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Lodestars for Player Experience
Ideation in Videogame design

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Abstract

The design and development of commercial AAA videogames is a difficult and complex endeavor. It involves large development teams that together aim to create high quality, entertaining games that sell well. Up to now, very few scholars have documented or problematized this practice. This thesis presents a study of the design practices in big game development studios that make commercial AAA videogames. The study focuses on the so called ideation part of videogame development, in which the design ideas are generated, developed and communicated in the work team. The primary data comes from interviews conducted with seven Swedish game developers, but a large quantity of secondary data has also been used. The study shows that the design practice in many studios is to focus on the player experience instead of game features. To secure the intended player experience, the studios have moved away from "big design up front" in the form of classical game design documents, and are instead using a variety of verbal, visual and audial tools to articulate and communicate their vision of the game-to-be. In the thesis, I coin the term lodestars to denote these articulations of the main game concept and the intended player experience. I then move on to describe, exemplify and categorize them. The main purpose of lodestars is to allow everyone in the development team to make design choices in line with a commonly shared design vision in order to create a unified player experience.
Acknowledgements

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\(^1\) DKV stands for Digitala Kreatörers Värderingspraktik

\(^2\) http://ostersjostiftelsen.se/projekt/107-digitala-kreatörers-värderingspraktik

\(^3\) Jon focuses on prototyping, which mainly occur later in the design process than the ideation practice that I study.
game enthusiast, and Annika Olofsdotter Bergström, program coordinator for Spelprogrammet (the Game Programme) at Södertörn University. Together with Jon Manker and Petri Lankoski, we started up the Bachelor's Degree course in game design in August 2011. And I must not forget our students on The Game Programme! I have never had such enthusiastic and motivated students before, and they have been my loyal "guinea pigs", letting me use them to test my findings about game design methods.

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1 Introduction

Videogames have become an increasingly important phenomenon in our contemporary world. More and more people play videogames, the videogame industry has been growing rapidly for many decades now, and videogames get a lot of attention – both in media, and from scholars.

Without computers there would be no videogames, and the history of videogames and computers are distinctly intertwined. Videogames have changed considerably since they were first created in research labs in the 50's and 60's – originally with the purpose to test and demonstrate the capacity of the first generation of main frame computers (Levy, 2010). In the 70's the first commercial videogames appeared – coin-operated arcade machines and videogame consoles for the home market – and when personal computers became available for the home market in the 80's, they were often used for playing videogames. These early videogames were based primarily on game mechanics – the audio-visual interface was stylized and simple, due to the limited capacity of the computers of that time.

Figure 1: Early videogame with simple audio-visual interface: Screenshot of PONG from the Atari Arcade Hits #1 software title released in 1972 by Hasbro Interactive.

4 In this thesis I use the term 'videogames', or just 'games' for short, as a unifying term for all games that are mediated through digital technology and can be played on a variety of devices, e.g. personal computers, game consoles, handheld consoles, mobile phones, and so on. I use the term 'non-digital games' when I talk about board games, card games, physical games, etcetera. (see chapter 2.2 for a terminology discussion)

5 See: http://www.squidoo.com/who-created-the-first-video-game
When computers became more powerful, with better graphics and sound capabilities, a new kind of videogames evolved. It was not based solely on game mechanics, but also had a well-developed *gameworld*, including a scenario, characters and other elements that occur in fiction like film, drama and literature. These games also became larger in scale, and contained much more code and assets in the form of graphics and sound, and players typically had to spend more time to complete them. Such complex games put higher demands on videogame developers. Larger development teams and longer developing periods are needed, and teams need to include a number of specialists with various professional skills.⁶ (Kent, 2001; Levy, 2010; Poole, 2004).

![Figure 2: Videogame with well-developed gameworld](image)

The videogame art form is still strongly evolving and searching for its identity. The way videogames are designed and developed is a practice that has progressed step by step through trial and error processes, and there is still no commonly established way to create games. Before the Millennium shift, there were almost no degree courses or handbooks on game design practice (see chapter 4.1). People in the game industry are still often self-

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⁶ Lately we have also seen an explosion of small games with a simple gameworld in the form of pastime, "casual", games on the web or on smart phones. These casual games resemble the simple games of the 80's, but they also have qualities that it was not possible to achieve at that time (e.g. online features, high resolution graphics, sound capabilities, et cetera). However, these small "casual" games are not the object of this study.
taught or have an education in similar professions, like software engineering, fine art, or graphic design. Different game development studios will have different organizational structures, vocabularies, and work procedures (Bach, 2011; Bergquist, 2012). Per Strömbäck, the spokesperson of "Dataspelsbranschen", the Swedish videogames trade organization, claims that: "it is hard to imagine a field where the changes are so fast as within videogames [...] Technology, business models, game design and marketing change completely almost every year” (Dataspelsbranschen, 2011, p. 2). The industry, including the development studios, constantly has to adjust to these changes. This also means that handbooks and educational curriculums quickly become dated.

How do the studios cope with these complex circumstances? How do they solve the task of creating a videogame? We know very little about this, since there are very few scholarly studies in the area. There are many normative and descriptive handbooks, but they are typically written by people that give their own subjective view on the subject, without any data other than their own experience in the field. This personal experience is of course valuable, but since the industry is so heterogeneous and changeable, game design should also be studied in a more systematic way.

1.1 Research objectives
This thesis presents a study of the design practices in big development studios making commercial videogames with big budgets. Such games are often called AAA (pronounced "triple-A") videogames, and they are typically made for videogame consoles and personal computers by big development teams and sold for $60 when they are newly released. These games require the most resources and the most skilled and experienced professionals. In this thesis I will use the term AAA videogames to depict this kind of games. By focusing on studios making such games, we study the most complex game production processes, with big development teams making games that represent the state of the art in terms of technology and artistic and creative content. In his book The art of videogames, Grant Tavinor analyzes these kinds of videogames and he states that "digital artists and craftspeople have explored the artistic potential of the new medium and

7 None of my informants had a game design education.
8 In chapter 2.3, I mention some exceptions.
9 AAA can also stand for high quality, but in this thesis I do not include the quality aspect in the definition of the term.
are now producing results arguably equal to the other representational arts" (Tavinor, 2009, p. 1). At the same time, however, the game industry is often accused of not being original and inventive enough, making sequels and transmediations instead of creating new game concepts and genres. See for example (Costikyan, 2005a; Costikyan, 2005b; Crawford, 2003; LeBreton, 2009).

To better understand and, hopefully, improve videogame design and development, we will need many studies of how it is done in different settings and circumstances. My study is just one puzzle piece focusing on the ideation part of videogame development in a few big development studios. Ideation refers to the process when designers are "generating, developing and communicating ideas" (Jonson, 2005), an essential aspect to study if we want to understand why videogames are the way they are. Studies like the one presented in this thesis can hopefully contribute to both game design education and better game design practice in the future.

1.2 Contributions

My contributions can, on a general level, be summarized as:

- A conceptual framework capturing the structure of ideas behind (and components in) AAA videogames.
- An analysis of invention and innovation in videogames.
- Data showing that AAA videogame developers often use design methods that fall under the broad categories of experience design and auto-biographical design (i.e. using themselves as main sources of what they want to achieve).
- Identification and documentation of a kind of design tools I have named lodestars that partly replace game design documents in videogame design.
- Analysis of the functions of these lodestars, as well as the creative forms they can take to be more expressive and operational.
1.3 Thesis outline

The thesis is a compilation dissertation and consists of eight introductory chapters and two papers. The eight introductory chapters summarize the most important parts of the two papers, give a more comprehensive description of the study, add some findings and expand the theoretical discussion.

After this opening chapter, in which I have presented my research objectives, I provide a research oriented background on games and the field of game studies in chapter 2. In chapter 3, I present my object of study in more detail and also explain the method I have used. In chapter 4, I generally describe AAA videogame development and how it has basically evolved through a trial and error process in the community of game design practice.

Chapter 5 and 6 present the findings of my two papers about the ideation part of videogame design. In chapter 5 I summarize and discuss the findings presented in my first paper (Hagen, 2009) where I investigated idea generation and the characteristics of game design ideas. In chapter 6, I summarize and discuss the findings presented in my second paper (Hagen, 2011). Here I especially elaborate the lodestar concept, which is a central part of my findings about the contemporary way of designing videogames.

In chapter 7, I place the use of lodestars in a more general context of player experience design and agile videogame development and I also discuss possible theoretical underpinnings that may be used to problematize and explain my findings. Finally, in chapter 8, I present my conclusions and outline the future work that needs to be done to follow up on this study.
2 Game studies and games

2.1 Game studies
As videogames have become increasingly important in society, they have also begun to receive scholarly attention from a wide variety of fields and disciplines. Before the Millennium shift, academic studies of games were few and conducted in different fields, e.g. anthropological studies of play and (non-digital) games, conducted by Huizinga (1938) and Culin (1975, 1993a, 1993b), and game research mainly for learning purposes, in the context of the International Simulation and Games Association (ISAGA) and its forbearers (Frans Mäyrä, 2008). During the first decennium of the 21st century, a separate field has established itself as game studies in the form of conferences like DiGRA\(^{10}\), journals like Game Studies and Games and Culture, books like Salen & Zimmerman's Rules of play (2004) and The game design reader (2006), research departments, degree courses, and so on. For a more comprehensive summary of the history of game studies, see Mäyrä (2008).

The new field, commonly referred to as "game studies", thus constitutes a very young research field. In the first issue of the online journal Game Studies, Espen Aarseth proclaimed 2001 as "the Year One of Computer Game Studies as an emerging, viable, international, academic field" (Aarseth, 2001). It is obvious that the driving force behind the urge for a new research field was the development and popularity of videogames. It is therefore interesting to note that the journal is called Game Studies – which would include also non-digital games. On the other hand, Aarseth talks about computer game studies in the quotation above. I will come back to this ambivalence later.

The field is still not recognized as a coherent, disciplinary field, but is instead interdisciplinary, heterogeneous and diversified. Videogames are studied in many ways: from many perspectives, with different methodologies, using various conceptual frameworks. In his book Introduction to game studies, Mäyrä (2008) describes game studies in general as "a multidisciplinary field of study and learning with games and related phenomena as its subject matter" (Frans Mäyrä, p. 6). However, he

\(^{10}\) Digital Games Research Association (DiGRA) had its first conference in Utrecht 2003 and has been arranged every second year in different places since that. (http://www.digra.org/digra_conference)
also stresses that a shared object of study is not sufficient to constitute a research field. We cannot include all possible perspectives and theories. Instead we need to consider the field as it actually has been formed socially and historically.

2.1.1 The ludologists

Being a new phenomenon, videogames did not naturally belong to any single existing field, so scholars from different disciplines felt called upon to investigate this "virgin territory", to use a metaphor used by Espen Aarseth in his seminal book *Cybertext* (1997, p. 18). Aarseth and other so called ludologists, argue that games have to be studied separately (see J Juul, 2001). In line with his metaphor, Aarseth talks about "colonization" from other academic fields and continues: "When we invade foreign ground, the least we can do is to try to learn the native language and study the local customs" (Aarseth, 1997, p. 19). While Aarseth’s own background is in comparative literature, he has long been an advocate for the establishment of 'game studies' as a separate field of research, undoubtedly motivated by the problems he had seen with scholars from existing fields using their theories and methods uncritically: "[i]nstead of treating the new phenomena carefully, and as objects of a study for which no methodology yet exists, they are analyzed willy-nilly, with tools that happen to be at hand, such as film theory or narratology, from Aristotle onwards" (Aarseth, 2003).

As illustrated in the quote below from Svanæs' doctoral thesis *Understanding interactivity*, this way of approaching games could be seen as a temporary and normal way to approach a new phenomenon:

> New phenomena are often first understood as modifications and combinations of phenomena we already understand. This is also the case concerning new technologies and media. The telephone was first envisioned as a one-to-many medium for broadcasting concerts directly to the homes. The very first motion pictures were taken in front of a stage with performing actors. Both the telephone and film rapidly became separate media with no need to be understood metaphorically with reference to other media or technologies. (Svanæs, 2000, p. 3)

But "the colonization" could also be interpreted as an undervaluation of a popular commercial phenomenon which is regarded as lowbrow and not worth studying for what it is in itself. The following quotation could be seen as an example of this:
While game studies, as it has developed over the last 10 years, fits well within cultural studies' methodology and theory, it does more than benefit from cultural studies as a 'mother discipline'. Game studies proves itself to be a strong force, especially in its productive use of political economy to analyse games and gaming as a (new) cultural form. (Nieborg & Hermes, 2008, p. 1)

Aarseth and other ludologists would not agree with this. They argue that game studies need no "mother discipline". Games deserve to be studied more closely and meticulously – not just as a cultural phenomenon in general. Of course we can study games from whatever perspective we find interesting, but if games are a unique and significant part of human culture, or even a new art form, we also need to study them on their own terms. Therefore, dedicated game scholars need to be experts in games. They need to know the specific traits of their object of study, like film scholars are often cineastes and literary scholars are well-read. But this does not mean that game scholars must have an uncritical view of games and game design. Nieborg & Hermes claim that "[w]hile ideally, game studies will develop also as a cultural critique, this is far cry from dominant practice in gamer community. Gamers tend to be 'hand-in-glove' with the industry." I agree that game scholars must be critical, but the critique has to be rooted in a substantial acquaintance with games, not with a superficial view from above, which is often the case. My study could perhaps be accused of being "hand-in-glove" with the industry, since my objective in this thesis is to describe – and hopefully improve – the actual practice in game development companies. But that is in line with my belief that we need profound knowledge of the current state of things before we criticize and advocate alternatives.

Besides arguing for game studies as a separate field, the ludologists argued against what they called narratologists, scholars who understand games primarily as a narrative medium. The narratologists front figure became Janet Murray, who in her book Hamlet on the Holodeck (1997) had envisioned future games as interactive stories or "cyberdrama". According to ludologists, videogames are primarily games, i.e. rule systems aimed to be played.

Another task, to which the ludologists attended, was to define their object of study. In the next chapter, I will discuss such definitions and their relevance to my study.
2.2 What is a videogame?

Since this thesis investigates videogame design, it is relevant to discuss what kind of product the game designers are actually creating. In one sense, it is the game creators that in fact define what games are – by making them. A considerable share of the literature on games covers attempts to define and demarcate the word 'game', but there are very few definitions of 'videogame' or 'digital game'. The reason for that is most likely the ludologists claim that videogames are just games in a new medium. For ludologists it has therefore been more important to formulate definitions that demarcate (all kinds of) games from other phenomena, than to investigate and define the nature of videogames.

To define the concept of 'game' is difficult if one wants to base it on the everyday use of the words. In their book *Rules of play*, Salen & Zimmerman analyze earlier definitions of what a game is and finish by proposing their own:

>A game is a system in which players engage in an artificial conflict, defined by rules, that results in a quantifiable outcome. (Salen & Zimmerman, 2004, p. 81).

Juul uses a similar procedure\(^{11}\) to finally propose the following definition of what he calls the *classic* (i.e. traditional) *game model*:

>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 we can see, Juul's definition is similar but more specified than Salen & Zimmerman's. It contains six *necessary conditions* that all have to be fulfilled if something is to be regarded as a (classic) game. Juul identifies "borderline cases" that fail to fulfill one or two criteria, but in principal, he claims that his definition is a tool that clearly separates games from other phenomena.

Both Juul's and Salen & Zimmerman's definitions are meant to hold for digital as well as non-digital games. Juul (2005) states that games are

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\(^{11}\) Since Juul's book came out after Salen & Zimmerman's, he could also consider their definition before he formulated his own.
transmedial, which means that they are the same kind of entity, no matter how they are mediated. Digital games are therefore just one subcategory of games, in the same way as board games, card games and sports games are other subcategories. Juul admits that his classic game model is challenged by new kinds of games like role playing games and videogames, but he claims that it still has much to say about the field of games. He summarizes:

Games do have something in common; we can talk about the borders between games and what is not a game – videogames are the latest development in a history of games that spans millennia. (Juul, 2005, p. 54, author's italics)

This view seems to be shared by most game scholars. Despite the fact that the main part of game studies is focused on videogames, the field is not called "videogame studies", because it does not distinguish videogames as something essentially different from non-digital games. In line with Juul, Salen & Zimmerman write: "the qualities that define a game in one media also defines it in another" (Salen & Zimmerman, 2004, p. 86). It is true that the most important conference for game studies, Digital games research association (DiGRA), uses the word 'digital games' in its title, but, as one of the founders, Aphra Kerr, informs us, this is not because digital games are regarded essentially different from non-digital games:

Digital games emerged as a useful designation for the field during the formation of the Digital Games Research Association (DIGRA) in 2003. A consensus emerged during lengthy discussions that digital games signalled both the differences and the historical and formal similarities between digital and non-digital games. Indeed, at the inaugural DIGRA conference, Jesper Juul (2003) talked about the transmedial nature of games and highlighted the historical continuities between classical games and digital games. Espen Aarseth (2001), in the inaugural editorial of the journal Game Studies, also points to the fact that digital games are 'not one medium, but many different media'. (Kerr, 2006, p. 4)

Kerr mentions both Juul and Aarseth here, which indicates that their work influenced the choice of name for the conference.

In the light of this striving to achieve an independent research field, it is understandable that the advocates of a separate research field wanted to stress the connection between the new videogames and the much older phenomenon of non-digital games. This gives the object of study a long history and thus indicates its importance in human culture. But one can also argue that this was just another way to understand videogames as something
old that we already know, just like seeing videogames as interactive narratives. All things have a heritage, but at some point the new phenomenon has developed into something essentially different, as when film became different from theatre, or television became something other than "radio with pictures". Art philosopher Grant Tavinor holds that videogames are so different from other games that they need their own definition (see below). He also asserts that videogames can be seen as an art form, and as such, the object of aesthetic studies (Tavinor, 2009). We will soon come back to Tavinor's view, but let us first see what the ludologists say about the nature of videogames.

The ludologists view that videogames are just a subcategory of games does not mean that they deny that videogames have traits that make them different from other subcategories of the game domain. One chapter in Salen & Zimmerman's book *Rules of play* actually has the title "Defining digital games", but it never presents a definition. Instead Salen & Zimmerman describe "four traits that summarize the special qualities of digital games". But they also state that "[t]hese traits are also present in non-digital games, but digital games generally embody them more robustly". (Salen & Zimmerman, 2004, p. 91). The differences, according to Salen & Zimmerman, are thus only quantitative – not qualitative.\(^\text{12}\)

According to Juul (2005), one general difference between videogames and other games is how the rules and the game state (i.e. the current state of the gameplay) are managed. In videogames, the computer handles both the rules and the game state whereas in card games and board games the game state usually is manifested in the position of the physical objects (e.g. the cards and game pieces), while the rules are maintained by the players themselves. In (competitive) sports games the game state is maintained by the player's bodies and the game objects, while the rules are upheld by the referee and by natural laws like gravity.

The most important difference that Juul points out, though, is that many videogames have what he calls, a fictional world:

\[\text{[V]}ideo\;\text{games\;are\;two\;different\;things\;at\;the\;same\;time:\;video\;games\;are\;real\;in\;that\;they\;consist\;of\;real\;rules\;with\;which\;players\;actually\;interact},\]

\(^{12}\) The traits that Salen & Zimmerman present are "immediate but narrow interactivity", "information and manipulation", "automated complex systems" and "networked communication" (Salen & Zimmerman, 2004, pp. 87-90)
and in that winning or losing a game is a real event. However, when winning a game by slaying a dragon, the dragon is not a real dragon but a fictional one. To play a video game is therefore to interact with real rules while imagining a fictional world and a video game is a set of rules as well as a fictional world. (Juul, 2005, p. 1)

According to Juul, not all videogames have fictional (or representational) worlds, however. There are also "abstract" videogames that do not represent anything – in those games "the game is the rules." (Juul, 2005, p. 131). Tetris (Pajitnov, 1984) is the best-known example of an abstract videogame, according to Juul.

