BRIDGING THE GAP BETWEEN ARTIST AND AUDIENCE

An exploratory comparative study on the cognitive impact of proficiency and applied mental models on the unmediated understanding of design and affordance.

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Johannes Palmblad

Supervisor: Tarja Susi
Examiner: Jana Rambusch
Abstract

The purpose of this study was to examine the relationship between culture, affordance and proficiency. Further, to study the possibility of a cognitive gap between artists and the audience they design for, akin to the Designer-User gap in interaction design and user experience research. In order to contextualize the issue studied, relevant theories in ecological psychology, visual literacy, image interpretation and cognitive models are presented and discussed alongside contemporary industry issues that may have arisen from this type of cognitive gap. As artist and audience might have these vastly different interpretations of identical visual material, conveying or communicating specific design ideas or aesthetics may be compromised or lost in translation, negatively influencing visual communication.

The study compared a set of individuals matching either the label of concept artist or target game audience on their unmediated reactions and mental heuristics when encountering a novel design from a familiar genre, using a method of concurrent verbalization. Results were discussed and compared to prevailing theories in cognition, user experience design and the presented research question.

Said results indicate that there are distinct variations between how artists and audience apply their heuristics for unmediated design interpretation, although it also provides a few tentative suggestions as to a few methods in which said issue could be circumvented or surmounted.

Keywords: Affordance, Concept Art, Ecological Psychology, Design
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1 Introduction

What makes a viewer understand and relate to a specific design? Based on our own previous experiences, cognitive wiring and personal preferences we all both experience and interpret art differently.

In the realms of modern art, this type of subjectivity is core to the vivaciousness of the cultural scene (as well as offering employment opportunities for art critics). In entertainment media however, art does not exist simply for its own sake, as it were. Instead, it functions as specific means of communication with the consumer. Where vagaries of meaning might, instead of creating lively debate, misinform said consumers about the presented product, systemic interactions or create erroneous expectations.

The role of art created for entertainment purposes would then presumably be to, at least in part, clearly and distinctly communicate with the audience, and in so doing help them make informed interaction decisions while simultaneously creating an interesting aesthetic and experience.

This study came about as an effort to research the complex interplay between affordance, cultural familiarity and mental models in concept design for the entertainment industry. The purpose being to examine issues arising when the understanding afforded concept artist in visual development fails to match that of their audience, thus leading to miscommunication. As a similar issue exists in interaction design, called the Designer-User gap, this phenomenon was used to contextualize the research in an attempt to see if this concept could be applied to visual development as well.

The study was conducted through first researching the possible cognitive basis of the visual read, focusing on ecology, affordance, art- and design theory. Which led to setting up a possible matrix for understanding the unmediated cognitive visual read through applied mental models, signifiers and affordances.

The design read of both professional concept artists and of habitual video game players were then tested and compared using a concurrent verbalisation method. Also known as a Think Aloud Protocol, the method was devised to aid in accessing as near immediate and unprocessed thoughts as possible. Which was eminently suitable, given the constraints of the study. The verbalisation was recorded, after which it was analysed and compared in order to discern read patterns in each of the two groups, and ascertain differences in read priority or affordance availability, if any.

What the study found was indication that, in general, two distinct mental models seemed to be applied by the different groups, showing a clear discrepancy in read order and internalisation, among concept artists favouring details and technique whereas players instead related to the design pragmatically, from closer to a gameplay perspective. However, there were also suggestions that self-identification and implied role during the session might affect read order, lending credence to the idea that role theory may well play an important part in the process of the visual read and presenting it as a potentially worthwhile avenue of future research.
2 Background

The intent of this study was to examine and evaluate the relationship between video game concept design, as performed by concept artists, and the instantaneous unmediated understanding conveyed to their target audience through deliberate use of visual signifiers. Somewhat simplified, the responsibility of the concept artist is to simultaneously excite and inform, creating a both relatable and intriguing experience through the deliberate design of visuals.

However, as with any designer, there exist both overt and covert obstacles which obfuscate and interfere with conveying the intended message. This study is only concerned with the singular and inherent obstacle, which is the immediate audience read of the design itself, unaffected by external or technical considerations. The subject has been researched in the hopes of establishing tentative guidelines on which to base best practice for concept artists to deliver the intended design read by examining their unmediated heuristics for reading a design, compared to those of their audience.

During this chapter, the necessary sources and theories to establish and support a research question in the matter will be presented, covering ideas ranging from interpretative prerogative and the function of design to the cognition of affordance and unmediated understanding.

2.1 Defining the gap

Colloquially a designer in a video game development context is thought of as a systemic or level designer. However, in more nuanced understanding of the development process, the concept artist functions much the same as the graphic designer would in a regular design team, responsible for the visual design of the product (Brunet, 2014). As such, providing the guiding principles and aesthetics as well as the specific designs for essentially all the visual content a prospective player will encounter within the confines of the game (Zhu, 2015).

Conventional wisdom in design states that “designers are not users” but that “systematic methods can overcome the gap between the design team and its target audience” (Nielsen, 2008). In this context, a design team refers to any group of developers designing an interactive system, clearly separating them as distinct from their user base.

As summarized by Nielsen (2008), this separation is based on three factors; knowledge, skill and investment, all three of which a designer will significantly outpace their audience in. Worth noting is that Nielsen (2008) also adds that even designers not involved in the project could suffer this bias due to the factors of knowledge and skill. The effect is summarized as such:

“Depending on how representative designers are of the target audience, a project might need more or less user testing. Still, usability concerns never go away completely.” (Nielsen, 2008)

He calls this effect the Designer-User gap, and the main reason for the existence of the usability discipline, further stating that the difference can vary “from a small fissure to a gaping gulf” (2008) and that the strategies for bridging the gap varies depending on this severity.
In a previous article, Nielsen (2007) also covers why even a great designer might not be able to mitigate unforeseen negative impacts of design decisions ahead of time without user feedback. Essentially, the mental models applied by a user and a designer vary on distinct and crucial points because they have different expectations and predispositions which provides their innate heuristics for interpreting and interacting with a design (Nielsen, 2010).

A similar idea to these mental models is presented by Wilhelmson (2001) in the context of video game interaction, dubbing these mental models *schemata*. Summarized as “an arrangement of knowledge already possessed by a perceiver that is used to predict and classify new sensory data” (Branigan, 1992), schema functions as a clear definition of these mental models.

Nielsen (2007) claims best practice is to be using already established guidelines as a way to minimize the initial risk of miscommunication, followed by usability testing. This testing method, in the sense referred to by Nielsen, is not a possible method for best practice among concept artists however, as there is no product in which to test the user design interpretation yet. Furthermore, seeing as there is an entire content creation pipeline needed in most game companies before concepts are realised as interactive content, revision at such a late stage would be prohibitively expensive for all but the most well-established studios.

As such, a different set of best practices might well be necessary. Currently this function is covered in most studios by an art director responsible for directing both the aesthetics as well as conveying and enforcing the lead designer vision. Having already established that “designers are not users” (Nielsen, 2008) the question arises if this is truly best practice however? This functionally means yet another set of designers attempting to evaluate the design, which does not inherently solve the problem of avoiding miscommunication with a typical user, as it only mimics the first step of the best practice proposed for interaction designer and nothing which compares to the second step of usability testing. This does indicate that using established design convention as well as receiving user feedback might increase the chance of resonating with the audience however, if done properly.

### 2.2 Afforded understanding

To better understand this issue, it is vital to discuss how designs are actually understood and internalized, which require extensive examination of the underlying cognitive causation of the design read.

In the preparatory research for this thesis, one key factor emerged: the theory that a subset of any perceptual read is based on a composite of stimuli which enable unmediated understanding. This understanding is manifold, relying both on our cognitive and perceptual layout in relation to the surrounding environment, as well as applicable cultural constraints and conventions, which can be harnessed and used deliberately by the savvy designer. This cognitive relationship is known as an affordance.

#### 2.2.1 Prioritizing perceived affordance in design

Affordances are relationships between a person and an external phenomenon that through a collection of various stimuli. These afford the opportunity for an action based on the intentions, perceptions and capabilities of a person, which occur without conscious mediation or analysis (Gibson, 1986). It is additionally commonly used in modern design philosophy,
introduced there by Donald A. Norman in *The Psychology of Everyday Things* (1988). He did later revise the definition to specify these occurrences as perceived affordances since:

“[t]he designer cares more about what actions the user perceives to be possible than what is true.” (Norman, 1999)

He goes on to say that in screen-based design, what can be controlled by a developer is almost exclusively perceived affordances. Essentially, perceived affordance exists as a sort of connection between a designer and user as an intentional attempt of communicating desired and relevant actions without the need for conscious mediation to an end-user (Norman, 1999). This approach favours the perceived possibility space over the real possibility space, attempting to predict the mental model of the user, as defined by Nielsen (2010).

### 2.3 Understanding ecology and affordance

Aside from the design-centric use of the term presented by Norman, the affordance theory has deep roots in ecology, where it originated. This is key to understanding the idea and importance of the unmediated read both as an evolutionary trait and as an influence on our modern lives.

#### 2.3.1 The unmediated read as survival mechanism

In psychology, the idea of ecology was introduced by Roger G. Barker in his book *Ecological Psychology: Concepts and Methods for Studying the Environment of Human Behavior* (1968). At the core of ecological psychology was the shift of focus from variations between individuals to variations between environments and what he calls non-psychological inputs of outside context and the relationships created between these and an organism (1968).

Ecology is thus a view of the individual as affected by the relationship with its environment, evolutionary development and subsequent adaptation based on instant recognition without need for conscious mediation, which is the basis for both reflexive reaction and immediate first impressions (Barker, 1968).

As such, human beings have evolved to be exceptional at making unmediated and instantaneous reads.

#### 2.3.2 Affordances as relationships

The concept of affordance was first introduced by James J. Gibson in his seminal work *The Ecological Approach to Visual Perception* (1986). It was created to help codify the relationship between an organic observer and its ecological environment; deciding what actions are afforded the perceiver based on external stimuli. The ecological environment of an individual is the environment in which said individual is situated and receives stimuli from, thus guiding what actions are afforded the individual, according to Gibson (1986).

Strictly speaking, this applies to all ecologic units present, meaning any physical, social, biological or behavioural unit by necessity constrained through self-generated boundaries and a time-space locus separating an internal pattern from a differing external pattern, as defined by Barker when codifying ecological psychology (1968). This distinction is crucial as it defines ecology at least partly as the basis for predicating interaction not only with an environment, but with individuals, behaviours and cultures.
It is important to note that to Gibson (1986), the affordance was the relationship itself, unaffected by the act of perceiving. His main interest was perception as it relates to physicality and the kinaesthetic and behavioural possibility space of an individual organism. The affordance relationship exists invariably, he argued, no matter whether it is perceived or desirable by the organism.

2.3.3 Visual perception and understanding
Gibson’s view on the ecological fundamentals of perception is the basis on which much of modern perceptual psychology is built. Aside from his concept of affordance, in itself a significant contribution to the field of cognitive and perceptual studies, his theories of perception are equally important.

Tremendous work has been done in neurology and optics with great significance to the field of perceptual psychology at large. His work also functions as a part of the rejection of the picture theory of natural perception, cementing the role of ecologic psychology in cognitive science. According to Gibson (1986), we do not see our surroundings as a composite image of form and colour as previously postulated. Instead we “extract information from the ambient array of light” (1986, p. 267) of the invariant and variant forms in our environment, based on stimuli provided on three environmental attributes; the medium, substances and surfaces in the extant environment.

This, he states, actually complicates our understanding of pictures, as they imply the existence of this ambient light, and through it the corresponding mediums, substances and surfaces. But the picture is obviously merely a representation, thus lacking the medium, substance and surface of what is represented, thus initially also seeming to lack what he calls ecological validity (1986), which means lawfully confirming to the laws of nature as we know them (Anderson & Anderson, 2005).

This in extension means that no affordance relationship could seemingly exist between a perceiver and a representation, as the representation provides neither a medium, substance or anything but a singular surface, from which no ecological information could be extracted. Ecological validity functions as a prerequisite for us to understand environments from an ecological perspective. It follows that real affordances are based on perception as it relates to physicality and the kinaesthetic possibility space of an individual organism. If the affordance relationship is to affect a representation, it must by necessity be ecologically valid first.

2.3.4 The validity of representations
The fact remained, however, that we could understand and relate to pictures and representations. Thus with the rejection of the picture theory of natural perception came the need for an ecological replacement theory with which to solve this dilemma.

