appropriately. The visual information provided by the world map and gameworld features were then extremely useful, as I could quickly identify the tasks I was looking for. Also, which tasks to avoid. I was more concentrated on reaching my specific tasks and completing their different criteria, than to run all over the island as quickly as I could in an almost frantic manner. Which is much more the case in the sessions where I have better equipment on my characters. Especially IslandExpeditions_01.
This felt like, while playing it, like a slightly different mode of concentration than in the other sessions. Watching the recording back as well, I get the impression of a different state of mind than in the other sessions of this system. More aligned with deep attention. I stopped more, and basically moved and acted more slowly and calculated.

Gameplay Research Sheet 10: Island Expeditions 04

Date:	*04.03.2020*
Game:	*World of Warcraft: Battle for Azeroth*
Game Version:	*Version 8.3.0.33528*
Server:	*Twisting Nether - EU*
Character:	*Quaop*
Race - Class Combination:	*Troll Monk*
System Played:	*Island Expeditions (Normal Difficulty)*
Playtime:	*00:57:45*
Name of Recording:	*04032020_IslandExpeditions_04.mp4*

Pre Gameplay Notes:

This character has the worst equipment out of all the characters used in the collection of data for this system. It has only reached max level, but has done so through a different 'talent specialization' than the one used in this session. A 'talent specialization' is a choice players make about what type of gameplay they want, often differentiating between different roles like damage-dealer and healer. Equipment is often different between these specializations.
As a result of this equipment quality, I am actually not able to enter Island Expeditions on the difficulty I usually do them, which is Heroic Difficulty, and must make do with Normal Difficulty.
In terms of content the difficulties are the same, only that Normal Difficulty requires less resources to win, and yields less resources when you complete an expedition. Both in terms of character rewards, and in progression of the quest; "Azerite for the Horde". As a result of this, I need to complete 6 Expeditions instead of 4 to complete the quest.

As I rarely do Island Expeditions on this difficulty, I am unaware about how difficult combat will be.

Notes:

1st Expedition (02:00): *We are placed on the map "Snowblossom Village", and are a team consisting of a Tauren Warrior and a Tauren Druid in addition to myself. We are up against the team "Dark Iron Demolishers", and are invaded by island trolls.*
The warrior of this group wanted to work together to gather large numbers of enemies and take them down as a team, but since both the equipment of the druid and myself was of a low quality, this strategy did not work as well as it could have. I did my best to do smaller activities like mining and collecting after the initial combat. But even while my combat abilities were lacking, I did find useful items on the island which helped my teammates.

2nd Expedition (10:00): *We are placed on the map "Whispering Reef", and are a team consisting of a troll hunter and a blood elf warlock in addition to myself. We are up against the team "Riftrunners", and are invaded by worgen.*
Before this expedition started, I purchased an item which might increase my combat abilities slightly. As I now had an idea of my combat ability, I mostly sought to avoid large conflicts. I found that the blue azerite orbs dropped by enemies was particularly useful for this character. As we were a team of players who all seemed to have bad equipment, we mostly stuck together throughout most of this expedition.

3rd Expedition (19:40): *We are placed on the map "Crestfall", and are a team consisting of a tauren druid and a mag'har orc priest in addition to myself. We are up against the team "Light's Vengeance", and are invaded by mogu. As a trivial note, I believe this island featured music from Warcraft 2. This time as well, we also stuck together as a team. I note clearly here how it is almost impossible for us to brute force through different challenges, and how we must adhere to the game's clear mechanics.*

4th Expedition (30:45): *We are placed on the map "Snowblossom Village", and are a team consisting of a blood elf hunter and a mag'har orc priest in addition to myself. We are up against the team "Dark Iron Demolishers", and are invaded by tol'vir. I made an attempt to complete the optional quest "Expeditions A.T.O.M.I.K. Ml. II" during this expedition, but there was not enough time. I picked up a buff which increased my damage and decreased my armor, which slightly changed my combat style.*

5th Expedition (39:16): *We are placed on the map "Whispering Reef", and are a team consisting of a blood elf hunter and a nightborne mage in addition to myself. We are up against the team "Light's Vengeance", and are invaded by vrykul. Nothing really special happened. I completed smaller tasks. At the end of the expedition, I receive a 'Bloodwake Drinking Horn'. This item gives me a quest to show it to someone who knows more about it, for an extra reward of azerite.*

6st Expedition (45:22): *We are placed on the map "Snowblossom Village", and are a team consisting of a pandaren monk and a blood elf hunter in addition to myself. We are up against the team "The Wolfpack", and are invaded by island trolls. I pick up an item which increases my movement speed, but almost kills me in return. I quickly heal up this damage. I mostly follow the monk around, helping*

Information Types and Descriptions

Information Type	Description
Numerical	***Damage Numbers:*** - *White numbers are the damage from the avatars auto-attacks, which is constantly ticking in the background when in combat with enemies, as long as you are close enough.* - *Yellow numbers are the damage of the avatars active skills, and are controlled by which abilities the player uses.* - *Orange numbers are damage from NPC's connected to the player. Things like pets do this kind of damage.* - *Green numbers are the incoming healing created by the player, or other players in their group which affects them.* ***Health and Resources:*** - *All characters and enemies have a certain amount of health, signified by the green bar and corresponding numerical value placed on it, in the user interface.* - *Resources for player and boss abilities are displayed in the same way as health. This is featured below the health-bar.* - *The healtbar of the other members of the group, are placed below the player's on the left side of the screen.* ***System:*** - *Each time a player kills an enemy, mines some ore, or completes an objective, the amount of Azerite they receive appears in beige text. Azerite collected by the player has large text, and Azerite collected by teammates have smaller text.* - *At the top of the screen, it lists that the players need to collect, in this case, 9000 Azerite to win the Expedition. It also tracks both teams' progress to this goal.*

Textual	*Narrative exposition is used in Island Expeditions to convey both the players progress, and to inform of new events on the island.*
Visual	**Healthbars:** - *Player health is displayed on the interface in the top left corner. This also displays the characters resource bar, which in this case is a blue and purple bar for the resources mana and lunar power.* - *Just below the character health bar, is the group interface. In Island Expeditions, no specific roles are assigned, and the players are listed in alphabetical order.* - *The selected enemy displays a health bar right next to the player health bar, with all the same characteristics.* **Abilities:** - *All player abilities have their own animation and sound. More important abilities have a larger visual for the player to notice them properly.* - *Boss and enemy abilities are displayed by large visual cues, most often in simple geometrical shapes that players need to interact with.* - *Some abilities require a cast-time. In these cases, a progress bar appears above the character action bar at the bottom. This also applies to enemies, but enemy cast-bars appear beneath their health-bar. If such a progress-bar has a shield around it, it means that it is not interruptible by player efforts.* *Status effects, like stuns or fear, are informed to the player in the middle of the screen.* **Map:** - *In Island Expeditions, the map is a very useful tool. Each player has a certain "vision range" on the world map in Island Expeditions, and must reveal the content of the island in order to*

	make it appear on the map. This is shared between all players. - *Red X'es, marks locations where large amounts of resources can be obtained. It does however not say how the players can get the resource.* - *When new events happen on the island, these are marked with new X'es.* - *Smaller quantities of Azerite is marked with a blue and gold diamond.* - *Rare enemies are marked with a small silver skull.* - *Portals or teleportation devices are marked with a small blue portal.* - *Azerite Ruptures, where players can fight over a drill that automatically harvests Azerite , are marked with a large silver skull on a bronze star.* - *Quests are marked with a yellow exclamation point, as with normal quests.* ***Gameworld:*** - *Interactable items and objects glow.* - *Important enemies or enemies which yield a large quantity of Azerite, glow with a blue and gold hue.* - *Larger enemies sometimes drops small blue and gold orbs, which if collected yields additional Azerite, heals the player for a large amount, and increases their damage by a significant amount for a short duration.*
Auditoral	*Voice lines are also used for **narrative exposition** in several ways. This contains both text and voice-lines. All narrative messages as explained under Textual data, is also delivered with voice-lines.*

