Domo Ludens

Manifestations of Playful Design in Dutch Architecture

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ABSTRACT

Play can take place in numerous manners, and although due academic attention has been paid to play in relation to video games, certain manifestations of play remain underexplored. In this study the focus lies on playful architecture. The main goal is to explore the ways in which architecture becomes a material manifestation of playful design. The research seeks to approach the study of architecture and play through a lens of playful design by providing an answer to the following research question: How does Dutch architecture employ playful design elements in its buildings? The past and present bespoke playful character of Dutch buildings makes them ideal subjects for such analysis. A scrutinous thematic analysis of visual representations of 103 buildings derived from an extensive online architectural database of over 4,000 buildings in the Netherlands, ultimately led to the discovery of four main ways in which Dutch architecture employs playful elements. The notion of playfulness was operationalised by means of indicators that resulted from an scrutinous theoretical framework. Buildings' observable traits such as colour, form, scale and material, but also those more latent such as vertigo inducing, biomimicry and reinterpreting the familiar, serve as pillars upholding the main themes. These themes amount to play via contrast, play via nudging, play via reference, and lastly, play via subversion. Play via contrast entails playful elements that exist in lieu of some form of disparity either within the building itself, or between it and its surroundings. This can be in terms of playful contrasts of colours, shapes and materials, but also by standing out in relation to its environment via any of those traits. Play via nudging covers those elements that architecture exhibits that are designed with the intention to trigger an effect of some sort in its 'users'. This can be that it nudges its users pathing, that it is designed with the purpose of inducing vertigo, or that it is manipulable in itself, allowing individuals to interact with it on a material level. Play via reference overarches playful aspects relating to both biomimicry and imitation, where buildings (latently or manifestly) make reference to objects appearing in nature or society. An extension of this, is the phenomenon of architecture receiving colloquial nicknames that often directly relate to that which they are emulating (e.g. The swan in Rotterdam). Lastly, play via subversion covers aspects such as reinterpreting the familiar, and comparably, subverting social norms, stimulating people to rethink what is considered a home, an office or a bridge. This theme also comprises concrete phenomena such as undermining expectations via visual illusion and suspending disbelief through seemingly gravity-defying acts of physical suspension. Finally, a general conclusion is that in line with existing scholarly work, the concept of contrast is found to be central to the concept of playfulness, play manifests materially in the form of architecture in four key manners, though all of them ultimately depend on some form of contrast.

KEYWORDS: *Playful design, Playful architecture, Ludification, Creative industries, Thematic analysis*

PREFACE

This is now my second thesis written entirely during the Covid-19 pandemic. The experience has surprisingly been rather pleasant, a feeling that I'm certain most won't share with me. This has been in large part due to my lovely parents who have kept me company whenever I left my mancave to grab yet another cup of tea. I want to thank my dad in particular for having sparked my interest in architecture over the past two years. Perhaps this thesis can somewhat brighten this lover of modernism's view of postmodern architecture. My mom also deserves praise for really urging me to pursue a topic I have intrinsic motivation for. If it weren't for her I would have never finished this piece so swiftly. Another person who made this process so much more bearable has been my girlfriend. Knowing that finishing a section of the research meant seeing her afterwards was perhaps all the extrinsic motivation I ever needed. Lastly, I want to thank my supervisor Teresa de la Hera, who I would describe in one sentence as "streng, maar rechtvaardig" (firm, but fair). Her rigorous preliminary feedback intimidated me at first, but ultimately made this thesis into what it has become. She has been nothing but sweet to me, and I wouldn't have wanted the supervision any other way.

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1. Introduction

Your train arrives. You exit "de kapsalon" (see figure 1.1) and set foot in what is arguably the playful architecture capital of the Netherlands, Rotterdam. After leaving your belongings on your colour-coded Roommate Bruno Hotel floor (see figure 1.2),

Figure 1.1 Rotterdam Central Station (Team V Architectuur, 2014)

Figure 1.2 Roommate Bruno Hotel Red Floor in Rotterdam (Magnoux & Mendez, 2018)

you descend via the fluorescent yellow spiral staircase (see figure 1.3) and are greeted by the sight of "de blokkendoos" upon exit (see figure 1.4).

Figure 1.3 Yellow staircase Roommate Bruno hotel in Rotterdam (Cvetanovic, 2020)

Figure 1.4 De Rotterdam in Rotterdam (ANP, 2014)

You traverse across "de zwaan" (see figure 1.5) and finish your day with a snack inside the Markthal, eyes gazing upon "het potlood" (see figure 1.6).