So what solution did Gibson provide? According to him, the only way to understand the nature of a picture is to view it as set of formless invariants (1986). This seemingly incongruous statement is actually key to allowing affordances to apply to representations such as pictures, or for that matter, games. He follows this statement by saying that:

“If it is true that the perception of a detached object is not compounded from a series of discrete forms of that object but depends instead on the invariant features of that family of forms over time, it follows that an arrested member of that unique family will have at least some of those invariants.”
If object perception depends on invariant detection instead of form perception, then form perception itself must entail some invariant detection. (Gibson, 1986, p. 270)

The essence of this idea is that a picture is an “array of persisting invariants of structure that are nameless and formless” (Gibson, 1986, p. 270).

If Gibson’s supposition is correct images are viewed as sets of invariants understood completely despite their arrested nature. Semiotically this implies that they can contain information on the possibility of transformation as well as function as a representation to which we can link both cognitively and culturally. Consequently, a formless representation can be connected with a set of invariant features, which is the features of an object unaffected by specific optical configurations such as viewing angle or light, of said invariant. Thus understanding the image through a subset of our form perception which entails at least in part invariant detection. We can form an understanding of an image despite both the form and movement implied in the image itself being mere representations or recreations, providing ecological validity even to pictures.

2.3.5 Solving perceivability for affordances through signifiers

It stands to reason then, that ecology can and will affect the mental models we apply when understanding a picture, and function as a distinct component of the heuristic used when evaluating a design. It does not solve how affordances are perceived however, as Gibson (1986) states that they are present even when not perceived, or even perceivable.

Norman (2013) solves this conundrum by tying affordances to what he calls signifiers, which is the means through which a user discovers the perceived affordance. The act of realizing and acting upon affordances in ecology are called exploratory and performatory tasks respectively, as introduced by Eleanor Gibson (2000), which could then easily be related to discovering an affordance signifier.

A signifier, as conceived by Norman (2013) it, is a practical perceivable property that links to the affordance relationship and communicates this relationship to a user.

“Affordances determine what actions are possible. Signifiers communicate where the action should take place.” (Norman, 2013, p. 14)

While this usage is somewhat specific to interaction design, it does help in separating signs increasing the perceivability of affordances from the affordance itself, thus solving how affordances can be deliberately applied in design as long as they are accompanied by an appropriate signifier. Thus potentially aiding the interpretation heuristic subconsciously applied by the user’s mental model, assuming the predicted read of the signifier on the part of the designer turns out to be correct.

Which then is where the gap between the designers expected interaction and the actual user interaction stem from, be it systemic or graphic. While the affordance relationship and the respective signifier provide a possibility for unmediated communication it likewise presents the risk of a mismatch between creator and consumer mental models (Nielsen, 2010). Thus establishing the proper use of affordance signifiers as core to providing the intended unmediated read of the design.
2.3.6 Signifier availability based on proficiency

Another consideration is that for the individual perceiving affordances (or the appropriate signifiers to discover the affordance) this recognisability may be a matter of expertise or training (Gibson & Pick, 2000). This idea is presented in an article by Jonas Linderoth, referencing the same title by Gibson and Pick:

“Although many basic affordances are of such a nature that they can be acted upon by a majority of the animals in a species, there remain individual differences. As Gibson and Pick (2000) point out, for humans, affordances are often an outcome of training.” (Linderoth, 2013)

While not using the framework proposed in the thesis, the usage here could be better understood as signifier availability. As Gibson (1986) states, any and all affordance within an environment exists separately to being perceived or realizable by an individual. However, if we view what Linderoth suggests as signifiers corresponding to the ecological capabilities of the individual instead of perceivable affordance, it better conforms to our standards and no longer contradicts the original definition of affordance.

Another viable way of contextualizing this might be the notion of distinct mental models or schemata providing structure to our previous experiences based on our known capabilities, thus affecting our read of signifiers, and which exploratory and performatory task instinctively spring to mind.

“Experts in a certain domain have learned to utilize affordances that are not available to non-experts: Humans, at least, must learn to use affordances. Some affordances may be easily learned: others may require much exploration, practice, and time. . . . Further development of expertise may involve learning to realize affordances unavailable to non-experts. A three-inch-wide beam affords performing back flips for a gymnast, but the affordance is not realizable by others; rock climbers learn to use certain terrains for support that do not appear to others to provide a surface of support” (Linderoth, 2013)

Assuming these alterations, Linderoth further entrenches the idea of signifiers being either available or perceivable based on the configuration and expertise of the individual. Their individual schema and capabilities direct not only how they act but what signifiers are available. However, this does not preclude the signifiers for some unrealizable affordance relationships to be recognizable.

“[s]ome affordances are thus only realizable (capable of being utilized) by experts in a domain, even if they are recognizable (capable of being seen) by others who lack the skill of acting upon them. I can see that waves on a windy day afford surfing, even if I cannot stand on a surfboard. It is important to notice, though, that being knowledgeable in a domain also means having the ability to perceive more affordances than a novice would. While I can see that the waves afford surfing, I cannot identify properties of the waves for doing certain tricks or judge whether the conditions are safe. Expertise is about both recognizing affordances and being able to realize them.” (Linderoth, 2013)
Again, in the confines of this thesis a more appropriate way of viewing this would be to say that expertise is about both being able to recognize signifiers as well as being able to realize the afforded action. The affordance itself is both unchanged and unaffected by this act of recognition, be it ecological or cultural.

As an example; were an aforementioned theoretical rock climber from Linderoth’s example above to view a representation of a cliff face, arguably there would exist an ability to catch subtle visual signifiers that might otherwise go overlooked. Although this is both complicated and made more interesting in a digital environment which might have a set of secondary signifiers recognizable based on expertise within the game (Wilhelmsson, 2001, p. 67). This should be viewed simply as two overlapping skillsets both providing perceivable signifiers, adding further nuance to the idea of applicable mental models and schema.

2.4 Creating culture through deliberate design

As previously established, concept art is design (Zhu, 2015), and thus the primary responsibility of the artist is first and foremost that of a designer. It then follows that one of the main tasks of the concept artist is providing a useful unmediated read applicable to the mental models of the target audience, while simultaneously and deliberately creating an interesting aesthetic in their role as artist.

2.4.1 Genre and style familiarity

Moving further into the subject of perception as it relates to art and design, the aptly named Art and Visual Perception by Rudolf Arnheim (1974) has been included. Arnheim shares a similar notion as to the nature of visual perception as Gibson, albeit without the same focus on optics and a more thorough focus on its relation to visual art.

He views vision as a form of exploration, dubbing perception of shapes “an eminently active occupation” (Arnheim, 1974, p. 43). Unconcerned with the logistics of vision Arnheim instead focuses on stylization and the subjectivity thereof. In this treatise he separates the ideas of realism in art and something being lifelike, claiming that adherents of one artistic approach may perceive certain types of representations as lifelike even though they may not seem so to non-adherents. To prove this idea he cites classical Greek and Chinese art, both heavily stylized to our modern sensibilities that despite this are surrounded by “[s]tories about paintings and statues so lifelike that they deceived man and beast”. Claiming that while this might not be a literal interpretation “more probably these stories express the visual experiences of contemporary viewers, to whom the pictures looked most lifelike” (Arnheim, 1974, p. 136).

This ties further into the idea that perception is both based on and influenced by culture, not only through design signifiers but through style. In relation to Gibson’s theory, this might be expressed as the fact that we can understand and relate to formless invariants depicted in a stylized way based on established cultural and individual norms. Thus stylization is understood by the same subset of visual perception that manages the understanding of images, applying the same cognitive heuristics.

Another key excerpt comes by way of psychologist Harry Helson’s principle of adaptation level, cited in this work. As relayed by Arnheim, he states that this principle:
“[...I indicates that a given stimulus is judged not according to its absolute qualities, but in relation to the norm level established in the person’s mind. In the case of pictorial representation, this norm level seems to be derived not directly from perception of the physical world itself, but from the style of the pictures known to the observer”. (Arnheim, 1974, p. 137)

2.4.2 Deliberate use of genre familiarity and affordance in concept art

The notion of affordance is nothing new to entertainment industry design either and has continuously been gaining momentum in various disparate disciplines. Explicitly, it is used in the context of the immediate understanding afforded a perceiver based on previous cultural experiences and media familiarity, as well as basic ecology, which is a key point of the Design Thinking workshop by industry veteran Feng Zhu (2015) at the Game Developers Conference. In this way it is almost directly tied to perceived affordance, as the focus is not necessarily the relationship with reality, but with what is expected by the audience, deliberately utilizing the genre familiarity of said audience.

As summarized by senior concept artist Clay Hoffman:

“If you’re designing something for the player to interact with, it has to have a certain base level of affordance: the player needs to immediately understand what it is capable of, or how he or she can interact with it. This plays intimately into the shapes and silhouettes of an object’s design.”

(Hoffman, 2012)

While at face-value the affordance term used in this context might seem problematic or somewhat incorrect when compared to origins of the affordance concept, it functions exceptionally well when understood as perceived representational affordance signifiers in media. It covers common conventions, tropes and ideas inherently present in the current media landscape, making these tools available for any concept artist.

The reasons for its prevalence in entertainment design are much the same as the popularity of perceived affordance within industrial design. It is a designation of a set of properties that can be included in a design without significantly increasing the barrier of entry or prerequisite knowledge required to meaningfully interact with or understand the product immediately (Norman, 2013). Harvey Smith, Co-creative Director at Arkane Studios and Matthias Worch, current Design Director at Hangar 13 Games, both with illustrious pasts in the digital games industry, mention communicating boundaries, and affordance as one of the cornerstone functions of a game environment in their GDC Design Workshop What Happened Here? Environmental Storytelling (2010).

In essence, utilizing affordance signifiers in entertainment media is reliant on the audiences’ ecology as well their cultural and genre familiarity. This means that a designer can assume certain understanding both of ecological functions, and even of improbable or strictly impossible things in an entertainment context, as long as they are prevalent within the genre, or entertainment media in general. This is an extension of the idea of non-ecological filmic conventions being ecologically understandable, pioneered in Moving Image Theory: Ecological Considerations (Anderson & Anderson, 2005) that even ecologically invalid situations can remain comprehensible, such as the flash-forward in cinema, assuming most viewers are aware of the filmic convention. This means that while the content of a scene or
design may seem ecologically invalid, such as the impossible flash-forward, it can still seem ecologically valid through repeated exposure or familiarity.

Anderson and Anderson (2005) further claim that the psychological configuration of a perceiver, as part of an ecological niche, affords them individual understanding, causing a selection process of which affordance signifiers are perceived and given value to, so different audience members may accept or reject different conventions.

Examples of how this might come into play in the design of digital games could be how there would be very little need to explain anything regarding otherwise outlandish things such as fire-breathing wyrm or interstellar juggernauts to a contemporary video game audience. These conventions are accepted simply due to already being thoroughly understood through the presence of previous media content representing these phenomena. Assuming of course the representations of these fall in line with previous representations with which the viewer is familia, as deviations from these conventions may be met with resistance due to the lack of unmediated understanding. This phenomenon is exemplified by how an audience might react to a fork-tailed triple-headed venomous lizard when depicting a dragon, as an example given by Feng Zhu (2015), despite this being no more unlikely than a classic fire-breathing one-headed dragon from an evolutionary standpoint. Practically speaking, it might even be more likely.

This works as a corollary to the idea of ecological perception, to an extent. We have perceived these phenomenon enough times to internalise how they function, to the degree that deviations from these models of understanding might be criticized as unrealistic or bizarre, despite the fact that there was no inherent realism in the accepted version of this occurrence either. It also relates to mundane instances of accepted culture, however. Including, but not limited to, normative gender associations, physiognomic reads, understanding of everyday flora, fauna or technology, which is another key point of Feng Zhu’s Design Workshop (2015). Previous media makes commonality function as a toolbox for creating perceiver familiarity with a new intellectual property or entertainment product (Johansson, 2014).

Much as with real affordance, perceived affordance is not necessarily positive nor desirable as it can relate to potentially harmful or misguided stereotypes. In particular regarding sex, gender, culture, ethnicity or the intrinsically problematic idea of physiognomy. As with all communication, there is a responsibility in what is communicated by the source. This goes double for entertainment media, with its potential for massive reach and cultural impact through both tacitly and overtly subverting or reinforcing cultural norms and ideas. It is important to mention that while these terms are discussed as a communication possibility, this does not equate endorsement of any culturally irresponsible method of use of them. Affordance signifiers are, much like words, a deliberate method of communication, with all associated possibilities and potential issues. Additionally, it further cements the idea that cultural conventions and expectations are a crucial aspect of our mental models.