Ensslin's Functional Ludostylistics

Component	Aspect	Description
Ludology	*Rules*	*Same as in open gameworld. Different activities provide different amounts of resources required to win the system.* *Some activities, like mining, does not require the player to have the 'Mining' profession, which is required in the open gameworld.*
	Gameplay	*The gameplay might vary from session to session, depending on the Islands content.*
	Risks and Challenges	*The risks and challenges might vary from session to session, depending on the Islands content.*
	Game Architecture	*The subsystem is very obviously a subsystem. In literal terms, it is experienced as an isolated event, one expedition out of many.*
Ludosemiotics	*Interface Design*	*Aesthetic values like size, color, and shape, signify how much azerite different activities and monsters award the player.* *Signs on the world map, informs the player about the situation and content of the Island.*
	Multimodality	*Both visual, literary, and auditoral information are connected to most events.*
	Verbal Language	*Verbal language from the 'Expedition Leader' and opposing team, inform the player of new events and developments on the island. Used primarily as a game mechanic, but dressed as narrative setting.*

Final Thoughts:

When a character's equipment is of a lower quality, what is and what isn't a challenge changes depending on the requirements. For this session, combat was perhaps the slowest way I could acquire azerite on my own, as it carried considerable risk and took too long. As this was the case for most of my teammates as well, we mostly cooperated. We moved slowly as a team, and methodically took down different enemies and challenges.

Even tough this went slow, there was still not enough time to complete some optional objectives. I would assume that these additional objectives are for players that have **considerable** *challenge in acquiring azerite, as the 'reward' for these optional objectives will make combat easier.*

Gameplay Research Sheet 11: Dungeons & Raids 01

Date:	*11.02.2020*
Game:	*World of Warcraft: Battle for Azeroth*
Game Version:	*Version 8.3.0.33237*
Server:	*Twisting Nether - EU*
Character:	*Storeide*
Race - Class Combination:	*Zandalari Troll Warrior*
System Played:	*Raid: Ny'Alotha, The Waking City (Looking for Raid Difficulty)*
Playtime:	*00:41:51*
Name of Recording:	*11022020_Dungeons&Raids_NyAlotha_01.mp4*

Pre Gameplay Notes:

I have a lot of prior experience with doing raids in World of Warcraft, on all difficulty levels.
*This is my first ever time into **this** raid however, and I have limited pre-existing knowledge about its progression, bosses, or mechanics. In this raid, I play as a damage-dealer (DPS), and fill focus on doing as much damage as I can while staying alive. As such, I will also spend some time exploring and looking around the instance in this play session.*
This raid is on LFR difficulty, which means that I enter the games queue system, which automatically puts together a group of 25 people to do the raid together.
In this system, I expect that I need to focus a lot on the different mechanics, and execute them properly. As mentioned in my hypothesis, this is the system which I believe can evoke deep attention the most.

Notes:

As this is the first three bosses of the raid instance, they are normally relatively simple in terms of mechanics.

Wrathion, the Black Emperor: *This boss has two main mechanics. One is to run out of the group with circles, and another is to avoid circles. None were extremely punishing. This is normal for an introductory boss, and one rarely fails to defeat it. This boss is a good example of how bosses telegraph their abilities, and how often these abilities are simple geometrical shapes. In terms of problem solving, the main active requirement from players is to react to boss-abilities, and act accordingly. No further problem-solving is needed.*

The Prophet Skitra: *This boss was very mechanically simple, but I did not understand one mechanic before late into the fight. The boss splits into, I believe, eight different forms, but each player can only see half of them. They must then communicate to find out which ones they can all see, which is the real one. If they kill the wrong one, they instantly die, which happened to us once in this raid. Luckily, some players took command, and communicated in the chat which version was the real one. While the players figured this out, nothing else happened, for me as a DPS at least, granting them full focus to this task. Another thing the group solved during the bossfight, was how to deal with "Shredded Psyche". This is an NPC which casts the ability "Psychic Outburst", which does a larger amount of damage based on proximity. At the beginning, all players went to kill this NPC, but in the end it was left for the players that could do damage from a distance, saving the players that needed to get up close for a large amount of damage. This is a type of boss which revolves around this one mechanic, and is very simple outside of it. It presents a specific problem, which needs to be solved on the spot through cooperation and problem-solving.*

At 28:37 we face two enemies which are not bosses, but have a version of the same ability as the following boss will have. This is a way for players to practice with a mechanic before facing the harder version of it, and is a common feature in several World of Warcraft raids.

Maut: *This was the most technically challenging out of all the bosses, and required isolated action from several players. Some mechanics were intuitive, while others needed to be learned. The connection between the pools that silence you and the mass AoE (Area of Effect) damage for example, was something I learned during the fight. In his stone phase, all damage done is reflected back at the player. They need to keep an eye out on their own health and damage output in order to not kill themselves, and work together with the healers to make the phase manageable. Most often, this means sticking together. But as a counter mechanic to this, some players need to leap out to absorb some blue orbs before they reach the boss. At the same time, they want to push as much damage as possible. This altogether, requires much focus, skill, and teamwork.*

Information Types and Descriptions

Information Type	Description
Numerical	***Damage Numbers:*** - *White numbers are the damage from the avatars auto-attacks, which is constantly ticking in the background when in combat with enemies, as long as you are close enough.* - *Yellow numbers are the damage of the avatars active skills, and are controlled by which abilities the player uses. This usually only hits enemies, but at 05:18 I am afflicted by a boss mechanic, and we can see the same damage type is done on friendly players.* - *Orange numbers are damage from NPC's connected to the player. Things like pets do this kind of damage.* - *Green numbers are the incoming healing created by the player, or other players in their group which affects them.* ***Health:*** - *All characters and enemies have a certain amount of health, signified by the green bar and corresponding numerical value placed on it, in the user interface.* - *Resources for player and boss abilities are displayed in the same way as health. This is featured below the health-bar.* ***Equipment and Player Statistics:*** *At 41:35, I receive a new weapon from one of the bosses we defeat. When I hover over it with the mouse cursor, it tells me all the statistics which the weapon has. These are some of the parameters which go into the system of player equipment, which affects the damage-output, health, functionality, etc. of the player avatar. This is a very complex system I will not dive into either here or in the thesis as a whole, but this little feature is a taste of its complexity. This is highly mathematical in nature.*

Textual	*As you load into a dungeon or raid, a quick **narrative exposition** appears in the middle of the screen. In this case, it goes:* *"Vision of Destiny* *From his dark throne, N'Zoth concocts visions of a future where Azeroth has fallen, and none are left to resist his empire."* *Narrative exposition also happens between boss fights, like at 07:30, and appears as floating chat boxes at the bottom of the screen. This contains both text and voice-lines.* *Text written by players appears above their head as they send it, and also in the chat box at the bottom left of the screen. At 02:07, some players send the message "Incineration of PLAYER", which is an automatic message made by an addon to tell both the player and the raid group that a certain boss-mechanic has affected them.* *Without addons, the game sends a message to the player when important boss mechanics might affect them, which appears in the middle of the screen in yellow text. At 04:06, my avatar is affected by the boss-ability "Incineration", but does not tell me what to do with it.* *Almost all other written information appears in the chat box.* *A short "checklist" of the dungeon/raid appears on the right side of the screen, and tells the players which bosses they have defeated and which bosses remain. This is placed above your questlist. This window can be removed.* *As the group dies at 16:42 due to a failed boss mechanic, I pull up the Dungeon Journal to read the games provided strategy on how to defeat the boss. This explains the different mechanics, as well as providing hints on how to perform to each group-role.*