Figure 1.5 Erasmusbrug in Rotterdam (Cvetanovic, 2019)

Figure 1.6 Blaaktoren in Rotterdam (Mennings, 2017)

Throughout your stay in Rotterdam, the multitude of striking buildings, through their colourful facades, seemingly gravity-defying shapes, or ludic nicknames might provoke a chuckle. While buildings may elicit playful sentiments, attributing this capacity to specific design elements is not always straightforward. What is it that makes them playful? Architecture is man-made and thus by design, which implies thought went into every building. While understanding the motivations for designing playful buildings is fascinating in its own right, recognising the components that make playful should arguably precede that question and is, therefore the topic of this thesis.

The example above is relevant because it exposes particular phenomena that we are accustomed to, but perhaps not always cognisant of. It is also appropriate because it illustrates our current relationship to (often postmodern) architecture. It relates to our inherent human desire for play, even in our adult life. We want to experience pleasure, and while to many, architecture might conceptually be far removed from playfulness, precisely the trip through Rotterdam described earlier reveals this is not necessarily the case. What will be studied in this thesis is the manner in which architecture can be playful, what design elements make buildings playful, and which patterns of playful design features emerge in Dutch architecture. Having introduced the topic of this thesis in short, the rest of the introduction covers: Defining the research problem at hand and formulating a research question (1.1); positioning and validating this study by explaining its academic relevance (1.2); explaining the social relevance of studying this matter (1.3); and closing with an overview of the chapters to further guide through the thesis (1.4).

1.1 Research question

Play matters. Or as Sicart (2014) puts it "To play is to be in the world. Playing is a form of understanding what surrounds us and who we are, and a way of engaging with others. Play is a mode of being human" (p.1). One such thing that surrounds us, is architecture. While the house was once described as 'A machine for living' by architect Le Corbusier (MoMA, 2006), this sentiment has since been contested both directly: "Our buildings are not machines for various functions but places where we can act and interact and which have meanings that transcend a particular use." (Fallon, 1981, p. 183), and indirectly "We want playfulness—the capacity to use play outside the context of play" (Sicart, 2014, p. 21). Scholars observe that people are becoming more conscious of and more keen to experience play and playfulness in their lives, a tendency that is dubbed the 'ludification of culture' (Frissen, Lammes, de Lange, de Mul, & Raessens, 2015; Raessens, 2014). The term ludification stems from the Latin word *ludus* meaning 'play'; and so, the phenomenon ludification of culture is considered a trend in which culture is becoming more playful both in structural and abstract manners. While the trend is generally ascribed to the introduction of digital media technologies in the 21st century (Frissen et al., 2015; Raessens, 2014), it can also be observed in non-digital examples.

This is evidenced by the increasing amount of scholarly attention being paid to the analysis of p*layful architecture* in terms of design elements and applications that either promote play or seem playful aesthetically (e.g. Fallon, 1981; Riikonen, 2015; Villareal, 2018; Walz, 2010). Furthermore, p*layful cities* are researched in relation to playful design interventions from an urban planning perspective (e.g. de Lange, 2015; Donoff, 2014; Donoff & Bridgman, 2017). Lastly, within the broader context of the study of p*layful design*, valuable frameworks and guidelines for designing playfully have been established (e.g. Demirbilek & Sener, 2003; Deterding, 2016; Lucero, Holopainen, Ollila, Suomela and Karapanos, 2013).

The choice for this study to focus on Dutch architecture is not an arbitrary one. Artemel (2013) characterises Dutch architecture as both contemporarily and historically having a strong focus on buildings' exteriors. "The Dutch Tradition" consists of houses adorned with dynamic fields of colour, in a manner that could be described as playful (Lonely Planet, 2018), which has since morphed into what Artemel describes as continuous surfaces weaving in and out of buildings. Furthermore, the Netherlands boasts a large gamut of postmodern architecture. A style that is considered comical (van Acker, 2020), light-hearted (Clendinning, 2002) and also playful (Habermas, 1987).

What becomes interesting to look at then, considering the apparent presence of playfulness in the design of Dutch architecture (see Artemel, 2013; Holland.com, 2011; Lonely Planet, 2018; Reuland, 2018; TLmag, 2017), within the broader trend of ludification of culture (Frissen et al., 2015; Raessens, 2014), is to ask the question:

How does Dutch architecture employ playful design elements in its buildings?

1.2 Academic Relevance

This section provides a concise overview of relevant research that has been previously conducted, with the intention of uncovering a gap and positioning this thesis in academic discourse. While the separate concepts of this research have all been studied already, they have yet to be looked at from the perspective of playful design elements utilised in architecture, especially in the context of The Netherlands.