In contrast to Juul, Grant Tavinor does not want to choose between rules and fiction as the essential element of videogames. For him a major point is that many videogames, like flight simulators, are based on interactive fiction instead of rules. Tavinor claims that we therefore need a definition that concerns videogames exclusively. They are not to be seen as a subclass of games in general, since they have important unique traits that make them a new art form. Tavinor suggests the following definition in his book *The art of videogames*:

X is a videogame if it is an artifact in a visual digital medium, is intended as an object of entertainment, and is intended to provide such entertainment through the employment of one or both of the following modes of engagement: rule and objective gameplay or interactive fiction. (Tavinor, 2009, p. 26)

As we have seen, Juul also admits that some videogames have fictional worlds, but for him it is neither a necessary nor a sufficient element. Tavinor, on the other hand, regards interactive fiction as a sufficient (but not necessary) component. It is important to note that Tavinor does not consider interactive fiction to be equal to interactive stories, which has been the widespread meaning of the phrase earlier. For him interactive fiction is a fictional world that you can interact with – but the interaction does not necessarily have to be governed by predefined rules and challenges (designed by the game creators), neither do they have to have a definite outcome. Neither does the fictional world have to include a narrative. This means that so called sandbox games and simulators (e.g. flight simulators) can be classified as videogames.

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13 Sandbox games typically have an open world and a highly non-linear gameplay.
To me, as a person who studies the design and development of AAA videogames, it is obvious that this kind of videogames is something very different from non-digital games – but also from simpler videogames like *Tetris* or *Bejeweled*. The elaborated gameworld and the massive amount of work and effort required for the production of a AAA videogame suggests that there may be not only quantitative, but also some qualitative differences in the finished product and in the kinds of gameplay and player experience it can convey. I will use the term AAA videogames, and not AAA digital games, for the games I am studying, because 'videogame' is the most commonly used term, and because I am not sure that these games are best understood as just digitized classical games. In a design context, it could hamper inventiveness if we presuppose that videogames have to adjust to all six necessary conditions that Juul ascribes classical games. I think Tavinor has a point when he emphasizes interactive fiction as an important trait that AAA videogames, unlike non-digital games and small abstract games, can have. Some videogames (e.g. sandbox games and simulator games) lack a built-in mandatory outcome, and are more like toys or playgrounds where the player can define her own goals, and in addition some videogames integrate narrative aspects to an extent that would not be possible in classical non-digital games.

The difficulty in reaching consensus about the nature of videogames is partly related to the old debate in game studies about the role of narratives in games, and to the struggle for making game studies a separate field of research. Juul was one of the strongest spokespersons against the so called narratology view that wanted to understand videogames as narratives (Juul, 2001). But there are also other reasons why it is so difficult to reach consensus in the matter. First, there are so many different kinds of games that it is hard to find traits that are common to all of them. Egenfeldt-Nielsen, Smith, & Tosca (2008) refer to Ludwig Wittgenstein who claimed that there is only "family resemblances" between different games. This means that the multitude of games only are connected to each other because one game is similar to another one that in its turn is similar to a third one, and so on, but there is no common similarity between all games. Another reason is that videogames are what Mäyrä (2008) calls "a moving target" (p. 35). It is a phenomenon that is still in rapid development, which is obvious if we consider some of the innovations in the videogame field that has occurred lately, e.g. sandbox games, indie games, serious games (Michael & Chen, 2006), pervasive games (Montola, Stenros, & Waern, 2009), "the
casual revolution”, (Juul, 2009), social games like Farmville, games (apps) for smart phones, multiplayer music games like Rock Band, new input devices like Nintendo Wii, PlayStation Eye, Kinect for Xbox 360, and so on. In chapter 3.1.3, I will give a short overview of different kinds of games, and specify what kinds of games the studios in my study have created.

The type of games I have studied (AAA videogames) usually have a highly-developed fictional world, which I will call the gameworld. They also have rules, challenges, and certain mechanics – things that the player can do in the game (e.g. running, jumping, shooting, solving puzzles, et cetera). I will refer to the player activity in the game as gameplay, which is strongly influenced by the rules, the challenges and the mechanics. In a sense the whole gameworld works as an interface between the player and the rules, but I will follow the convention in the industry and in game studies (Fox, 2004; Jørgensen, 2012; Schell, 2008), and use the term game interface to depict only the physical interface (the input and output devices, like controllers and monitors) and the parts of the audio-visual representations that are not a part of the fictional gameworld (e.g. the so called heads-up-display, the "HUD").

Most components of a game can be categorized as either gameplay components, gameworld components or game interface components. I will come back to the question of videogame components in chapter 5.2.

2.3 Previous research on game design

The academic interest in game design has not been very substantial so far. By analyzing some existing examples of game design research projects and studies, I have distinguished four different approaches:

Game studies with implications for design is an approach that does not study the game design directly. Instead it is based on other kinds of game studies that can be used to draw conclusions about game design. Lazarro (2004) has studied player experience and identified a range of emotions that people have while playing. She has also categorized different kinds of "fun". These aspects could be used as inspiration and guidance when designing games. Another example of this approach is Ermi & Mäyrä's (2007) and Mäyrä's (2007) research on player experience. The findings and

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14 Game rules, game challenges and game mechanics are important components of the game artifact generating gameplay, but gameplay is of course also a result of the player activity and in that sense not directly designable by the game creators. Gameplay is not a well-defined term in game studies. In this thesis I understand gameplay as the observable activity that occur when someone plays a game.
conceptualizations from this research could also be used when designing games – especially when player experience design is used (see chapter 7.1).

**Classifications, models and tools:** Some researchers have created models, frameworks and conceptual tools to be used in game design. In their book *Game design patterns*, for example, Björk & Holopainen (Björk & Holopainen, 2005) present a large number of gameplay patterns they have found by analyzing existing games. These patterns can be used as inspiration when designing games. These player preferences and behaviors could of course be taken into account in game design. Bartle (1996) has made a typology of player types, according to what player experience they prefer. Hunicke et. al. (2004) has developed a framework called MDA (standing for Mechanics, Dynamics, and Aesthetics) that can be used as a method for game design and for understanding games.

**Research through game design** is a category in line with the general design research category suggested by Zimmerman, Forlizzi, & Evenson (2007), in which the research includes "the production of artifacts as vehicles for embodying what 'ought to be' and that influence both the research and practice communities" (p. 498). Most empirical game design research is research through design. Examples are Mateas & Stern's Façade Project (Mateas & Stern, 2003, 2005), many studies included in the iPerG project (Integrated Project on Pervasive Gaming) that ran 2004-2008\(^{15}\), and Eric Zimmerman's *Sissyfight 2000* (Word Magazine, 2000), see (Zimmerman, 2003).

**Game design practice studies** (observer perspective). This is the category to which I assign my thesis. Professional AAA videogames design is a highly advanced and complex practice. Surprisingly, there are very few scholarly studies about design practices used in the game industry. Most studies I have found have been made in the field of Business Management.

As part of his PhD studies in business management, *Laurent Simon* (2002) conducted a 14 months long ethnographic case study in a big videogame studio in Canada 1998-1999. His thesis is only available in French, but more recently, he has later written a number of articles based on the same data, for example (Simon, 2006) and (Cohendet & Simon, 2007). His findings are a

\(^{15}\) [http://iperg.sics.se/](http://iperg.sics.se/)
descriptions and conceptualizations of the ways management is conducted in the creative industry.

Ted Tschang has conducted interviews and ethnographic observations in a number of game design studios in the US and Japan. These studies are reported in a number of articles, i.e. (Tschang, 2003; Tschang, 2007; Tschang & Szczypula, 2006). In my first paper (Hagen, 2009), I described the findings of the article (Tschang & Szczypula, 2006) that is most relevant for my research.

Like Simon and Tschang, Peter Zackariasson studied game design from a business management perspective. He made ethnographical observations and interviews as a case study of a Swedish game development studio. Zackariasson has studied two aspects of AAA videogame design: First, he focused on the difficulties in using traditional project management and leadership in videogame design due to its complex and creative nature. In two articles, Zackariasson with coauthors describe the way the studied development studio tried to solve these problems. (Walfisz, Zackariasson, & Wilson, 2006; Zackariasson, Walfisz, & Wilson, 2006). Secondly, in another article Zackariasson et. al. investigate the knowledge aspect of videogame design and find that the employees at the studied company are all gamers themselves, and that they possess a kind of "street smartness" when they make design decisions, which the authors interpret as the old Greek concept of phronesis (Zackariasson, Styhre, & Wilson, 2006).

For her PhD thesis, Marie Denward (2011) conducted ethnographical observations in a small company creating a so called Alternative Reality Game (ARG). The overall objective of the thesis was not to investigate the game design per se, but to study media convergence, in a transmedial storytelling production Sanningen om Marika, which was made in by the small company in cooperation with the Swedish public service provider, SVT.

The only game design practice study I have found with a distinct design orientation is by McAllister & White (2010) who conducted interviews with five leading producers and designers in three British game studios. Their main purpose was to ascertain the game development life cycle, especially how usability and user experience evaluations could be used to improve the result.
In summary, the academic research on game design is much diversified. The researchers come from different fields and use the approach and conceptual framework from that field. Often game design is seen as just an *example* of something more general, such as "the creative industry" or "cultural production". This is natural and could be fruitful, but it could also make the researcher unreceptive for the unique features of videogame design. Therefore I posit that we also need more unbiased studies of the actual practices currently used in the game industry. Therefore, I have tried to make a contribution by conducting this data-driven study of AAA videogame design with a grounded theory approach.
3 Method and object of study

3.1 The object of study

3.1.1 Motive

If we take a look at the academic game studies presented during the last decade, we can see that only a few focus on the actual creation of games (see chapter 2.3). When this is compared to the study of other digital artifacts and computer software, it seems odd. In the fields of human-computer interaction and interaction design for instance, a large part of the research is focused on the design of the products. One reason for this difference in research focus is perhaps that videogames are not like other digital artifacts. In the game studies community, videogames are more often treated as a cultural phenomenon similar to literature and movies and not considered to be comparable with smartphones and word processors. But game development shares many traits with software development and other highly complex production practices, and since design practice is likely to have an impact on the qualities of the final product, it is, in my opinion, well worth being studied as part of the games studies field. The existing studies on game design are typically theoretical or conducted as "research through design". There have been very few studies investigating actual design practice in the industry. I want to help to fill that knowledge gap and also try to contribute to better game design practice.

There are a number of reasons why I am interested in the actual practice of making AAA videogames. First, it is a neglected area of research, which I find surprising given that the products of this practice – these AAA videogames – get a lot of attention in game studies. I believe that more knowledge about the design and development of such games will contribute to our understanding of what videogames really are and why they have the traits they have. Game design practice is also interesting in itself, because it has a unique character as compared to other design disciplines. Game development has a hybrid nature because it is a mixture of artistic creation and engineering technology. The design of a AAA videogame entails a complex process of the collective creation of a product that must integrate both usability (or "playability") and aesthetic values.
3.1.2 Choice of studios to study
Games constitute a multifaceted phenomenon that comes in many different shapes. Even if we limit ourselves to videogames, there is a wide variety of types, from small pastime casual games free to play on the web, to high-profile AAA videogames (see chapter 3.1.3). Games also vary when it comes to their design and development. For this study, I chose to look into the design of AAA videogames made by big developing studios, since those kinds of games are the ones most commonly studied – and often criticized – in scholarly game studies. As mentioned before big game companies are often accused of not being original and inventive enough, making sequels and transmediations instead of creating new game concepts and genres, and therefore I wanted to investigate the viewpoint of game developers in such companies.

I also assumed that if there is an elaborated game design practice, it is probably best studied in big commercial companies, since such companies have big teams that have to cooperate and therefore should need a more explicit and thought through methodology.

I chose the five largest AAA videogame development studios in Sweden, which together actually represented the Swedish AAA videogame development at the time. Table 1 shows the five studios in order of their number of employees in July 2008:

Table 1: The five biggest game development studios in Sweden 2008

<table>
<thead>
<tr>
<th>Studio</th>
<th>Employees</th>
<th>Turnover 2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>1    Dice</td>
<td>280</td>
<td>250 million SEK</td>
</tr>
<tr>
<td>2    Grin</td>
<td>252</td>
<td>84 million SEK</td>
</tr>
<tr>
<td>3    Avalanche</td>
<td>153</td>
<td>98.9 million SEK</td>
</tr>
<tr>
<td>4    Massive Entertainment</td>
<td>130</td>
<td>96.5 million SEK</td>
</tr>
<tr>
<td>5    Starbreeze</td>
<td>80</td>
<td>49.3 million SEK</td>
</tr>
</tbody>
</table>

Source: Dagens Nyheter, July 20th, 2008

3.1.3 Kinds of games studied
Like many other design practices, game design can be described as a process of generating ideas and implementing them into a final product – in this case a videogame. Beneath such a general description, the reality is of course much more complex, and videogames can be made in many different ways
under various production conditions. There is a continuum ranging from small, simple games made in a short time by a single independent creator, to complex AAA videogames developed by huge teams of various specialists in big professional development studios. The games can also be very different from each other in terms of their complexity, genre and the way in which they are played. Therefore when studying games, it is important to specify exactly what kind of games was studied and not take for granted that the findings are generally applicable to all kinds of games.

In this chapter I will describe the kind of games that I have studied, and I will contrast them with other games to explain how they differ. The videogames of today vary in many dimensions:

**Platform:** Videogames can be made for PC's (personal computers, including Macintosh), game consoles (like Sony PlayStation 3, Microsoft Xbox 360 and Nintendo Wii), handheld game consoles (like Nintendo DSi and Sony PlayStation Portable go), mobile phones, and arcade machines. Often the same title is made for more than one platform. AAA videogame titles are typically made for both PC and one or more game consoles. Of the 30 Swedish games I have studied, 14 were made solely for PC, 10 were made for both PC and console, and 6 were made solely for consoles. One (*Ballistics*, Grin, 2001) was made for PC and arcade machines. (See Appendix 1)

**Input devices:** Most digital games are made to be played with the standard input devices associated with the platform for which the game is made, i.e. mouse and keyboard for PC games and gamepads for console games. Some games, however, are made to be played with input devices specifically made for that game, like the microphones for *Sing Star* (SCE London Studio, 2004) and the instruments for *Guitar Hero* (Harmonix, 2005) and *Rock Band* (Harmonix, 2007). There were no games of this kind in my primary data, but *Rock Band* is included in my secondary data.

**Genre:** During the evolution of digital games, genre labels have evolved, like FPS (first person shooters), TPS (third person shooters), RTS (Real-time strategy games), TBS (turn-based strategy games), RPG (role playing games), sports games, platform games, horror games, and so on (Thompson, Berbank-Green, & Cusworth, 2007). These labels are used when marketing games, in game design handbooks, in game reviews, and also among game designers when they talk about their game design ideas. The genre division
is not consistent however, since the genres are not all based on the same criteria. The game mechanics (what the player does when playing) is the most common criterion for determining the genre, but some game genres are (also) based on other criteria. First person shooters for instance are defined in reference to the core mechanic (shooting) and perspective (first person), while the horror games genre is based more on the fictive game world (the game world must have horrible elements) and the intended player's experience (should be horrified while playing the game). Therefore games can belong to more than one genre, and there are also many borderline cases.

The Swedish games I have studied belong to various genres (see Appendix 1), but not all genres are represented. Of the 30 Swedish games, six were multiplayer first person shooters war games, four were other kinds of first person action-adventure games, six were third person shooters, five were racing games, four were real-time strategy games, and two were third person action-adventure games. Of the remaining three games, one was an action platform game, one was a third person sword game, and the third was a first person hunting game. This means that many genres were not represented in my primary data, there were for example no role-playing games, no turn-based strategy games, and no sport games besides the four racing games. In summary the games made by the major big Swedish game developers are for the most part action based and less focused on story and puzzle solving. However I have also collected secondary data about games representing some other genres, like a space horror game (*Dead Space*, EA Redwood Shores, 2008), an action role-playing game (*Skyrim*, Bethesda, 2011), and a music performance game (*Rock Band*, Harmonix, 2007).

**Single-/Multiplayer – online/offline:** Some games are made for a single player, while some can be played by two or more players at the same time. The multi-player games can be played with two or more input devices attached to the same console or they can be played online together with other players that also are online. In my data set, most games have both a single and an online multiplayer mode, while six games are single-player only.

**Linear/nonlinear gameplay:** The gameplay in a game can be more or less "linear" (i.e. controlled by the player and the gameworld can correspondingly be more or less "open" or "closed". Games with the most open gameworld with a highly non-linear gameplay are so called "sandbox games", for example the *Grand Theft Auto* series (Rockstar, 1997-). The
games in my study vary in respect of linearity and openness. Avalanche's games *Just Cause* (2006) and *the Hunter* (2009) can be classified as open world sandbox games and the multi-player games are typically non-linear since the gameplay is strongly influenced by the participating players, while the single player games, like *Mirror's Edge* (EA Dice, 2008), are more linear. From a design perspective, a linear game has a more predictable gameplay, while the designers of a sandbox game only provide possible gameplay options.

**Hardcore/ Casual**: Games can be designed for "hardcore" or "casual" players. Hardcore games are harder to learn, they require longer – uninterrupted – playing sessions, they are often set in an unpleasant environment, and they stereotypically appeal to young men called "hardcore gamers". Casual games on the other hand are easy to learn, can easily be interrupted, have a pleasant game world, and they appeal to a much broader target group (Juul, 2009). The games in my study are almost exclusively hardcore games.

**Serious games/Autotelic games**: According to Salen & Zimmerman, games are typically autotelic, i.e. their value is embedded in the game, it is intrinsic and not extrinsic (2004, pp. 331-333). This is something that Costikyan (2002) terms "endogenous meaning". Some so-called serious games, however, aim for more than just entertainment and have a goal outside of the game itself. Examples are *educational games* that are created with the intention to teach the player something that will be useful in the real world, and *games for change* that are used to promote social change. The games I have studied are all autotelic.

**AAA videogames/Simple games**: Many non-digital games, like *Chess*, have few components considering the amount of rules, the number of game pieces, and the complexity of the game board. Digital games can also be simple in the same sense – *Tetris* (Pajitnov, 1984) and *Minesweeper* (Microsoft, 1992) are obvious examples. If we compare these games to the complex AAA videogames studied in this thesis, there is a big difference. This density of components in AAA videogames will be discussed in detail in chapter 5.
3.2 The overall methodology
In my two papers, I say that I have used a grounded theory approach. By that I mean that my method has been strongly data-driven and that I had very few preconceptions and no explicit hypotheses about the studied area, when I started. I also coded the interview data in a way similar to that which is prescribed in Grounded Theory (Holton, 2007). I have used a qualitative method and the following quotation gives a good description of how my research has developed:

The procedures of qualitative research, or its methodology, are characterized as inductive, emerging, and shaped by the researcher's experience in collecting and analyzing the data. The logic that the qualitative researcher follows is inductive, from the ground up, rather than handed down entirely from a theory or from the perspectives of the inquirer. Sometimes the research questions change in the middle of the study to reflect better the types of questions needed to understand the research problem. In response, the data collection strategy, planned before the study, needs to be modified to accompany new questions. (Creswell, 2007, p. 19)

The study presented in this thesis lasted for more than three years and during this period, the research questions and data collection strategy were continually modified due to new insights. I will explain this further in chapter 3.4.

3.3 Data collection
The primary data in my study come from interviews with seven game designers from five major game development studios in Sweden and from analyses of 30 games developed by those studios and published between 2000 and 2009. The secondary data come from a range of different sources, including lectures held by game creators, interviews with game developers by others (available on the web), official web sites of publishers and developers, web sites advertising individual games, and game reviews in magazines and on the web (see chapter 3.3.3).