Visual	**_Healthbars:_** - _Player health is displayed on the interface in the top left corner. This also displays the characters resource bar, which in this case is a red bar for the resource rage._ - _Just below the character health bar, is the raid group interface. This shows the health bar of the entire group of players, along with their name and role. The game categorizes the players based on importance; the tanks are separated on the left side and signified by a little shield. The healers are at the top of the group signified with a small pluss. And lastly are the DPS, which are alphabetical and signified by a small sword._ - _The selected enemy displays a health bar right next to the player health bar, with all the same characteristics._ **_Abilities_** - _All player abilities have their own animation and sound. More important abilities have a larger visual for the player to notice them properly. In this case for example, an animation of a helmet and a sword appears when the player uses their most damage-enhancing ability._ - _Boss abilities are displayed by large visual cues, most often in simple geometrical shapes that players need to interact with._ - _Some abilities require a cast-time. In these cases, a progress bar appears above the character action bar at the bottom. This also applies to enemies, but enemy cast-bars appear beneath their health-bar. If such a progress-bar has a shield around it, it means that it is not interruptible by player efforts._
Auditoral	**_Voice lines_** _from bosses often signifies a certain incoming ability. At 04:06, the boss casts the ability "Incineration" and yells the phrase "All will be incinerated!" at the same time. This most often applies to abilities which affect the whole raid group._ _Voice lines are also used for_ **_narrative exposition_** _in several ways. Sometimes it's just text above the heads of the characters, and other times, like at 07:30, it appears as floating chat boxes at the bottom of the screen. This contains both text and voice-lines._

Component	Aspects	Description
		Every ability the player makes has its own sound and animation. This means that players can keep track of both what abilities they use and the boss uses, without needing to catch visual information.

Ensslin's Functional Ludostylistics

Component	Aspects	Description
Ludology	*Rules*	*Raids include a number of bosses, which each have their own boss mechanics that needs to be learned and countered.*
	Gameplay	*The gameplay is both rapid and controlled, varying from each boss. Some bosses require sporadic movement and reactions (Maut), while others demand carefully structured strategies (Prophet Skitra).*
	Feedback	*Numerical data in terms of damage numbers, both from the players and from the enemies, gives the players feedback on their own performance, the boss' values and abilities, and the overall raid situation in terms of health and damage output/input.*

Ludosemiotics	Interface Design	Large visual animations, tells the player where their avatar is in danger of taking damage. Castbars from the boss are also an important indicator of this (as in Wrathion's 'Tail Swipe' or 'Searing Breath').
	Multimodality	Both animations, text, and sounds alert the players to what is happening in the bossfight, and are individual for each boss mechanic.

Final Thoughts:

Simply put, raids require the players to push all the buttons on their action bar in the correct order, while avoiding mechanics affecting them in the gameworld, while simultaneously executing the required strategy for individual boss mechanics while being a part of a twenty-five person team. There is a lot going on, with very specific requirements. The data types and mechanics I have highlighted here, is what I found the most prominent, but is not fully exhaustive to what the game presents.

Watching back the recording, I find it much harder to take in all the information that the game throws at the player. I will discuss whether this is perhaps because I am not in a deep attention state of mind when transcribing the data, or not in a hyper attention state of mind. I find this note very interesting. When I am transcribing this data, I find it safe to assume that I am in a deep attention state of mind; I am concentrating on analyzing the complex data in front of me in the most accurate way. As I then regard this recording as complex data, wouldn't it be accurate to assume that I was also in a deep attention state of mind during the raid?

I believe what is the most distinctive thing to analyze from this system is the synergistic experience between the high focus requirements and amount of stimulation. In terms of deep- and hyper attention definitions, these elements belong to separate cognitive modes. There is a lot of different information coming at the player, which in combination to gameplay mechanics like movement and damage rotation, needs to be used to execute a predetermined strategy to defeat a challenging task.

While I find it accurate to discuss this system from the deep attention perspective, I cannot deny the obvious elements of hyper attention apparent within it. Ensslin discusses that digital literature and literary games evoke a cognitive clash because of their distinct ludic and literary elements, which she relates to hyper- and deep attention respectively. But while this system does not feature any literary elements, there are distinctive features from what Hayles describes as deep attention. Not necessarily through literary, musical, or mathematical elements, although there is a lot of mathematical calculations happening in raids, but of the deep focus the bosses require of the players. Through the different systems mentioned; movement; damage-rotation, etc. Ludic elements

This situation highlights one of the weaknesses with Hayles theory and Ensslins discussions. By correlating the different cognitive modes to distinctive activities, like reading, one severely limits what phenomena the theory can be applied to. It is odd that Hayles describes the reading strategies of deep-reading and hyper-reading, and indeed uses them as the basis of her theory, only to majorly correlate reading to only deep attention. Similarly, Ensslin seems to take most literary elements as deep attention in nature. Her analysis of Braid as a literary game being a very borderline case for example.

Gameplay Research Sheet 12: Dungeons & Raids 02

Date:	*12.02.2020*
Game:	*World of Warcraft: Battle for Azeroth*
Game Version:	*Version 8.3.0.33237*
Server:	*Twisting Nether - EU*
Character:	*Shockoffrost*
Race - Class Combination:	*Orc Shaman*
System Played:	*Dungeon: Temple of Sethraliss (Normal Difficulty)*
Playtime:	*00:18:46*
Name of Recording:	*12022020_Dungeons&Raids_TempleofSethraliss_02.mp4*

Pre Gameplay Notes:

This character is not currently max level, which means that there are some mechanics that are not apparent in the gameplay yet. Both in terms of character mechanics and dungeon boss mechanics. In this dungeon, I am playing a healer, which makes me responsible for keeping my team alive.
I expect that this will be relatively easy with my experience, and require little effort of me to successfully complete the dungeon. But at the same time, I cannot keep my focus away from my teammates' health for long.
This session will have many similarities to the Raid session in Ny'Alotha, as dungeons are just small, often easier, versions of raids. There is then however, more relying on each individual player's role and actions.

Notes:

The first thing I want to make a note of, is how badly optimized World of Warcrafts UI is for players in reality. The character itself is placed in the middle of the screen, with its action bars at the bottom. As I play as a healer in this dungeon, I must also keep an eye out for my teammates' health bars on the left side of the screen. All the while, traversing the gameworld and executing its mechanics in the middle. It is no wonder that people choose to edit the UI to suit their preference.
As there is not always healing to do, I sometimes do some damage to enemies as well.

Adderis and Aspix: *These two bosses juggle a buff that does damage to players if the boss with the current buff is attacked. At this difficulty, this damage is of an insignificant amount, so the group just damages both bosses simultaneously.*

Merektha: *This boss is heavily movement based. It casts several abilities which need to be avoided in different ways. Like spewing poison in a frontal cone or burrowing through the arena in different directions. The most significant of these, is "Blinding Sand", which stuns the player if they do not face away from the boss when it's cast.*

At 09:05, there is a mechanic which is rather specific to the class I play. As a shaman, I have an ability called "Purge", which removes positive effects on enemies. Such effects are signified by a tiny glowing icon below the enemies health bar in the top right, which means that this is a buff I can remove. In case of these enemies specifically, they cast "Accumulate Charge" which is an effect that makes their next attack much stronger, and could be catastrophic for the group if it was allowed to go through unopposed.

Galvazzt: *The one main mechanic for this boss, is again movement based. He summons spires from around the room which channels into him, increasing his damage. The players need to intercept these beams to stop this, but take increasing damage the longer they absorb them.*

At 12:50, the group enters a room which features small enemies that infinitely spawns. The goal is to carry an eye to the large snake skull on the other side of the room, which makes the player that carries it unable to do anything else but move. The enemies of this room will seek to take the eye from you, and carry it back to its original location at the entrance. On higher difficulties, two eyes need to be carried at the same time.