2.4.3 Interpretative prerogative and meaningful intent
On an industry basis, success tends to be far more expounded than failures. Despite that, there are thankfully several insightful exceptions to this rule. This is the core conceit for the popular Game Developer Conference Failure Workshop (Anderson, et al., 2012), where a few of the key speakers mention cases where artists specifically failed to communicate properly with their users using the established designs, indicating the presence of a Designer-User gap in
visual design. Which is of course in no way to act as an indictment of the artists. A notable number of cases adjusted the reads even before release using specific testing practices, which ties back into the systemic approaches suggested by Nielsen (2008) to avoid usability issues.

Most notable during this talk was the (previous) visual representation of one of Bastions (Supergiant Games, 2011) core features, intended to use the afforded understanding of gardening as related to the game system discussed by Amir Rao during the conference (Anderson, et al., 2012). They had intended to use the visual presentation to function as an analogy to the mechanics presented to the player in order to afford a certain amount of immediate and contextual understanding. During testing they discovered that the signifiers they were attempting to utilize did not register with players at all. As summarized by Amir Rao, “You know what people understand a lot better than planting? A menu.” (2012).

The symbolism intended by the artists and designers to elucidate the mechanics to the players instead obfuscated them, whereas a menu system afforded far clearer an understanding.

Jamie Cheng (2012) of Klei Entertainment discussed their first (unfinished) title Sugar Rush during the same talk, albeit with a wider perspective. In the same talk, he covered the five complete overhauls of art style made during the course of the project to match and communicate the various audiences the game was intended for during the project lifespan, depending on both internal decision-making and external feedback from focus groups and playtesting. Core to this was the idea that different audiences required different approaches, but the specific approach chosen by the art team might have been unclear and needed serious adaptation or revision once in contact with the intended audience.

Another of the most telling examples of this communication mismatch in the modern industry was presented by Blake Reynolds in the widely circulated article Pixel Artist Renounces Pixel Art (2015). This ties in not to a singular specific design choices inside the title, but instead the choice of style and aesthetic. Arguably the major visual design decision of any entertainment title. In the article he explains how the artistic choice of pixel art for a commercial title ended up negatively impacting audience reception of the title due to unfamiliarity with the style. This presents a clear connection between cultural and aesthetic zeitgeist affecting the viewer’s relationship to a piece of art, echoing a quote by art theorist Rudolf Arnheim that states that:

“[…] a given stimulus is judged not according to its absolute qualities, but in relation to the norm level established in the person’s mind. In the case of pictorial representation, this norm level seems to be derived not directly from perception of the physical world itself, but from the style of the pictures known to the observer”. (Arnheim, 1974, p. 137)

Reynolds further states that it is the responsibility of the artist to “deliver them quality in a language they understand”, even going so far as to use the term language to specify art style as a distinct semiotic system. Using a second example, he makes a comparison between Street Fighter III (Capcom, 1997), Street Fighter IV (Capcom, Dimps, 2008) and King of Fighters XIII (SNK Playmore, 2010) where the latter received similar criticisms for style choice while being, according to him, artistically and aesthetically superior. This from mainstay review sources such as IGN as well as end-users.
The key point of the entire article however, familiar to anyone acquainted with post-modern art theory, is that artist intention does not matter at all. Interpretative prerogative rests solely with the audience. Summarized in a set of paragraphs, he states that:

“[a]s a game developer, time is the most valuable resource a human can give you. Nobody owes us their time or attention. As such, when someone gives us their time, an implicit agreement is made and we are now in debt to that person. We owe it to them to deliver value for their time, and to deliver it efficiently.”

Putting the responsibility squarely in the hands of the artists, developers and designers to solve, he goes on to say that:

“We must establish meaningful intent as close to instantaneously as possible. By meaningful intent, I simply mean that the audience has to internalize the concept, motion, emotion, perspective, etc. of a piece right away. The second the audience asks “how can he bend that way without breaking his spine,” or “Why is he shooting where he’s not looking,” we have failed them. They don’t owe us the time to look at our work in the first place. They certainly don’t owe us the time to squint their eyes and try to make sense of our work.”

While using different terminology this more or less directly parallels the definitions and discussions throughout the thesis. A viewer’s understanding is based on what is known to them and what understanding is afforded them is based on their own previous experiences and mental model. Saying that meaningful intent must be established as instantaneously as possible is another way of saying that the design should provide a good unmediated read, providing meaningful understanding to the audience immediately on viewing the design. Not only that, but again reinforcing that the correct usage of signifiers is the clear and unmitigated responsibility of the artist. The final paragraph, while specific to the art style made for the game he helped develop, could easily be applied on a wider scale.

“Meaningful intent applies to medium as well. In choosing to make our game with pixel art, we have accidentally taken on a war on two fronts. My job was to make Auro’s art polished, inviting, and clear to the audience, not to also educate the audience that pixel art is a deliberate style.

It’s not their problem that they don’t know what pixel art is, and it’s not their fault. Choosing pixel art was ultimately self-serving and wound up confusing and even frustrating people. This is all because we failed to embrace the medium.”

With these examples, it is clear there is a persistent problem that occurs within at least some levels of the game industry between intent and actual communication on a visual level. Whether it be communicating the logic behind a mechanical interaction to the choice of artistic language through style and aesthetic, there are clearly instances where miscommunication can occur due to mismatching mental models between audience and artist, which indicates a Designer-User gap.
3 Problem Statement

Up until this point, we have identified that the design read of an individual is clearly based on a mental model composed of their ecology, previous experiences and cultural familiarity, as discussed in sections 2.3 and 2.4. This mental model prioritizes signifiers which convey important information to the individual during the read, as well as contextualizing the affordances these signifiers might imply or make perceivable. Additionally, the research covered in section 2.1 states that disparities in these said mental models between users and designers are at the heart of the Designer-User gap, explaining why a designer can never fully evaluate a design as if they were a user. As the role of the concept artist is that of a visual designer, the same gap may well apply to them and their target audience.

Having further established that interpretative prerogative rests clearly with the audience in section 2.4, and having indications that the Designer-User gap might well apply to entertainment industry artists and their audience in sections 2.1 and 2.4.3, this seems to be an issue in need of investigating or resolving.

This chapter defines a method of study for validating or rejecting this proposed perspective of said disparity. It does this through defining a research question as well as an appropriate methodology to study said question.

3.1 Research Question

Attempting to study the indicated phenomenon of an artist-audience gap, an initial problem definition appears. The problem itself has been clearly defined and outlined; creating a context on which to base understandable and most importantly researchable question. In the context of this study, the question has been defined as:

*Does the Designer-User gap exist and function in a similar way in concept art as it does in design, and if so, how does it affect the unmediated read of the design?*

Where the Designer-User gap is defined as mismatched mental models and read heuristics when approaching a design between designer and user, resulting in unintended interpretations or lacking understanding on the part of the audience, meaning that a designer is unable to accurately predict user interpretation. In this case with the concept artist standing in for the role of designer, and the audience meaning a prospective player, stating that just as is the case with an interaction designer not being able to fully evaluate their own design due to the inherent bias of exceptional expertise, investment and prior knowledge unavailable to the typical user, the case for a concept artist is much the same and a similar type of gap might exist between them and their audience.

An unmediated read is defined as the instantaneous impression provided an individual upon encountering a design, establishing much of their understanding through perceived affordance signifiers and without the need for conscious mediation or analysis, based on the applied mental model shaped by their expectations, prior experiences and proficiencies, thus forming their instinctive interpretive heuristic for solving the function of the design.

The expected result of this investigation was to establish an academic basis for the problems encountered by industry professionals when using visual design as a communication method.
and either corroborate or dismiss the validity of using the Designer-User gap as an analogue issue to those encountered in visual design. The benefit of doing so were considered two-fold, first in that the same type of structured approach used in interaction design to bridge this gap (Nielsen, 2008) could ostensibly be applied in the case of concept art. Secondly in that it would create a stronger foundation for the use of ecological psychology and interaction design as a mainstay in analysing entertainment media visual design, an area with near unprecedented growth compared to its humble beginnings (Zhu, 2016b) where the academic side of things have yet to catch up. The hope is that the study could be the first steps to providing, if not a solution, then at least additional analytical tools with which to approach and analyse the craft of concept art.

3.2 Previous research

While discussions on the function and purpose of concept art are continuously becoming more deeply ingrained in the industry, academic sources on the subject are as a counterpoint few and far between. The possibilities that come with deeper analysis of game development lends itself to researching and critically examining commonly accepted industry standards in an attempt to further the craft. What few studies exist have been included here for the sake of completeness.

One related study was performed by Johansson in her thesis Conceptual Studies of Science Fiction Weapons (2014), studying commonality and genre convention as it relates to audience understanding. She researched the hypothesis that players with a higher level of gaming familiarity could contextualise and specify genre specific design elements according to Gibson’s theory of affordance to a higher degree than players lacking the same familiarity. In the study, the hypothesis was considered falsified, however it did so on the basis of whether the participant groups were able to discuss the concepts, although noting that while the non-familiar group had a harder time interpreting the designs it did not stop them from making the attempt. There are two main concerns with the hypothesis and how the study was made, based on the affordance concept as coined by Gibson (1986).

The first issue is that the study focused on the wrong variable to relate the study to affordance, as it chose to measure ability to reflect on the subject over unmediated understanding and instant recognition, which is at the heart of the affordance concept (Gibson, 1986). The second issue was not accounting completely for media familiarity by focusing on a subset of traits when creating the designs, namely those covered by Gibson’s proposed medium, substance and surface definitions, failing to account for stylistic convention and adaptation level, a primary component to the design read according to art theorist Arnheim (1974) as well as industry veteran Zhu (Zhu, 2015), which we have already covered. The intention is to complement Johansson’s study, with an added focus on the immediate nature of affordance as it relates to media familiarity discrepancies between developer and audience.

Another study on the subject is the thesis Stereotypical Links in Concept Art used in Marketing (Karlsson, 2015), which studied the impact of alterations of traditionally associated body types and colour schemes on established character classes in Massive Multiplayer Online Roleplaying Games. Respondents in the study showed that use of familiar elements significantly and positively affected character reads, albeit on a more nuanced level than strict
colour scheme and body type (Karlsson, 2015), clearly in line with the established theories on design read.

Finally, a third thesis, *Exposure of Boss Weakness* (Duell, 2013) touches on the idea of contextualising player action, focalization and system mechanics through theming instead of colour coding. Much as in the study by Karlsson (2015), Duell’s study found that a number of complex composite factors affected player understanding, from distinct design elements to revealing gameplay genre, tying the results to the ideas presented by Wilhelmson (2001) on genre-specific affordance related to the mechanics at hand for the player as well as the concept of expectations shaping the mental model stated by Nielsen (2010). Thus, what is afforded the player again dependent on a significant set of factors, in line with Arnheim’s (1974) theories on how aesthetic familiarity helps create a shared visual language for a culture.
4 Method

In selecting an appropriate method and creating the artefact for investigating the research question, it needed to be further specified what was crucial to discern in order to answer the question. Equally importantly, possible issues which could have obfuscated or interfered with the research results, or skewed them in unexpected ways needed to be identified. This way they could be accounted for in advance and in so doing prevent those issues to some extent.

A baseline of cultural familiarity could be assumed by all respondents, as selection criteria for answering the research question innately required either professional concept artists or habitual video game player, matching a typical target audience. Rough variables were unlikely to be of help in answering the research question, as this study was more interested in the nuanced understanding of unmediated reads.

As defined for the research question, the unmediated read is the immediate understanding afforded a perceiver, unimpeded and unaffected by analytical faculties. As the aim of the study was to research these unmediated reads, the method needed to be adapted to accommodate the specific challenges inherent with studying a subconscious cognitive process. As such, the study was conducted as an exploratory comparative study between individual concept artists and members their target audience.

4.1 Qualitative research as method of inquiry

The choice of a qualitative research method was predicated on what factors we re believed to best benefit the study. Seeing as the focus of the study has been on a fairly complex immediate read of an image, combined with the need to control the research environment and pacing of segments of the session, a qualitative method immediately seemed best suited to enable this approach. It also granted the possibility to ask follow-up questions and account for discrepancies immediately.

Attempting to discern reasons for interpretation through quantitative inquiry seemed implausible at best, as a quantitative method would by definition mean I lack access to the conceptual apparatus of the respondent (Østbye, et al., 2003), crucial to understanding the cognitive processes of unmediated reads with which the study is concerned.

Other approaches and methods were considered and discarded. The two main contenders were either a quantitative survey with time-limitations on questions or a classic qualitative interview, as the pacing of that particular method would skew answers towards the analytical. Time-sensitive surveys were rejected due to the imprecise nature of the answers, as they would be reliant either on fast free-form text input or by pre-defined answers, both of which, at best, deeply limits the depth of the information collected, or at worst, thoroughly influences the content of the answers.