3.3.1 Preparatory research
Before the interviews, I made a brief examination of all game design and game development handbooks available on the market (see chapter 4.1), to get an idea of how they describe the design process in game development. Before each interview, I investigated the games made by the game studio where the informant was working. I played the games, read reviews and
postmortems\textsuperscript{16}, watched lectures held by game developers from the studio in question, and read or listened to interviews available on the web with representatives from the studio (see chapter 3.3.3). With this prior knowledge I performed the interviews.

3.3.2 Primary data: The interviews

Choice of informants

When I contacted the five studios, I asked to interview game directors, lead designers or internal producers. Since I was interested in the design process and ideation, I wanted to meet people that were particularly involved in these processes. The last interview, however, was with a lead concept artist, because at that point I needed to know more about visual ways to work with ideation. I also asked for people who had worked as long as possible in the current studio, to make sure that they would be familiar with the design processes usually employed in that studio. As can be seen in the table below, my wishes were satisfied to a high degree. In average, the informants had worked seven years in the current studio, but most had also previously worked in other studios. All the informants were men, which is not surprising considering the distribution according to sex in the game industry as a whole\textsuperscript{17}. The interviews were conducted during 2009 and 2010:

Table 2: Informants from the game industry in Sweden

<table>
<thead>
<tr>
<th>Interview date</th>
<th>Informant’s role</th>
<th>Age</th>
<th>Studio</th>
<th>Time at studio</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2009 May 15</td>
<td>Executive Producer</td>
<td>33</td>
<td>Grin</td>
<td>5 years</td>
</tr>
<tr>
<td>2 2009 May 21</td>
<td>Lead Designer</td>
<td>34</td>
<td>Massive</td>
<td>12 years</td>
</tr>
<tr>
<td>3 2009 May 27</td>
<td>Senior Producer</td>
<td>37</td>
<td>Dice</td>
<td>7 years</td>
</tr>
<tr>
<td>4 2009 June 4</td>
<td>Game Designer</td>
<td>26</td>
<td>Avalanche</td>
<td>4 years</td>
</tr>
<tr>
<td>5 2010 February 24</td>
<td>Lead Designer</td>
<td>37</td>
<td>Dice</td>
<td>18 years</td>
</tr>
<tr>
<td>6 2010 February 25</td>
<td>Game Director</td>
<td>43</td>
<td>Starbreeze</td>
<td>1 year</td>
</tr>
<tr>
<td>7 2010 November 5</td>
<td>Lead Concept artist</td>
<td>33</td>
<td>Grin*</td>
<td>4 years</td>
</tr>
</tbody>
</table>

*until Grin’s bankruptcy in June 2009, after that he had been working as a freelance

\textsuperscript{16} Postmortems are common in the game industry. They are documents written after a game is shipped, evaluating the development process. Conventional headings are "What went right?" and "What went wrong?"

\textsuperscript{17} According to the trade organization ("Dataspelsbranschen"), only 10\% of the employees in the Swedish Game Industry were women 2010 (Dataspelsbranschen, 2011). It is likely that there are even fewer women in the professional roles I wanted my informants to have.
Interview procedure
The interviews were semi-structured and lasted about one hour each. They were tape recorded with the consent of the interviewees, and then transcribed to typed format for analysis. Most of the interviews were performed in the studio where the informant worked, but numbers 2 and 5 took place in cafés. The interview questions were not identical in each interview, since they were adjusted to each informant and to my current state of knowledge and focus.

3.3.3 Secondary data
In addition to the interviews, I have also used sources that were available as a result of the initiative of other people. I call the data from these sources 'secondary', since I was not involved in the original data collection and the result therefore was beyond my control. In grounded theory it is not common to make a distinction between primary and secondary data, but I have nevertheless found it convenient to structure my sources that way. The secondary data gave me valuable additional knowledge about game development and ideation in general and also specific information about the games and the studios in my study. I studied hundreds of such sources, so I cannot list them all, but to give the reader an idea about the character and variety of these secondary sources, I have listed some examples below:

Video recorded lectures
Patrick Bach, Senior producer at Dice: How to build a Blockbuster game (about Battlefield 3), Södertörn university, December 14, 2011
Jonas Åberg, Lead programmer & Tobias Dahl Lead artist at Dice: Creating first person movement for Mirror’s Edge, Game Developers Conference, March 27, 2009
Ian Milham, Art Director at EA's Visceral Games Studio: Art directing horror and immersion in Dead Space, Game Developers Conference, March 27, 2009
Dan Teasdale, Lead designer at Harmonix: Dirty deeds done dirt cheap: Design lessons learned from Rock Band, Game Developers Conference, March 27, 2009
Written interviews on the web


Video recorded interviews on the web

*World in Conflict: Behind the Scenes 1-6, (Game design, Art, Story, Cinematics, Technology & Stetsnaz)*. Six videos containing interviews with different developers at Massive Entertainment. http://www.youtube.com/user/UbisoftMassive [retrieved 2012-03-15].


Internet articles written by game designers


Manuals and dedicated web sites for particular games

3.4 Research process

A grounded theory approach leads to a problem when the findings are to be presented. It is easier to communicate the results using categories and concepts that have been generated from the empirical data, but this might give the reader the impression that those categories and concepts existed before the data was collected and thus worked as preconceptions that may have affected the results, instead of the other way around. On the other hand, if we do not use these categories and concepts it is hard to describe the results in an effective and comprehensible way. Without any organizing categories and generalizing concepts, we would have to present the findings in the form of raw data, which would be very messy and inaccessible. Therefore I will present the findings in this thesis in a way that does not correspond with the order in which the study was actually conducted. Instead of presenting the findings "bottom-up", starting with the empirical data and then presenting the generated conceptualizations, I will use the generated concepts, models and categories as tools to structure and explain the empirical findings. In this chapter however, I will compensate for this potentially misleading account by telling the chronological story of my authentic research process. This way, I will be able to show the reader how the different conceptualizations of my data grew out of the study and my analysis of it.

Premise and choice of research area

In grounded theory, you typically start with the choice of an area to study instead of a problem (Glaser, 1992, pp. 21-26). My study was a part of a research project titled Appreciation Practices Among Digital Creatives (See Acknowledgements). As a member of the project team, I therefore had to find a research area that fitted within the frame of the project. As we were planning to start a game design Bachelor's degree course at my university, I thought game design practice would be an appropriate area to study. Videogame creators are definitely "digital creatives" and I thought it would be interesting to investigate how they choose their design ideas and make design decisions, especially since videogames often are criticized for being stereotypical, violent, sexist, et cetera. I have also been interested in games and game studies for many years, and wrote my Master's Thesis about the dialogue in a videogame (Hagen, 2003).

Coming from a background in literary studies, I first considered studying independent ("indie") game designers, since they often work alone; some-
thing which I assumed would bear most resemblance to authors creating works of literature. These indie game designers are often praised for making inventive "arty" games, so I thought it would be interesting to study the design practice that generates such games. However, after having attended the Independent Game Summit and the Indie Game Festival (IGF) at the Game Developers Conference (GDC) in San Francisco in March 2009, I changed my mind and decided to study game design practice in big game development studios instead. The reason for that was that I realized that it would be very hard to find a common practice among single indie game designers. Listening to lectures that indie game designers held at GDC and reading interviews with and articles about them, I realized that they often work very intuitively and unstructured and do a lot of their design inside their heads, as they do not have to articulate and communicate their ideas in the same way as designers working in large teams. It would be easier to capture the ideation phase of game development in a business where ideas have to be articulated and communicated to a whole team. Thus I decided to use interviews with game designers in big studios as my main data collection source.

Game design handbooks
Before conducting the interviews, however, I wanted to do some preparatory research since my knowledge of AAA videogame development was very limited. In grounded theory, it is recommended not to have too many preconceptions about the studied object, but "there is a difference between an open mind and an empty head." (Dey, 1993, p. 63). Schreiber (2001) stresses that it is important to be aware of the preconceptions one has about the phenomena studied. She calls this "theoretical sensitivity" and she notes that:

Glaser (1978, 1998) and Strauss and Corbin (1998) suggest that reading related and unrelated technical and popular literature is a good way to expand one's ideas about the matters under study and to help promote theoretical sensitivity. (Schreiber, 2001, p. 58)

Therefore, I started my data collection with a brief examination of all game design and game development handbooks and textbooks available on the market to get an idea of how they describe the design process in game development (see chapter 4.1). These books are not based on academic studies, but instead are typically written by people from the industry, who gives their own subjective view on the subject, without any data other than
their own experience in the field. After reading a few handbooks, I realized that I wanted to focus on the parts in those books that deal with the first phase of game development, when the essential ideas about the game are generated, developed and communicated. Since it is in this phase the core concept of a game is formed, this phase is crucial if we want to understand why the videogames of today are constituted the way they are. However, it was hard to encapsulate what the books had to say about this, since they gave a disparate picture of the design process. One element recurred in all books, however, and it was always referred to with the same name. It was the *game design document* (GDD) that was said to be the outcome of the first phase in the development process. The purpose of this document was said to be the "blueprint" for the construction of the game, so it had to be exhaustive and describe all the game features in detail.

*Research about the games*

Since I wanted to ask my informants about the games they had created, I also prepared the interviews by getting to know the games that each studio had created. This first set of interviews, involved 25 games made by the four biggest studios in Sweden (see Table 1 and Appendix 1). I played the games and read about them in articles and interviews with the game developers, I studied reviews, and I saw videos with trailers and gameplay sequences from the games, as well as video interviews with people from the development studios and from the publishers of the games. An important outcome of this investigation was an analysis of the features of each game, from which I could draw conclusions about the (implemented) game design ideas behind each game.

*The first four interviews*

After this thorough preparation, I finally conducted the interviews. After each interview, I analyzed the data which helped me improve the questions in the next interview. The interviews were semi-structured and I asked questions about the whole development process as well as about the organizational and financial conditions. My main focus, however, was on the ideas behind the games the studio had produced and the documents they had produced in the process of creating them. I also wanted to see examples of authentic game design documents, but all my informants said they could not allow me do that, due to secrecy.
My first paper

In my first paper (Hagen, 2009) presented at the Digra conference 2009, I tried to contribute to the discussion about innovation versus stagnation in videogame design. The main title of the paper (Where do game ideas come from?) was also the research question. The findings were based on data I had collected about the 25 videogames mentioned earlier. After transcribing and coding the interview data, I focused on those parts where game design ideas and idea generation were mentioned. I also had the same focus when analyzing the data from the preparatory research conducted before the interviews. The conclusions I presented in the paper were that all games consist of both recycled and inventive components, and that the ideas behind the recycled components usually come from domains that are closely related to games, like other games (digital or non-digital), sports and movies. In searching for existing theories that could explain this recycling of ideas, I found the remediation concept (Bolter & Grusin, 2000) and the convergence culture concept (Jenkins, 2006) suitable to conceptualize the phenomenon.

In the paper I also gave examples of inventive ideas, and briefly mentioned the difference between inventive ideas and innovative ideas – a distinction I became aware of just before I had to submit the paper. Therefore the distinction was not elaborated further in the paper, but after the paper was written I collected some complementary data for future use by emailing my informants and asking them about their view on invention and innovation in games. Later, while preparing and writing the thesis, I returned to the data about game design ideas and idea generation, and conceptualized this part of the ideation process further.

Further coding and conceptualization

In my first paper, I focused on the idea generation aspect of ideation. From the transcriptions and open coding of the interviews however, I knew there was more information to find about ideation in the data. I went through the data again and focused on the other two aspects of ideation: the development and communication of ideas. From this it became obvious that my informants did not use the methods described in the handbooks. It was particularly when they talked about the game design document that they gave a different picture than the handbooks. My informants said that they did not use GDDs the way that is described in most handbooks. They document important design decisions, often in a wiki or another "living document", but these memos are not as comprehensive as the documents described in the handbooks and they are not used as a fixed blueprint that is followed
slavishly. Instead they said that they use other "tools" to articulate, develop and communicate the ideas about the game-to-be, and they gave some examples of such tools. The tools could for example be pictures, films, PowerPoint presentations, and/or music – as well as short verbal expressions, like keywords, "one-liners", et cetera.

Another important insight I got when I returned to the interviews and categorized the informants' descriptions of their practice was that they often talked about the player experience. The most important design idea was the vision about the experience that they wanted the player to have while playing the game.

A third observation was that my informants described the generation, choice and evaluation of ideas as being something subjective. They claimed that the best way to choose ideas are to use one's own preferences and desires, for example when trying to find a suitable player experience to aim for in a new game. They also stressed that they seldom go outside the studio for feedback on their ideas or prototypes. Testing and evaluation is typically done in-house, since "the man in the street" is not capable of evaluating games that are not finished. Looking for a way to label this subjective approach, I used the term "autobiographical design" that I found in a paper by Sengers (2006).

Two more interviews
One big Swedish game studio (Starbreeze) was not represented in my first interviews and my informant at EA Dice had not been involved in the studios most inventive game Mirror's Edge (EA Dice, 2008). Therefore I decided to conduct two more interviews and in February 2010. I did so with the lead designer for Mirror's Edge and a game director at Starbreeze. Before the interview at Starbreeze, I also played and analyzed the five games that Starbreeze had created. The total number of Swedish games analyzed was now 30.

By this time, my questions could be more focused, since I knew better what I was looking for. I wanted to verify my findings from the earlier interviews and I wanted more examples of the tools used as replacements, or complements, to the game design document. The new interviews gave me that, and my informant at Dice also told me that the design ideas are spread to the whole team by means of a "starter package" that is presented to all team members at the start of the production phase and also given to new
people that join the team later. This starter package consists of the tools used for communicating the game vision.

More data collection
At this point I had become aware of the importance of those tools for articulating and communicating the game vision. I was also fascinated by the range of variation the examples of such tools exhibited. In order to express the vision in the most efficient and concise way, a lot of creativity had been employed. To be able to show this clearly, I actively searched for more examples of such tools, and I found a few, for example in video recorded lectures given by game designers at the Game Developers Conference.

My second paper
Now I was ready to present my new findings in a new conference paper. This paper, presented at the Nordic Digra conference 2010, had the title *Designing for player experience: how professional game developers communicate design visions* (Hagen, 2010) and its main focus was on the tools for articulating and communicating the game vision. I made a tentative categorization of the tools based on the medium and the creative form that had been used when creating different examples of tools. Categories of (verbal) tools were for example: *simple and concise descriptions, key areas of focus, similes, and anti-examples*, while categories of non-verbal tools included for example: *concept art, mood boards, moving images, and music*. In this paper I also discussed my findings on *player experience design* and *autobiographical design*.

Journal article
In January 2011, the conference paper mentioned above was invited and accepted for publication in *Journal of gaming and virtual worlds* (Hagen, 2011). Before the publication, I had the opportunity to edit the paper and include minor additions to the original text. I used this opportunity mainly to add a discussion on so called agile design methods and their disapproval of "big designs up front". After finishing my second paper, I read a book about agile methods in game development (Keith, 2010), which helped me realize that since the game studios in my study said that they use such agile methods (e.g. *scrum*), it could explain their reluctance to use thick game design documents.
Preparing the thesis – part 1

My licentiate thesis was planned to be a compilation thesis, with an extensive first part summarizing and expanding the findings and discussions in the two papers. I started the preparation for the thesis by conducting another interview, this time with a concept artist from Grin. The reason for choosing an artist was that I wanted to know more about the visual tools used to express and communicate the game vision. I also collected more data about tools for expressing and communicating the game vision from different sources on the web. Since I held that the discovery of these tools was my most important contribution, I decided to give them a well-defined name which would make it easier to talk about them generally. I chose the term *lodestars* to depict such tools, irrespective of what modality or form they use – whether written words, still images, moving images, mood boards, music, sound effects, or something else. I also re-analyzed the data I had about these lodestars looking for comments about their purpose or function. I found that they have many purposes in game development, which I conceptualized as seven functions (see chapter 6.1).

During this preparation phase, I also searched for existing theories that could support my findings and conceptualizations. I have already mentioned Keith's book (2010) about agile methods in game development which I had found very enlightening, but I also read literature about design theory in general (e.g. Schön, 1983; Simon, 1996), and about experience design in human-computer interaction and interaction design (e.g. Norman, 2004; Suchman, 2007). For theories on the aesthetic aspect of design, I consulted Dewey's *Art as experience* (1934) and McCarthy & Wright's *Technology as experience* (2004).

Intermission and game design education

Because of illness and lack of funding, I had to put the thesis aside for almost a year, between February 2011 and January 2012. During this period, I was part of a group that planned and started a Bachelor's Degree game design programme at Södertörn University, where I work. The planning was fruitful for me, since we consulted people from the industry and asked them for advice about how to teach practical game design, something which further deepened my insights into game design practice. When the students finally came in August 2011, I could also implement and test my findings from the study, for instance by introducing the term *lodestars* and inviting them to create lodestars as part of their game design process. The positive
response from the students and the creative spark it gave to the process confirmed that the use of lodestars is an important and useful tool in videogame design.

Preparing and writing the thesis – part 2
By January 2012 I had received additional funding and could resume my research. I continued my analysis of lodestars and could add some more examples from more data that I had collected. As a teacher on the game programme, I had the opportunity to invite two of my earlier informants to give lectures to my students. I could even suggest the topics they should talk about, so I asked them to describe the design process used in the studios where they worked. These video recorded lectures gave me more useful data. The next step was to further conceptualize the idea generation discussed in my first paper. I did this by creating a framework and a model of the idea and feature structure in videogames, and also took into consideration the distinction between invention and innovation (see chapter 5.3), as well as the type of game feature the idea is concerns. I also continued my search for more empirical data and existing theories that could explain my findings and underpin my conceptualizations. Finally, I tried to find a comprehensible way to explain how all my different findings about videogame design fit together and cooperate when striving to make enjoyable, high quality videogames.
4 Game development
In this chapter I will describe the game industry and the overall videogame development process based on handbooks in the subject, but I will also compare and contrast this description with the findings from my study. This will give a background to the more specific findings I will present in chapters 5 and 6.

4.1 A community of game design practice
In game design studios around the world, the art of videogame design has evolved and produced its own cadre of professionals. Those people did not appear from out of nowhere of course; some had been engineers, some had been graphic designers and some had worked in film industry as animators, writers or sound editors. But they all had to adjust their skills to the specific conditions of videogame development, and eventually, new professions had evolved like game programmer, game artist, and game designer. The new art of videogame design evolved gradually by trial and error in individual studios, but efforts were also made to summarize and spread the knowledge gained. A pioneer in this endeavor was videogame designer Chris Crawford. Already in 1982, he wrote the first game design handbook *The Art of Computer Game Design* (Crawford, 1984), published 1984. (Wolf & Perron, 2003, p. 4). He then addressed the issue of the scholarly study of games by starting the first game design journal *Journal of Computer Game Design* in 1988. Finally, he initiated *The Computer Game Developers Conference* the same year.

One indication of a demarcated field of practice is probably the occurrence of dedicated handbooks in the field. In a search on Google Books and Amazon I found that more than one hundred handbooks on game design and game development were published in English between 1984 and 2010 (see Table 3).\(^\text{18}\)

<table>
<thead>
<tr>
<th>Year</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1984</td>
<td>1</td>
</tr>
<tr>
<td>1985-95</td>
<td>0</td>
</tr>
<tr>
<td>1996</td>
<td>1</td>
</tr>
<tr>
<td>1997-98</td>
<td>2</td>
</tr>
<tr>
<td>1999</td>
<td>1</td>
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<tr>
<td>2000</td>
<td>4</td>
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<tr>
<td>2001</td>
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<tr>
<td>2002</td>
<td>14</td>
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<td>2003</td>
<td>15</td>
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<td>2004</td>
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<td>2008</td>
<td>10</td>
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<tr>
<td>2009</td>
<td>13</td>
</tr>
<tr>
<td>2010</td>
<td>113</td>
</tr>
</tbody>
</table>

\(^{18}\) This just includes books about game design and game development in general. There are also many books about specialist skills (e.g. game programming and game art), but they were not included in this overview.
The game industry also has its own organizations and journals. IGDA (the International Game Developers Association), founded 1995\textsuperscript{19}, is the most notable trade organization, with 16,000 members 2008\textsuperscript{20}. Its mission is "[t]o advance the careers and enhance the lives of game developers by connecting members with their peers, promoting professional development, and advocating on issues that affect the developer community"\textsuperscript{21}. ESA (Entertainment software association) is another organization "exclusively dedicated to serving the business and public affairs needs of companies that publish computer and videogames for videogame consoles, personal computers, and the Internet."\textsuperscript{22} ESA also owns and runs the E3 (Electronic entertainment Expo) every year, where all the big publishers and developers demonstrate their coming games. There are also web portals and communities like GameDev.net\textsuperscript{23}, Gamasutra\textsuperscript{24}, and Gamesindustry.biz\textsuperscript{25}.