Avatar of Sethraliss: *The last boss is interesting for my role, as it has an entire phase which relies almost entirely on the healer doing a task alone. When four enemies have been killed, the healer is able to heal an NPC ally in the middle of the room, and must get it to a certain health while also keeping their team alive. On this difficulty, it was not a very challenging task, but it is a required mechanic in order to defeat the boss.*

Information Types and Descriptions

Information Type	Description
Numerical	***Damage Numbers:*** - *White numbers are the damage from the avatars auto-attacks, which are constantly ticking in the background when in combat with enemies, as long as you are close enough.* - *Yellow numbers are the damage of the avatars active skills, and are controlled by which abilities the player uses.* - *Orange numbers are damage from NPC's connected to the player. Things like pets do this kind of damage.* - *Green numbers are the incoming healing created by the player, or other players in their group which affects them.* ***Health:*** - *All characters and enemies have a certain amount of health, signified by the green bar and corresponding numerical value placed on it, in the user interface.* - *Resources for player and boss abilities are displayed in the same way as health. This is featured below the health-bar.*
Textual	*At the end of the dungeon, I reach level 115. A large message in the middle of the screen lists the new features and systems which I have now unlocked.* *As you load into a dungeon or raid, a quick **narrative exposition** appears in the middle of the screen. In this case, it goes:* *"Temple of Sethraliss* *Delve into the Temple of Sethraliss."* *Narrative exposition also happens between boss fights, and appears as floating chat boxes at the bottom of the screen. This contains both text and voice-lines.* *Almost all other written information appears in the chat box.*

		A short "checklist" of the dungeon/raid appears on the right side of the screen, and tells the players which bosses they have defeated and which bosses remain. This is placed above your questlist. This window can be removed.
Visual		***Healthbars:*** - *Player health is displayed on the interface in the top left corner. This also displays the characters resource bar, which in this case is a blue bar for the resource mana.* - *Just below the character health bar, is the group interface. This shows the health bar of the entire group of players, along with their name and role. In dungeons, players are listed alphabetically, and their role is signified by either a small shield for tanks, a sword for DPS, or a plus-sign for healers.* - *The selected enemy displays a health bar right next to the player health bar, with all the same characteristics.* - *Additional enemy health bars that are important to the current boss-encounter, are featured on the right side of the screen.* ***Abilities*** - *All player abilities have their own animation and sound. More important abilities have a larger visual for the player to notice them properly.* - *Boss abilities are displayed by large visual cues, most often in simple geometrical shapes that players need to interact with.* - *Some abilities require a cast-time. In these cases, a progress bar appears above the character action bar at the bottom. This also applies to enemies, but enemy cast-bars appear beneath their health-bar. If such a progress-bar has a shield around it, it means that it is not interruptible by player efforts.* *Interactable items and objects glow.*

Auditoral	*Voice lines* from bosses often signifies a certain incoming ability. At 02:23, the boss casts the ability "Jolt" and yells the phrase "Die, vermin!" at the same time. In this case, one player is afflicted by the spell, and must avoid their teammates to negate further group damage. Voice lines are also used for **narrative exposition** in several ways. This contains both text and voice-lines. Every ability the player makes has its own sound and animation. This means that players can keep track of both what abilities they use and the boss uses, without needing to catch visual information.

Ensslin's Functional Ludostylistics

Component	Aspect	Description
Ludology	*Rules*	Dungeons include a number of bosses, which each have their own boss mechanics that needs to be learned and countered.
	Gameplay	The gameplay is both rapid and controlled, varying from each boss. Some bosses require sporadic movement and reactions, while others demand carefully structured strategies.
	Feedback	Numerical data in terms of damage numbers, both from the players and from the enemies, gives the players feedback on their own performance, the boss' values and abilities, and the overall raid situation in terms of health and damage output/input.

| Ludosemiotics | Interface Design | Large visual animations, tells the player where their avatar is in danger of taking damage. Castbars from the boss are also an important indicator of this. |
| | Multimodality | Both animations, text, and sounds alert the players to what is happening in the bossfight, and are individual for each boss mechanic. |

Final Thoughts:

This dungeon was heavily movement based, both in the mechanics of normal enemies, and of bosses. As this dungeon was on the lowest difficulty, normal, none of these mechanics were extremely punishing to any of the players.

*In a group of five people, there is more responsibility on each individual player than in larger teams, and this dungeon features some mechanics that require individual players to complete different tasks. Most prominently, is the beam that needs to be intercepted during the **Galvazzt** fight, and the healing phase during the **Avatar of Sethraliss** encounter. If nobody takes responsibility for these tasks, there is a high chance that the players would not be able to complete the dungeon.*

The enemies of dungeons require specific tasks to be done in order to be defeated. If players learn these mechanics by heart, it will be a relatively simple dungeon to overcome. The only thing that would change every time is the movement based mechanics, which this dungeon features relatively much of. These are randomized, to keep the players on their feet.

As I mentioned earlier, can dungeons be compared to small versions of raids. And as this session was on normal difficulty, this would be one of the easiest forms of PvE (Player versus Environment) content that players can take on.
While I mentioned that in some transcriptions I struggled to keep up with the amount of information presented and decision making of the gameplay, in this case it was the opposite. I noticed several mechanics which I failed to counter and many decisions that could have been made better. I assume that this is because I am not focusing on the main gameplay feature of this session; watching the group's health and keeping all players alive. While doing damage in World of Warcraft can sometimes be done on autopilot, playing as a healer requires a much more active form of decision making. I believe the reason for this is the human-element from the players that you are meant to cooperate with, as their individual skills and abilities change how much damage they take, which in return changes how much the healer needs to do. This varies within every single encounter, within every single dungeon, with every different player of the entire game.

Gameplay Research Sheet 13: Dungeons & Raids 03

Date:	*04.03.2020*
Game:	*World of Warcraft: Battle for Azeroth*
Game Version:	*Version 8.3.0.33528*
Server:	*Twisting Nether - EU*
Character:	*Storeide*
Race - Class Combination:	*Zandalari Troll Warrior*
System Played:	*Raid: Ny'Alotha, The Waking City (Looking for Raid Difficulty)*
Playtime:	*00:45:39*
Name of Recording:	*04032020_Dungeons&Raids_NyAlotha_03.mp4*

Pre Gameplay Notes:

Again, this is my first time into this part of the raid.
This session features four bosses, which all have a higher degree of difficulty than the first three. I expect the group to wipe several times during this raid.
Since these are harder bosses, it is even more important to execute the mechanics correctly.

Notes:

Before the first boss, we get to see another important character from the narrative of this expansion; Queen Azshara. She was the main protagonist in the raid prior to this one, and here we get to see what happened to her.

Dark Inquisitor Xanesh (06:20): *Before we begin this bossfight, I briefly look over the main mechanics in the Adventure Journal. From what I could deduce from this, there were only two main mechanics that we needed to consider. A mechanic all players must consider is to avoid the damage areas on the ground, which are visualized by marked areas. The other mechanic "Void Ritual", and the most important, is that we need to guide orbs into a specific area. This can be compared to football. For each orb, three players volunteer to be able to steer it, and must cooperate to guide the orb into the target without hitting any obstacles. The players that did this for us seemed to know what they were doing, as we easily defeated the boss.*

After this bossfight, we get a narrative exposition about how to defeat the final boss, and how the character Queen Azshara plays a part in it. As some players rushed ahead, the narrative introduction of the next boss overlapped with the ending of this one. Both voicelines then played at the same time.

Vexiona (16:21): As this is a dragon, there are some recurring mechanics similar to other dragon fights in World of Warcraft. As dragons are such a fantasy archetype creature, this recurrence is appreciated by most of the community, both those who are interested in the ludic and the narrative side. These abilities include a frontal breath attack, a tail swipe and a wing buffet. The normal 'safe spot' on dragon fights are at their side, which again is true for this fight.
This fight mostly consisted of avoiding AoE, and moving together as a group. At some points, the dragon flies away and the players have to focus on killing smaller enemies. But these are mostly just distractions from the dragons aerial attacks, which must be avoided.