Playful architecture has been researched in terms of architecture that affords play (Villareal, 2018), as well as playful public spaces (Riikonen, 2015). Additionally, Walz (2010) has approached the topic from a video game perspective. Although the exact perspective of this thesis has not yet been sufficiently researched, Fallon (1981) comes close. He outlines several architectural devices that architecture can employ to afford its users play, but his scope does not encompass the totality of the phenomenon.

In terms of *playful cities*, research exists on citizen participation via play and games (de Lange, 2015), as well as ludic urban design intervention typologies aimed at constructing a playful city (Donoff, 2014; Donoff & Bridgman, 2017). This thesis does not aim to add to the field of playful city planning, through it does make use of its literature to establish context and gain insights.

Lastly, the field of *playful design*, where Demirbilek and Sener (2003) outline six playful product design decisions that amount to making objects cute and familiar amongst others. Additionally, Deterding (2016) approaches playful design through a lens of game studies, offering a valuable perspective. Moreover, considering that to utilise playful design elements, they should first be made identifiable, by filling the gap in literature relating to playful architecture and its typologies, this research can contribute to the academic literature in the field of play studies through an exploration of its employment in the field of architecture, as well as to architecture as a discipline through a thematic assessment of its utilisation of playful design elements.

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A conclusion drawn from this brief summary of literature is that playful design elements have not yet been studied in Dutch architecture, representing a gap in academic literature. It is however not only this reality that makes this study academically relevant. Through filling the gap, this research aims to expand previous literature on the phenomenon of playification (the use of playfulness in non-play contexts) by exploring its use in the domain of architecture (Márquez Segura, Márquez Segura, Waern, & López Recio, 2016; Scott, 2012). This study is in line with a calling by scholars to explore play and playfulness in an alternative way (Sicart, 2014; Lucero & Arrasvuori, 2013), the results of which are subsequently academically relevant.

1.3 Social Relevance

Aside from academic relevance, there also exist reasons why a study of playful design elements in Dutch architecture is relevant from a social perspective. It is of value to this creative industry because as was mentioned by Artemel (2013), Holland.com (2011), Lonely Planet (2018), Reuland (2018) and TLmag (2017), Dutch architecture is known for its playful nature. Researching how the playfulness present in Dutch buildings manifests itself by means of concrete design elements, is both interesting from the standpoint of understanding the architecture surrounding us on a daily basis, as well as analysing this phenomenon within the context of what Raessens (2006) terms the ludification of culture, a transformation he claims is fuelled by digital technologies. The trend is further fuelled by the uprise of digital media (Frissen et al., 2015; Raessens, 2014), one of which is the medium of online imagery. With architecture being an inherently visual artform (Brunette & Wills, 1994), its consumption often occurs via photographs shared digitally, at an increasing rate in contemporary society.

As Archdaily (2020) states, collaboration and participation have gained significance in the fields of architecture and urbanism, which coupled with the trend of citizens interacting more with architecture (Acar, 2018; Kushner & Kirchels, 2015), highlights the interest that people of the 21st century have for architecture as a phenomenon. The increasing ease with which people view, and subsequently interact with architecture by means of images on social media platforms, means that architecture is consumed with unprecedented immediacy (Kushner, 2018). Now more than ever, it is socially relevant to examine this phenomenon. Lastly, Blijlevens, Creusen, and Schoormans (2009) found that the "playfulness" is one of three most important traits to people when assessing product appearance, speaking to the inherent significance humans attribute to playfulness.

Considering the aforementioned phenomena and broader trends, it becomes evident that the question being asked is of significance from a social perspective.

This thesis does not propose that a study of playful design elements is socially relevant simply because it is observable in Dutch architecture. Instead, studying utilisation of playful design elements in architecture is socially relevant because a better understanding of playful architecture can help make sense of the buildings surrounding us, as well as provide insights into how playful design elements are concretely translated into architecture. The social beneficiaries of this thesis' findings are hence twofold: Architects and experiencees of architecture. By uncovering the playful design components present in Dutch buildings, architects stand to profit from these insights as they can help them recognise particular strategies to implement playful characteristics in their buildings. Another socially relevant component of this study is the architectural design awareness it elicits in the everyday "consumer of architecture". This study will enable a better understanding of their surroundings and what it is that makes buildings playful in their minds, ultimately promoting a deeper connection between buildings and people.

Lastly, arguing for the relevance of playful design, Lucero et al. (2013) state that "Features that make games and play engaging can also make other kinds of products more enjoyable, elicit more meaningful experiences, and ultimately increase the quality of the overall user experience and, respectively, the market value of a product" (p. 221), an argument that simultaneously speaks to the relevance of playful design for both the user and producer of the product.