The Game Developers Conference\textsuperscript{26} has grown immensely since Crawford started it in his living room 1988. According to its web site, "it attracts over 18,000 attendees, and is the primary forum where programmers, artists, producers, game designers, audio professionals, business decision-makers, and others involved in the development of interactive games gather to exchange ideas and shape the future of the industry".\textsuperscript{27}

4.2 AAA videogame development

4.2.1 Publishers and studios

AAA videogame development is to a large extent characterized by its economic conditions. The production of a AAA videogame requires large teams working for a long period of time, and that costs a lot of money, of course. The development studios can seldom finance the production

\textsuperscript{19} http://www.igda.org/history
\textsuperscript{20} http://www.igda.org/annualreport2008
\textsuperscript{21} http://www.igda.org/about
\textsuperscript{22} http://www.theesa.com/about/index.asp
\textsuperscript{23} http://www.gamedev.net/
\textsuperscript{24} http://www.gamasutra.com/static2/terms_of_service.html
\textsuperscript{25} http://www.gamesindustry.biz/
\textsuperscript{26} 1999 GDC excluded the word 'computer' in its original name since "the industry has now diversified to the point that it includes any number of platforms, such as dedicated gaming consoles, handheld devices, cell phones, online and of course computers." (http://www.gdconf.com/aboutgdc/index.html)
\textsuperscript{27} "About GDC": http://www.gdconf.com/aboutgdc/index.html
themselves, so they have to rely on publishers that pay the development cost. In return, the publisher will own the finished product and receive the sales profit. For the publisher, it is therefore important that the game will sell well enough to pay the production costs, as well as the distribution, the marketing and so on (Chandler & Chandler, 2011; Kerr, 2006). To make sure that the game will really be finished in time and will have the qualities that will make it sell, the publishers often intervene during the design and production process. The way in which this is manifested can differ from publisher to publisher and it also depends on the publisher's trust in the development studio. However there are a number of common ways in which this is done:

- **pitch** – the studio often starts generating the initial idea for the game, and then presents a more or less elaborated concept to a publisher, trying to convince the publisher to finance the further development of the game. This presentation is called a pitch and often consists of an oral presentation together with different kinds of "pitch documents".

- **milestones** – even if the publisher likes the pitch, it seldom makes a promise to finance the game all the way to shipping it. Instead, a time plan is made in which certain "milestones" are defined, i.e. points when the studio has to show the progression of the game before they get "green light" and are allowed to continue.

- **enforcements** from the publisher – some publishers constantly supervise and control the development of the game. They can request regular reports on the progression and they can appoint an (external) producer to lead and supervise the whole project.

The relation between the publisher and the development studio is a well-known dilemma in the game industry. It mirrors the problems of cultural production in a market economy. If the purpose of creative production is primarily to make money, it is likely that artistic freedom will be restrained. My informants often complained that publishers intervene with the design process for example by suggesting game features that would ruin its overall vision or cohesiveness.

### 4.2.2 The game design team

In AAA videogame development, large teams are needed, especially in the production phase (see the figure on page 41). Since such a videogame has so
many qualitatively different components, the design and development process requires many different skills. Therefore the team must comprise people who perform these many different roles. As with the most parts of the game industry, there are still no commonly established standards as to how these job roles are named and what tasks they involve, but the handbooks and my informants are most often in agreement about the following titles.  

All the job roles mentioned in the (incomplete) list below give an idea of the size and complexity of the development of a AAA videogame:

**The producer** has the overall responsibility for the product, that it will be finished in time, have the qualities that have been decided et cetera. The producer(s) can be **external** (from the publisher) and/or **internal** (from the studio). In big companies there can be more than one producer – then one of them is often **senior producer** and/or **executive producer**.

**The game (or creative) director** is responsible for the creative aspects of the game as a whole.

**The lead designer** leads the design team, which consist of game designer(s) and level designers.

**The writer** writes the story, the dialogue, and other text.

**The interaction designer** or **user interface designer** design the heads-up display (HUD) and the menus.

**The art director** ensures that all visual art is in line with the vision of the game.

**The lead artist** leads the art team, consisting of **concept artists**, **3D artists**, **texture artists**, **animators**, **interface artists**, et cetera.

**The audio director** makes sure that all sound in the game (sound effects, voice over and music) is in line with the vision of the game.

**The sound designer** or **sound engineer** produces sound effects and other sound assets (but music and voice acting is done by others)

**The lead programmer** leads the programming team, consisting of different kinds of programmers, like game engine programmers, physics engine programmers, graphics engine programmers, artificial intelligence programmers, sound programmers, gameplay programmers, scripter, user interface programmers, input device programmers, network programmers, et cetera.

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28 One can also study these titles in the *credit lists* of videogames.
29 [http://en.wikipedia.org/wiki/Level_design](http://en.wikipedia.org/wiki/Level_design)
30 Textures are images that are used as surface on 3D models ([http://en.wikipedia.org/wiki/Texture_mapping](http://en.wikipedia.org/wiki/Texture_mapping))
4.2.3 The development process

Both my informants and the handbooks typically describe the development process as being divided into a number of phases. Each phase has its specific traits that separate it from the other phases. There is no established number of phases, however, and different sources name them differently. The process timeline in the figure below is based on a division presented by the executive producer at Dice in a lecture (Bach, 2011). It also shows the number of people in the team during each phase. The approximate time length of each phase is illustrated by the breadth of its rectangle. The whole development time can vary from 1½ up to 3-4 years. Some sources include the concept phase in pre-production and use the term post-production instead of the finaling and shipping phases.

Figure showing phases in video game development with approximate number of team members during each phase:

<table>
<thead>
<tr>
<th>Concept</th>
<th>Preproduction</th>
<th>Production</th>
<th>&quot;Finaling&quot;</th>
<th>Ship</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-10</td>
<td>5-25</td>
<td>25-200</td>
<td>10-100</td>
<td>5-50</td>
</tr>
</tbody>
</table>

18 – 36 months

Source: (Bach, 2011)

During the concept phase, the general idea (or the vision) of the game is generated. Often this phase is financed by the studio itself, but at the end of the phase the game concept can be pitched to a publisher that is hopefully willing to finance the next phase(s).

During the preproduction phase, the concept is further developed and tested with the help of prototypes. At the end of this phase, the studio can present "proof of concept", i.e. material that shows that the concept really will work and can become an enjoyable game. Often the publisher must give "green light" before the next phase can start.

During the production phase, the game is actually created. All the visual and audial assets are produced and the code is written. Before the development can enter this phase, most of the planning should be done, because the production phase is very expensive due to the large development team needed during this phase.

During the "finaling" phase, quality assurance (QA) is intensified. The game is tested and polished, bugs are fixed, and so on.
During **the shipping phase**, the game is marketed and distributed to retailers, and so on. Console games need to be certified by the console maker, which is a very time consuming procedure.
5  Ideation in game design

Ideation is an essential part of game design, as in all design. We have earlier defined ideation as the practice of generating, developing and communicating ideas (Jonson, 2005). It is a highly creative activity, and it is not always possible to observe it directly, since a part of it always takes place in people's minds. The most accurate way to study ideation is probably to study it as it happens. This means that the researcher needs to be present during the process. In this study this has not been possible. Instead, I have conducted interviews with game creators and asked them how the ideation process is practiced in their studio. This is not ideal since the answers given this way are rationalizations and in some cases, made a long time afterwards. Moreover there is always a risk that details are forgotten or omitted because they give a less favorable impression of the process. But even so, valid information overthrowing the existing accounts of this process was found.

In this chapter, I will describe and analyze the typical ideation process that is needed when designing AAA videogames. I will also show how this process is governed by the complex structure of such videogames.

5.1  Idea generation in game design

In my first paper (Hagen, 2009), I focus on the first part of ideation in videogame design – the idea generation. I used data from interviews\(^\text{31}\) and analysis of games\(^\text{32}\) to make observations on what kinds of ideas are involved in the design of AAA videogames and where these ideas usually originate. In this chapter, I will summarize and complement the findings presented in my first paper and present a conceptual framework that further clarify the task of idea generation for games.

5.1.1  Methodological approach

The most obvious, direct way to study idea generation is to study it as an activity conducted by the designers. This is especially relevant if you want to study the process of idea generation. As with ideation in general, the ideal way is to observe this activity as it happens and perhaps ask questions about the non-observable parts that take place in the designer's heads. But there is also an indirect way that is appropriate if you are interested in the conditioning factors for idea generation in AAA videogame design. Since approved and implemented ideas become components of the finished game,

\(^{31}\) Interview n:o 1-4 in table 2
\(^{32}\) The 25 games created by EA Dice, Grin, Avalanche and Massive – see appendix 1
we can analyze those components and discern the design ideas that were their conceptual origin. This is the approach I have used. Such an indirect way of studying idea generation has serious flaws however, as it does not detect the ideas that were rejected during the process, and it only discerns the final version of the implemented ideas, not all the modifications that typically happen along the way\textsuperscript{33}. Neither does this approach inform us of the creative methods used in idea generation. But these shortcomings can be, at least partly, overcome by complementary interviews with the designers. The advantage of this indirect method is that we can begin to understand all the ideas that are implemented in a AAA videogame, including the ones that would not be apparent if we were able to study the process in situ. Many ideas are hard to detect at the moment when they are generated, because they never have an observable existence until they are materialized as components of the finished game. Some ideas are not even expressed as conscious thoughts in the head of the designer, as they can be molded in interplay with the hands-on creation of game components. Simon (1996) compares this with the practice of an oil painter:

> Making complex designs that are implemented over a long period of time and continually modified in the course of implementation has much in common with painting in oil. In oil painting every new spot of pigment laid on the canvas creates some kind of pattern that provides a continuing source of new ideas to the painter. The painting process is a process of cyclical interaction between painter and canvas in which current goals lead to new applications of paint, while the gradually changing pattern suggests new goals. (Simon, 1996, p. 163)

This aspect of idea generation is not recognized in the game design handbooks, however. The handbooks give the impression that all the ideas are generated by the designers in the initial phase of the development process, but my study shows that many ideas are generated during later phases by other team members (e.g. programmers, artists, and sound designers) in the way that Simon describes it (cf. chapter 7.2).

5.1.2 Conceptual framework

Based on inductive analysis, I will now suggest a number of operational definitions of common terms that can be used when talking about ideation in game design. Together, these concepts and their relations to each other form a model of the basic conditions of AAA videogame ideation.

\textsuperscript{33} This is the second part of ideation – the idea development.
A **game design idea** is any suggestion that someone has about a prospective game. Most game ideas can be directly implemented as *components* of the game. I call these kinds of ideas **game component ideas**. If they are approved and implemented in the game, they can be discerned through an analysis of the game. Other ideas are about **contextual features** of the game and some ideas function more as **guiding ideas** in the design process. I use the term **game design ideas** as an umbrella term for **game component ideas**, **contextual game ideas** and **guiding game ideas**.

**Game components** are parts and features inherent in the game artifact itself. They are created by the development team in the form of code and assets. In chapter 5.2 we will study game components in more detail; here I just want to point out that a component can be almost anything that can be categorized or described in the game, from very general features like the gameworld and the gameplay as a whole, down to very concrete details such as individual objects and challenges in the game.

**Contextual game ideas** (or *choices*) concern external conditions that will **not** be components of the game artifact itself, but which will nevertheless influence the design of the game and how the player will experience it. Some examples are the choice of game platform (PC, console, smartphone et cetera), budget, marketing strategy, and target group. These ideas can to some extent be discerned if we analyze the context of the game and interview the game designers.

**Guiding game ideas** are not directly implementable as components of the game, but still affect the design of the game **indirectly**. One kind of guiding idea consists of comprehensive background stories for the whole gameworld or for a character that will only be partly uncovered in the game. Other kinds of guiding ideas concern aspects that are not fully controllable by the game creators, like the expected **tactics** players will use during gameplay, the "atmosphere" or the "style and tone" of the game, and the **player experience** that the game is supposed to convey. Many game designers (including my informants) stress that what you actually try to create in game design is an experience for the player (Howard, 2012; Salen & Zimmerman, 2004; Schell, 2008). Of course you cannot design the player experience directly –

34 According to my informants, the target group are often defined based simply on rating systems like PEGI and ESRB (For an explanation of such rating systems, see http://en.wikipedia.org/wiki/Video_game_content_rating_system)
it has to be done indirectly, mainly through the design of game components. This "indirect design" makes it harder to take design decisions about game components, since in designing each component one has to consider not only the component's own quality and its relation to other game components, but also whether it is likely to support the intended player experience or not. See also chapter 7 and my second paper, (Hagen, 2011)

A game component idea is an idea that is implementable in the game. If it is approved and implemented, it will become a component of the finished game. In principle these ideas are discernible if we analyze the finished game. However, not all game design ideas suggested during the design process are approved and implemented in the finished game. Some ideas are already dismissed or modified during the concept stage, others are tried out in prototypes and rejected or modified if they don't pass the test, and so on.

Game component ideas may concern any component of the game on different levels. A high-level idea is more general which means that it usually needs be broken down into a collection of lower level ideas that are implemented one-by-one into the game. Low-level ideas are more specific and concern concrete components of the game. A high-level idea could for example define the general core mechanic in the game, such as: "it's a shooting game". This general idea has to be elaborated by generating lower level ideas about the kind of shooting that the game should support, what kinds of weapons should be available in the game, what kinds of targets the player are supposed shoot at, and so on. On an even lower level, individual weapons and targets have to be designed, which entails the need to generate concrete low-level design ideas about their appearances and traits.

High- and low-level ideas represent the two ends of a scale from general to specific. The more general an idea is, the closer it is to the high end of that scale, and the more specific an idea is the closer it is to the low end of the scale. Table 4 below gives examples of implemented component design ideas on different levels in the game Mirror's Edge (EA Dice, 2008). See also Appendix 2 for a more comprehensive list of game ideas that I have noticed in Mirror's Edge (including also guiding ideas and contextual ideas).
Table 4: Examples of implemented ideas about gameworld and gameplay component on different levels in *Mirror's Edge*

<table>
<thead>
<tr>
<th>Higher-level ideas</th>
<th><strong>Gameplay</strong> genre: &quot;First person free movement&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Overall goal: Complete missions by running through the city and surviving obstacles.</td>
</tr>
<tr>
<td></td>
<td>Overall obstacles: Policemen shoot at you and you can fall from high rooftops.</td>
</tr>
<tr>
<td></td>
<td>Core mechanics: Parkour-like movements</td>
</tr>
<tr>
<td></td>
<td>Challenges: To find your way and traverse the city landscape, while avoiding pursuing policemen.</td>
</tr>
<tr>
<td></td>
<td>Mechanics repertoire: run, jump, wall-run, climb, slide, balance, shimmy, tumble, open doors, click buttons, disarm opponents, melee combat, shoot</td>
</tr>
<tr>
<td></td>
<td>Ways to perform activities (e.g. wall-running) using the input devices</td>
</tr>
<tr>
<td></td>
<td>The design of a specific obstacle in the game (What combination of mechanics is required to overcome it?)</td>
</tr>
<tr>
<td></td>
<td>Hidden rules for how hard it is to perform a specific mechanics and overcome a specific obstacle</td>
</tr>
<tr>
<td>Lower-level ideas</td>
<td><strong>Gameworld</strong> as a whole (setting, background story, main conflict, et cetera)</td>
</tr>
<tr>
<td></td>
<td>Setting: Big city in the near future, surveillance society</td>
</tr>
<tr>
<td></td>
<td>Background story: Most citizens are satisfied, but some fight against the totalitarian society. They cannot use normal communication channels, so they use &quot;runners&quot; for message deliveries.</td>
</tr>
<tr>
<td></td>
<td>Level environment: roof-tops, inside office buildings, ventilation shafts, streets</td>
</tr>
<tr>
<td></td>
<td>Characters: human beings (non-fantasy)</td>
</tr>
<tr>
<td></td>
<td>Character's main roles: &quot;runners&quot; (outlaws) and policemen (law keepers)</td>
</tr>
<tr>
<td></td>
<td>Player character: Faith Connors (&quot;runner&quot;)</td>
</tr>
<tr>
<td></td>
<td>Non-player characters: anonymous policemen, Faith's sister Kate, Faith's helper Merc, and others</td>
</tr>
<tr>
<td></td>
<td>Appearance and behavior of a specific character (e.g. Faith's sister Kate)</td>
</tr>
<tr>
<td></td>
<td>Kate's hairstyle (a chignon)</td>
</tr>
</tbody>
</table>

Note that I have separated ideas about *gameplay* components from ideas about the *gameworld* components in Table 4. These two component categories of all AAA videogames correspond to the player activity and the environment where this activity takes place. Gameplay components are
typically verbs while gameworld components typically are nouns and adjectives (even if gameworld story elements can also contain verbs). A third main component category is the game interface, but I have not made a specific column for these kinds of components, since the audio-visual interface in Mirror's Edge is minimal. However, "Ways to perform activities (e.g. wall-running) using the input devices" in the left gameplay column is actually an interface component (see also Appendix 2 for more examples of interface components).

Figure 3: Faith Connors, the player character of Mirror's Edge
Mirror’s Edge © EA Digital Illusions CE AB 2009
5.1.3 How game ideas influence each other

The game design ideas influence each other and together they form a hierarchy where high-level ideas influence many ideas on lower levels. We can use the examples from Mirror's Edge to illustrate this (see Table 4 and Appendix 2). The studio, Dice, decided at an early stage of the ideation process that they wanted to invent a new genre that they called "First person free movement". Through their Battlefield series (2002-), Dice had experience in making First Person Shooter games, but this new game was supposed to be more about movement mechanics than about shooting. Genres that use movement as core mechanics, e.g. platform games, like the Super Mario series (Nintendo 1985-) and action-adventure games like the Tomb Raider series (Core Design, 1996-), usually have a third person perspective, so combining movement with a first person perspective was an inventive idea. This high-level idea about the genre implies a bundle of ideas about the game, for example that it will have 3D graphics, that the player will experience the game from a first person point of view, that the core mechanics will be movement, et cetera. This means that a design decision about the genre will reduce the design space – the amount of possible ideas that can be implemented in the game. But they do not only restrict the space, they also, in a sense, open the design space in certain directions. High-level ideas provide inspiration for and suggest possible low-level ideas. The decision to make movement the core mechanics, for example, has numerous implications for lower-level ideas. It gave rise to the idea to use parkour\(^{35}\) movements for instance, which in turn suggested a number of possible movements that could be implemented in the game. Moreover, to implement a specific movement requires even more ideas, for example how the movement should be performed by the player through the input devices (e.g. the controllers of Xbox and PlayStation), and how the movement should be represented with graphics and sound. Then the level designer has to arrange the cityscape in a varied and challenging way so that the player has to use different movements to traverse it.

Like most hierarchies, the hierarchy of game ideas is also shaped like a pyramid. The high-level ideas are few, since each of them represents a wider part of the game, while the lowest-level ideas are plentiful, since each of them describes just a small detail in the game. Even if the influence is mainly from high-level to low-level, there is also an influence which goes in

\(^{35}\) http://en.wikipedia.org/wiki/Parkour
the other direction. Since low-level ideas taken together will manifest high-level ideas, they can sometimes change the initial high-level ideas.