The Hivemind (28:55): This fight consists of two bosses; Ka'zir and Tek'ris. These two bosses vary in that they give each other shields by either being far away from each other or close together, so the players must move the bosses accordingly to negate this effect. Other than this, the fight mostly oriented about controlling the amount of additional enemies, and defeating them quickly. Another incentive is that the two main bosses need to die at almost the same time, to avoid the surviving one enraging and killing all the players. As such, the players must balance the damage they do between the two bosses, as well as the smaller enemies.

Ra-Den (39:35): This boss has been an enemy in a raid once before, back in the expansion 'Mists of Pandaria'. As such, I expect that some of his abilities will be similar to his old ones. Routinely, the boss summons two orbs; one of Vita and one of Void. If one or both of these orbs reach the boss, he gains a permanent buff to some of his abilities. The players only have time to kill one of these before they reach the boss, so they must coordinate about which one to kill. In this fight, we begin with Vita, and interchange them from there. Other than this, there are mostly abilities about avoiding AoE on the ground.

Information Types and Descriptions

Information Type	Description
Numerical	**Damage Numbers:** - *White numbers are the damage from the avatars auto-attacks, which is constantly ticking in the background when in combat with enemies, as long as you are close enough.* - *Yellow numbers are the damage of the avatars active skills, and are controlled by which abilities the player uses.* - *Orange numbers are damage from NPC's connected to the player. Things like pets do this kind of damage.* - *Green numbers are the incoming healing created by the player, or*

	other players in their group which affects them.
	
	 Health:
	    - *All characters and enemies have a certain amount of health, signified by the green bar and corresponding numerical value placed on it, in the user interface.*
	    - *Resources for player and boss abilities are displayed in the same way as health. This is featured below the health-bar.*
	
	 Equipment and Player Statistics: *At 11:13, I receive a new item from one of the bosses we defeat. When I hover over it with the mouse cursor, it tells me all the statistics which the item has. These are some of the parameters which go into the system of player equipment, which affects the damage-output, health, functionality, etc. of the player avatar. This is a very complex system I will not dive into either here or in the thesis as a whole, but this little feature is a taste of its complexity. This is highly mathematical in nature.*

Textual	*As you load into a dungeon or raid, a quick **narrative exposition** appears in the middle of the screen. In this case, it goes:* *"Halls of Devotion* *Within their black halls, N'Zoth's devoted perform profane rituals to bring about the end of the world."* *Narrative exposition also happens between boss fights, like at 11:42, and appears as floating chat boxes at the bottom of the screen. This contains both text and voice-lines.* *Almost all other written information appears in the chat box.* *A short "checklist" of the dungeon/raid appears on the right side of the screen, and tells the players which bosses they have defeated and which bosses remain. This is placed above your questlist. This window can be removed.*

Visual	**Healthbars:**
	- *Player health is displayed on the interface in the top left corner. This also displays the characters resource bar, which in this case is a red bar for the resource rage.*
	- *Just below the character health bar, is the raid group interface. This shows the health bar of the entire group of players, along with their name and role. The game categorizes the players based on importance; the tanks are separated on the left side and signified by a little shield. The healers are at the top of the group signified with a small pluss. And lastly are the DPS, which are alphabetical and signified by a small sword.*
	- *The selected enemy displays a health bar right next to the player health bar, with all the same characteristics.*
	Abilities
	- *All player abilities have their own animation and sound. More important abilities have a larger visual for the player to notice them properly. In this case for example, an animation of a helmet and a sword appears when the player uses their most damage-enhancing ability.*
	- *Boss abilities are displayed by large visual cues, most often in simple geometrical shapes that players need to interact with.*
	- *Some abilities require a cast-time. In these cases, a progress bar appears above the character action bar at the bottom. This also applies to enemies, but enemy cast-bars appear beneath their health-bar. If such a progress-bar has a shield around it, it means that it is not interruptible by player efforts.*
Auditoral	***Voice lines*** *from bosses often signifies a certain incoming ability.*
	*Voice lines are also used for **narrative exposition** in several ways. Sometimes it's just text above the heads of the characters, and other times, like at 07:30, it appears as floating chat boxes at the bottom of the screen. This contains both text and voice-lines.*
	Every ability the player makes has its own sound and animation. This means that players can keep track of both what abilities they use and the boss uses, without needing to catch visual information.

Ensslin's Functional Ludostylistics

Component	Aspect	Description
Ludology	*Rules*	*Raids include a number of bosses, which each have their own boss mechanics that needs to be learned and countered.*
	Gameplay	*The gameplay is both rapid and controlled, varying from each boss. Some bosses require sporadic movement and reactions (Vexiona), while others demand carefully structured strategies (Prophet Xanesh).*
	Feedback	*Numerical data in terms of damage numbers, both from the players and from the enemies, gives the players feedback on their own performance, the boss' values and abilities, and the overall raid situation in terms of health and damage output/input.*

Ludosemiotics	Interface Design	Large visual animations, tells the player where their avatar is in danger of taking damage. Castbars from the boss are also an important indicator of this.
	Multimodality	Both animations, text, and sounds alert the players to what is happening in the bossfight, and are individual for each boss mechanic.

Final Thoughts:

Nothing unordinary to remark.

Gameplay Research Sheet 14: Dungeons & Raids 04

Date:	*10.03.2020*
Game:	*World of Warcraft: Battle for Azeroth*
Game Version:	*Version 8.3.0.33528*
Server:	*Twisting Nether - EU*
Character:	*Storeide*
Race - Class Combination:	*Zandalari Troll Warrior*
System Played:	*Raids: Ny'Alotha, The Waking City (Looking for Raid Difficulty)*
Playtime:	*00:42:51*
Name of Recording:	*10032020_Dungeons&Raids_NyAlotha_04.mp4*

Pre Gameplay Notes:

This is the third out of four sections of this raid, which all have increasing difficulty and loot quality. As the mechanical complexity increases, so do the focus required to execute the required strategy. Obviously then, I expect these bosses to be harder than the ones in prior sessions.

Notes:

When fighting enemies apart from bosses, players can instantly respawn if they die, appearing in a predetermined location if they do so. At 04:41 there is a train of players which have died that are returning to the action.

This was a very relevant mechanic for this session, as I ended up dying loads of times to the 'trash mobs' before bosses, as did my other teammates. In some cases 'trash mobs' might be harder to defeat, maybe for several reasons. Players might not pay attention at this stage, or are unprepared for these enemies to do a large amount of damage. I got very unlucky in this session, and ended up dying more than any other player in the group, I believe.

As a funny result of this, there are several instances where you can see players riding on the same type of mammoths when they are returning to where they died. This is a specific mount, which is special because it has vendor NPCs on its back, in addition to the player. With this, the players can repair their equipment as they are moving around. The amount of these mounts shows that this is a popular

mechanic among the playerbase.

At 07:58, I did not realize that the water I was standing in was doing a large amount of damage to my character, ending in yet another death on my part. This water is part of the arena for the first boss.

Shad'har the Insatiable: *This boss has a building energy bar. When it reaches 100, he does a frontal breathing attack in a random direction which players need to avoid. He has three abilities which only affect the tanks, which DPS and Healers do not need to react to.*
At random intervals, an enemy spawns at the edge of the room and targets a player to chase down. Who this is, is signified by a red line between the player and the enemy. This player needs to be away from other players when it reaches them, as they explode on impact.
At 66% the boss gains new abilities. The first is a damage-over-time effect (DoT) that affects all players that attack him, resulting in constant raid-wide damage. This phase is more intense for the healers.
At 33%, he gains another raid-wide dot, doing even more damage. All players must now use defensive abilities and kill the boss as quickly as possible before the damage becomes too much to handle.
To be honest, I did not feel any challenge from this boss. But I do know from reading different WoW articles and forum-posts, that this is one of the harder bosses on higher difficulties.

At 14:54, after again dying to trash enemies, I attempt to use an ability to more quickly reconvene with the rest of the group. In optimal conditions, this ability allows me to slowly float down to the ground where I choose to land, like a parachute. Unfortunately, I find out mid-air that I cannot use this ability in this area, and end up falling all the way to the bottom. Now trapped between a large number of enemies and my team, I opt to again die, for this time to travel back in a normal fashion.
But, I again charged in in a reckless fashion, immediately dying.