4.2 Concurrent verbalization as format for testing

As established, when choosing a format for testing, the primary concern was to enable access as close as possible to the unmediated reads of the respondents, both in creating a setting that promoted the respondent making them as well as favouring these reads as verbalised responses.
The aforementioned initial portion of the image read needs to be fairly immediate and individual so as to relate mostly to affordance and ecological psychology rather than deduction or group consensus. As such, individual sessions appeared eminently suited to fulfilling these requirements. A challenge was to create a safe space for discussion, as recommended by Østbye, et al., (2003). The option best suited for the specific challenges and constraints of this study thus seemed to be concurrent verbalization. Also known as Think Aloud Method, appropriately enough pioneered in the fields of cognitive psychology and usability testing (Gambier & van Doorslaer, 2010).

In cognitive psychology, the method is primarily used in expertise research, as a way of understanding and contextualising cognitive processes and intuitive design decisions, described in depth in The Think Aloud Method (van Someren, et al., 1994). In interaction design, it is described by Jakob Nielsen (2012) as the primary tool and most valuable method in usability engineering, where representative users are asked to perform a task or evaluate a situation and are observed while doing so. He states a number of benefits to the method, especially how robust the method is for avoiding methodology issues, as well as noting it to be directly superior to an interview format when attempting to understand behaviour and cognitive processes in a design context.

Gambier and van Doorslaer (2010) notes that Think Aloud Method can only reflect certain parts of the cognitive process and leaves unconscious decisions inaccessible. However, affordance signifier reads, while unmediated, are not unconscious as such, merely immediate, as defined by Gibson (1986).

Both in cognitive psychology and usability engineering, the immediate read is the basis for the cognitive processes of both problem solving, as covered in The Think Aloud Method (van Someren, et al., 1994), as well as interacting with a design, as described by Nielsen (2012). In video game design, much as in real life ecology, the unmediated read of affordance signifiers gives access to actions and possibility space afforded the individual. The Think Aloud Method was meant to function as a way to access the design decision process faced by a concept artist, which mirrors the use of the method in cognitive psychology. Additionally, it was deemed the best option for elucidating the interpretive heuristics of the audience when encountering a design, prompting a contextualisation of this design and its relationship to the player, which in turns mirrors the methods use in usability engineering.

The method also served to, in theory, reassure any respondent that it is not a test of their capabilities or introducing any anxiety regarding performance. Instead allowing free association and thus revealing accessible signifiers. The initial prompting for the verbalisation portion of the study was meant to clarify this more clearly to the respondents.

During the study, the goal was for the respondents to react to the design in a way that clarified what a particular design communicated to each respondent individually, which would later serve as a way to draw the conclusions relating to the research question. Especially when these replies were contrasted with the interpretations of the other respondents, compared between the two groups studied.

The cultural signifiers intended to be studied relate to both narrative genre and mechanical genre, character traits as well as perceived in-game mechanical function based on the design.
Succinctly, the method was intended to give access to as near of an unmediated read from the respondents as possible. Preferably based on instant recognition rather than analysis or deduction. The study needed to be setup to allow a spontaneous non-mediated interpretation to take place, as that unmediated interpretation is at the heart of the affordance concept as it relates to ecological psychology. Thankfully, allowing near-direct access to cognitive processes is a core feature and advantage of concurrent verbalisation (Nielsen, 2012), making it the most likely candidate of accessing relevant and immediate information on respondent read of the image, which is why the method was chosen over the existing viable alternatives.

Nevertheless, an argument could be made that any verbalised response is still a processed piece of information, filtered by the respondent before utterance. Which is certainly a valid concern, especially given the importance of accessing as close to an unmediated response as possible. A discussion on these concerns as well as issues that may have arisen from the methodology will be presented in section 7.2. However, briefly summarized, it was deemed that despite these potential concerns, concurrent verbalization was still the best choice of methodology given the scope and resources of this particular study.

### 4.3 Selection of participants

Looking at the research question and related premises there were several things that had to be distinguished between in each respondent. The primary factor was self-evident, namely if the respondent is to be classified as a professional concept artist or as an audience member, making this an essential selection criterion due to the research question.

The respondents were thusly divided into two categories; concept artists and audience. The intention being to observe trends and differences between the groups, for a comparison study that could indicate whether the Designer-User gap held any merit as tool for understanding discrepancies between the groups.

The definition for a professional concept artist in this study was set as someone who currently has a paid position where one of the chief responsibilities is the creation of concept art and visual development. While the other group could be defined as anyone excluded from the specified group, an additional set of criteria were added to ensure the groups remained distinct. To classify as a member of the target audience population, a respondent could not be enrolled in, or having completed a graphics education. Neither could they previously have held a position which matches that of a concept artist, nor having worked closely alongside one on a professional project, which excludes professional developers overall.

Additionally, any audience member needs to have more than a passing video game familiarity, and as such be chosen from individuals who consider video games part of their routine media habits. This to make the study more viable in terms of evaluating whether there might exist a gap between concept designers and their target audiences similar to the gap between designers and intended end users. This target audience will almost exclusively consist of individual with media habits that would make them purchase and play video games, as somewhat tautologically the target audience for video games can be presumed to be individuals who routinely play video games. This will generally mean a roughly equal divide between men and women, in the age bracket 18-30 (Entertainment Software Association, 2015).

To match these conditions, the selection was done via a purposeful, nonprobability sampling, as defined in *Qualitative Research & Evaluation* (Patton, 2015) to enable specifically covering
the necessary criteria for both groups. Additionally, the study required physical presence at an appropriate location. Combined with the stringent conditions of having one group contain exclusively professional concept designers, this meant as near a complete target population sampling for that group as possible, barring availability issues. This severely limits the number of respondents for both groups, as the sensible approach is to have them evenly matched. As Patton states regarding total population sampling, “[s]ometimes even a small number is everyone” (2015, p. 285). There are, as of writing this study, roughly half a dozen individuals that could be categorized as professional concept artists in Skövde, where the study took place. Taking into further account the fact that game developers overall tend to be heavily scheduled, accessibility to the total population size was not guaranteed during the time window in which the study was scheduled to take place. Although steps were taken and plans were made to ensure that a majority should be available, contacting and scheduling most way ahead of time, there were still some unavoidable cancellations and nonresponses.

### 4.4 Material and considerations

To answer the research question, a design was developed for an imagined game project. It was designed with a specified target audience, narrative genre, mechanical genre and intended player dynamics in mind, which was unknown to the respondents. Initially a set of images were intended to be used to represent multiple genres, so as to avoid peculiarities should someone be intimately familiar with any one specific genre, thus skewing the results. However, as the study was targeted at experienced designers and players, genre familiarity with any mainstay genre could be expected. Having multiple images also introduced issues of carry-over bias depending on the order of the presented images, which might be catastrophic to the results given the small population size of the study, due to the total population available fitting the criteria for the study.

The risk of using illustrations directly from existing intellectual properties and products would be that prior familiarity with the franchise might influence the answers, whereas within the confines of the study, the genre is of higher interest.

Other concerns were non-verbal respondents, always a considerable risk when using concurrent verbalization. This was especially true due to the nature of this particular study, which required spontaneous answers that could have been greatly affected if answers require prompting or coaxing. At the very least this meant that potentially unusable interviews needed to be accounted for in the planning. The most significant risk here was if it were to happen in the concept designer population, as that would void one of the very few available members of that population. However, as one of the core responsibilities as a concept artist is to vocalise and explain design processes, either to colleagues or directors, the risk of this occurring was deemed insignificant.

There was also the overall difficulty of prompting spontaneous responses without either colouring the response itself by making the respondents feel as if they are being evaluated. This could have made them prone to answer in ways they believed would satisfy the interviewer rather than providing their own individual perspective. So an additional necessity was to inform participants that they are not the ones being evaluated, but rather that the images or designs presented, without affecting their responses during the interview session. However, this is common practice in usability testing (Nielsen, 2012), and as such strategies
for that could be co-opted from their implementation of the method, suggested in *the Think Aloud Method* (van Someren, et al., 1994).

Accessing the type of immediate response that affordance signifiers require was deemed the most likely main challenge of the entire study, which necessitated a pilot study.

### 4.5 Ethical concerns and research ethics

Important ethical considerations for any qualitative study is to make certain that each respondent is aware of what participation entails (Østbye, et al., 2003, p. 104). No individual were ever to be uniquely identifiable. Instead referred to anonymously, identified at most by which of the selection groups. Quotes are used when referring to specific responses during the sessions, but only under the previously outlined guidelines. With respondent permission, and as mentioned previously, each interview session was digitally recorded, but neither recordings nor notes are intended to be made available to anyone except the researcher. Instead they acted as supplementary documentation when reviewing the results of the study.

Two concerns arose from the total population sampling combined with the small sample size. Firstly, that the concept artist population could be identifiable assuming a total population is available for the study, as each uniquely identifiable individual would potentially be included, which dictates some restrictions in how the information is presented in latter parts of the thesis. As such, age band and sex, as well as other potential information that could aid in identification have been consciously omitted.

Not receiving permission for recording the sessions could have introduced issues in having thorough documentation. This turned out to be a non-issue however. Even if it had occurred, it could have been easily circumvented by manual note-taking, which was the planned backup method.

There were, as specified by the research ethics council Codex (1990), four main requirements to take into account when performing the study; information, consent, confidentiality and usage.

The information requirement states that respondents needed to be informed as to the purpose of the research. There were relatively few concerns as far as participation goes, as no personal information or otherwise sensitive subjects are broached by the questions aside from media habits and cultural familiarity and no one is to be identified in the published material. As such, while the exact research question was not stated beforehand, respondents were informed in broad strokes of the area of research.

The consent requirement in turn states that proof of consent needs to be acquired from all participants and respondents, as well as being informed of their right to, at any time, discontinue their involvement in the interview. As the study had a small group of respondents to be interviewed, none of which are minors, this posed no hindrance and was managed at the same time as the information of the study was provided, before the start of the session.

The confidentiality requirement entails that any sensitive personal information regarding the respondents be managed under non-disclosure by research staff and no personally identifiable information is to be practically acquirable by any outside party. Seeing as there was only one researcher on this study, no internal agreement needed to be signed or created. The ethical guidelines further states that no information be shared or recorded in such a way as to enable
identification, meaning that both digital records and research notes should not include by an outside party decipherable notations of identity. A manageable task seeing as the respondent group is to be a select few individuals and all interviews managed by the same researcher, meaning that notes could easily be codified in such a way as to obfuscate respondent identity from any outside party.

Finally, the usage requirement imposes restrictions on that collected data is not to be used for commercial or non-scientific purposes; nor in any way that directly affects decisions or measures taken that could affect any participating individual (Codex, 1990). While the study relates to entertainment media, it has neither the potential to function as a market survey nor to create commercially viable data as such. It is meant to act, from an academic standpoint, as introductory research on the effects of ecological psychology and cultural familiarity on visual communication through concept design. So while the finalized research might optimally be helpful in further studies of concept art, it is the belief of the thesis author that none of the collected data in itself would be of interest to an outside party in a non-academic context.

4.6 Procedure

The procedure for the sessions was devised in such a way that, upon arrival, respondents were greeted and presented with all the necessary information on what participation entails, as well as their rights to at any point cancel their participation. Then further made aware of the purpose of the study in a detail level that enabled an informed decision on whether or not they wished to participate to begin with, without comprising the goal of the study. Lastly, they were informed on how the information gathered was to be managed and that the sessions were to be digitally recorded, assuming consent was given.

The core of the session was planned as concurrent verbalisation, where the respondents were to be given a brief context for the created design, specifying it as a video game character in a fictional modern title, after which they would be presented with the design itself and asked to vocalize their immediate thoughts and impressions during a short session. There would be no direct interaction possible, as compared to usability testing. In-depth image analysis would also be pointless given the research question, this was meant to enable a brief session after which respondents could be thanked for their participation and asked again if the session data could be used for the purposes of the study. Finally, the collected data and recordings were planned to be reviewed and compiled and the usability of the particular interview decided based on the propensity of the respondent for verbalisation.

As it turned out, there were no issues with non-verbal respondents in either group, and as such the full set of collected protocols have been used in the study.
5 Implementation

When creating the artefact for the study, several concerns needed to be taken into account both in choosing implementation, performing research and creating the actual design.

This chapter is intended to cover these aspects and detail the workflow behind the creation of the artefact in and clarify the considerations made during the design process and finalization of the artefact.