To further elucidate the design process of a AAA videogame as well as how game design ideas influence each other, I will use character design as an example. Let us say that we are about to create a female non-player character (NPC) in the game we are developing. Non-player characters in videogames are controlled by the computer, typically through so-called artificial intelligence (AI) – algorithms that give the character a certain behavior in the game. This means that the character will act in certain ways in different situations, either autonomously or as a reaction to different stimuli. The character also has a certain audio-visual appearance, a certain look, and a certain style in her way of moving, talking, acting, and so on. Furthermore, the character can have belongings, like clothes, vehicles, weapons and pets.36

So far we have described the character in a quite detailed way. But the words 'behavior', 'appearance' and 'belongings' are still categories, so they do not represent the lowest level of generalization. That would be the description of the individual character in the game, as she actually turned out to be after a number of design decisions had been taken and implemented in code, graphics and sound.

But character design is also influenced by decisions on higher levels of generalization. First, there is the game as a whole. What genre does it belong to? What kind of gameplay and gameworld does it have? This probably has impact on the individual character we are designing. The decision about what gameworld the game should have normally includes decisions about the kind of creatures living in that world. Is it a realistic world similar to the one we are living in? In that case, the characters are most likely to be human beings or animals known from the real world. But if it is a fantasy world, for example a Tolkien-like world, the characters can also be other creatures like elves, dwarfs and orcs. In this way the decision about the game world limits the amount of possible kinds of creatures our character can be. And when we decide what kind of creature she will be, this will further influence her audio-visual appearance, her behavior, her belongings, and so on. Likewise,

if it is a game in which the player characters have enemies, we have to decide whether the character we are designing is friend or foe. That for instance will influence her behavior when the player character comes near her. Maybe the friend-or-foe issue also influences the way our character has to look? The enemies in the game perhaps belong to a specific race or group of people that have distinguishing physical traits and/or clothes. Furthermore, the genre often has implications for the character design. In a horror game, for example, the enemies are typically supposed to be horrifying and even disgusting.

![Figure 4: Faith and Kate Connors, sisters belonging to opposite sides of the law. Kate is a policewoman and Faith is a so called runner. Note Kate's chignon, mentioned in table 4. Screenshot from the final cut scene of Mirror's Edge.](image)

Another general decision that influences the design of the character is the overall visual style that the game should have. Is the graphics photorealistic or "cartoony", for example? This high-level decision is of course essential when designing the appearance of the character.

It is important to keep in mind, this complex mutual dependency among game ideas, when we discuss the importance of making games cohesive in chapter 7.3.

### 5.2 What are videogames made of?

Until now, we have considered game components only as the subject matter of (component) ideas. In this chapter, I will look upon game components from another perspective, namely as they appear in a finished game. Both
perspectives require that we find a way to describe the components. The only difference is actually that components in ideas are creations of the imagination, while components in an existing game exist in the form of digital code in the game artifact. However, the components of a complex system like a AAA videogame can be described in many ways, depending on how one chooses to divide the game into components. As we have seen, we can talk about very general components like *gameplay*, *game interface*, and *gameworld* and we can talk about specific components like an individual object in the game, for example the hat a game character wears. Between those two extremes there is a range of generalization levels and angles from which game components can be described.

Identifying all the components of a AAA videogame is therefore not a trivial task. Such games are complex artifacts, each one consisting of a very large number of components designed by the creators of the game. Furthermore, different game genres have different kinds of components, so making a comprehensive list of all possible kinds of components in games is practically impossible. Nevertheless, a couple of projects are actually trying to do exactly that. *The Game Ontology Project* (GOP) is a wiki project whose aim is to create a hierarchical framework of game ontology elements (Zagal, Mateas, Fernández-Vara, Hochhalter, & Lichti, 2007). Moreover, in their book *Patterns in game design*, Björk & Holopainen (2005) describe a large number of gameplay patterns that can be used as tool when analyzing and designing games. Their work is now being followed up in *Game design patterns 2.0* (Björk, in progress). *The TV Tropes wiki* ([http://tvtropes.org/](http://tvtropes.org/)) is "a catalog of the tricks of the trade for writing fiction". The examples come from many different media such as comic books, films, literature, live action TV – and also from videogames. Tropes in videogames can be seen as design patterns for the gameworld (in contrast to Björk & Holopainen's patterns that are mainly gameplay patterns).

The most comprehensive attempt to list and describe game components – also on low levels – is probably *David Perry on game design: a brainstorming toolbox* (Perry & DeMaria, 2009). This is a 1000-page-book with design tips and ideas listing a very large number of detailed game components under different categories, like genres, (visual) point-of-view, storytelling elements, scenarios, character traits, types of enemies, speech styles, types of game worlds, way to travel in the gameworld, objects in the gameworld, music and sound, puzzles, goals and rewards, obstacles, ways to
communicate with the player, et cetera. Under each category lots of examples are presented.

It is not my intention to present an alternative collection of game components, but I need to give the reader a rough idea of the huge number of components that have to be designed when a game is created to provide a context for the study I have made and explain the complexity of the design situation at a AAA videogame studio. In the previous chapter, I have showed how game ideas correspond to different components and aspects of a game-to-be. There I used components in *Mirror's Edge* (Dice, 2008) as example in Table 4, and in my first paper (Ulf Hagen, 2009), I presented a similar analysis of the game *Wanted: Weapons of Fate* (Grin, 2009). In Appendix 2, I also present a tentative list of game components with the corresponding design choices in *Mirror's Edge* for each component. The list is far from complete, but I hope it serves as an illustration of the complex and multifaceted character of AAA videogames.

As we have said before, game components are implemented game ideas. The traditional game design document (the GDD) often aimed to list and describe all the components in the game-to-be. This was possible when the games were simple and had small gameworlds, but the fact that a modern AAA videogame has such a large number of game components might be one reason as to why some game designers nowadays search for alternative ways to externalize their game design ideas (see chapter 6).

### 5.3 Invention and innovation in game design

When discussing ideation in game design, it is hard to avoid the issue of innovation. Commercial AAA videogame makers are often accused of not being inventive (or innovative) enough. They are said to use the same ideas over and over in sequels and in licensed games (e.g. games that are based on movies or books). In a review, the associate editor of GameSpot Australia, Laura Parker, writes:

> More and more developers making mainstream, big-budget AAA titles with mass-market appeal are becoming complacent, brushing aside the drive for innovation in favour of big-name sequels and blockbuster titles that guarantee profitability. It’s hard to find a AAA title in the current marketplace that redefines its genre or says something new. (Parker, 2010)
The reason for this reluctance for innovation is usually said to be grounded in financial considerations from the publisher's side. A lot of money is at stake in big budget AAA videogame creation, and it is risky to invest so much money in an unproven innovative game idea. Thus it is better to play safe and invest in games that are known to sell well. This reluctance of taking chances does not have to be shared by the development studio. One of my informants, the executive producer at Grin, made this comment: "I'm sure that 90 percent of all game developers want to move the borders, innovate, and try out new approaches, but they cannot get financing for far too innovative concepts."

Parker compares the big-budget AAA videogames with indie games like *Limbo* (Playdead, 2010) and *Braid* (Blow, 2009), and she notes that the difference in team size is also crucial: "While all games begin as an expression of a particular vision, one idea in the hands of four developers produces a very different end result than the same idea in the hands of 400." (Parker, 2010). She quotes Nels Anderson, gameplay programmer at Hothead Games, who further explains this difference:

"Indie developers represent a different way of making games. Small teams are able to take risks that large institutions simply cannot. They can actually create a game with a single, coherent message that’s more substantial than 'Chainsawing aliens is awesome!' If you have hundreds of people making a game, it's incredibly difficult to get them all on the same page. Direction often ends up being comparative. It's easier to say "We're making a shooter like Modern Warfare but set in Vietnam" than focusing people on making a "2D platformer about regret and loss vis-a-vis time manipulation". [aka Braid.]" (Nels Anderson quoted in Parker, 2010)

In chapter 6, I will come back to the problem of what Nels Anderson calls "direction" in big teams, and show how the big studios in my study have approached this issue. Now I will investigate further the reputed lack of innovation in AAA videogame design. First, we need to make a distinction between the two words "innovation" and "invention". They are often used synonymously, but Denning (2004) defines innovation as "the adoption of a new practice in a community" and he continues:

"I draw a sharp distinction between innovation and invention. Invention means simply the creation of something new—an idea, an artifact, a device, a procedure [...] There is no guarantee that an idea or invention, no matter how clever, will become an innovation. [...] Innovation
require attention to other people, what they value and will adopt; invention requires only attention to technology. (Denning, 2004)

Denning's definition points out the problem of innovation. It is not just a matter of inventing new game ideas. We actually don't know if a new idea is innovative until we can see if the idea has become "a new practice in a community". We can interpret "community" here either as the community of videogame players, or as the community of videogame creators. Innovations in the sense of adoptions in the player community are for example when a new genre is invented and becomes popular, or when new input devices are invented and become widely used by the players (e.g. Nintendo Wii and Xbox Kinect). But an innovation in the videogame domain could also be the adoption of new game design practices like the one I will describe in chapters 6 and 7. Such new design practices can probably also give rise to innovative new games.

5.3.1 What is a new idea, actually?

Even if innovation is the final goal, it nevertheless requires an inventive idea to start with. By inventive game ideas I mean ideas that have never been used in the same way in a game before. In the study presented in my first paper (Hagen, 2009) I tried to get a grip on the amount of inventive ideas in commercial AAA videogames. By analyzing the game ideas behind the 25 games in my study37, I found that many game design ideas had been borrowed or "recycled", but I also found that all those games had at least some inventive components as well. As exemplified in my first paper, new videogames are often advertised with a number of so called USPs (unique selling points), which are typically inventive game ideas. However, this does not change the fact that many ideas are recycled. But then again, is this really surprising? If we compare games with other cultural products like films, literature and other media, we can notice that it is normal to be inspired by, borrow from, and even imitate the work of others – this is called intertextuality in literary studies, Bolter & Grusin (2000) call it remediation, and Jenkins (2006) refers to it as the convergence culture. All art forms have genre conventions that works of that art form conform to, and the history of the different art forms can be divided into epochs characterized by the specific traits and styles that most works of that epoch followed. It is as if the whole cultural sphere is an ecological system, where ideas float around

37 At that point there were only data from 25 games in my study. Later I have also analyzed the five games that Starbreeze have created.
like genes and development is normally evolutionary – even if it sometimes takes a more revolutionary turn, just like mutations in the biological ecological system. The evolutionary progress can be seen as the industry's way to slowly transform the game landscape without too much venture, while revolutionary inventions often come from either indie developers who work with a small budget or from really big companies (like Nintendo and Microsoft) that can afford to take risks.

This slow transformation can also be studied by observing how an individual idea evolves when it is recycled. Because of the small changes and variations that frequently happen when an old idea is borrowed and used in another game, it is actually quite hard to decide if the idea should be regarded as new or as recycled. The gameplay idea behind the *music-based rhythm game genre* 38 can serve as an example. This genre is based on specific game mechanics that challenge the player to press the correct button at the right moment. The user interface indicates what button to press, and some kind of rhythmic sound (mostly music) lets the player know the right moment to push. The first time this gameplay was introduced in a videogame was in *Dance Aerobics* (Human Entertainment, 1987). According to my definition, this was an inventive idea at that time, since it was the first time the idea was used in a videogame. It was also the beginning of a new genre, and therefore an innovation, according to Denning’s definition. The idea was not completely new however – it had been used before in the electronic game toy *Simon* (Milton Bradley, 1978) 39.

![Figure 5: The electronic toy Simon (Milton Bradley, 1978), based on the gameplay idea that the player must (guided by sound and light) press the correct button at the right moment. The name of the toy comes from the children's game called Simon Says.](http://en.wikipedia.org/wiki/Rhythm_game)

![Figure 5: The electronic toy Simon (Milton Bradley, 1978), based on the gameplay idea that the player must (guided by sound and light) press the correct button at the right moment. The name of the toy comes from the children's game called Simon Says.](http://en.wikipedia.org/wiki/Simon_(game))

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Later, when the idea was borrowed and used in other games like *PaRappa the Rapper* (NanaOn-Sha, 1996), *Dance Dance Revolution* – *DDR* for short (Konami, 1998), and *Guitar Hero* (Harmonix, 2005), the idea was modified in different ways which somewhat challenges the line between inventive and recycled. While *PaRappa the Rapper* is based on mechanics that are similar to those in *Dance Aerobics*, it uses a completely different physical and audio-visual interface, and it also has a very different gameworld and a different way to award points.\(^{40}\) *DDR*, on the other hand, has a physical interface similar to that of *Dance Aerobics* (a mat with big buttons on the floor that the player has to step on) but *DDR* also introduced some new features, and it was the game that popularized the dance variant of the rhythm game genre and made it a real innovation. Likewise, *Guitar Hero* introduced both new gameplay elements and a completely new physical interface in the form of a guitar with buttons to press instead of a mat on the floor with buttons on to step on.

Some inventive game ideas just concern small details in the game and are therefore not as noticeable as high-level ideas are. Low-level ideas are not likely to be regarded as significant innovations either – even if they may later be adopted in many other games (and thus "become a new practice in the community", as Denning puts it). It is easy to find examples of inventive low-level ideas – these ideas are not recycled as frequently as high-level ideas. The use of Goombas\(^{41}\) for the first time in *Super Mario Bros.* (Nintendo, 1985) was for example an inventive low-level idea, and was recycled in almost all following games in the *Super Mario* series (Nintendo, 1985–).

### 5.3.2 The significance of inventive ideas

A key question thus is to ask whether the inventive idea is regarded as significant or not. As we have seen, inventive ideas can be more or less general and can therefore influence the game as a whole more or less. It is basically a matter of on what level we describe the game idea. If we describe the inventive idea on a high (general) level, for example as the challenge to press the correct button at the right moment, then *Tennis for two*

\(^{40}\) See [http://en.wikipedia.org/wiki/PaRappa_the_Rapper](http://en.wikipedia.org/wiki/PaRappa_the_Rapper)

\(^{41}\) A Goomba is a specific type of enemy in the Mario series. They always have the same appearance and features in the games (see [http://en.wikipedia.org/wiki/Goomba](http://en.wikipedia.org/wiki/Goomba)).
(Higinbotham, 1958)\textsuperscript{42} was probably the first videogame to use the idea, but if we define the idea as the challenge to dance in synchrony with rhythmic music, then \textit{Dance Dance Revolution} will be the first game that used it.

If we look at the three main components \textit{gameplay}, \textit{game interface} and \textit{gameworld}, gameplay is usually regarded as the most significant when it comes to invention and innovation. New \textit{gameplay} components are more emphasized in game reviews and as USPs (unique selling points) than \textit{gameworld} components or audio-visual interface components. Inventive \textit{physical interfaces}, like the guitars in \textit{Guitar Hero} or the \textit{Nintendo Wii} controls, are of course also given attention, but they are in fact part of the game platform rather than the game artifact. The reasons why inventive \textit{gameworld} components do not receive as much attention as inventive \textit{gameplay} components could be that gameplay is seen as the essential main component of games. According to this view, games differ from other cultural products like media and art, because they are not primarily made to narrate and describe things. Instead the purpose of games is to create a pleasant and enjoyable \textit{activity}. Hunicke, LeBlanc, & Zubek (2004) states: 

"[G]ames are more like artifacts than media. By this we mean that the content of a game is its behavior – not the media that streams out of it towards the player." If this is true, the most important aspect of games is their ability to give us a desirable \textit{gameplay experience}, and this might not primarily require inventive game components. Since gameplay is a result of the player's interaction with the game, it can vary from game session to game session depending on the player's tactics, skill, and so on. Moreover, if the game is not too linear, the gameplay inventiveness can emanate from the player instead of the game artifact.

My informants also emphasized other qualities than invention and innovation when I asked them about innovation in games. My informant, the lead designer at Avalanche put it this way:

\begin{quote}
What I personally miss are innovative games that aren't strange just for their own sake, games that at the same time are equally good as more traditional games. There are too many games that are clever, but not entertaining enough to make me play them rather than a more traditional
\end{quote}

\textsuperscript{42} \textit{Tennis for two} (Higinbotham, 1958) was a simple analogue videogame, simulating a tennis match displayed on an oscilloscope (see http://en.wikipedia.org/wiki/Tennis_for_Two).
game. Innovation for its own sake is totally uninteresting for me. Games have to be fun too.

Another informant, the senior producer at Dice also emphasized the quality aspect before inventiveness, as he suggested that sequels can actually be an advantage, because they can give the developers a chance to enhance the quality of the original game:

It is often easier to make a high-quality product of a sequel. That is perhaps not what you would expect, but often you have invested so much time and energy on something that maybe reach a certain level, and if you get to polish and rethink that product, you can really improve it. But when you create a new game from scratch it's hard even to get up to a basic quality level.

It may seem as if this chapter has been written in defense of non-inventiveness, but that is not the case. Of course inventions and innovations are desirable in game design. We need variation and change now and then in our playing, and new target groups might need new kinds of games to become interested in playing games at all. And last but not least, if we want to fully explore the potentials of the art form we call videogames, we need to experiment and be creative. The point I wanted to make in this chapter was rather that if we want to give constructive critique, we need to understand the conditions and circumstances under which the criticized phenomenon exists. The question of innovation in games is not just a matter of creativity in game studios.

5.4 The ideation process in handbooks and in practice

In this section I will outline the ideation process as it is usually described in handbooks and compare it to the practice I have discovered through my data.

According to the handbooks, the idea generation process normally starts with high-level ideas and then goes more and more into detail by means of generating lower-level ideas, but my data has many examples that show that it often is a low-level idea that starts the process. In a video interview, Grin's founder, Bo Andersson, for instance, told the story about the vision that later developed into Grin's game Ballistics (2001):

Ballistics was this crazy idea that Ulf [Bo Andersson, brother and co-founder] had one night when he was looking at the screensaver. The screensaver was this tube going back and forth basically, the standard
Windows one. And he was thinking, "You know what, what if you actually drive inside that thing you know."

Another example is the following story told by the Lead designer at Massive about the seed idea of Massive's first game, *Ground Control* (2000):

> Our founder had played a game called Command & Conquer, a large 2D game, and what he wanted... this is so funny because he is so extremely distinct about what it was that ignited the idea... he played the game, and there was this little guy throwing grenades, and he wanted to see this guy in full 3D. He didn't want to see him that small in a top-down perspective; he wanted to go down with the camera, all the way down to the ground, and see, from all angles, when he threw the grenade. So that's why we made a 3D RTS game. That was the basic idea that started it all.

The first *seed idea* has to be developed and elaborated before it can result in a finished game. This part of game ideation will be further examined in chapters 6 and 7 where I, in detail, will present the practices I have found in my study.

However, as mentioned above, the handbooks typically states that game ideation starts with a number of high-level ideas. These important ideas together are often called *the game concept*. In my first paper, I define the *game concept* as the collection of all the important game ideas that constitute a game proposal. Accordingly, the aim of the *concept phase* in game development is to produce a game concept. What ideas are regarded as "important" depends on the situation and the purpose of the game concept.

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The game concept presented for would-be financiers is usually not the same as the internal game concept presented for the development team. *Contextual game ideas* and *guiding game ideas* are often included in the game concept, and it is primarily the *high-level game design ideas* that are regarded as "important". However, some significant *low-level ideas* can also be included in the game concept as illustrative examples. Most low-level ideas are generated and implemented later in the development process however.

When the ideas are to be implemented in the game artifact the whole team is involved. The hierarchy among the team members (explained in chapter 4.2.2) is in a way parallel to the hierarchy of ideas explained above. If we take the visual art as an example, then there is first a game director or internal producer who takes care of the high level ideas of the game as a whole (including the art). Under the game director and/or internal producer there is an art director who is responsible for the high level ideas about the visuals in the game. Under the art director there is a lead artist who leads the work of the team of artists. In a large studio, these artists have different tasks on different levels of the idea hierarchy. Some make concept art, which illustrates high level ideas about the game-to-be, some make 3D models and textures, some work with animations and so on. They could also be more or less responsible for the actual design of the art. Some (senior) artists can take design decisions of their own, while others (junior artists) tend to execute what others have decided.