Drest'agath: *This boss is centered around what abilities he casts, and which NPC enemies are active in the fight at any given time. Players cannot do damage to the boss itself without an active effect, which they gain for thirty seconds after killing a smaller enemy during the bossfight. This effect is called 'Void Infused Ichor'. The idea is then to focus on killing the smaller enemies, to then burst down the boss in small windows of opportunity between them. The boss itself casts three main abilities. 'Void Glare' is a large frontal laser. 'Entropic Crash' is a large AoE slam. And 'Mutterings of Insanity', which slows players before doing a large amount of damage to the closest ally of each player and stuns them. The boss summons three different enemies that players need to kill, which individually mimics specific abilities of the boss. 'Eye of Drest'agath' for example, mimics 'Void Glare', resulting in it doing way more damage. The players must then control the amount of each different enemy, to not be too high. Lastly, when players kill a certain amount of these enemies, the boss does a destructive AoE to the entire group, meaning that the players must also be careful of how many enemies they kill. This is a beautifully balanced fight, with loads of player requirements, and was very entertaining. On higher difficulties, I expect that this boss requires a very controlled strategy.*

At 27:11, the group skips some enemies, by jumping down to the bottom platform instead of walking. This saves us some time.
As one of our players is away, and have not moved or done anything for a long amount of time. We collectively start a vote if we want to kick him from the group. This vote passes, and he is replaced by another player.

Il'gynoth, Corruption Reborn: *This boss is locked in position in the middle of the room. He has a*

small healthpool, but is 'connected' to three organs around the room which players need to kill in order to defeat the boss for good. When the boss is active, he casts a frontal laser attack which is meant to only hit tanks. Additionally, eyes from around the room shoot lasers at random players, chasing them for a small period. This leaves areas on the ground which silences, meaning that they cannot cast spells, and does damage to players standing in them. When players kill the boss for the first time, he hides below the floor as three rooms open around the arena. Each room contains an organ that needs to be killed, but only one can be killed each time. This means that players need to kill the main boss 4 times in order to fully defeat him. These organs spawn enemies that chase down random players, increasing damage done the longer they get to attack them. Other players then need to defeat these enemies for them. Additionally in this phase, players are targeted by AoE attacks, called 'Cursed Blood', that other players must avoid.

As the encounter goes on, more and more areas of the room are covered with the effect that does damage and silences, and more and more enemies chase down players. The players must defeat the boss before they become overwhelmed or run out of room. This turned out to be close as ten of the twenty five people in the group were dead when the boss was defeated.

Information Types and Descriptions

Information Type	Description
Numerical	***Damage Numbers:*** - *White numbers are the damage from the avatars auto-attacks, which is constantly ticking in the background when in combat with enemies, as long as you are close enough.* - *Yellow numbers are the damage of the avatars active skills, and are controlled by which abilities the player uses.* - *Orange numbers are damage from NPC's connected to the player. Things like pets do this kind of damage.* - *Green numbers are the incoming healing created by the player, or other players in their group which affects them.* ***Health:*** - *All characters and enemies have a certain amount of health, signified by the green bar and corresponding numerical value placed on it, in the user interface.* - *Resources for player and boss abilities are displayed in the same way as health. This is featured below the health-bar.*

Textual	*Narrative exposition also happens between boss fights, and appears as floating chat boxes at the bottom of the screen. This contains both text and voice-lines.* *Almost all other written information appears in the chat box.* *A short "checklist" of the dungeon/raid appears on the right side of the screen, and tells the players which bosses they have defeated and which bosses remain. This is placed above your questlist. This window can be removed.*

Visual	**Healthbars:**
	  - *Player health is displayed on the interface in the top left corner. This also displays the characters resource bar, which in this case is a red bar for the resource rage.*
	  - *Just below the character health bar, is the raid group interface. This shows the health bar of the entire group of players, along with their name and role. The game categorizes the players based on importance; the tanks are separated on the left side and signified by a little shield. The healers are at the top of the group signified with a small pluss. And lastly are the DPS, which are alphabetical and signified by a small sword.*
	  - *The selected enemy displays a health bar right next to the player health bar, with all the same characteristics.*
	
	Abilities
	  - *All player abilities have their own animation and sound. More important abilities have a larger visual for the player to notice them properly. In this case for example, an animation of a helmet and a sword appears when the player uses their most damage-enhancing ability.*
	  - *Boss abilities are displayed by large visual cues, most often in simple geometrical shapes that players need to interact with.*
	  - *Some abilities require a cast-time. In these cases, a progress bar appears above the character action bar at the bottom. This also applies to enemies, but enemy cast-bars appear beneath their health-bar. If such a progress-bar has a shield around it, it means*

	that it is not interruptible by player efforts.
Auditoral	***Voice lines*** *from bosses often signifies a certain incoming ability.*
	Voice lines are also used for **narrative exposition** *in several ways. Sometimes it's just text above the heads of the characters, and other times, it appears as floating chat boxes at the bottom of the screen. This contains both text and voice-lines.*
	Every ability the player makes has its own sound and animation. This means that players can keep track of both what abilities they use and the boss uses, without needing to catch visual information.
	When some voice lines are told, the other game audio is turned down so that the player can perceive the sound more easily. Like at 03:36, the last boss of the raid whispers to the player, and the combat sounds in the background become muffled. After the voice line is complete, the audio returns to normal.

Ensslin's Functional Ludostylistics

Component	Aspect	Description
Ludology	*Rules*	*Raids include a number of bosses, which each have their own boss mechanics that needs to be learned and countered.*
	Gameplay	*The gameplay is both rapid and controlled, varying from each boss. Some bosses require sporadic movement and reactions, while others demand carefully structured strategies.*
	Feedback	*Numerical data in terms of damage numbers, both from the players and from the enemies, gives the players feedback on their own performance, the boss' values and abilities, and the overall raid situation in terms of health and damage output/input.*
Ludosemiotics	*Interface Design*	*Large visual animations, tells the player where their avatar is in danger of taking damage. Castbars from the boss are also an important indicator of this.*
	Multimodality	*Both animations, text, and sounds alert the players to what is happening in the bossfight, and are individual for each boss mechanic.*

Final Thoughts:

I notice especially here how my 'brief expositions' of each bossfight become longer and longer, as the strategy and task requirements become more specific and important for players to know.

Bossfights in raids are designed to be thrilling experiences, with hard challenges resulting in adrenaline-pumping victories. The teamwork requires players to communicate in different ways, and organize themselves to collectively complete different tasks.
With large AoEs around players for example, they need to signal to other players if they want to move, or want others to move for them. All of this in very small time windows.

We died more to trash than to bosses in this session, which might highlight a certain factor in LFR versus harder versions of the raid. Mechanics in LFR does not have as drastic consequences as
This is the odd way in which difficulty scaling works for LFR and Heroic; as the bosses complexity in mechanics increase, the damage their abilities does decreases. This is to make sure that the bosses are accessible to almost all players of the game, and limit the required teamwork and strategy needed to defeat these bosses. On higher difficulties these bosses are significantly harder, not just in terms of what damage they do but also in the prior mentioned requirements.
Does this affect the thesis? No, but the amount of information that needs to be processed increases for higher difficulties, which is normal.

Gameplay Research Sheet 15: Dungeons & Raids 05

Date:	*10.03.2020*
Game:	*World of Warcraft: Battle for Azeroth*
Game Version:	*Version 8.3.0.33528*
Server:	*Bloodhoof - EU*
Character:	*Ornstone*
Race - Class Combination:	*Human Paladin*
System Played:	*Dungeon: Freehold (Normal Difficulty)*
Playtime:	*00:16:33*
Name of Recording:	*10032020_Dungeons&Raids_Freehold_05.mp4*

Pre Gameplay Notes:

This character too, is not max level, meaning again that this is the easiest difficulty type for this dungeon. For this session, I play as a DPS, with the role of doing the most damage possible to enemies. Again, this dungeon difficulty should not give me too much of a challenge, but its mechanics need to be respected. I use the Looking for Group function, to automatically be put into a group and teleport to the dungeon.