5.1 Research and reasoning behind the artefact

At the heart of the design process lies research and deciding on design pillars for the project or piece in question. There are a number of baseline considerations to be made, based on the specifications of the project, which instead of being client specified in this case were based on the methodology and research question.

Primarily, the setting of the design needed to be based on current trends and cultural zeitgeist within video game development, so as to ensure that a majority of both target audience and concept artists had more than a passing familiarity with the setting and conventions of the genre, while simultaneously not exactly mimicking any existing intellectual property and thus creating unintended carry-over effects.

Arguably, the premiere setting for video games and entertainment media currently is the modern dystopian and post-apocalypse genres. Especially with *Fallout 4* (Bethesda Game Studios, 2015) being the highest grossing entertainment launch of 2015 according to Fortune magazine (Gaudiosi, 2015), selling over 12 million copies during the first 24 hours on launch day. More recently dystopian *Tom Clancy’s The Division* (Ubisoft Massive, 2016) premiered as the most successful new intellectual property launch, as well a publisher Ubisoft’s highest grossing title of all time (Dornbush, 2016). In cinema George Millers *Mad Max: Fury Road* (2015) received the most Academy Awards of any film that year (Internet Movie Database, 2015) and grossing a worldwide of $377 million. Finally, the Mad Max license game (Avalance Studios, 2015) has sold in excess of a million copies (VGChartz, 2016).

It is safe to say then that it is currently a genre with a lot of presence in contemporary culture, as well as having several older titles to draw inspiration from, such as id Software’s *Rage* (2011), inXile Entertainment’s *Wasteland 2* (2014) and Gearbox Software’s Borderland series (2009; 2012; 2014) as well as previous Fallout series instalments, most notably *Fallout 3* (Bethesda Game Studios, 2008) and *Fallout: New Vegas* (Obsidian Entertainment, 2010).

A number of crucial designs and key narrative moments from these titles will be brought up during the discussion, so readers still intending to experience these titles should consider this fair warning.

Having settled on genre for the setting, mechanical genre for the game had if not an equal then at the very least considerable impact on design. All the games listed are either first person or third person games, which is a reasonable constraint to put on the design as those are also the primary modern genres in current video game design, outside of mobile development. This decision mainly affects the detail intensity and placement on the character design, as it needs to be optimized for camera placement while providing maximum visual fidelity and aesthetic quality. Interestingly, as many of the games listed are role-playing games with what is known
as equippable items, there is some overlap between non-player character design and player character design in many of the titles. Bearing in mind that the game camera would either completely ignore the player character as in a first person game, or show only the back piece in a third person game, the most sensible option would be to do a humanistic antagonist design, as those are the most prevalent types of characters in all of the above titles that are still encountered front-facing in both genres.

The second step of the design process is to collect reference and assess the design language and signifiers used by these other contemporary titles in their antagonist design, from which the design planned for the artefact could be better contextualized according to genre familiarity, conventions and expectations.

A mainstay of the post-apocalyptic genre is a scavenged scrounger aesthetic, informing the players of a world where resource scarcity necessitates inventive appropriation of any potential resource to mitigate this scarcity. This means both weaponry, armour and clothing contain many otherwise mundane and familiar objects with new and imaginative uses, as displayed in the concepts presented in Figure 1 and Figure 2 below.

![Figure 1: Fallout 4 Raider designs, showcasing appropriated scrap as armour and weaponry (Bethesda Game Studios, 2015). Full-scale version available in Appendix A – Images in the text.](image)

The scrounger aesthetic in Figure 1 and Figure 2 is further reinforced by a sharp and haphazard silhouette and varied materials over a cohesive or uniform aesthetic. Objects that signify a hostile environment are also present in abundance, with variations of gas masks being the most prevalent. Aside from that, numerous everyday objects are present in the designs, with everything from tools, clothing and construction materials used to create the full costume.
Another staple of the post-apocalyptic aesthetic is various tribal affectations such as war paint and scarification combined with the previously mentioned scrapyard designs, as showcased by the antagonist designs from Rage (id Software, 2011) in Figure 3 below.

Antagonist design in Mad Max: Fury Road (2015) and Mad Max (Avalance Studios, 2015) designs in Figure 4 below also bear a striking resemblance to this scrapyard tribal aesthetic, with distinct ritual scarring and war paint.

The arguable main character of Mad Max: Fury Road (2015) Imperator Furiosa shares this same war paint, which is unsurprising given that she initially belongs to the same faction.
Interestingly, as her journey towards established protagonist progresses, the war paint gradually wears off. Not surprising given the strain and tear the character is under, but equally important as a thematic device.

*Figure 5: Antagonist gone protagonist Imperator Furiosa from Mad Max: Fury Road (2015). Full-scale version available in Appendix A – Images in the text.*

An element of dehumanization exists within the genre as well, best encapsulated both by the skeletal war paints and gas masks already presented, but also through means of masks that distort or cover facial expressions, as in *Figure 6* and *Figure 7* below. Much the same as Imperator Furiosa, Max Rockatansky in *Figure 6* loses the mask at a pivotal moment during the narrative, once he too is established as a protagonist.

*Figure 6: The titular antihero Mad Max, in Mad Max: Fury Road (2015), with a dehumanizing facial mask. Full-scale version available in Appendix A – Images in the text.*

The mask worn by the main antagonist is far more of a fixture of the character, so intrinsically linked with him that its forcible removal even results in the demise of the character.

*Figure 7: Mad Max: Fury Road (2015) main antagonist Immortal [sic] Joe, with a combined skeletal facial mask and gas mask. Full-scale version available in Appendix A – Images in the text.*
Aside from equipment and external affectations, outright physical abnormality and mutation are used as an additional dehumanising visual factor, as in the mutants from Rage (id Software, 2011) in Figure 8 below.

![Figure 8: Mutated antagonists with multiple physical abnormalities and scavenged gear in Rage (id Software, 2011). Full-scale version available in Appendix A – Images in the text.](image)

Even the more contemporary setting of Tom Clancy’s The Division (Ubisoft Massive, 2016) feature many similar design elements, with scavenged or multipurpose gear, tribal markings and dehumanising masks.

![Figure 9: The enemy factions of Tom Clancy’s The Division (Ubisoft Massive, 2016), sharing multiple design elements with the other titles. Full-scale version available in Appendix A – Images in the text.](image)

As such, there were a number of design pillars and tenets to follow when devising the signifiers for the design meant for the study. Specifically, the character ought to be humanoid but dehumanised, featuring scavenged gear which reflected the resource scarce and pragmatic state of the post-apocalyptic world, and tribal affectations showcasing society regressing to earlier stages of cultural development and possibly dehumanising mutations indicating the manner and nature of the apocalyptic event, such as radioactivity from nuclear war as in Fallout 4 (Bethesda Game Studios, 2015), Mad Max: Fury Road (2015) and Rage (id Software, 2011). Equally importantly is to find some distinguishing features to separate the character from the designs in these games while still retaining these contemporary design pillars, another important responsibility of any concept artist, oft repeated by industry veterans such as Feng Zhu (2015; 2016a; 2016b), Mark Brunet (2014) and Kienan Lafferty (2015).
Taking these pillars into account, a traditional set of additional design decisions needed to be made regarding the function of the character in-game, such as mechanical abilities, difficulty and type. For this design, the chosen ludic purpose of the character is to act as a boss, albeit not the main antagonist, meaning a nemesis of sorts to the player character who poses a significant in-game challenge even on their own (in typical video game convention often faced in a set piece environment or scenario, possibly even a specific arena). The keywords for the design are to be based around a berserker trope, emphasising mobility, punishment and aggression.

5.2 Workflow, progression and creation process

When creating the design, the first step was to establish the primary components of the read, created using a thumbnail sketch approach. Even at this early stage, the basic design pillars and affordance signifiers to be present in the image were considered. All of the stages of the design, showcased in this and other sections, has been created using Adobe Photoshop Creative Cloud (Adobe Systems, 2015), a digital raster graphics editor, which is the mainstay pixel-based image editing and painting tool for the concept artist community. When discussing the design during this chapter, the design decisions made are to be read as the intended goals of the design.

![Figure 10: Initial thumbnail sketch for created design, showing rough indications of layout and composition. Full-scale version available in Appendix A – Images in the text.](image)

The basis for the design consists of both a character design and a situation that provides additional context for the read. Drawing inspiration from one of the latter scenes in Mad Max: Fury Road (2015), the context is a late night chase, which provides both ecological and cultural affordance signifiers. The intended immediate read of the design is thusly twofold.

The ecological signifiers are among other things the shape language, materials, light and environment contained in the design, corresponding to the primary components of ecological affordance signifiers, giving access to information regarding surfaces, materials and what is afforded by them, as established by Gibson (1986). In the case of this particular design, the shape language was set up to indicate hard and sharp forms, signalling danger and possible harm (or even impalement). The pose of the antagonist crouched, aggressive, and ready to spring, akin to a stalking or hunting predator, in order to reinforce the sense of imminent danger. It was also chosen in order to emphasise the previously mentioned dehumanisation of post-apocalyptic antagonists, giving a more feral and animalistic impression, along the
reflective eyes indicative of a feline or canine predator. The night-time setting is another design decision made to create unease, drawing upon natural human aversion towards night, due to the presence of unseen environmental hazards as well as nocturnal predators which we are biologically ill-equipped to detect.

The cultural signifiers on the other hand have just as important a part to play in establishing the read. Situating the character on the outside of the car pays homage to a number of post-apocalyptic films, most significantly Mad Max: Fury Road (2015) as well as the movies in the series preceding it. Additionally, it is meant to establish the character as crazed or risk-taking, simply by virtue of contrasting this choice to how most individuals would chose to ride a car. Most of the cultural signifiers are somewhat more detail based than their ecological counterparts however, and appear more clearly in the later stages of the design process.

![Figure 11: Clearer concept art of the design, with additional detailing, closer to a finished concept sketch. Full-scale version available in Appendix A – Images in the text.](image)

A number of additions have been made and details clarified at this design stage. The car has been given a number of indicators of the state of the world which the character inhabits, based both on media and real-life cultural affordance signifiers. The presence of a car in the setting cements a fairly clear time-frame. Additionally, the truck is heavily armoured in a way that suggests a hostile environment, as well as tying it to the post-apocalyptic cars of Rage (id Software, 2011), Mad Max (Avalance Studios, 2015) and Mad Max: Fury Road (2015), with an added motor intake similar to those on muscle cars, indicating the capability of extreme velocity. A clear rage-filled facial expression with bared teeth has also been added as an additional ecological affordance signifier of the intent and attitude of the character in question.

As a final indicator, should there be any doubts as to the attitude of the character, a set of grisly trophies have been mounted on the hood of the car, acting as both an ecological affordance signifier of danger, as well as a cultural signifier of antagonist status (as few protagonists collect skulls for some reason).

Initially, the sex of the character was considered to have a more significant impact on the design and the original intention was to move away from the typical trend of male antagonists in post-apocalyptic fiction. Upon further consideration and testing the design read on multiple individuals, gender was either not considered or misread. Presumably due to the lighting conditions of the scene, as well as the androgynous look of the character. It was decided that, since sex was of no particular impact as a design read or part of the design specification, no signifiers would be added to indicate either sex in the design. As such, that part of the read was considered insignificant and attaching gendered signifiers was deemed unnecessary.
While there are clear associations to gender and sex, which can be both used and misused in designing characters and in doing gender representation, there is as much of a potential statement in not attaching gendered signifiers to a character. Sex and gender is additionally a complex and sensitive subject that needs to be treated with care and consideration, but is currently outside the scope of the study. As such, from the point of view of the designer, the character is intended to be female, drawing inspiration from Imperator Furiosa (Mad Max: Fury Road, 2015). As a design element, it was of secondary importance, and adding traditionally female gendered signifiers would have detracted from the intended character, and sex was deemed not to be an important visual read, as the character was not intended to be in any way defined by sex or associated gender.

*Figure 12: Clarified design with a few subtle additional signifiers, functionally readable as a concept. Full-scale version available in Appendix A – Images in the text.*

While the artwork could be polished additionally, all design elements necessary for an immediate read are present at this stage. Should there have been time before the study was conducted, additional refinement could have been added, although that would mainly be for presentation purposes as concept art is traditionally fairly rough and meant to convey the design more so than act as a finalized illustration (Zhu, 2016b). A few final touches were added to convey subtle but additional information, such as the tattered cloth giving an additional signifier to the decrepit state of the post-apocalyptic world, as well as an ecological signifier to the speed at which they are moving. Some taut muscles were also more clearly defined, to signify the strength, speed and prowess of the character.