1.4 Chapter outline

Thus far, this opening segment has demonstrated the topic of research by taking a virtual tour through Rotterdam, outlining the research question and the context of its emergence, and conveying the importance of exploring this matter from both an academic and social perspective. To uphold proper structure, the purpose of this chapter outline is to provide a preview of what is covered in each of the chapters to come. This master's thesis consists of a five-chapter composition where this introduction segment is the first. The second chapter of this thesis is the theoretical framework, where a critical account of the concepts, existing literature and theories are related to one another and to the research question that guides the interpretation and analysis of results. The third chapter addresses all methodological concerns relevant to the research, from research design options to sampling

methods, data collection, operationalisation, and lastly, analysis. All aspects mentioned are argued for and demonstrated to be of value for arriving at an extensive answer to the research question. The fourth chapter presents the findings, providing an overview of the findings that were uncovered in the research. The results chapter presents relevant findings in the form of themes, and also interprets and relates them back to the theoretical framework, and clearly substantiates the findings via the addition of several relevant images from the data. The last chapter consists of a discussion and conclusion of findings, as well as the study as a whole. The research question is answered extensively and the findings outlined in the fourth chapter are examined in relation to their academic and practical implications. Ultimately, the thesis concludes by describing the limitations of the research and the directions of interest that future studies could investigate.

2. Theoretical framework

As mentioned earlier, the individual aspects of this research have been researched in their own right, but they have yet to be looked at from the perspective of the utilisation of playful design elements in the context of Dutch architecture. This section covers what is arguably the most crucial part of the study. Here, a framework of concepts and theories is established, by which the matter of study can be more comprehensively analysed. Via scrutinous assessment of existing academic literature, this chapter will ultimately rationalise which theories this study will dismiss and which it will utilise. After all relevant concepts are defined concisely, they are employed as a conceptual framework via which the results are interpreted and assessed. In order to answer the question "How does Dutch architecture employ playful design elements in its buildings?", it is important to fully grasp the theory behind each of the notions at play so that each concept is defined wholly and its significance to the research in its entirety is established. This chapter consists of three segments. Firstly, the notion of Play is analysed from various perspectives so as to arrive at an operational definition of the concept (2.1). Secondly, the theories on playful design are analysed to uncover what makes products playful (2.2). And lastly, playful architecture is defined concisely and considered both in the context of Dutch architecture and its styles, and in relation to playful design practices (2.3).

2.1 Defining play

For this research to be successful, every concept needs to be defined fully. That is why the beginning of the theoretical framework looks at what the universal notion of *play* entails. It is a word recognised by all, yet when asked to define it, one might find themselves struggling to translate this abstract idea into words. This segment will aim to demonstrate different academic theories on, and definitions of, play. These are critically considered and related to one another, after which one conceptualisation will be elected to establish the basis of this thesis and subsequently guide the rest of the research.

2.1.1 The study of play

When considering the notion of play, one cannot avoid including the work of Johan Huizinga (1980), who in 1938 published Homo Ludens (man the player), a study of play as a cultural phenomenon that was the first to formulate a holistic definition of play as a concept. He asserts that play is both older than culture, and that civilisation has not added any feature of significance to the general idea of play. He goes on to describe how play surpasses physiology and psychology, it is not a mere biological reflex. Fundamentally, play "transcends the immediate needs of life and imparts meaning to the action" (p. 1). Huizinga (1980) goes on to criticise historical, mainly biological analyses of the concept of play, by arguing that in their scientific, quantitative approaches, they miss the essence of play. They merely touch the surface of play, as a result of their hypothesis that play must serve something that is not play. Huizinga (1980) however, aims to understand the aesthetic, primordial quality of play, by asking "what actually is the *fun* of playing?" (p. 2). While Huizinga (1980) criticises others for failing to explain the essence of play, he himself narrows his scope to social manifestations of play as a result of his topic of study being play in relation to culture. He claims pure playfulness is not suitable for further analysis and instead focuses on performances, tournaments, races and pageants amongst others. This lack of distinction between games and play is argued to be one of his oversights (Raessens, 2014; Caillois, 2001).

Huizinga (1980) did however outline several characteristics of play, not the least important of which amounting to play being *free*. He claims play is never a task, nor a physical necessity. Additionally, play is not "real life", it is a mode of pretension. It becomes clear then that Huizinga views play as a concept that necessarily exists in relation to other matters, or as he defines it "It is an activity which proceeds within certain limits of time and space, in a visible order, according to rules freely accepted, and outside the sphere of necessity or material utility. The play-mood is one of rapture and enthusiasm, and is sacred or festive in accordance with the occasion. A feeling of exaltation and tension accompanies the action, mirth and relaxation follow" (p. 16).