Notes:

In the first part of this instance, while fighting our way towards the first boss, we are pelted with poison from the sky. This is the boss flying around on a giant parrot, before he lands when we enter his arena. We sneak our way through a small gap between some trees to avoid some of the enemies.

Skycap'n Kragg: This boss starts the fight on the back of his giant parrot; 'Sharkbait'. He shoots, and charges random players. At 60% health, he drops from his mount and assaults the players on foot. 'Sharkbait' now charges in randomly from the sides of the arena, and pelts the arena with poison. The boss has a spell called 'Revitalizing Brew' which needs to be interrupted by players to hinder the boss from regaining health.

Before the next fight, one out of three random events happen. Originally, the next boss is a team of

three pirate captains, but each week the players join the crew of one of them through an event. This time, we enter a large brawl with a lot of the pirate crew, and steal their hats to blend in. When this is done, one of the pirate captains will be friendly in the next encounter.

Council o' Captains: *This week, pre pre-boss event is that we enter a brawl with 'The Blacktooth Brawlers', and as we defeat them, 'Captain Raoul' is friendly in this encounter. This leaves only 'Captain Eudora' and 'Captain Jolly' for players to deal with.*
'Captain Eudora' uses guns and ranged weaponry. She darts around the arena to shoot players from range, and creates large AoE's that do significant damage.
'Captain Jolly' does a large amount of single target damage. He charges random players and spins his blades around, and summons tornadoes that push players around.

Ring of Booty: *This boss is more like a large event. The players enter a combat arena, where several announcers introduce different challenges and combatants the players need to defeat. The first is to pick up a pig, which rapidly darts around the battlefield. The second is a huge tortollan called 'Ludwig Von Tortollan' which sends spinning turtle shells flying across the arena. The last combatant is 'Trothak the Shark Puncher', which does a spinning attack at close range, and throws live sharks at ranged players.*

Both before and after the 'Council o' Captains' there are enemies called 'Bilge Rat Buccaneers' which do a spinning banana AoE attack. This does a lot of damage to players, so I do my best to interrupt and stun these enemies.

Harlan Sweete: *This boss knocks players back, threatening to push them off the mountain they are fighting on. He also commands cannons to fire upon ranged players. An ability called 'Loaded Dice' gives the boss a random buff for each cast.*

Information Types and Descriptions

Information Type	Description
Numerical	***Damage Numbers:*** - *White numbers are the damage from the avatars' auto-attacks, which are constantly ticking in the background when in combat with enemies, as long as you are close enough.* - *Yellow numbers are the damage of the avatars active skills, and are controlled by which abilities the player uses.* - *Orange numbers are damage from NPC's connected to the player. Things like pets do this kind of damage.* - *Green numbers are the incoming healing created by the player, or other players in their group which affects them.*

	Health: - *All characters and enemies have a certain amount of health, signified by the green bar and corresponding numerical value placed on it, in the user interface.* - *Resources for player and boss abilities are displayed in the same way as health. This is featured below the health-bar.*
Textual	*As you load into a dungeon or raid, a quick* **narrative exposition** *appears in the middle of the screen. In this case, it goes:* *"Freehold* *Infiltrate Freehold and disperse the Irontide Raiders"* *Narrative exposition also happens between boss fights, and appears as floating chat boxes at the bottom of the screen. This contains both text and voice-lines.* *Almost all other written information appears in the chat box.* *A short "checklist" of the dungeon/raid appears on the right side of the screen, and tells the players which bosses they have defeated and which bosses remain. This is placed above your questlist. This window can be removed.* *At the beginning of the instance, we are assaulted from the air by the last boss, who all the while shouts insults and warnings.*
Visual	***Healthbars:*** - *Player health is displayed on the interface in the top left corner. This also displays the characters resource bar, which in this case is a blue bar for the resource mana.* - *Just below the character health bar, is the group interface. This shows the health bar of the entire group of players, along with their name and role. In dungeons, players are listed alphabetically, and their role is signified by either a small shield for tanks, a sword for DPS, or a plus-sign for healers.* - *The selected enemy displays a health bar right next to the player*

	health bar, with all the same characteristics. - Additional enemy health bars that are important to the current boss-encounter, are featured on the right side of the screen. ***Abilities*** - *All player abilities have their own animation and sound. More important abilities have a larger visual for the player to notice them properly.* - *Boss abilities are displayed by large visual cues, most often in simple geometrical shapes that players need to interact with.* - *Some abilities require a cast-time. In these cases, a progress bar appears above the character action bar at the bottom. This also applies to enemies, but enemy cast-bars appear beneath their health-bar. If such a progress-bar has a shield around it, it means that it is not interruptible by player efforts.* *Interactable items and objects glow.*
Auditoral	***Voice lines*** *from bosses often signifies a certain incoming ability. At 15:44, the boss casts the ability "Cannon Barrage" and yells the phrase "Cannons! Blast these scurvy dogs to bits!" at the same time.* *Voice lines are also used for **narrative exposition** in several ways. This contains both text and voice-lines.* *Every ability the player makes has its own sound and animation. This means that players can keep track of both what abilities they use and the boss uses, without needing to catch visual information.*

Ensslin's Functional Ludostylistics

Component	Aspect	Description
Ludology	*Rules*	*Dungeons include a number of bosses, which each have their own boss mechanics that needs to be learned and countered.*
	Gameplay	*The gameplay is both rapid and controlled, varying from each boss. Some bosses require sporadic movement and reactions, while others demand carefully structured strategies.*
	Feedback	*Numerical data in terms of damage numbers, both from the players and from the enemies, gives the players feedback on their own performance, the boss' values and abilities, and the overall raid situation in terms of health and damage output/input.*
Ludosemiotics	*Interface Design*	*Large visual animations, tells the player where their avatar is in danger of taking damage. Castbars from the boss are also an important indicator of this.*
	Multimodality	*Both animations, text, and sounds alert the players to what is happening in the bossfight, and are individual for each boss mechanic.*

Final Thoughts:

This dungeon has a pirate theme, which seeps through both its aesthetic, literary, and ludic elements.

Playing as a damage dealer, instead of a healer which I did in the first dungeon session, creates a whole different type of gameplay, with different requirements of the players. In this session, I did not mind as much my teammates health or how much damage they took or did, I focused solely on making my own gameplay the best it could be. I almost exclusively looked at my own character, my action bars, and the enemies, not minding my team. This is a good example of the game's varying requirements in terms of gameplay, as both of these sessions were of the same dungeon difficulty.

Gameplay Research Sheet 16: Dungeons & Raids 06

Date:	*16.03.2020*
Game:	*World of Warcraft: Battle for Azeroth*
Game Version:	*Version 8.3.0.33528*
Server:	*Twisting Nether - EU*
Character:	*Storeide*
Race - Class Combination:	*Zandalari Troll Warrior*
System Played:	*Raids: Ny'Alotha, The Waking City (Looking for Raid Difficulty)*
Playtime:	*01:17:43*
Name of Recording:	*10032020_Dungeons&Raids_NyAlotha_06.mp4*

Pre Gameplay Notes:

This is the final part of the final raid in the expansion Battle for Azeroth, meaning that this "should" be the hardest challenge players have faced yet.
I expect us to die several times to all of the bosses in this part, as the requirements for strategy and execution are now at their highest. Even on LFR difficulty, these bosses might be hard to defeat in a team of entirely random players with no prior experience of working together.
I then expect to communicate more with my team, as changes need to be made between attempts of killing the bosses. Learning new mechanics or trying out different strategies.