### 5.5 How to communicate the vision

All my informants stressed that it is very important to have a clear *objective* – or *vision* – when working with the game-to-be. This vision often consists of, or at least includes, the intended *player experience*. Some of them also pointed out that it is essential to *communicate* this vision to the development team before they start working with the game. This is of course vital, given the hierarchical structure of the game ideas, which means that all features must be in line with the vision. Unless the vision is clearly defined and communicated, different parts developed in the large team of developers may not, in the end, fit with the vision.

When I asked how they communicate that vision, all my informants remarked that it is hard to get everyone to read a thick design document.

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44 The senior producer at Dice, the lead designer at Massive Entertainment, and the lead designer at Dice
Instead they mentioned other, more effective ways to articulate such a vision. The lead designer at Massive, for example, said that they use a variety of things, like a PowerPoint presentation or a short film:

Making others understand the vision bearer's idea is the most important you can work with. So if you want to create a complicated moving pattern that the player should follow, well, then maybe you should make a little short film. […] So that the programmers understand what it is you want the player to do with the character. That is much better than a 300 pages text document.

These ways to articulate the game vision were not mentioned in the game design handbooks I had studied. Some of them suggest that a "hook" (Laramée, 2002), a "tagline" (Rollings & Adams, 2003) or other very short verbal expressions should be used to explain the most important game ideas or features – preferably when the game is pitched for stakeholders, but they do not present these expressions as a tool to make the development team understand what kind of game they are supposed to create. For this purpose, they all refer to the elaborated game design document. This discrepancy between the handbooks and my informants seemed interesting, so I started to search for more examples of different ways to articulate game visions.

In my second paper (Hagen, 2011), I discuss some results from that investigation. There I used the word "tools" to denote such different kinds of verbal and non-verbal ways to articulate and communicate the design vision (and especially the vision about the player experience). There is no word for these ways to verbalize, visualize or "audialize" the vision. In my practice as a teacher in game design, I have found it useful to use a dedicated term to denote this articulation of game ideas. Therefore, instead of using the word "tools", I propose the term lodestars as a unifying term for all the various ways to articulate and communicate the game vision. In the next chapter, I will present the lodestars I found in the companies I studied, and I will also describe in detail how they are used.
6 Lodestars
As a collective term for all the types of verbal and non-verbal ways to articulate the overall vision of a game, I suggest the term 'lodestar'. Lodestar is a metaphor, and it alludes to the stars that once helped seafarers navigate the seas – here they are supposed to help game developers navigate the design space and reach their goal.

Figure 7: Lodestar in the form of concept art from Mirror’s Edge visualizing the feeling of vertigo, which is an important aspect of the player experience in the game. Mirror’s Edge © EA Digital Illusions CE AB 2009
During the design and development of a specific game, it is typical that a bundle of different lodestars are used. I have analyzed all the examples of lodestars that I have collected and found two ways to categorize them. The first category is \textit{function}, which refers to the way the lodestars fulfill different needs in game development. The second category is \textit{form} which refers to the medium and the creative approach that are used to express the vision.

\textbf{6.1 Lodestar functions}

Lodestars proved to have many different functions in a game development process. In my study, I found the following seven functions of lodestars in game development:

1. \textbf{Externalize the vision}
   Initially the vision resides inside someone's head. At some point this "vision bearer" needs to externalize this vision. Ideas become clearer if you materialize them – and you remember them better. In the process of finding ways to externalize your ideas into a lodestar, you might also modify and hopefully improve them.

2. \textbf{Communicate the vision}
   If the vision bearer is not creating the game all alone, he or she needs to communicate the vision to others, so they can help develop and improve it. Lodestars are primarily intended for internal use in the development team, but they can sometimes also be presented to external stakeholders, for example in a pitch (Bach, 2011).

3. \textbf{Inspire}
   The externalized vision can stimulate the creative process and help members of the development team to get design ideas about different parts of the game. One example is how the lodestar "think of real world situations where you were uncomfortable" (Milham, 2009) inspired the artists to use dentist lights onboard the space ship in the horror game Dead Space (EA Redwood shores, 2008).

4. \textbf{Make the game a unitary whole}
   One can say that all the other lodestar functions help to make the game cohesive. Rollings & Adams (2003) use the term "harmony" to describe this important quality:
Good games and game worlds possess harmony, a quality first identified by the legendary game designer Brian Moriarty. Harmony is the feeling that all parts of the game belong to a single, coherent whole. […] With every design decision you make, you should ask yourself whether the result is in harmony with your overall vision. (Rollings & Adams, 2003, pp. 58-59)

In aesthetics, harmony and unity have been regarded essential ever since Plato, and I will come back to this lodestar function in chapter 7.3 when I discuss John Dewey's aesthetic theory.

5. **Guide**
   
   To make the final game a coherent and congruent whole (with regards to game mechanics, gameworld, characters, story, player experience, and so on), every design decision must harmonize with the overall vision of the game. Therefore the vision has to be articulated in a way that makes it possible to use it as a guide when making design decisions. Lodestars can often fulfill this need. A representative example is the lodestar that Harmonix used for *Rock Band* (2007). It had the form of a question (*Is this an arena tour rock band experience?*) that they asked themselves when faced with a design choice (see paper 2, Ulf Hagen, 2011, p. 269).

6. **Create self-driven teams**
   
   Especially with large game development teams, it is impossible for a single person to supervise everything that is created in the same way that a film director can control everything in a movie production. In a movie production the actual creation of the film usually takes place only in one spot at a time, where the director can be present (the shooting location or the editing room). In game development, the production of assets takes place in many places simultaneously. Therefore it is desirable that everyone in the team can take their own informed design decisions.

7. **Team building**
   
   Lodestars can enhance the feeling of togetherness in the team. If the team members do not have a common vision of the game-to-be, there is a risk that they work against one other and that conflicts will arise. Lodestars can give an easily accessible description of the game-to-be, and therefore frequently remind everyone what the game is that they are creating together. The importance of building a
strong team is emphasized in many handbooks. Wade Tinney and Coray Seifert from Large Animal Games explain:

We want everyone working at Large Animal to feel a strong sense of creative ownership of the games we make. The fact is, everyone on the team has a deep impact on the game, and the finished product is a reflection of their collective effort. (Tinney & Seifert in Chandler & Chandler, 2011, p. 71)

Above the seven functions are separated, but in reality they are of course connected and can support each other. For something to be a fully-fledged lodestar, it must have all seven functions – at least to some extent. If an idea is externalized (function 1) it is also possible to communicate it with others (function 2) and become inspired by it (function 3) in the continuing design process. The externalized vision also helps people to make the right design decisions on every level (function 5), which in turn, ensures that the game becomes congruent end cohesive (function 4). To some extent such decisions have to be taken independently by each members of the development team, which is possible only if they all know what kind of game they are creating (function 6). This in turn makes the team members feel that they are a part of a bigger whole and that they are co-creators of the game and not just a small cog in the machine (function 7).

6.2 Lodestar forms
In my study I have noticed how creative the designers have been when shaping lodestars. One important lodestar functions is to make the whole team understand what kind of game they are creating, and therefore lodestars have to be readily accessible, so that everyone really can take them in. As already mentioned, lodestars can be seen as a replacement for the thick GDDs that, according to my informants, few bothers to read. In contrast to GDDs, lodestars are supposed to be much easier to assimilate, which calls for ingenuity when creating them. Lodestars have to be memorable, concise and expressive and, at the same time, they have to be loaded with relevant information and meaning. In searching for effective ways to create lodestars, game designers can find inspiration from expressive art forms like poetry, rhetoric, comics, and fine art. In such art forms stylistic figures and expressive techniques are found that can be used when creating a lodestar. Only the inventiveness of the designer/vision bearer sets the limit. The following lists of lodestar forms is not at all extensive, just a few examples of media and creative approaches I have found in my data.
6.2.1 Media
Early game design handbooks almost exclusively suggest *verbal* ways to describe game ideas and then mainly refer to written text of some length. When creating lodestars, the designers are not limited to just written text, but can use all kinds of media.

- **Verbal lodestars**
  Just like the traditional game design documents, lodestars can be verbally framed, but in contrast to GDDs, verbal lodestars are usually no longer than a sentence. They can either be single words or a set of (key) words or sentences\(^\text{45}\). A verbal lodestar can be printed on a banner and placed on the wall in the studio and can be used orally as a slogan and even "become a mantra" (Åberg, 2009) during the development process. In order to make such short verbal expressions effective, different stylistic and rhetorical figures are often used.

- **Still images**
  Still images can be photographs, drawings or paintings – digital or on paper. They are usually produced by people at the studio (often concept artists), but existing pictures created by others can also be used.

- **Moving images**
  All kinds of moving images can be used as lodestars; these can be animated or filmed in real-time by a camera. All kinds of animations can be used – traditional animation, computer animation, stop motion animation, et cetera. The studio can produce their own moving images or existing films can be used.

- **Sound**
  Music, sound effects and speech can work as lodestars. Music in particular has a strong emotional impact on us and in addition, different music styles have various connotations that can be used to express qualities of the game-to-be.

\(^{45}\) Dice's four *Key Areas Of Focus* used in the design of *Mirror's Edge* is an example of a set of textual lodestars that together expressed the core vision of the game-to-be (see Appendix 2).
• **Playable prototypes**
  Prototypes are very important and have many purposes in game development (Fullerton, Swain, & Hoffman, 2008; Manker, 2011). The principal difference between lodestars and prototypes is that lodestars *articulate* the game concept, while prototypes *test* the concept. Despite that difference, some prototypes can also serve as lodestars if they exhibit some core aspect of the game.

• **Physical objects**
  Lodestars do not have to be digital. On the contrary it is important that some of them also are tangible and exists outside of the computers. Verbal lodestars and still images can be printed on paper and hung on the walls, game characters and game objects can be modeled in clay and displayed in strategic places, and all kinds of physical objects can be used for instance to illustrate the look and feel of the game.

• **Combinations of the above**
  All the media listed above can of course be combined in various ways; moving images are often combined with sound and a still image can be accompanied by a caption for instance.

### 6.2.2 Creative approaches

As said before, it is important that lodestars effectively and vividly articulate the vision of the game-to-be. The following list contains some creative techniques used to achieve that. However, it is important to understand that the list is based on lodestars found in my limited set of data. The categories are simply my tentative way of labeling those creative techniques that I have found. The categories are therefore just *examples* of the kinds of creative approaches that can be used, not an exhaustive classification. The list can never be exhaustive, since it is always possible to invent new ways to express the game vision in lodestars.

• **Juxtaposition**
  A very common way to express the game vision is to make a comparison of some kind. This can be done in many ways and in different media. One way is to use a simile, which is an explicit comparison, often using the words "like" or "as". A metaphor is a more "poetic" comparison between things that are not immediately
associated to each other. Another type of comparison is to contrast something to the game vision in order to use it as an anti-exemple – something opposite to what is aimed for. Below, I will explain and exemplify these three types of juxtaposition.

- **Simile**
  In verbally framed lodestars it is common to compare the game-to-be with existing games. The previously cited quote by Nels Anderson can serve as an example: "like Modern Warfare but set in Vietnam". This is a plain simile since it includes the word "like". Besides comparisons to other games, the most common similes are different variations of "as in real life". This is natural, since games often are simulations. The most common way to use the "as-in-real-life-simile" is to aim for a *player experience* that is similar to an experience in real life, for example "Through the character experience " that Dice used as a lodestar in *Mirror's Edge* (2008). This is perhaps not immediately recognized as a simile, since it does not contain the words "like" or "as", but if we analyze it we can see that it says that playing the game should simulate the feeling of being inside the player character, as we experience being in our bodies in real life. Another example is "The One Question" that Harmonix used for *Rock Band* (2007): "Is this an (arena tour) rock band experience?" This question is also an (implicit) simile, since it means that the game should give the experience of being on an arena tour with a rock band. If photographs are used as lodestars, they often are similes implicating "The landscape (or vehicles, et cetera) in the game should look like this".

- **Metaphor**
  When Kyle Gabler and his friends used the term "juicy" as a lodestar during the creation of *World of Goo* (2D Boy, 2008), it was a metaphor for "constant and bountiful user feedback" similar to the overflowing response you get when you bite a really juicy peach (see paper 2, Ulf Hagen, 2011, pp. 267-268). *Concept art* can be metaphorical, if it attempts to capture a more abstract aspect of the game, like the "mood" or the "look and feel".
• Anti-exemples
  During the development of the horror game *Dead Space* (EA Redwood Shores, 2008) the Art Director, Ian Milham used the verbal lodestar "Must move away from sci-fi action!" (Milham, 2009). The reason behind this anti-example is that science-fiction action games, such as *Halo* (Bungie, 2001) and *Mass Effect* (Bioware 2007), are seldom experienced as horrifying in the way survival horror games are supposed to be, and as *Dead Space* takes place in a spaceship in the future, there was a potential risk that the art team would unconsciously be influenced by the science-fiction action genre. As another lodestar, Milham used a collage of snapshots from science fiction movies and horror movies to show the visual differences between those two genres (see Figure 8).

• Lo-fi/abstract sketch
  It is often useful not to make lodestars too explicit or detailed – especially in the beginning of the design process, when the game concept is not fully developed. An abstract picture can stand for a more general style or feeling than a photorealistic one (McCloud, 1994). Concept art is often sketchy or indistinct. Instead of fully rendered animated movies, simple so called *playblasts*\(^6\), made automatically in a 3D program, can be used. In this way, a specific aspect can be emphasized, e.g. motion patterns, charisma, mood, and so on. An example is the concept art in Figure 14 below, emphasizing the dragon's power.

• Combination, collage
  "The sum is greater than the parts". With this technique you take bits and pieces of existing material and put them together for a collective effect. These can be verbal elements as when you use a set of keywords or key areas of focus, but also audio-visual elements. As said before, a collage of snapshots from horror movies and science fiction movies were used as a lodestar during the design of the horror game *Dead Space*. The purpose was to illustrate the difference in the visual appearance and use of colors in those two genres (see

\(^{46}\) "A low-resolution crude render of computer-generated imagery used […] as a check for character and prop positioning and lighting placement. Curved surfaces are rendered as surfaces with low face count, i.e. faceted." (http://en.wiktionary.org/wiki/playblast)
Figure 8). Mood boards are well-known tools in design (Benyon, 2010). Style boards are similar to mood boards, but focus more on visual style than on mood. In the lecture mentioned above, Patrick Bach (2011), showed what he called a rip-o-matic\textsuperscript{47}, made in the initial stage of designing Battlefield 3 (EA Dice, 2011). A rip-o-matic consists of (ripped) clips from different movies put together with sound effects, speech and music.

![Figure 8: Collage of snapshots from horror and sci-fi movies used as lodestars for Dead Space (2008).](image)

- **Game design pattern names**
  Staffan Björk (Björk, in progress; Björk & Holopainen, 2005) has worked for more than ten years collecting what he calls game design patterns. The names of such design patterns can be used as verbal lodestars expressing a core feature in the game-to-be. In a lecture, executive producer Patrick Bach mentioned one they used when creating Battlefield 3, namely Rock, paper, scissors gameplay. (Bach, 2011).

\textsuperscript{47} Rip-o-matic: "A very rough rendition of a proposed commercial, composed of images and sounds borrowed (ripped-off) from other commercials or broadcast materials." (http://www.advertisingglossary.net/definition/2372-Ripomatic)
6.3 The prototypical lodestar

The ideal lodestar meets all seven functions in an easily understood and effective way. This means that it has to be chosen with care and have an ingenious shape. For communicative purposes, (especially function no. 2) it is important to shape the lodestars, so that they are easy to remember and provide a clear understanding of the game vision. Not all lodestars have to be ideal, however. Usually a bundle of lodestars are used during the development of a game and they can all be useful even if they do not fulfill all seven functions or have a deliberate creative approach. There are also other aspects to consider when creating and using lodestars. One is that they have to be distributed to the team one way or another. In my second paper, I quoted the senior producer at Dice saying: "Throw it up on the wall! Preferably close to the toilets or in the lunch room, where everybody sees it every day.", but this is just one way to do it. Some lodestars are distributed digitally, some are presented at team meetings and so on. Moreover, we should not underestimate orally distributed lodestars. An often repeated slogan can "become a mantra" as mentioned earlier (in chapter 6.2.1), and a short story, for example about the initial seed idea (see chapter 5.4), can also become an effective and memorable lodestar.

Furthermore, the typical lodestar is about the game as a whole, about ideas on the highest level. It can be about the player experience, or it can be about the general gameplay or gameworld that influence the player experience. But it is also possible to use lodestars for ideas on a lower level. In such cases, they often only address a part of the development team, for example the artists – or even just some of the artists. If it was the art director that had the idea and created the lodestar, this is probably often the case. For instance, Ian Milham, art director of Dead Space (EA Redwood Shores, 2009), used lodestars in the form of photographs of gothic churches as an inspiration for the interior of the space ship in Dead Space. He wanted to encourage the artists to use architectural details like ribbings, visible supports, and circles (like rose windows) when forming the space ship (Milham, 2009).

In a similar way the art team working with Mirror's Edge (Dice, 2008) produced sketches showing ideas of different movements that the player character could be able to perform. These lodestars were addressing mainly the artists and programmers working with such movements (see Figure 9). Other sketches illustrated that the player were supposed to be able to choose
between different ways to traverse the cityscape in a non-linear way, thus addressing mainly level designers (see Figure 10).

Figure 9: Movement sketches for Mirror's Edge (Dice, 2008)
Mirror’s Edge © EA Digital Illusions CE AB 2009
Figure 10: Free running sketches for Mirror's Edge (Dice, 2008)
Mirror’s Edge © EA Digital Illusions CE AB 2009
A new paradigm in game development

In the course of my study, given the grounded theory approach, I have gradually realized how the separate findings fit together as parts of a new paradigm in game development. This new paradigm has two important differences vis-à-vis the traditional way to create games:

1. A focus on player experience rather than on features
2. An agile development method, including an integration of design and implementation rather than a separation into two separate phases.

These two new traits support each other and are manifested in new methods and heuristics that I have observed in my study. In this chapter I will elaborate the two traits and explain how they are connected. I will also discuss some theories that may underpin my findings and deepen our understanding of lodestars and player experience design.

7.1 Videogames as experience

In this section I will illustrate how game designers deliberately focus on player experience design using lodestars as a working tool. I will examine in what way experience design is better than feature design and how this change of practice affect the qualities of videogames.

Player experience was acknowledged as an important goal in videogame development in the very first handbooks on the subject. Crawford (1984) notices not only the importance of taking the player experience into account, but also the difficulties in doing so:

The computer game is an art form because it presents its audience with fantasy experiences that stimulate emotion. [...] With other art forms, the artist directly creates the experience that the audience will encounter. Since this experience is carefully planned and executed, the audience must somehow be prevented from disturbing it; hence, non participation. With a game, the artist [i.e. the game designer] creates not the experience itself but the conditions and rules under which the audience will create its own individualized experience. The demand on the artist is greater, for s/he must plan the experience indirectly, taking into account the probable and possible actions and reactions of the audience. The return is far greater, for participation increases attention and heightens the intensity of the experience. (Crawford, 1984)
If we put aside Crawford's dubious claim that artists of other art forms can create experiences *directly*, we can perhaps agree with him that the demand on the game designer is even greater, due to the interactivity in games.

Despite some early recognition of the importance of player experience, findings presented in my second paper (Hagen, 2011) indicate that it is not until recently that actual *experience design* has become an elaborated practice in big game studios. The handbooks indicate the same development – as we have seen, older handbooks like Crawford's, sometimes mention that the player experience (e.g. "fun") is the ultimate goal for game design, but only a few, recently published books (e.g. Schell, 2008) actually present some kind of approaches to player experience design.