2.1.2 Development of play's definition

   While Huizinga's work has undoubtedly helped push play into the sphere of academic study, it has also been widely criticised. One such critique comes from Raessens (2014) who argues that In Spite of its inspirational observations, Huizinga's Homo Ludens is riddled with inconsistencies. He outlines some of the most detrimental ones: First, he describes, Huizinga poses that play is simultaneously a vital component of human life and a necessary mode for culture to exist in, while also claiming that play always occurs outside everyday life and is nothing more than a casual "interlude". Furthermore, Huizinga claims play embodies human freedom, however its maddening, captivating nature also "casts a spell over us". Lastly, Raessens exposes how Huizinga argues that games' rules are set in stone, while paradoxically, the totality of his book reveals the ever-transforming nature of play in relation to culture.

   Another approach to criticising Huizinga is that of Caillois (2001), who claims that Huizinga oversimplifies play by ignoring cultural contexts and the many different needs it may serve. Exemplar is Huizinga's omission of the presence of economic interest in chance-based games such as gambling and betting. Caillois ultimately defines play via six characteristics: It should be free, separate, uncertain, unproductive, governed by rules and make-believe (see figure 2.1). Interestingly, Caillois (2001) not only subdivides play into four categories: *agôn* (competition), *alea* (Chance), *mimicry* (simulation) and *ilinx* (vertigo), but he also proposes a continuum by which these can be measured, ranging from *paidia* (dynamic, chaotic, lively and impulsive) to *ludus* (control, design, and following of rules). An example of play categorised as *ilinx*, or self-induced vertigo, on the *paidia* (Latin for child) end of the continuum, is children "twirling" to the point of dizziness, whereas an example of structured competition, or *agôn* on the *ludus* side of the spectrum would be a rule governed sports competition such as football.

	AGÔN (Competition)	ALEA (Chance)	MIMICRY (Simulation)	ILINX (Vertigo)
PAIDIA Tumult Agitation Immoderate laughter	Racing Wrestling } not Etc. } regulated Athletics	Counting-out rhymes Heads or tails	Children's initiations Games of illusion Tag, Arms Masks, Disguises	Children "whirling" Horseback riding Swinging Waltzing
Kite-flying Solitaire Patience Crossword puzzles **LUDUS**	Boxing, Billiards Fencing, Checkers Football, Chess Contests, Sports in general	Betting Roulette Simple, complex, and continuing lotteries*	Theater Spectacles in general	Volador Traveling carnivals Skiing Mountain climbing Tightrope walking

Figure 2.1 Caillois' classification of play (Caillois, 2001)

Caillois' critique of Huizinga takes on the form of further expanding the definition of play so as to encompass all possible forms, which in turn arguably hardly criticises Huizinga as it is in line with his worldview. In this sense, Huizinga, and by extension Caillois, provide what Raessens (2014) describes as "the most important "modernist" exposition of play" (p. x). For Raessens claims modernist thinking, the likes of which Huizinga's and Caillois' are a part of, leaves little room for ambiguity. This strive for infallible, holistic definitions is precisely why Caillois and Huizinga fail to incorporate the ambiguous and expressive nature of play (Sicart, 2014; Sutton-Smith, 2001).

2.1.3 Play is abstract

As mentioned earlier, while the concept of play has been debated throughout history, most academics have maintained a somewhat Huizingan outlook on play, considering it to be fun and enjoyable. Contrastingly, Sicart (2014) offers an alternative definition of play, for he claims play is: *contextual*, implying it relies on context transcending physicality. It is also *carnivalesque*, characterised as a balance between creation and destruction. Additionally, play is *disruptive*, it holds the ability to alter current conditions and beliefs. Play being *autotelic* means it has a purpose in itself and does not necessarily serve another. Lastly, Sicart argues play is *creative* since it allows for personal expression. Another takeaway from Sicart's conceptualisation of play is that it does not necessarily exist as an entity in and of itself, but rather playfulness is to be experienced in the form of materialisations of play, such as toys. Play can however transcend these objects designed for play, for Sicart describes how "parkour appropriates and reinterprets urban spaces, making the architecture of the city not only an obstacle but also an expressive instrument" (p. 55), showcasing the extensive breadth of his notion of play.