Notes:

As I accept my entry into the dungeon, I am put into a group which have already made some unsuccessful attempts at the first boss of this part of the raid. I can see this because I have a positive effect called "Determination", and indeed a stack of 5 of them, which players of LFR gain after dying to a boss. This effect increases their damage, health, and healing by 5% for each stack, to make it easier for them to make it through the raid. So for the first attempt on the first boss in this session, the entire raid group is buffed by 25%, making it considerably easier.

Carapace of N'Zoth: *This fight has three phases, in three different locations, which all have different goals. A recurring mechanic in all of these phases, is the sanity meter at the bottom of a players screen. This is a value that drops if players are hit by different abilities or as they progress through the fight, and if it reaches zero they become mind-controlled and lose all control of their character, ending in death. Below this bar, is a button which refills their sanity, but can only be used at certain intervals. The first phase of this revolves mostly around avoiding being crushed by huge tentacles and killing the enemies that spawn from the, at the same time as doing damage to the boss.*
At 50% health the boss retreats into 'Den of Transfusion', which begins phase 2. Here players must destroy a number of 'Synthesis Growths' on platforms on each side of the boss, and can choose to split the group in two or go together. If they do not kill these quickly enough, the boss will heal up a large amount of his health, as it is slowly increasing as the players go about killing the 'Synthesis Growths'. In this case, the whole group went together for both platforms, ending the healing phase pretty quickly. When this is done, they can turn their attention back to the boss.
At 33% health. The boss retreats again into 'The Locus of Infinite Truths', which begins phase 3. The most relevant mechanic in this phase is 'Delirium Bomb', which afflicts several players at once. These will do AoE damage to players close to them after a certain time, and must spread out to avoid this. One limiting factor is that they do not know how large the AoE is, and must blindly attempt to spread far enough away from each other. The size is revealed only right before the damage occurs. This is then a very delicate game of placement and movement. Other than this, the tentacles and enemies from phase 1 returns, and the boss casts his normal abilities more intensively.

When the first boss is defeated, the last boss appears in the same room.

N'Zoth the Corruptor: *This fight is very long, and includes an incredible amount of mechanics. I will attempt to make this short.*
The sanity meter and sanity regain mechanic from the last boss returns for this fight, but it is more important to use it at specific times. In this group, we agreed to use this at specific times.
When the fight begins, the entire group is put into a 'nightmare realm'. Here they must defeat an enemy called Psychus, to return to the real world. To weaken Psychus, they must kill the different tentacles when he is in close proximity to them. When Psychus is dead, the players must return to their 'sleeping bodies' to leave the nightmare. This nightmare realm drains the player's sanity quite rapidly. In the real world, the fight mostly consists of defeating enemies in a certain order, and to damage the boss when he is vulnerable. After a short while, a portal to the nightmare realm opens again, and a set amount of players must enter to defeat Psychus again. This realm now has additional mechanics. The players outside continue as normal. Simply put the fight repeats in this way, continuing to balance the players sanity.

What is also interesting in this boss fight, is that during the 'nightmare' phases where players fight

Psychus, there is some narrative exposition in the background, which is not really related to the fight itself. We get to know what was happening 'behind the scenes' with some of the major characters, and learned reasons for betrayals and alliances. So in addition to arguably the most stimulating and intense fight of the entire game expansion in terms of gameplay, there is also thrown in narrative exposition.

Seeing that the recording was approaching one and a half hours, and with the defeat of the boss still a while off, I decided to leave the instance group and cut the recording.

Information Types and Descriptions

Information Type	Description
Numerical	***Damage Numbers:*** - *White numbers are the damage from the avatars auto-attacks, which is constantly ticking in the background when in combat with enemies, as long as you are close enough.* - *Yellow numbers are the damage of the avatars active skills, and are controlled by which abilities the player uses.* - *Orange numbers are damage from NPC's connected to the player. Things like pets do this kind of damage.* - *Green numbers are the incoming healing created by the player, or other players in their group which affects them.* ***Health:*** - *All characters and enemies have a certain amount of health, signified by the green bar and corresponding numerical value placed on it, in the user interface.* - *Resources for player and boss abilities are displayed in the same way as health. This is featured below the health-bar.*
Textual	*As you load into a dungeon or raid, a quick **narrative exposition** appears in the middle of the screen. In this case, it goes:* *"The Waking Dream* *Deep within his monument of filth, lies the corruptor, and the final confrontation that will determine the fate of Azeroth."*

		Narrative exposition also happens between boss fights, and appears as floating chat boxes at the bottom of the screen. This contains both text and voice-lines. *Almost all other written information appears in the chat box.* *A short "checklist" of the dungeon/raid appears on the right side of the screen, and tells the players which bosses they have defeated and which bosses remain. This is placed above your questlist. This window can be removed.*
	Visual	***Healthbars:*** - *Player health is displayed on the interface in the top left corner. This also displays the characters resource bar, which in this case is a red bar for the resource rage.* - *Just below the character health bar, is the raid group interface. This shows the health bar of the entire group of players, along with their name and role. The game categorizes the players based on importance; the tanks are separated on the left side and signified by a little shield. The healers are at the top of the group signified with a small pluss. And lastly are the DPS, which are alphabetical and signified by a small sword.* - *The selected enemy displays a health bar right next to the player health bar, with all the same characteristics.* ***Abilities*** - *All player abilities have their own animation and sound. More important abilities have a larger visual for the player to notice them properly. In this case for example, an animation of a helmet and a sword appears when the player uses their most damage-enhancing ability.* - *Boss abilities are displayed by large visual cues, most often in simple geometrical shapes that players need to interact with.* - *Some abilities require a cast-time. In these cases, a progress bar appears above the character action bar at the bottom. This also applies to enemies, but enemy cast-bars appear beneath their health-bar. If such a progress-bar has a shield around it, it means*

		that it is not interruptible by player efforts.
Auditoral		***Voice lines*** *from bosses often signifies a certain incoming ability.* *Voice lines are also used for* **narrative exposition** *in several ways. Sometimes it's just text above the heads of the characters, and other times, it appears as floating chat boxes at the bottom of the screen. This contains both text and voice-lines.* *Every ability the player makes has its own sound and animation. This means that players can keep track of both what abilities they use and the boss uses, without needing to catch visual information.* *When some voice lines are told, the other game audio is turned down so that the player can perceive the sound more easily. Like at 03:36, the last boss of the raid whispers to the player, and the combat sounds in the background become muffled. After the voice line is complete, the audio returns to normal.*

Ensslin's Functional Ludostylistics

Component	Aspect	Description
Ludology	*Rules*	*Raids include a number of bosses, which each have their own boss mechanics that needs to be learned and countered.*
	Gameplay	*The gameplay is both rapid and controlled, varying from each boss. Some bosses require sporadic movement and reactions, while others demand carefully structured strategies.*
	Feedback	*Numerical data in terms of damage numbers, both from the players and from the enemies, gives the players feedback on their own performance, the boss' values and abilities, and the overall raid situation in terms of health and damage output/input.*

Ludosemiotics	*Interface Design*	*Large visual animations, tells the player where their avatar is in danger of taking damage. Castbars from the boss are also an important indicator of this.*
	Multimodality	*Both animations, text, and sounds alert the players to what is happening in the bossfight, and are individual for each boss mechanic.*

Final Thoughts:

These two bosses display how the hardest challenges of World of Warcraft is a cutting edge balance between player skill and coordination, mathematical possibilities, and game rules and mechanics. In these fights, mechanics become more important to adhere to, as in some cases in this session they killed players outright if they did not counter them.
Remember also that this is on the lowest difficulty of this raid, and there are three sets of higher difficulties to follow; Normal, Heroic, and Mythic.
This session is interesting as it is here I believe the most deep attention activities of World of Warcraft takes place. These bosses require intense focus and commitment from players, and there are important rules to follow and specific tasks to complete. There are consequences, and no immediate rewards.

So that's it, the raiding scene of Battle for Azeroth are at an end for me (for LFR difficulty at least). The task now, should I choose to accept it, is to continuously complete this content over and over in hopes that better equipment drops to me as a player.