In a video recorded keynote presentation in February 2012 about the design of *Skyrim* (Bethesda, 2011), Todd Howard, Game director, Designer and Producer at Bethesda, strongly recommends experience design rather than feature design:

> Don't define your game by a list of features. Define it by the *experience* you want the player to have. And in the kind of games that we create, that experience is: "Be who you want and go do what you want". This is a better design for *Skyrim*, than some giant list of features of all things you can do. This gives you a *feeling* and it counters up things in your own mind of who you would be, and what you would do and where you would go, you know, the game rewards exploration. (Howard, 2012)

After this praising of experience design, Howard also explains how it was executed in practice during the design of *Skyrim*. He demonstrates how a large number of lodestars were used. He does not call them lodestars, of course – instead he uses the word "design", as he also does in the citation above. In the quote, Howard mentions the sentence "Be who you want and (go) do what you want"; however this is not a lodestar exclusively for *Skyrim*, but the lodestar (or "design") that Bethesda has used for all its games in the *Elder Scrolls* series (Bethesda, 1994-).

The first lodestar for *Skyrim* that Howard mentions in the talk is a Conan action figurine. He shows a picture of the figurine and explains:

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48 The word 'design' can be both a verb and a noun, and as a noun it can depict "an outline, sketch, or plan, as of the form and structure of a work of art, an edifice, or a machine to be executed or constructed." (Dictionary.com: http://dictionary.reference.com/browse/design)

49 http://en.wikipedia.org/wiki/The_Elder_Scrolls
This actually, was one of the original designs of Skyrim - what is the experience of Skyrim? I bought this Conan action figure like years ago, just sitting on my desk. People would say: "So, what are we doing for the next Elder Scroll, now?" I just point to the figure… (Howard, 2012)

After this Howard shows a lot of examples of lodestars used in the design process.

![Photographs used as lodestars for Skyrim (2011)](image)

First he shows photographs of beautiful landscapes and explains that they illustrate how it will feel to enter the gameworld. He continues talking while he shows more photographs:

*Figure 11: Photographs used as lodestars for Skyrim (2011)*
So these are the initial kinds of designs that we do, as opposed to sitting down and say: "This is how every feature is going to work and here is our blueprint" – [instead we say] this is the game, this is what it feels like. (Howard, 2012)

After that he shows the dragon symbol later used on the box cover of the game and elsewhere, and he repeats: "This is how it feels like. We did this very early. This is like a tone setter. What is the tone to us?"

![Figure 12: The dragon symbol of Skyrim (2011)](image)

He continues by showing concept art pictures that illustrate the gameworld including its stories (see Figure 13), and then he shows a blurry image of a dragon attacking human beings (see Figure 14). There are no details revealing the exact appearance of the dragon, but the picture gives a feeling of the dragon’s great power, since the attacked humans and some debris are thrown about as a result of the dragon’s attack.
Howard explains:

When it came to dragons, we had a very short design. It was "How do dragons feel?" They feel like this. And then we had a team that worked on dragons and they just kept iterating and adding things: Can we have them land? Do they fly? Can they get hurt? How do they roar? How do they talk? You know, this is a better design for how dragons end up in the game, than a giant list. (Howard, 2012)

For me it was encouraging to find and listen to Howard's talk after I had developed my concepts of player experience design and lodestars. It verified my assumption that using experience design and lodestars is a new trend, or paradigm, in game design.
7.2 Agile videogame development

The discovery of the use of player experience design and lodestars in game design are the most important findings of my study. But I have also found that these two traits are parts of a more consistent methodology that I will now describe.

All my informants told me that they used an agile development method in their game development, and most of them referred to it as scrum or "modified scrum". Agile software development was introduced in the Manifesto for Agile Software Development 2001, by a group of software developers in the USA. The manifesto lists four pairs of opposed items, and states that "while there is value in the items on the right, we value the items on the left more". The manifesto is as follows:

We have come to value:
- Individuals and interactions over processes and tools [1st statement]
- Working software over comprehensive documentation [2nd statement]
- Customer collaboration over contract negotiation [3rd statement]
- Responding to change over following a plan [4th statement]

I will discuss one statement and its relevance for videogame development at the time. The second and the fourth statements are the most important for the findings in my thesis, so I will discuss them last. The first statement expresses the importance of people, and that game development never can become a mechanical or completely rational process. Creativity, emotions, and player experience are elusive qualities that need to be handled by people with intuition and fantasy. The third statement is applicable to the relation between publishers and development studios. It stresses the importance of keeping the publisher continually updated and involved in the process. The same attitude could also permeate the work in the studio if the whole development team is allowed to have actual influence on the design of the game and not just execute what others have decided.

The fourth statement motivates the word "agile" in agile software development, since it more appreciates flexibility than rigid plans. The second statement also tells us that we should prioritize the qualities of the product over a documented plan. Most of the game design handbooks I have studied stress the importance of a detailed game design document, but in his

http://agilemanifesto.org/
book "Agile game development with scrum" (2010) Keith explains why so-called big design up front does not work:

In reality, we can’t really know everything about a game at the start. Knowledge comes only when we have the controller in hand and are playing the game at a decent frame rate on the target machine. The only way to recognize fun is to play it. (Keith, 2010, p. 17)

This explains why game studios of today does not use design documents as much as before. When player experience (e.g. "fun") is the ultimate goal for making a game you cannot design the game only in the form of unproven ideas. Instead of making plans that simply sounds good in your head, you have to find ways to ensure that every design decision really supports the experience that you want the player to have. This means that you have to find ways to experience the game (or at least some aspect of it) during the entire process from seed idea to finished game, so that each design idea can be evaluated related to the experience it conveys before it is approved. This is achieved by designing and creating the game simultaneously, a method that is supported by agile game development, since it works against a stiff division between design and construction.

To integrate design and fabrication is actually not a new idea at all. In the history of human creation of artifacts, design and construction originally were integrated. The division between design (making a plan) and fabrication (making the actual artifact) began during the renaissance, and culminated in mass production during the industrial age when production had to be planned down to the smallest detail before it could start (Cross, 2008, p. 3). It is interesting that the digital age has entailed a return to the old way of designing in interplay with fabrication. In his article The construction of human-computer interfaces considered as a craft, David A. Wroblewski defines craft as "any process that attempts to create a functional artifact without separating design from manufacture" (Wroblewski, 1991). In the article he argues that human-computer interface design shares this trait with craft and in a review of Wroblewski’s article, Jonas Löwgren (2008) argues that also interaction design can be considered as a craft. Likewise, I have found that AAA videogame development is characterized by an integration of design and production.

With this way of creating things, the creator needs something to interact with, something to evaluate and reflect upon. Donald Schön describes this interaction in his book The reflective practitioner. How professionals think
in action: "He [the designer] shapes the situation, in accordance with his initial appreciation of it, the situation 'talks back', and he responds to the situation's back-talk" (Schön, 1983, p. 79) Ideation in interplay with fabrication thus requires a "situation" or some material to work with from the very start. The potter starts with the lump of clay, the oil painter starts with the canvas where the first outline can be drawn, the stone sculptor starts with a stone, and so on. In game development, we can start with lodestars. They can be seen as the first versions of the game that will gradually be molded into the finished version. Along the way, lodestars evolve into prototypes, and the prototypes, step by step, evolve into rough versions of the actual game. The analogy is not perfect however, since potters, oil painters and sculptors usually work alone, while AAA videogame development is a collective endeavor. It is easier for the single artist to interact with the material than it is for a team with hundreds of members. This problem is solved with frequent meetings where the latest lodestars, prototypes or game versions are demonstrated, and with a division of roles in the team, so that some key individuals have the ultimate responsibility for directing different aspects of the game (e.g. the art, the sound, the level design, and so on).

In his talk that I referred to previously, Todd Howard reveals that the first rule that governs the game development at Bethesda is: "Great games are played, not made". By this he means that the qualities of a game are not revealed until we play it. This is in accordance with Keith's point in the quotation above. From a design perspective this is problematic because that means that we cannot really evaluate game ideas and game concepts before they have been implemented into a playable game. Ian Milham, art director at EA's Visceral Games Studio, expresses a similar thought, when he says: "Games look like crap until they look awesome" (Milham, 2009).

Some of my informants, for example the senior producer at Dice, discussed this problem, and explained why this makes it very hard to do user tests, especially when the player experience is in focus:

The experience of the game is never complete until you have put the last piece is in place. And since the last piece is not in place until the last day,

51 Cf. how an oil painter creates a painting as Simon describes it in the quotation in chapter 5.1.1.
even a beta test\textsuperscript{52} can be misleading. You get negative feedback, because you haven't got the experience right. So our goal is to get the experience right as soon as possible. […] But that is really difficult, because the experience is comprised by the whole. So if you don't have the right lightning, the experience will suffer, and the test person might say: "I don't think this game is fun" And you say: Do you mean it looks bad? Yes, maybe that's what I mean, but it doesn't feel fun…

The solution to this problem is to only ask competent people for feedback. Another informant, the lead designer at Dice confirm that "the man in the street" can seldom discern the potential qualities of prototypes and incomplete versions of the game, because they are disturbed by flaws that are irrelevant at the moment. Therefore it is better to use internal testers. In his talk, Todd Howard admitted that they did not do any focus tests at all when they made Skyrim, but instead used their own personnel. To let the team members test prototypes and play the unfinished versions of the game also has the benefit of letting them all be a part of the process of interplay between ideation and fabrication. As they participate in the creation of the game, they should also be part of the evaluation and reflection that Schön (1983) refers to as "the situations back-talk" in the quotation presented above. This inclination to disregard external user tests and feedback can also be seen as an aspect of the \textit{autobiographical design} that I described in my second paper (Hagen, 2011).

\subsection{7.2.1 Autobiographical design}

Experience design is an intricate undertaking. How do we choose the experience to aim for? How can we assure that the players will really have the intended experience while playing the game? And how do we know if the players will enjoy the experience? The answer is what I in my second paper (Ulf Hagen, 2011), with a term borrowed from Sengers (2006), called \textit{autobiographical design}. This means that the designers just create what they subjectively find enjoyable themselves. It can also be called \textit{the I-method} (Akrich, 1995) and is often seen as problematic, because it means that the games we get are the games that game designers like, and game designers are not representative of the population in general. But I am not sure that the solution is that designers should be forced to design games for people with other values, liking and preferences than themselves. No one would expect

\textsuperscript{52} A beta test is made late in the finaling (postproduction) phase of game development. The beta version of the game is almost ready for shipping (see http://en.wikipedia.org/wiki/Software_testing#Beta_testing)
an artist or an author to paint or write things they don't care about or find interesting. As early as 1982, Crawford explained why he finds this method necessary in game design:

How do you select a proper goal? There is no objective answer to this question; the selection of a goal is the most undeniably subjective process in the art of computer game design. This is your opportunity to express yourself; choose a goal in which you believe, a goal that expresses your sense of aesthetic, your world view. Honesty is an essential in this enterprise; if you select a goal to satisfy your audience but not your own taste, you will surely produce an anemic game. It matters not what your goal is, so long as it is congruent with your own interests, beliefs, and passions. If you are true to yourself in selecting your goal, your game can be executed with an intensity that others will find compelling, whatever the nature of the game. If you are false to yourself, your game will necessarily be second-hand, me-too. (Crawford, 1984)

But, as Wright & McCarthy emphasize, it is of course valuable if game designers have an ambition to "know the user" (or in this case the player), which "involves understanding what it feels like to be that person, what their situation is like from their own perspective. In short, it involves empathy." (Wright & McCarthy, 2008)

7.3 Theoretical underpinnings
In this section I will discuss literature and theories that may underpin and supplement my findings.

The use of experience design that we have noticed in videogame development has also been a strong trend during the last decade in the information and communication technology (ICT) industry, as well as in the academic fields of human-computer interaction (HCI) and interaction design.

In their book Technology as experience, McCarthy & Wright (2004) welcome this interest in user experience, but they object to the thought that user experience is something that can be designed directly. They fear that "business momentum may take a potentially rich idea and reduce it to design implications, methods, or features" (p. 11). This would be technological determinism and would neglect the agency of the user. "[C]onsumers are not passive; they actively complete the experience for themselves." (p. 11). We can easily see that this is very similar to what Crawford wrote already in 1984 – in the quote on page 75.
The objective of McCarthy & Wright is to discuss and provide a deeper understanding of technology as experience and I believe that their analysis could also help problematize experience design in videogame development. One observation that McCarthy & Wright make is:

Developing an account of felt experience with technology is difficult partly because the word 'experience' is simultaneously rich and elusive. It is also difficult because we can never step out of experience and look at it in a detached way. Experience is difficult to define because it is reflexive and as ever-present as swimming in water is to a fish. However, we argue that useful clarifications can be garnered from sources as diverse as philosophy, psychology, literature, drama, and filmmaking. (p. 15)

The title of McCarthy & Wright's book (*Technology as experience*) alludes to the book *Art as experience* by the pragmatist philosopher John Dewey. McCarthy & Wright believe that "pragmatist philosophy is particularly clarifying with respect to experience, and that the models of action and meaning making they compass express something of felt life and the emotional and sensual character of action and interaction." (p. 17).

*Art as experience* (1934) is Dewey's most influential work on art. I have found many of the things he says highly relevant for AAA videogame design – especially when the design focuses on player experience. I will give some examples of what he says and apply them to videogames and videogame design.

An important concept in Dewey's aesthetic theory is "an experience". In the stream of experiences we have constantly in our lives, instances of an experience happens when we experience something that emotionally engages us as "living creatures", something memorable that can be told as a story with a beginning and an end, something that is a whole and can be given a name. Dewey gives the following examples:

A piece of work is finished in a way that is satisfactory; a problem receives its solution; a game is played through; a situation, whether that of eating a meal, playing a game of chess, carrying on a conversation, writing a book, or taking part in a political campaign, is so rounded out that its close is a consummation and not a cessation. Such an experience is a whole and carries with it its own individualizing quality and self-sufficiency. It is an experience. (Dewey, 1980, p. 37)
It is interesting to notice that two of the examples actually concern games, and that Dewey talks about self-sufficiency, which fits well with the autotelic nature of games (see chapter 3.1.3). A whole play-through of a AAA videogame can seldom be an experience in the same concentrated way as a game of chess or some small casual games can. AAA videogames take so much time to play that we normally have to divide the playing into shorter sessions. However, as a whole, even AAA videogames usually have a main goal and ends with a consummation, so in this perspective, such a game can as a whole be regarded as an experience as well. They can also contain shorter instances of an experience – i.e. a quest in a role playing game, a match in CounterStrike, or any time-limited challenge or event.

Not all instances of an experience are aesthetic experiences, according to Dewey. Aesthetic experiences must also be emotional, and in some sense, enjoyable. All experiences we have originate in the fact that we live in, and interact with, an environment that is vital for us. If the world were perfect and static, or if it was completely unpredictable and impossible to affect, there would be no aesthetic experiences:

> Because the actual world, that in which we live, is a combination of movement and culmination, of breaks and re-unions, the experience of a living creature is capable of esthetic quality. The live being recurrently loses and reestablishes equilibrium with his surroundings. The moment of passage from disturbance into harmony is that of intensest life. (Dewey, 1980, p. 16)

This fits well with how games are constructed. As we saw in the definitions in chapter 2.2, conflicts and a quantifiable outcome are essential components of games. Juul even includes the necessary condition that "the player exerts effort in order to influence the outcome, the player feels emotionally attached to the outcome" (Juul, 2005). Therefore, games should have built-in conditions for generating aesthetic experience in Dewey's sense of the term.

Dewey's understanding of aesthetic experience also seem to be compatible with Csikszentmihalyi's flow concept (Csikszentmihalyi, 2008; Csíkszentmihályi & Csikszentmihalyi, 1975), which is often used as a guideline for good game design (e.g. Fullerton, et al., 2008; Schell, 2008). According to Csikszentmihalyi, flow is:

> …optimal experience: a sense of that one’s skills are adequate to cope with the challenges at hand in a goal directed, rule bound action system that provides clear clues as to how one is performing. Concentration is so
intense that there is no attention left over to think about anything irrelevant or to worry about problems. Self-consciousness disappears, and the sense of time becomes distorted. An activity that produces such experiences is so gratifying that people are willing to do it for its own sake, with little concern for what they will get out of it, even when it is difficult or dangerous. (Csikszentmihalyi, 2008, p. 71)

Fullerton applies this to games: "When players talk about challenge in games, they're speaking of tasks that are satisfying to complete, that require just the right amount of work to create a sense of accomplishment and enjoyment" (Fullerton, et al., 2008, p. 86). Dewey also notes that enjoyable experiences do not have to be effortless: "Struggle and conflict may be themselves enjoyed, although they are painful, when they are experienced as means of developing an experience; members in that they carry it forward, not just because they are there." (Dewey, 1980, p. 42)

For this thesis, however, the most useful aspect of Dewey's aesthetic theory is probably what he says about unity. To start with, unity is necessary for what Dewey calls an experience: "An experience has a unity that gives it its name. [...] The existence of this unity is constituted by a single quality that pervades the entire experience in spite of the variation of its constituent parts." (Dewey, 1980, p. 38). But Dewey attaches even more importance to this "pervading qualitative unity" (p. 199), which he sees as something that characterizes the arts:

The undefined pervasive quality of an experience is that which binds together all the defined elements, the objects of which we are focally aware, making them a whole. The best evidence that such is the case is our constant sense of things as belonging or not belonging, of relevancy, a sense which is immediate. [...] A work of art elicits and accentuates this quality of being a whole and of belonging to the larger, all-inclusive, whole which is the universe in which we live. (Dewey, 1980, p. 202)

The unifying quality of a game can be described and communicated with the help of lodestars. To create "harmony" in the game or to help make the game a unitary whole is perhaps the most important of all the lodestar functions (see chapter 6.1).
8 Discussion

In this chapter, I will draw some tentative conclusions from my study to date and outline further work that needs to be done in the domains of my study.

8.1 Tentative conclusions

My findings so far are just preliminary, but I have nevertheless tried to paint a rough general picture of the contemporary way of designing and developing AAA videogames in the previous chapter. I believe I have found a new trend in the way AAA videogames are created today. Compared to the descriptions in handbooks, videogame design seems to be moving from engineering to artistic creation and from a division between design and construction to a more creative non-rational way to work with interplay between ideation and fabrication. This is manifested in the agile approach with an iterative process that prefers vision to requirements, player experience to game features, autobiographical design to user-centered design, lodestars to thick GDDs, and prototyping to strict following a plan.

The creative process can also be described through the two working tools used – lodestars and prototypes. A difference between those tools is that lodestars are used for ideation, sometimes called concept discovery, while prototypes are used for testing and proof of concept. This corresponds to the distinction, made by Höök & Löwgren (forthcoming), between generative and evaluative design processes. There is actually not a clear-cut line between the concept phase and the preproduction phase though, since the creation of lodestars gradually transforms into prototyping and since both tools can be used at the same time. Moreover, the prototypes gradually evolve into versions ("builds") of the actual game while the evaluative process transforms into a fabrication process. However, fabrication does not necessarily mean non-creative production of completely predefined game components. There is still room for the individual artist, programmer and sound designer to be creative while producing assets and code. The interplay between design and fabrication continues during the entire game development process.

Lodestars are primarily an ideation tool. They are used for articulating the game concept (or vision), and they can give the team a shared understanding of the vision – the intended player experience, and other important (high-level) ideas about the game-to-be. But lodestars can also be regarded as the first manifestations of the game-to-be that the team can have a
"conversation" with in the way Schön (1983) describes it. The next manifestations of the game to "hold conversation" with are the prototypes. Prototyping is a well-established way of conducting iterative design (Salen & Zimmerman, 2004), which I see as another example of interplay between ideation and fabrication. Finally, the interplay and conversation continues during the production of the actual game, as described above.