On the topic of architects, Sicart (2014) states "Sometimes the beauty of play resides in the tension between control and chaos. Sometimes playing is voluntarily surrendering to form; sometimes it is being seduced into form, being appropriated by a plaything. Some other times, the pleasure comes from the appropriation of those forms, breaking and deforming them to play with them." (p. 83).

What ultimately becomes apparent in Sicart's (2014) work, is that play should not be defined overly strictly, for it is a "human activity that is highly resistant to formalized understanding." (p. 6). Rather, play is a mode of being human, which can also exist in the physical world in material form as an extension of the playful mind (Sicart, 2014).

Considering the multiple definitions of play proposed by academics in the field, a working definition has to be selected that can guide the remainder of this research. While Huizinga's (1980) and Caillois' (2001) well-formulated, strict definitions serve as great building blocks, their conceptualisations are perhaps excessively aimed at manifestations of play such as contests and games for the purpose of this research. Although Caillois (2001) makes a distinction between *paidia* and *ludus*, his notion of play does not transcend human activity. Even the most paidiac, abstract form of play he outlines does not extend to the realms of architecture. Additionally, Raessens (2014) while providing valuable critiques and calling for a lesser distinction between play and non-play, has a strong focus on play in the age of media, which architecture is not implicitly part of.

Ultimately, the characteristics of play outlined by Sicart (2014) as being *contextual*, *carnivalesque*, *disruptive*, *autotelic* and *creative*, combined with insights from the conceptualisations by Huizinga (1980), Caillois (2001) and Raessens (2014) are suited best for understanding playful architecture.

2.2 Playful Design

The extensive overview, comparison and scrutiny of different conceptions of the definition of play in the previous section serve as a guide into this segment on playful design, which in turn leads to a final section that covers the sum of academic literature on playful architecture. The term play to refers to an abstract concept, or an activity, whereas the more applied notion *playfulness* entails an object's trait. Understanding playfulness and by extension playful design, makes the step from playful design to architecture as effortless as possible. Ultimately, this part will provide a framework by which to analyse playful architecture, both conceptually, via an understanding of the discipline, and practically via playful design typologies.

2.2.1 Playfulness

"The main difference between play and playfulness is that play is an activity, while playfulness is an attitude. An activity is a coherent and finite set of actions performed for certain purposes, while an attitude is a stance toward an activity—a psychological, physical, and emotional perspective we take on activities, people, and objects." (Sicart, 2014, p. 22). This definition is further supported by Fullerton, Swain and Hoffman (2004), who argue that playfulness is a state of mind rather than an action. This distinction has great impact on how the manner in which people interact with the world in modern-day society can be observed. For, as mentioned in the introduction of this thesis "What we want is the attitude of play without the activity of play" (Sicart, 2014, p. 21), which is in line with the phenomenon that Raessens (2014) dubs *the ludification of culture*.

Keeping in mind this desire for playfulness, what then is playfulness' relation to playful design? Deterding (2016) mentions how playful design constitutes "affording "paidic qualities": designing to afford the experiential and behavioural qualities characteristic for playing" (p. 105), which demonstrates that following a Cailloisian definition of play, the implementation of the dynamic (paidic) nature of play is central in designing playfully.

Playful design can be approached from a variety of perspectives, ranging from gameful and playful design in relation to digital make-believe (Deterding, 2016), to Lucero

et al. (2013) who establish a framework for categorising playful experiences, the likes of which can also be adapted to design-related activities. Lastly, in line with what most would perhaps assume playful design to be closely tied to, are Demirbilek and Sener (2003) and Blijlevens et al. (2009) who approach the topic from a product design perspective.

2.2.2 Deterding's insights on playful design

As mentioned above, playful design is a multi-faceted discipline. As such, the insights by Deterding (2016) are valuable, as he situates playful design within the broader sphere of what he calls "applied games and play practices" (p. 105). According to him, a distinction can be made between gameful design and playful design alongside a *ludus*, *paidia* continuum, as well as a *whole systems*, *elements* axis (see figure 2.2). Within this conceptual map, playful design, or *toyification*, falls within the extremities of *paidiac* and *elements*, meaning that it concerns itself with dynamic, impulsive, non-rule governed elements of a whole. This in opposition to serious toy and game design which concern themselves more so with developing whole systems to serve an (often educational) purpose.
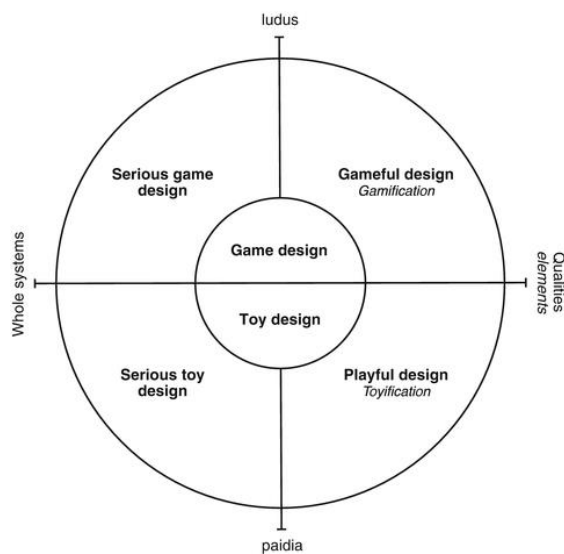
Figure 2.2 Gameful and Playful Design axis (Deterding, 2016)