The intended read of the image, summarized, is as follows. The character is a melee focused antagonist, tribal, feral and dangerous up close. Highly mobile both personally and on the vehicle, a predatory head-hunter (possibly even cannibalistic given the grisly paraphernalia). The scavenged and worn gear, and equally beat up armoured car indicate a post-apocalyptic present or future, with signifiers tied to most modern post-apocalyptic fiction, most notably *Mad Max: Fury Road* (2015) and *Rage* (id Software, 2011) as well as *Fallout 3* (Bethesda Game Studios, 2008) and *Fallout 4* (Bethesda Game Studios, 2015). The high beams of the car are intended to facilitate late night hunting of enemies or of prey, either of which could end up being the protagonist. The armour of the character is spiky, damaging others on contact and meant to convey that it is from a ludic mechanic perspective safest to keep your distance, with a dominant, aggressive and predatory posing and expression alongside the tribal affectations, meant to signify a pack or tribal leader, to clue the audience in on it being a boss level antagonist.
6 Evaluation

This chapter covers the pilot study through the actual study as well as analysis and conclusions of the study itself. In order to avoid undue flipping of pages, the research question will be repeated here alongside a brief summary of the methodology. The research question being stated as follows:

*Does the Designer-User gap exist and function in a similar way in concept art as it does in design, and if so, how does it affect the unmediated read of the design?*

The research question was studied through a method of concurrent verbalisation (van Someren, et al., 1994) where a single individual matching either the concept artist or audience label was shown the design and asked to spontaneously vocalise their immediate thoughts in an effort to understand their unmediated read of the design.

6.1 Pilot Study

The pilot study could by necessity only be performed on the player demographic subset of respondents. Due to working with a near enough total population selection on the concept artist side, any of them present in the pilot study would entail a statistically significantly diminished number present for the final study, seeing as the total population available for the study from that subset of respondents are roughly half-a-dozen, assuming everyone could be present for the study, which as suspected turned out not to be the case.

A pair of participants, one male and one female, both in the age bracket of 18-30, matching the criteria for the audience group were tested with a preliminary version of the study. Aside from performing the pilot study only on those matching the criteria for one respondent group, the pilot study was carried out with the exact same parameters as the final study, so as to best evaluate the methodology.

6.1.1 Evaluation of Pilot Study

The transition from the initially planned qualitative interview to a concurrent verbalization method was quickly confirmed as the correct choice, as there were no indications of a problem for this respondent group to vocalize their impressions given a sufficiently clear initial prompt of how the session was intended to work. An encouraging result, given that this was considered the risk group of the study, due to presumed lack of vocalisation habit regarding design when compared to the concept artist group.

When given lacking or sparse instructions, further prompting during the session was required, which spoiled the results of those sessions somewhat, but as far as issues go, that one is fairly easily avoided by proper preparation and priming during the initial explanation phase. Sufficiently explained, the think aloud method seemed fairly natural for all respondents, specifically when given affirmative non-verbal cues indicating attentiveness on the part of the interviewer. Initially, it was presumed that as the method itself is about as unstructured as they come from a formal point of view, it would be necessary to set up some boilerplate prompts should the session stall.

However, the most important find of the pilot study was that the timeframe for an immediate read is just that: immediate. So the most crucial information relating to this was caught during
the initial minute or two of the session, after which the respondents clearly went into an analytical mode, dissecting details and themes, which while interesting is outside the scope of the study. Additionally, any supplementary prompting from the interviewer almost always proved to have a guiding influence on replies, pushing the respondent into an analytical mode even earlier. As such, the initial and spontaneous non-prompted reactions proved to be the most informative, any interruption of those needed to be mitigated by being clearly present, attentive and avoiding dissuading non-verbal cues during the session.

As such, the inevitable stalling during initial impressions turned out to be a helpful indicator rather than a hindrance, as it gave a clear signal of when the respondent switched gears from unmediated heuristics to analysis. So questions or prompts for continuing past such a stall actually turned out to be superfluous in the context of the study. If anything, the pilot study concluded that the initial unprompted vocalization contained more than enough information to establish the primary and immediate read of the image, whereas answers relayed after any type of questions or further prompts took on a significantly more analytical nature, switching between attempting to dissect the image based on detail or attempting to discern motive or desired replies from the interviewer, something which the initial vocalisation lacked.

The conclusion from the pilot study was thusly to focus on attentiveness, avoiding interruption of the natural flow of the initial and immediate vocalisation as well as providing non-verbal cues that indicate said attentiveness so as to create a pleasant and open environment in which to vocalise spontaneous thoughts and not fall prey to natural insecurities or overthinking. The study was thusly adjusted to focus on providing all the clarifications about the concurrent vocalisation format, as well as any supplemental information, before performing the actual study, erring on the side of caution with regards to explanation. No additional prompting about the image or design itself were added however, in order to preserve an unspoiled first impression, instead only explaining the procedure of the concurrent vocalisation method and what was expected of the respondent in a reaffirming manner.

### 6.2 The Study

Studies were all performed within reasonably close proximity to each other. All sessions were recorded, and all material was consented for use during the study. After the session, a brief review and discussion of the study was performed with each respondent, as recommended in concurrent verbalization proceedings (van Someren, et al., 1994)

There were 4 participants in each group, for a total of 8 respondents, based on the total population selection criteria for available concept artists, with a mirrored size for the comparison group. Ideally a larger set of individuals would be included in the study but limitations due to location, time frame and level of specialization required as close as a total population selection a possible, which arguably justifies the setup, especially given the scope of this particular study. Some individuals from the total population selection of local concept artist were unable to participate, which had been accounted for in planning and as such a viable enough sample size for this type of exploratory study was still achieved, at least from the standpoint of the set goals for the study. Put simply, concept artists are busy people, but most still managed to appear and participate. However, it did end up skewing sex balance somewhat due to said cancellations, as this removed two female respondents from consideration where there were no female replacement respondents to be had. Which in turn lead to an unfortunate discrepancy in sex representation where initial plans were to have a
completely even representation in the study. Due to the specific selection criteria as well as limited timeframe in which to conduct the study, stating that a distinctly limited number of respondents fitting the criteria for the concept artist group exist locally, this was not something that could be easily mitigated or rectified for this particular study. Fortunately, no inherent gender or sex disparities were observed in respondent answers, indicating that this somewhat skewed distribution had minimal effect on replies at a statistical level. Instead, main divergences were on group affiliation.

When a respondent arrived, we went through an introductory phase where all the necessary information on the study, consent and recording were covered. After which, the respondent was informed that they would be shown an image of a design for a fictional game on a nearby screen. Finally, they were instructed in how the concurrent verbalisation was to function, and instructed to vocalize their immediate thoughts on the image.

As the design was shown, the active concurrent verbalisation portion of the sessions lasted for roughly two minutes on average before additional prompting was required. There were no significant outliers, as no single session clocked in under one minute, nor over three during the initial verbalisation phase. This initial phase was intended to cover the unmediated design read, although all participants were given nonspecific prompts in order to continue verbalisation for a few more minutes in order to ascertain that no relevant data was missed or overlooked.

Once there were to be no additional thoughts or reaction, the think aloud phase of the session was over and recordings were stopped. All respondents were given an explanation to the full extent of the study and research question, and again asked if the data collected could be used in studying said question. In all cases, consent both to record the sessions as well as use the recorded material for the study was given.

### 6.3 Analysis

Study progressed as hoped, individual variations as well as group variations present. Similarities also present, all of which contribute or modify the result, which naturally lends itself to interpretation, which we’ll get to shortly. Seeing as the method yields little quantifiable data, no graphs or such summaries are included from the study as they would not serve to elucidate the research question further. Anonymous transcribed excerpts will be present throughout the analysis where appropriate, to clarify certain points or conclusions. The main trends and findings will be discussed in-depth in the next section, where they will be properly analysed. Nevertheless, they will also be briefly presented and summarized here for ease of use, without any particular judgements on possible significance.

There were a set of universal similarities between all participants, some significant trends as well as a number of noteworthy discrepancies, both individually and between the comparison groups, as well as a final interesting caveat.

Universally, all respondents recognized the design to be inspired by the post-apocalyptic vision of the Mad Max franchise almost immediately and also correctly identified genre. This informed the read further with several associations as to environment and state of the fictional world, as well as the characters place within it. Additionally, the aggressiveness of the character was a consistent component of the immediate read based on posing, expression and to a smaller extent shape language.
A few significant trends were that the player group read progressed from general to specific, both in terms of design intent as well as focus, with detailing or subtler nuance being the final fragment of the immediate read, if present at all. Whereas in the concept artist group a more detail-oriented focus materialized nearly instantaneously, picking up on individual signifiers or minutiae, as well as technical considerations such as method of painting or purpose of the picture itself. Players rapidly contextualized the character within the setting, or in relation to the presumed function as part of their immediate read, whereas this was somewhat delayed in the concept artist group, with one significant exception which is discussed in the analysis below.

Finally, an interesting facet emerged, where a majority of all respondents gave voice to uncertainty regarding the character as a protagonist or antagonist due to specific genre conventions within the post-apocalyptic genre.

6.3.1 Analysing the data

Once data had been collected and all sessions were completed, the recordings were reviewed multiple times in order to analyse respondent reads based on recognisability and prioritization of signifiers. In order to facilitate this, the protocols were transcribed so they could be easily reviewed and compared, and sections of the protocol marked according to which signifiers were read during that part of the session, mainly to establish patterns and trends. As such, each specific read was given its own section in the notes.

After this was done, the protocols were compared side by side and research notes were made in order to organize the thoughts and possible conclusions that reviewing qualitative material lends itself to. They were categorized based on their interpretation of the design, attempting to find patterns which could be used to discern their unmediated read and which signifiers were given weight to and recognized on an individual basis. This laid the foundation for the analysis itself, creating a rough initial matrix of priorities, reactions and spontaneous thoughts.

As a revision, the transcripts were later reviewed once more so important sections of the transcript that clearly showcased certain significant facets of the reads were highlighted, so they could be made into excerpts for the analysis. The excerpts are not presented verbatim, since the sessions were conducted in Swedish. However, a close approximation or description will have been made when presenting them, especially to convey the spirit of the statement. None of the excerpts will for this reason be presented as quotes, due to the possibility that even a direct translation might lose significant nuance or meaning. As such, all translations, even direct ones, will be considered paraphrase, in line with the standards set forth by the American Psychological Association (2014).

Based on the findings and trends observed in the protocols, the following analysis was written.

6.3.2 The initial read

As mentioned above, there were some universal similarities between all participants. Specifically, the spontaneous initial reaction from almost all respondents was to announce that their first thought was the Mad Max franchise and connected setting, manifesting in this case as the two latest entries in the franchise, Mad Max: Fury Road (2015) and Mad Max (Avalance Studios, 2015). This indicates that the cultural familiarity intended and presumed during the artefact creation turned out to be valid due to the shared cultural background of all
participants as media consumers and creators, as well as the franchise presence in modern media discourse. This was clearly shown by reactions from individuals in both groups, with variations on statements such as that Mad Max was their first thought, or that they directly thought of Mad Max. Only a single player did not comment on the association until later, instead favouring characteristics and gameplay function, claiming that the character looked like a ferocious berserker class character.

This basic cultural literacy meant that everyone was by association familiar with common genre conventions, but could also be seen as indicating that the immediate read prioritized cultural affordance signifiers. Sensible enough, given that participants were informed beforehand that they were viewing a design from an imagined game and as such contextualized it as related to a cultural product. This in turn indicating that read order is, perhaps unsurprisingly, based on presuppositions and expectation, much the same as ecological context such as environment or situation prioritizes affordance read in ecological cognition (Gibson, 1986). Some went on to then identify the genre as post-apocalypse from association with the Mad Max franchise, with two of the players and one concept artist stating the genre as the follow-up sentence to their initial read of the design as Mad Max-inspired.

Similarly, all participants had a number of linked associations due to the primary cultural read linking the design to a Mad Max-style post-apocalyptic setting, even if they did not identify it as such. This link occurred at varying times during the individual session however. One player vocally claimed the world seemed futuristic but low tech, which they saw as a clear indication of the genre. Another instead focused on the environment, mentioning sandstorms and radioactivity as the main associations. All of the concept artists linked the genre with the design inspiration more so than any individual signifier. Environment and level of technology, were in all cases assumed to match the famous franchise, since no discernible discrepancies were present to contradict this read or allude to anything else. This had been a deliberate design decision in order to focus on the character and scenario, as well as utilize the assumed genre familiarity. One divergence was when some minor details on the face and jaw guard where initially misread by one respondent, giving the character the look of having elongated ears and canines, which brought up fantasy influences such as orcs and vampires. However, as they examined the image closer, they realized their mistake and as such altered their read, shifting their mental model to match the new observation. Which could be argued serves as an indication of the delicateness of the read, as even minutiae in the image could prompt a significant shift in expectation and association.