8.2 Future Work
This study has resulted in some findings about ideation in videogame design, but there is much more to learn about videogame design practice. By studying this unique and complex practice, we contribute to our understanding of the characteristics of game design and to the recognition of game design as an interesting research field, well worth studying in its own right. Here are some suggestions for further research:

1. In this study interviews have been used as the primary source of information. Interviews are problematic, since the informant's answers are based on their memories and personal understanding of the subject. They can also have an interest rationalizing and in giving a positive picture of the procedures described to put their studio and their own work in a favorable light. Therefore I would like to complement my studies with ethnographic observations in game studios in the future.

2. This study uses primary data from five Swedish development studios. To find out if (some of) the findings are representative also for other studios, we need to study AAA videogame studios in other countries, and also studios that make other kinds of games (e.g. casual games, indie games, et cetera)

3. In this study I have investigated the ideation part in game design. We also need to investigate how other aspects and parts of videogame development are carried out.

4. This study has identified the use of lodestars as a way to guide design decisions and create self-driven development teams. Now we need to study how much the individual members of the team can actually influence the game in its development. Can everyone in the team take design decisions of their own? If so, on what level? Patrick Bach, executive producer at Dice says that he does not want people in the team that just mechanically do what others tell them to do – he
wants their "brains" too, and not only their "hands" (Bach, 2011). If team members deep down in the hierarchy can make design decisions, the question becomes how it can be guaranteed that such decisions will be in line with the overall vision? What role do lodestars have here? Does everyone in the team use lodestars for guidance or are lodestars only used by people higher up in the hierarchy (e.g. art directors, lead designers, lead artists, and lead programmers)?

5. The findings of this study are mainly descriptive. By describing and conceptualizing practices in the industry we can help professional game designers and game design students to be more reflective and aware of their practice. Given the understanding provided by this thesis, we might even be able to improve the ideation phase of game design. Next, I would like to develop theory and formulate methods and/or guidelines based on the findings, along the lines of the discussion on Dewey, McCarthy & Wright, Schön and Csikszentmihalyi above. We can look for applicable theories in adjacent fields like HCI, and interaction design, but we must also acknowledge the artistic qualities of game design and learn from experience and know-how in other fields that aim for recipient experience, like film making, the staging of an opera or ballet production, or the design of a cruise-ship or an amusement park. We can also test the theories, methods and guidelines on students participating game design courses, or with professionals in the game industry.
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Grin, *Wanted Weapons of Fate*, Universal Studios, 2009 (35)

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Konami, *Dance Dance Revolution*, Konami, 1998 (pp. 37, 38)

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53 These are the games referred to in the thesis. Games used as primary data are listed in Appendix 1.

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NanaOn-Sha, *PaRappa the Rapper*, Sony Computer Entertainment, 1996 (p. 37)

Nintendo Creative Department, *Super Mario Bros.*, Nintendo, 1985 (p. 37)

Nintendo, *Super Mario series*, Nintendo, 1985- (pp. 33, 37)

Pajitnov, *Tetris*, 1984 (p. 9, 10, 16)

Playdead, *Limbo*, Playdead & Microsoft Studios, 2010 (p. 36)

PopCap Games, *Bejeweled series*, PopCap Games, 2001- (p. 10)

Rockstar, *Grand Theft Auto series*, Rockstar Games, 1997- (p. 16)

SCE London Studio, *Sing Star*, Sony Computer Entertainment, 2004 (p. 15)

William Higinbotham, *Tennis for two*, 1958 (p. 38)


Zynga, *Farmville*, Facebook, 2009 (p. 11)
### Appendix 1: Games created by the five biggest game studios in Sweden (2000-2009)

<table>
<thead>
<tr>
<th>Studio and games</th>
<th>Year</th>
<th>Publisher</th>
<th>Platform</th>
<th>Single/multi</th>
<th>Genre</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EA DICE (11 games)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shrek Extra Large</td>
<td>2002</td>
<td>TDK Media Active</td>
<td>Gamecube</td>
<td>S + M</td>
<td>TP Action-adventure</td>
</tr>
<tr>
<td>Rallisport Challenge</td>
<td>2002</td>
<td>Microsoft Game Studios</td>
<td>Xbox</td>
<td>S + M</td>
<td>Racing</td>
</tr>
<tr>
<td>Battlefield 1942</td>
<td>2002</td>
<td>EA (PC), Aspyr Media (Mac)</td>
<td>PC + Mac</td>
<td>S + M</td>
<td>FPS, WW2 game</td>
</tr>
<tr>
<td>Midtown Madness 3</td>
<td>2003</td>
<td>Microsoft (Xbox), In-Fusio (Mobile)</td>
<td>Xbox, Mobile</td>
<td>S + M</td>
<td>Racing (in open world)</td>
</tr>
<tr>
<td>Rallisport Challenge 2</td>
<td>2004</td>
<td>Microsoft Game Studios</td>
<td>Xbox</td>
<td>S + M</td>
<td>Racing</td>
</tr>
<tr>
<td>Battlefield Vietnam</td>
<td>2004</td>
<td>EA</td>
<td>PC</td>
<td>S + M</td>
<td>FPS, Vietnam war game (vehicle)</td>
</tr>
<tr>
<td>Battlefield 2</td>
<td>2005</td>
<td>EA</td>
<td>PC</td>
<td>S + M + Conquest + Coop</td>
<td>FPS, modern war game</td>
</tr>
<tr>
<td>Battlefield 2142</td>
<td>2006</td>
<td>EA</td>
<td>PC</td>
<td>S + M</td>
<td>FPS, future war game</td>
</tr>
<tr>
<td>Battlefield Bad Company</td>
<td>2008</td>
<td>EA</td>
<td>PS3 + XB360</td>
<td>S + M</td>
<td>FPS, tactical shooter, modern war game</td>
</tr>
<tr>
<td>Mirror's Edge</td>
<td>2008</td>
<td>EA</td>
<td>PC + Mac + PS3 + XB360</td>
<td>S</td>
<td>FP action adventure, platform game</td>
</tr>
<tr>
<td>Battlefield Heroes</td>
<td>2009</td>
<td>EA</td>
<td>PC download</td>
<td>Conquest (modified)</td>
<td>FP + TP action shooter, cartoony war game</td>
</tr>
</tbody>
</table>

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<tr>
<th><strong>GRIN (8 games)</strong></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Ballistics</td>
<td>2001</td>
<td>Xiata (PC) + Triotec (Arcade)</td>
<td>PC + Arcade</td>
<td>S + M</td>
<td>Racing</td>
</tr>
<tr>
<td>Bandits</td>
<td>2002</td>
<td>Pan Vision</td>
<td>PC</td>
<td>S + M</td>
<td>Racing (+ shooter)</td>
</tr>
<tr>
<td>Tom Clancy’s Ghost Recon Advanced Warfighter</td>
<td>2006</td>
<td>Ubisoft</td>
<td>PC</td>
<td>S + M + M2</td>
<td>First person (PC-versionen) tactical shooter</td>
</tr>
<tr>
<td>Tom Clancy’s Ghost Recon Advanced Warfighter 2</td>
<td>2007</td>
<td>Ubisoft</td>
<td>PC</td>
<td>S + M</td>
<td>First person (PC-versionen) tactical shooter</td>
</tr>
<tr>
<td>Bionic Commando Rearmed</td>
<td>2008</td>
<td>Capcom</td>
<td>PC + XBLA + PSN</td>
<td>S + DM + Coop</td>
<td>Action, Platform game</td>
</tr>
<tr>
<td>Wanted: Weapons of Fate</td>
<td>2009</td>
<td>Universal Studios</td>
<td>PC + PS3 + XB360</td>
<td>S</td>
<td>Third Person Shooter</td>
</tr>
<tr>
<td>Terminator Salvation</td>
<td>2009</td>
<td>Equity + Evolved Games + Sony</td>
<td>PC + PS3 + XB360 + Mobile</td>
<td>S + Local coop</td>
<td>Third Person Shooter</td>
</tr>
<tr>
<td>Bionic Commando</td>
<td>2009</td>
<td>Capcom</td>
<td>PC + PS3 + XB360</td>
<td>S + M</td>
<td>Action, Platform game</td>
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<tr>
<th><strong>Avalanche Studios (2 games)</strong></th>
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<tbody>
<tr>
<td>Just Cause</td>
<td>2006</td>
<td>Eidos + Valve</td>
<td>PC + PS2 + Xbox + XB360</td>
<td>S</td>
<td>TPS action (vehicle, sandbox)</td>
</tr>
<tr>
<td>The Hunter</td>
<td>2009</td>
<td>Expansive Worlds</td>
<td>PC download</td>
<td>S</td>
<td>FP hunting game</td>
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<tr>
<th><strong>Massive Entertainment (4 games)</strong></th>
<th></th>
<th></th>
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</tr>
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<tbody>
<tr>
<td>Ground Control</td>
<td>2000</td>
<td>Sierra Online</td>
<td>PC</td>
<td>S + M</td>
<td>RTS, Real-time tactics, future war game</td>
</tr>
<tr>
<td>Ground Control II: Operation Exodus</td>
<td>2004</td>
<td>Vivendi Universal</td>
<td>PC</td>
<td>S + M</td>
<td>RTS, Real-time tactics, future war game</td>
</tr>
<tr>
<td>World in Conflict</td>
<td>2007</td>
<td>Ubisoft, Sierra Entertainment</td>
<td>PC</td>
<td>S + M</td>
<td>RTS, Real-time tactics, modern war game</td>
</tr>
<tr>
<td>World in Conflict: Soviet Assault</td>
<td>2009</td>
<td>Ubisoft</td>
<td>PC</td>
<td>S + M</td>
<td>RTS, Real-time tactics, modern war game</td>
</tr>
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<thead>
<tr>
<th><strong>Starbreeze (5 games)</strong></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Enclave</td>
<td>2002</td>
<td>Vivendi + Swing! + Conspiracy games</td>
<td>PC + Xbox</td>
<td>S</td>
<td>Third Person action game (sword)</td>
</tr>
<tr>
<td>The Chronicles of Riddick. Escape from Butcher Bay</td>
<td>2004</td>
<td>Vivendi games</td>
<td>PC + Xbox</td>
<td>S</td>
<td>FPS, Action-adventure, stealth</td>
</tr>
<tr>
<td>Knights of the Temple: Inerial Crusade</td>
<td>2004</td>
<td>TDK Media active</td>
<td>PC + Gamecube + Xbox + PS2</td>
<td>S + M</td>
<td>FP + TP Action Adventure, hack ‘n slash</td>
</tr>
<tr>
<td>The Darkness</td>
<td>2007</td>
<td>2K Games</td>
<td>PS3 + XB360</td>
<td>S + M</td>
<td>FPS + action, survival horror</td>
</tr>
<tr>
<td>The Chronicles of Riddick. Assault on Dark Athena</td>
<td>2009</td>
<td>Atari</td>
<td>PC + Mac + PS3 + XB360</td>
<td>S + M</td>
<td>FPS, Action adventure, stealth</td>
</tr>
</tbody>
</table>

DM = Death Match
Appendix 2: Game design ideas in *Mirror's Edge*

**CONTEXTUAL IDEAS**

<table>
<thead>
<tr>
<th>DOMAIN</th>
<th>decisions</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLATFORMS</td>
<td>PS3, Xbox 360, PC and Mac</td>
</tr>
<tr>
<td>ENGINE</td>
<td>Unreal 3</td>
</tr>
<tr>
<td>GRAPHICS</td>
<td>A new lightning solution was developed especially for this game</td>
</tr>
<tr>
<td>INTELLECTUAL PROPERTY</td>
<td>New IP</td>
</tr>
<tr>
<td>BUDGET</td>
<td>Big budget game</td>
</tr>
</tbody>
</table>

**GUIDING IDEAS (Four "Key areas of focus")**

<table>
<thead>
<tr>
<th>LODESTAR</th>
<th>explanation from (Åberg, 2009)</th>
</tr>
</thead>
</table>
| "through the character experience" | "probably the most important of the four, ‘cause it sums up the whole focus of the game." "create a feeling of immersion in the world and in the character. So we wanted the player to feel each movement, feel the height, when on a high rooftop and the satisfaction of defying death with a perfectly timed jump... and to feel the ledge when you grab on to it, and so on."
| "first person free movement" | "an early concept that describes how the player should navigate around an urban rooftop landscape, which is really the signature setting for our game. Since the focus was much more of movement than any other first person game, it should be more like a third person adventure game in its gameplay mechanic, but translated into the first person perspective. You should be able to pull off a number of moves and it should be a parkour-like experience." |
| "the chase – fight or flight" | "To actually capitalize on this movement system, we needed an incentive for the player to always keep moving. So we built a lot of our features around momentum, and that keeping the momentum would actually reward the player. When encountering enemies the player would have a choice, either to stop and fight, but in a lot of situations she would find herself outnumbered and that’s when the chase begins. Also since the player would have her back against enemies a lot of times, it was important for us to try to create a sense of being chased and a sense of their presence, so we wanted to that by bullets flying by you and voice over from the AI and different sound effects." |
| "heightened senses" | "was about putting the player into our main character, called Faith, and to visually describe how she perceives the world. So we did it by using strong vibrant colors that illustrates how Faith focuses on the part of the environment that is relevant to her, and how the rest of the world becomes kind of peripheral, when she’s running through a level. We also designed something called runner vision that would highlight certain objects through the player’s path to kind of form a red thread to guide the player through the level." |
Appendix 2: Game design ideas in *Mirror's Edge*

### GAMEWORLD COMPONENT IDEAS

<table>
<thead>
<tr>
<th>ELEMENT</th>
<th>Example of design idea (component)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GAMEWORLD STYLE</td>
<td>realistic world, modern society</td>
</tr>
<tr>
<td>SETTING</td>
<td>Time: near future; Place: big city; Society: surveillance society</td>
</tr>
<tr>
<td>STORY</td>
<td>See <a href="http://en.wikipedia.org/wiki/Mirror%27s_Edge">http://en.wikipedia.org/wiki/Mirror%27s_Edge</a> &quot;Synopsis&quot;</td>
</tr>
<tr>
<td>LEVELS</td>
<td>11 levels, each with a sub-goal</td>
</tr>
<tr>
<td>ENVIRONMENT</td>
<td>roof-tops, inside office buildings, ventilation shafts, streets, subway</td>
</tr>
<tr>
<td>VISUAL STYLE</td>
<td>stylized outdoor environments predominantly featuring few primary colors (much white, no green) – in cut scenes characters are also stylized</td>
</tr>
<tr>
<td>VISUAL PERSPECTIVE</td>
<td>3D graphics, first person perspective (hands, arms and sometimes legs and torso of the player character visible on-screen)</td>
</tr>
<tr>
<td>CUT SCENES</td>
<td>yes, used to tell the story switches to a third person perspective</td>
</tr>
<tr>
<td>PLAYER CHARACTER (PC)</td>
<td>Faith Connors, 24-year-old Asian woman with tattoo around her right eye</td>
</tr>
<tr>
<td>OCCUPATION OF PC</td>
<td>Faith is a &quot;runner&quot; a courier who carries physical communiqués around the city</td>
</tr>
<tr>
<td>NPC:S</td>
<td>Faith's sister (Kate), Merc (give Faith delivery jobs),</td>
</tr>
<tr>
<td>WEAPONS</td>
<td>guns (taken from policemen)</td>
</tr>
<tr>
<td>VEHICLES</td>
<td>helicopter, subway train</td>
</tr>
<tr>
<td>SOUND EFFECTS</td>
<td>ambient: traffic sounds. interactive: air-speed sound when running fast, buzz sound when touching electric fences, cracking sound when falling down on the ground, and so on.</td>
</tr>
<tr>
<td>MUSIC</td>
<td>Melancholic theme song: Lisa Miskovsky's &quot;Still Alive&quot;. The rest of the soundtrack instrumental electronic music by Magnus Birgersson (&quot;Solar Fields&quot;)</td>
</tr>
</tbody>
</table>

### USER INTERFACE COMPONENT IDEAS

<table>
<thead>
<tr>
<th>ELEMENT</th>
<th>Example of design idea (component)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HUD (Heads-up display)</td>
<td>Story mode: no HUD (except visual effects and help functions explained below)</td>
</tr>
<tr>
<td></td>
<td>Time-trial mode: progress bar, pace clock, speedometer, race clock, target time and qualifying time are displayed on screen.</td>
</tr>
<tr>
<td>VISUAL EFFECTS</td>
<td>The colors become more desaturated as Faith starts to take damage.</td>
</tr>
<tr>
<td>HELP FUNCTIONS</td>
<td>Red marked objects shows the path and policemen's guns become red when Faith disarm them and take the gun.</td>
</tr>
<tr>
<td>CONTROL MECHANICS</td>
<td>Move: Move the left stick in any direction. Forward is walking, left or right is strafing. Jump: Press the L1 button to jump in the direction Faith is moving. (From PS3 manual)</td>
</tr>
</tbody>
</table>
### Appendix 2: Game design ideas in *Mirror's Edge*

**GAMEPLAY COMPONENT IDEAS**

<table>
<thead>
<tr>
<th>ELEMENT</th>
<th>Example of design idea (component)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GENRE</td>
<td>Innovative blend: action-adventure and platformer</td>
</tr>
<tr>
<td>OVERALL GOAL</td>
<td>save Faith's sister from being falsely accused of the murder of mayor candidate Mr Pope</td>
</tr>
<tr>
<td>METAGAMES</td>
<td>achievements, compete with others in time-trial mode</td>
</tr>
<tr>
<td>GAME MODES</td>
<td>Story mode (campaign) and time-trial</td>
</tr>
<tr>
<td>TYPES OF GAMEPLAY</td>
<td>The <strong>story mode</strong> is primarily a game of progression (walkthroughs on the web, storyline), but the challenges is actually variations of a few parkour moves, which is a quality of games of emergence. (See Juul, 2005 p. 5) In the <strong>time-trial mode</strong> this is even more accentuated.</td>
</tr>
<tr>
<td>NUMBER OF PLAYERS</td>
<td>single player only</td>
</tr>
<tr>
<td>CHALLENGES</td>
<td>run fast (for required momentum) while finding the best route through the game's environments and avoid getting killed by falling or by being shot (combat takes a secondary role completing the game without using any guns is actually encouraged)</td>
</tr>
<tr>
<td>DIFFICULTY LEVELS</td>
<td>easy, medium and hard – only affects the enemy challenges, not the movement challenges</td>
</tr>
<tr>
<td>GAME MECHANICS</td>
<td>mandatory: running and parkour activities; optional: fighting, shooting</td>
</tr>
<tr>
<td>CORE MECHANICS</td>
<td>run, jump, wall-run, climb, slide, balance, shimmy, tumble</td>
</tr>
<tr>
<td>OTHER MECHANICS</td>
<td>open doors, click buttons, disarm opponents, melee combat, shoot</td>
</tr>
<tr>
<td>SIMULATION RULES</td>
<td><strong>Mimics real world:</strong> To traverse the virtual world of the game, for example, Faith has to jump over gaps, climb fences and crawl through ventilation shafts. To jump over big gaps she needs to have momentum and if she falls down from great heights she dies. <strong>Non-realistic rules:</strong> If player hits the square button when Faith is in a fight, she enters &quot;bullet time&quot; (slow-motion) and can more easily disarm the enemy. After being injured from gunshots, she heals up completely if she avoids being shot at for a few seconds.</td>
</tr>
<tr>
<td>HIDDEN RULES (PARAMETERS)</td>
<td>Exactly how high must Faith fall to die? What does it take for an enemy to die when Faith is shooting at him?</td>
</tr>
<tr>
<td>COMPETITION RULES</td>
<td>In time-trial the player can compete with other players: Head to checkpoints and touch them to clear them (must be cleared in order)</td>
</tr>
<tr>
<td>TUTORIAL</td>
<td>In the first level, Faith’s college, Celeste, shows how to perform the core mechanics. Merc supports Faith (and the player) through radio during gameplay.</td>
</tr>
</tbody>
</table>