On the topic of make-believe, or what Caillois (2001) would dub *mimicry*, Deterding (2016) outlines that *pretend play*, is an evolutionary phenomenon that is not detached from meaning-making more generally (Lillard, Pinkham & Smith, 2011), in the same way that "this piece of paper counts as "20 Euros"" and these two people now count as "man and wife"" (Deterding, 2016, p. 106). Elaborating on the concept, Walton (2004) suggests that paintings amongst others are logical extensions of children's games of make-believe. The

metaphorical jump from paintings to architecture is not unreasonable to make, considering they both fall under the umbrella of visual arts (Brunette & Wills, 1994).

Bringing together make-believe and playful design, is the question what desirable effects make-believe has on user experience and behaviour, and how these are harnessed via the implementation of 'active ingredients' found in games and toys (Deterding, 2016). This desire for a formalised definition of playful design in the form of product attributes will be further elaborated upon in the following section (2.2.3).

2.2.3 Playful product design

Taking a step away from the element of make-believe present in playful design and looking at other concrete forms of playful design, Demirbilek and Sener (2013) offer their thoughts on play in product design, a discipline showing overlap with that of architecture (Krampen, 1989). A running theme in playful design appears to be the strive to elicit positive emotions via playful elements, for Deterding (2016) claims affording play characteristics to non-play settings typically serves an ulterior goal such as enjoyment. Similarly, Demirbilek and Sener (2013) sought to understand how to design to trigger 'happiness', more specifically, which product characteristics are conducive to the elicitation of those emotions.

While Sicart (2014) sees play as not necessarily enjoyable, the generally Huizingan outlook on playful design with a focus on pleasure and other positive emotions of Demirbilek and Sener (2013) leads to them distinguishing between four different categories of pleasure in product use. Of these four, physio-pleasure (touching and holding a product), social-pleasure (social relationships and communication that a product enables), psycho-pleasure (when a product helps establish a task) and ideo-pleasure (value that a product represents), the latter being perhaps most relevant with regards to architecture.

Ultimately, Demirbilek and Sener (2013) outline six playful product characteristics that elicit a form of happiness in the user. These amount to: First, *senses*, meaning any product that appeals to one of the human senses by being tactile, olfactory, visually stimulating etc. Second, *fun*, these are described as being attributes that humanise the product at hand, or convey a sense of happiness by being 'funny', warm or friendly (Doyle, 1998). Third, *cuteness*, which amounts to an evolutionarily explicable phenomenon where roundness and variation in proportions is interpreted by humans as cute, which in turn elicits happiness (see figure 2.3). Fourth, *familiarity*, this characteristic is explained in relation to referential semantics, or the act of mirroring or abstracting the human body to imply a