This aside, the design was categorically presumed to exist in a similar type of setting environmentally and technologically, and the rest of the read was informed by said assumption, as mentioned above. Even the one divergence was rectified, since the respondent in question felt the need to closer examine the image, potentially due to this departure from the associated norm provided by the Mad Max franchise.

The association happened despite all participants being informed that the design was for an entirely fictitious product and in no way related to an existing franchise or intellectual property. The closest cultural association still served as the starting point for the unmediated read. Generally, the gruesomely decorated car was if anything the strongest association, with three of the concept artist stating that as the key influence which brought Mad Max to mind, and a majority of respondents mentioning or commenting on it during some point of their respective sessions.
This matches common consensus within the concept design community, where familiarity to existing media trends, tropes and conventions and similar media products are valued as a method of providing subconscious reference frames and expectations in the audience, as discussed by Feng Zhu (2015), and was a prevalent trend in both groups of participants.

Having this deliberate design decision, intended to elicit exactly this type of familiarity, be unconditionally validated is a distinctly positive outcome. Albeit probably influenced by the necessarily small respondent selection, complete unfamiliarity with said intellectual property would have been surprising given that the selection criteria were either core gamers, which in this case means men and women between the ages of 18-35 with regular gaming habits, or industry professionals, for which cultural familiarity with modern media products is if not required then at the very least presumed.

That the association to an existing franchise turned out to be the first thought vocalized by all except one respondents was unsurprising. Seeing as it might have seemed a safe starting point for everyone, unaffected by verbalization skills as it is a distinctly non-controversial statement, acting like a warm-up, which is a common phenomenon in concurrent verbalization (van Someren, et al., 1994). Almost all respondents used a phrasing stating that it was their first or immediate thought, which is a decidedly non-controversial way of making an opening statement.

Aside from that initial reaction, secondary reads were almost universally ecological, focusing on pose, position and attitude, with aggressiveness as the primary concern. Only one of the player respondents voiced this as their first impression, and all other player respondents directly after commenting on the association to the Mad Max franchise. Which is also sensible given the evolutionary propensity to make snap judgements regarding the mental state and attitude of other human beings as a safeguard against attack or aggression, or to otherwise ascertain the possibility space of the ecological interaction (Gibson, 1986). It is also an indication of the first distinct and comparable divergence between the respondent groups, and could potentially also note a more gameplay focused pragmatic read in their assumed role as habitual players which we’ll discuss shortly.

6.3.3 Notable divergences

An important discrepancy between groups emerged past this initial point, which covered between ten and twenty seconds of time, which was tendency for a detail focused pass during the unmediated read for the concept artists, whereas players instead established mechanical function or intent in lieu of focusing on the properties of the image or minutiae of the design. The concept artist set of respondents thus tended towards an analytical read far quicker, moving into image interpretation unprompted, occasionally immediately after establishing cultural context and setting conventions. One specifically brought up the fact that the design seemed to be finished to a higher degree of rendering than a traditional concept art piece, leading to an association with role playing game illustrations for books. Thus on of the primary reads were on the technical rendering level of the piece itself, and what that informed the artist about the purpose of the image. The same artist also focused on the composition and lighting, which informed thoughts on time of day and environment before moving on to dissect design elements such as the skulls and their importance to the role of the character in the setting. The same analysis was performed by a second concept artist, although with pose and silhouette design as an additional point of scrutiny. A third concept artists first noted whether the character should be considered as a protagonist or antagonist based on the aggression shown...
in the pose design compared to the prevalence of antiheroes in post-apocalyptic fiction, and a fourth on facial construction and attitude after analysing the composition, based on camera angle and silhouette.

As such, their first intuition was to dissect design, composition and technique, and from there ascertain or establish function more for the piece than the design contained therein. Which seems likely to be an established habit, akin to the knowledge, skill and investment criteria proposed in the Designer-User gap (Nielsen, 2008). Their cognitive model for reading images seemed to have a (either consciously or emergent) cultivated heuristic (defined here as a pragmatic but often imperfect method of discovery or problem solving) in which dissecting design, technique and execution replaced or superseded other considerations. Aside from the initial reaction to the first order cultural and ecological affordance signifiers, such as cultural context through setting as well as attitude and pose, technique was a primary concern. Comparatively, players seemed instead to contextualize the character in relation to their own role as players and whether they viewed the character as a potential avatar or opponent.

The player subset as such had a tendency to evaluate gameplay function earlier than concept artists, contextualizing the assumed role of the character as a berserker archetype, all of them claiming it seemed to be a melee enemy and two further specifying it seemed to use the vehicle to close the distance or charge at the player.

They additionally vocalized further possible gameplay interactions or abilities that more directly relate to their perspective of games as a player before considering the background or detailing of the character, or examining the overall piece of art more closely. All of the players brought up the aggressive attitude. As mentioned, three of them identified it as a reaver or berserker type character, meaning a rage-fuelled melee combatant archetype widely present in games, and one attributed this to the seeming mental instability of the character.

This is worth comparing to the concept artists who instead focused on the scenario and painting itself almost immediately. Concept artists also had a tendency to perform an intention-based read, meaning that the intended purpose of the piece itself was evaluated as part of the unmediated read, with an additional tendency of assessing said purpose through the aforementioned focus on design, composition, technique and detailing. As mentioned previously, in one concept artist it even took the shape of reading what type of publication or material the image itself might appear in.

Especially as the character is not presented alone, but in the context of a scenario, this may have affected the focus of the concept artists, as the intention of a design is a determining factor in choice of presentation (Brunet, 2014). As such, this more intention-based read may be a distinct part of the image read heuristic of a professional concept artist, due to the prevalence of this mode of thinking when producing images.

These findings indicate that different mental models were applied by the individuals in the respondent groups, which is a core component of the Designer-User gap as put forth by Nielsen (2010), supporting the idea that an analogue exists within visual design. This means different image read heuristics, or alternatively as variant schemata, as proposed by Wilhelmson (2001). There was one crucial deviation however.

This fascinating divergence happened as one of the concept artists had very recently engaged with the *Mad Max* (Avalance Studios, 2015) game, playing it for a substantial amount of time
the days before the study, due to having some days off, unbeknownst to the interviewer. This recent media experience meant that the respondent contextualized the design more as a player than as a designer. Thus sharing the same read pattern as the player subset of respondents, with image analysis taking place only after the first in-session prompting, which mimicked player behaviour and their internal read heuristic. The respondent in questions first reaction was to claim that it served as a reminder of Mad Max due to the gruesome trophies and armoured vehicle, alongside the spiked Armor. Additionally stating that it seemed like an enemy you would not want to tangle with or antagonize as a player. The respondent further claimed the fictional title was a game they could see themselves playing, identifying clearly as a potential player and the design as something they might encounter during a play session.

While not conclusive in itself, due to the by necessity limited scope of the study, it could be argued that this subconscious self-labelling affected interpretation of the design. In itself an interesting find, as it mimics the results in other cognitive studies, such as Enclothed Cognition (Hajo & Galinsky, 2012), which indicated that apparel given respondents before a study had a literal and measurable effect on psychological processes and problem solving heuristics. This might be a worthwhile avenue of further study, although it is simultaneously of great potential value in the context of this study as well. It also matches the statement by Nielsen that:

“Depending on how representative designers are of the target audience, a project might need more or less user testing. Still, usability concerns never go away completely.” (Nielsen, 2008)

Where this particular respondent was more representative of the target audience due to recent media habits (as while finding a video game concept artist without a gaming background is unlikely, the ones with time to immerse themselves in a game recently might be far fewer and farther between).

It might suggest that while there, according to this study, seems to exist an equivalent to the Designer-User gap in concept artists and their respective audience due to a mismatch in mental models (Nielsen, 2010), the divide or gap might not be as hard of a boundary as that between an interaction designer and a user, as it could be affected by recent habits.

6.3.4 Bridging the Designer-User Gap
Based on these indications, the concept artist with recent gaming opportunities might as such have made the leap across the gap easier. Assuming they have a context in which they can identify themselves as a player, and as such have an altered read heuristic or mental model compared to that applied in their professional role. Which while not necessarily helpful in examining their own designs, where they are closer to the proposed criteria of the Designer-User gap due to investment and knowledge (Nielsen, 2008), it might help them evaluate the concepts of their peers within the development group assuming they can encounter them in a properly prepared context. Clearly, the Designer-User gap is at its widest where the designer or artist responsible for the design attempts to evaluate it, whereas here it is artists unrelated to the design that attempt the evaluation. In this case, review by an external party seems almost mandatory to perform a proper evaluation, which is generally what is suggested in usability testing anyway (Nielsen, 2008). It could suggest a method for improving peer review of designs within a design team however, as well as providing guidelines for an eventual art director when directing the work of subordinate artists. Altering mental models would
presumably be easier when not directly involved in the design process, but it does serve to indicate how one might go about bridging the gap in video game visual development, especially for larger teams.

Furthermore, this might signal the importance of contextual encounters with novel designs, although it could also possibly be achieved through learned or intentional modification of state of mind, assuming such could be made in a way that affects the unmediated read. Speculation perhaps, but that is to be expected of an exploratory study, and is to be read not as a set conclusion of the study, but more so as a suggestion for an avenue of study for following studies performed in this particular part of the field. There is evidence to support this speculation however, as Nielsen (2010) himself notes that mental models are in a state of flux, and might be altered or revised on the fly based on for instance external stimuli or a number of other sources, of which projected role might well be a crucial factor. This goes in line with role theory in social psychology which theorizes that self-identification as well as externally applied identification has a substantial effect on behaviour, as covered in among others the works of social psychology founder George H. Mead (1934) or for more modern reading, the chapter by Ralph H. Turner (2001) on role theory in the *Handbook of Sociological Theory*. It does seem to suggest that conscious or subconscious role alteration could avoid or mitigate the issue. If that were the case, it could indicate Designer-User Gap is partially contextual and partially inherent. It might also provide clues as to the necessity for continued discussion within a development team to deconstruct bias and clarify an additional responsibility for the art director of the project.

Moving back to a discussion with substantially stronger foundations, it was observed, as mentioned previously, that concept artists had a tendency to initially overlook the basic tenets of the design and function in favour of a higher level read. This has two potentially overlapping explanations. Either their inherent knowledge of design is internalized to such a degree that they overlook it, favouring instead an inherent execution bias, or assumes it such an intrinsic component of the image that it needs not be commented on or reflected over. In either case, it matches the criteria for the User-Designer gap as defined by Nielsen (2008).

Another curious facet of how the design was read emerged, and occurred in both groups to equal extent, and even on occasion sparked think aloud reasoning in some participants. The issue in question was whether to read the character as an antagonist or anti-hero protagonist, specifically due to specific genre conventions. One of the concept artists went back and forth on whether it was intended as an aggressive hero or as an antagonist, while another specifically cited genre convention in noting that it could be both due to the prevalence of antiheroes in the genre. All players except one identified it as an enemy, whereas one was convinced that it would be the playable antihero character, but claimed to be uncertain as to the reason for this read.

The post-apocalyptic genre featuring a number of morally vague or outright villainous protagonist. Exemplified by the deranged, violent and selfish Max Rockatansky (the titular Mad Max after which the franchise is named). The arguably primary protagonist of the same film is Imperator Furiosa, previous right hand of the villain in Mad Max: Fury Road (2015). The playable characters of the Fallout franchise also bear mention, distinctly malleable by player input to act as everything from stoic ranger to crazed cannibal, or any number of options in between. The Division (Ubisoft Massive, 2016) has players acting as governmental sleeper agents. Essentially acting as vigilantes, violently pacifying rioting disaster survivors in a
quarantined mid-crisis Manhattan. Finally, the Borderlands series of games are played as opportunistic treasure hunters, with a character line-up consisting of everything from amoral gunslingers to the psychotic raiders that normally act as the one of the franchise’s main antagonist factions. This propensity to use villainous archetypes within the genre led to a variety of reactions regarding what to categorize the character as, so even the immediate read seems clearly influenced by genre convention and associated expectations.

6.4 Conclusions

What can we conclude from the study? Primarily, the study seems to indicate that the Designer-User gap could function as an analogue for understanding the differences between concept artists and the audience they design for.

As established, there are three key factors that create the gulf in the Designer-User gap, namely: knowledge, investment and skill. Interestingly, this is not a one-sided difference of competence that one side has and the other lacks, as might simplistically thought to be the case (an assumption that was made during the formative stages of this study too). Instead, it seems that there were two complementary sets of knowledge, investment and skill in the groups that shaped the mental models of the respective groups and creating specific read heuristics for the image based on what the respondent subconsciously tried to solve and as such reacted to in the unmediated read. The professional designers were more inclined to solve the purpose of the overall design, applying a mental model with accompanying heuristics best suited for their professional lives. This manifested in their observations on rendering, composition, lighting, silhouette and significance of minor design elements. Whereas avid players instead had a tendency to view the design as players encountering a phenomenon in a game, quickly and aptly deconstructing its function and how that related to themselves or their own personal play experience. Shown clearly by applying known archetypes, classifying hostility and placing the character in a gameplay context, such as how it would move about a scene, how it might attack and whether or not it was playable.

The two groups thusly prioritized different types of knowledge, applied different skills and presented a contextual investment based on their intuitive mental model, but showed clearly that a gap exists, depending on which mental model was applied. If anything, the divergence present where one of the concept artists reacted like a player due to having had a few days of leave where they had the opportunity to act as audience for a game instead cements this. The respondent in question brought this up within the opening seconds of the session, saying it reminded the respondent of the recently played game and creating a design context based on that experience.

It additionally suggests that the gap might not be as insurmountable as might be believed, if designers are given a context in which they might approach a design with a shifted mental model and as such subconsciously prioritize different signifiers than they otherwise might in their professional role.

The conclusion of the study is thusly that an analogue to the Designer-User gap can be assumed to exist also in the field of visual design, and that the unmediated read of the image appears affected by both the specific competencies of the observer, but additionally by context presented as well as the currently assumed and internalized role of the observer. Furthermore, there are indications of methods that could bridge said gap, much in the same way as user
testing functions as a bridge in interaction design, which could be a worthwhile avenue of further study, assuming the study could be replicated with similar conclusions.
7 Concluding Remarks

Having made a case for the presence of a Designer-User gap in concept artists and their audience, the thesis will conclude with a summary and discussion of the work performed, as well as potential avenues of further research on the subject.

7.1 Summary

This study intended to examine the differences between professional visual designers and the audience they were designing for and complications that might arise thereof. It has also presented a discussion on how modern theories of cognition, affordance and cultural familiarity might shape mental models, expectations and visual interpretation heuristics, thus creating an individual and subconscious matrix through which entertainment media designs might be understood by both its audience at its designers, suggesting the Designer-User gap as an analogue to this difference in mental models.

The study compared a selection of available local concept artists with individuals representative of a core gamer target audience on how their unmediated read of a concept design from a contemporary genre was varied based on their respective backgrounds, concluding that there was a perceivable and significant difference in design interpretation between the groups. It further indicated that mental models were in a state of flux and that context or recent experiences might affect which mental model an observer applied.

7.2 Discussion

There were some inherent complications in performing a study such as this one, both in respondent selection and implementation. The primary one being the availability of respondents that matched the criteria for a meaningful answer to the research question, combined with the scope of a bachelor thesis study, limiting the number of respondents to below what would have been better for more conclusive statements. A larger respondent population could have helped in ascertaining whether the small scale trends observed during the study held true over a larger population more in line with quantitative testing. For reason already established, specifically the timeframe, location, scope and resources of the study, this would not have been doable during the research presented here but might in future be worthwhile to investigate. The results of the study are promising, but decidedly exploratory, and a higher number of respondents could in future help to alleviate the risks of spotting trends in a small population, no matter how representative.

The context and method of presentation may also have lent itself to a certain type of read. Given that it was an image being presented, might have favoured specific assumed roles and observational heuristics which might not be as ubiquitous among the professionals assuming they had encountered the design in a context in which the mental model of a player might have been a more natural fit, such as in a playable prototype. For this particular study this is an insurmountable issue however, as quite crassly the scope of the study does not allow for a graphically polished, animated interactive prototype in which the same amount of design nuance could be presented. There would also be the risk that gameplay consideration would overrule the visual read and that the interactive nature of such a session might obfuscate the visual read during the vocalization, which we’ll discuss further shortly.
The concurrent verbalization method overall was an extremely useful tool in allowing near enough access to the unmediated read, but could decidedly have been improved by setting up a more thorough warm-up session beforehand to improve verbalization tendencies with more non-vocal participants or respondents to improve said access. As hinted at previously, there are some concerns as to how close to an unmediated read could be provided by the method, seeing as the respondents still by necessity filter their impressions and reactions as they vocalize their thoughts. Pragmatically, of course, accessing the neurological reaction and analysing that is impossible given a study of this scope. Still, it is not a concern to be dismissed out of hand. There exist both the individual differences in spontaneity which might influence what is vocalized, as well as competencies and talents which might facilitate providing an unmediated and useful thought, other individuals may lack said talents. Aside from that, any thought uttered, however spontaneous, is still in part mediated by structuring it into a sentence and presenting it to another individual, especially in a formalized setting. This is an issue overall within the humanities as well as arts when dealing with unconscious, subconscious or otherwise not easily accessible data. The unmediated read in the case of this study is then best understood as a set of spontaneous reactions or thoughts, rather than an instantaneous neurological response, given the constraints of working within the methodologies available to the field of media arts. It follows that the same applies to any field working with qualitative or quantitative inquiry, especially given that the specific method is used both in design (Nielsen, 2012) and psychology (van Someren, et al., 1994) to model cognitive processes. So while it is worthwhile to bear in mind that there by definition exists a degree of separation between the unmediated read on a cognitive level and the vocalisation thereof, the method is proven and widely used for research much like that conducted during this study. This was deemed to lend validity to the method as well as the results, but these concerns will obviously never go away completely, since they are structurally fundamental to any method which does not allow direct access to the cognitive and neurological apparatus of the respondent. Assuming a greater scope and more available resources, potential solutions might range from the technologically advanced, such as measuring or scanning neurological impulses, which would of course be on the high end of advanced research. More realistically, a greater timespan might allow to set up playable prototypes in which immediate behaviour could be observed alongside the verbalisation, such as an interactive session or gameplay sequence where systemic interactions could shed additional light on the mental models of the respondents. As such allowing even closer access to an unmediated response.

This method could have its own issues based on what has been observed about role and contextualisation, pushing both groups towards interacting as players. Although that might well serve as an indication as to the use of playtesting among concept artists as a method of bridging the gap between them and their player base.

This ties into the fact that the study seems to suggest that concept designer workflow and mental models might be improved by regular playtesting and prototyping, cultivating their fluency in switching to appropriate mental models depending on which part of their professional work they are reviewing. Which, if anything, is the clearest benefit from this study, indicating a method through which concept designers and art directors might be aided in improving their design thinking by internalizing the mental models of their target audience through testing. Especially when assuming art and aesthetics as a method of communicating and conveying the desired reaction. This would without a doubt need to be studied far more in-depth before suggesting this as a certainty, it does provide an intriguing avenue for learning.
and improving which might be worth taking to heart. The possibility of an intentional cognitive shift to provide new problem-solving heuristics for design is an engaging one.

Furthermore there both are and have been a number of ethical and societal considerations associated with this study some of which have already been mentioned but all of which bear repeating or discussing.

Some of said considerations are in relation to the study and respondent selection. As covered previously, there was an unintended skew in sex distribution due to unforeseen cancellations where there were no female replacements to be had. This is unfortunate, since as it currently stands the core demographic of video games is almost evenly distributed over both sexes. In future studies, a more representative distribution would be preferable. Simultaneously, no innate differences were observed between respondent sex and replies since the study was primarily concerned with mass media familiarity and sex having at best secondary importance of design read. Clearly there might traditionally be present divergences on media familiarity between sexes due to cultural expectations of associated gender, however the group selection by necessity created a culturally homogenous group due to selection criteria, which leads to another potential ethical concern.

The focus on communicating clearly with the core western entertainment demographic could be seen as a vector for entrenching cultural hegemony, if not deliberately then at the very least accidentally, by function of creating culture that inherently resonates with already familiar themes and non-controversial worldviews. Even when unintended, the use of familiar conventions can serve to subconsciously entrench harmful sociological, physiognomic or cultural stereotypes. A recent example is the already mentioned post-apocalyptic shooter the *Division* (Avalance Studios, 2015), criticized for the use of class and racial stereotyping in its design of villain and antagonist characters:

“It encourages and glorifies the same type of violence associated with recent police shootings that have divided the nation, and the thoughtless way it does that disgraces both law enforcement officials and people who’ve died in these shootings. It also uses hoodies to distinguish an entire enemy faction: people to be shot on sight. Given that the hoodie worn by Trayvon Martin has become a symbol used to demonize people of color, one which protestors have tried to take back by wearing it in solidarity with victims, this lazy stereotype on game’s part is appallingly [sic] callous.” (Portnow, 2016)

He goes on to mention that he doubts this was an intentional decision of the part of the development team. However, as we have already discussed at length during the thesis, the interpretive prerogative of a work does not rest specifically with its creators, nor does it necessarily excuse the design decision, however inadvertent the symbolism was. Although it is easily understood given cultural zeitgeist and the use of these class signifiers in contemporary mass media, it is worthwhile to analyse the conventions we deliberately or inadvertently reinforce by our design choices, having responsibility as contributors to the contemporary cultural and media landscape.

This particular example was in no way intended to single out the developers of this particular title however, but merely to elucidate a common issue in using conventions as part of the design process, as unfortunate and harmful stereotypes might well slip in, further reinforcing
already entrenched ideas that could conceivably affect people’s lives simply by association. As such, slavishly following pre-existing conventions could hardly be considered responsible and deliberate design. The conventions and signifiers act as a toolbox for any designer, to be used to convey and communicate ideas. As such it follows that there is a clear responsibility on the part of the designer as to which ideas are conveyed and communicated and as such which conventions are subverted and which are reinforced.

7.3 Future Work

The results of the study suggest a number of potentially worthwhile avenues of further research. First of all, one might study assumed role and self-identification in conjunction with visual read heuristics, based on contextual cognition and role theory. That is, dependent on which role an observer has subconsciously assumed, they might have altered their mental models to a point where their unmediated read or interpretation of the image might be altered to a similar degree. A starting point for such a study might be the works of George H. Mead (1934) and Ralph H. Turner (2001).

Immediate read may well be contextual in a complementary fashion to role theory, where presumed genre and expected conventions greatly influenced the unmediated read. A different environment or mise-en-scène might well change perception of character, which was noted by multiple respondents in this study, that had the character type been located in another setting they would have presumed the design to be of an antagonist, however due to conventions within the post-apocalypse genre and anti-hero tropes and archetypes present therein, signifier read was thusly altered by design context. This might indicate a distinct modality within mental models based on not only internal factors such as role identification, but also external factors such as cultural context in line with what Arnheim calls the “norm level established in a person’s mind” (1974, p. 137), which might well extend not only to artistic style as was referred to in the quote, but also to distinct and separate cultural genres.

Finally, quantitative variants of the study might also be of scientific interest, as a way to confirm or rebuke the small sample tendencies observed during this study, in order to establish a potentially more conclusive result, assuming a far larger scope of study than that made possible by the restrictions of a bachelor’s thesis. How a methodology would be set up to account for unmediated reads while still allowing a vast quantity of data and respondents is left up to prospective future researchers however.

As a final note, it should be added that, hopefully, the study can act as a stepping stone or introduction for further research into the complex interactions between cognition, affordance, heuristics and visual design within entertainment media.
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Figure 1: Fallout 4 Raider designs, showcasing appropriated scrap as armour and weaponry (Bethesda Game Studios, 2015).
Figure 2: Additional Fallout 4 raider designs, using a variety of objects to act as clothing, armor or armaments. (Bethesda Game Studios, 2015)
Figure 3: Tribal affectations in Rage, showing signifiers of a societal regression to tribalism.

Figure 4: Additional tribalism in Mad Max design, notable ritual scarring and warpaint on so-called Warboys.
Figure 5: Antagonist gone protagonist Imperator Furiosa from Mad Max: Fury Road (2015).

Figure 6: The titular antihero Mad Max, in Mad Max: Fury Road (2015), with a dehumanizing facial mask.
Figure 7: Mad Max: Fury Road (2015) main antagonist Immortan [sic] Joe, with a combined skeletal facial mask and gas mask.

Figure 8: Mutated antagonists with multiple physical abnormalities and scavenged gear in Rage (id Software, 2011)
Figure 9: The enemy factions of Tom Clancy's The Division (Ubisoft Massive, 2016), sharing multiple design elements with the other titles.

Figure 10: Initial thumbnail sketch for created design, showing rough indications of layout and composition.
Figure 11: Clearer concept art of the design, with additional detailing, closer to a finished concept sketch.

Figure 12: Clarified design with a few subtle additional signifiers, functionally readable as a concept.