product's use by relating to the function of the body part it is mimicking in the human body. Additionally, another way of achieving pleasure via *familiarity*, is through the use of metaphors (Demirbilek & Sener, 2013). Fifth, *metonymy*, a feature that more so covers the importance of developing a recognisable, successful narrative surrounding a product, as it can convey more than the product in itself. And lastly, *colour*, According to Allegos and Allegos (1999), central to generating an emotional response in users, is the contrast between colours. Additionally, complementary colours can intensify one another (Fabri, 1967), and colour combinations can hint at symbolic associations. Example being the nobility generally associated with the colours red and gold (Allegos & Allegos, 1999). Another such colour association people have, is that of cuteness. Not only does cuteness exist in product's forms, so too is it directly linked to bright reds and blues in the case of adults, and cyans and pinks for children (see figure 2.4) (Cheok, 2010).
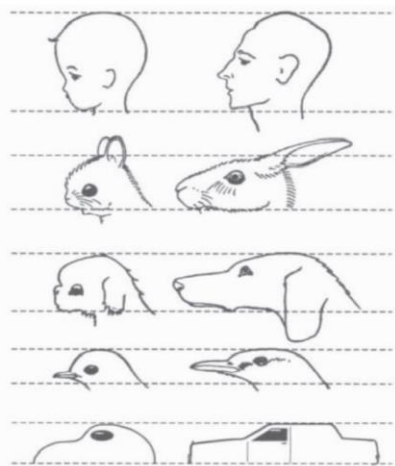
Figure 2.3 'Cuteness' in living beings and objects (Papanek, 1995)
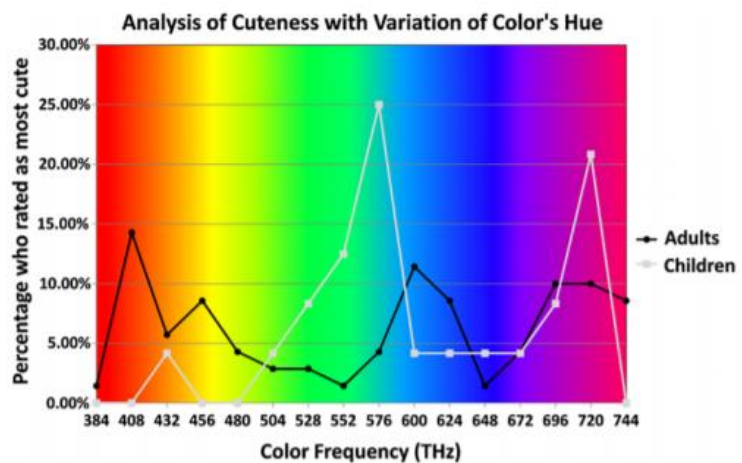
Figure 2.4 Colours adults and children find cute (Cheok, 2010)

Adding to the playful product attributes established by Demirbilek and Sener (2013), Blijlevens, Creusen and Schoormans (2009) propose a distinction between products' physical properties such as colour, shape, texture, size, contrast etc. and consumers' perceived appearance characteristics, such as modernity, simplicity and unity. What they found in their research is that consumers are both able to identify and differentiate playful product attributes, and that playfulness is deemed significant when people observe products. What this makes clear is that product appearance attributes need to be considered with care, as the physical properties can differ from the interpretation of the 'user', a sentiment that is also shared by Walz (2010). Simultaneously, it further substantiates that playfulness is a

phenomenon and product characteristic that people are aware of, and able to distinguish from other categories.

A final contribution to the field of playful design worth considering is the PLEX framework. This 'playful experiences framework' covers various elements of play and has proven successfully applicable to the field of design (Lucero et al., 2013). Whilst the framework was originally intended for the design process, Lucero et al. (2013) argue for its value as an evaluative tool, the categories of which are usable as a checklist of sorts to assess playful attributes of products. The PLEX framework is extensive in that it consists of 22 categories: *captivation*, *challenge*, *competition*, *completion*, *control*, *cruelty*, *discovery*, *eroticism*, *exploration*, *expression*, *fantasy*, *fellowship*, *humour*, *nurture*, *relaxation*, *sensation*, *simulation*, *submission*, *subversion*, *suffering*, *sympathy* and *thrill*. The inclusion of both joyful attributes such as *relaxation*, a characteristic of play that even Huizinga mentions in his early definition of play, as well as what are generally considered negative features such as *cruelty*, indicates that the PLEX framework no matter its application as either a design, or evaluative tool, follows a view of play that is more in line with Sicart's (2014).

2.2.4 Defining playful design

Considering the totality of aforementioned academic insights on the field of playful design, and stemming logically from the previously demarcated working definition of play (2.1.4), it is now time to establish a working definition of playful design. A definition that is both holistic in that it covers every aspect of playful design to the fullest extent, and one that is simultaneously mindful of the ambiguities that are not only present in play (Sutton-Smith, 1997), but subsequently also in playful design. This ambiguity takes shape in the conceptualisation of play that academics opt for when offering their definition of playful design in the form of outlining characteristics, attributes of, and frameworks for the analysis of, playful products. Only by not electing one over the other, but rather keeping in mind the entirety of playful design theories, be they fundamentally Huizingan (e.g. Demirbilek & Sener, 2013), Cailloisian (e.g. Deterding, 2016) or Sicartian (e.g. Lucero et al., 2013), can a definition be formulated that seeks not to dismiss opposing views, but aims to cover every aspect of playful design that is relevant to the field of playful architecture, a topic that the coming section shall delve into.

In the practical sense, for the sake of this master's thesis, playful design is defined as

affording play-characteristics to non-play settings with the intention to elicit emotions that are typically, though not necessarily joyful. These attributes can take the shape of any of the 22 features outlined in the PLEX framework (Lucero et al., 2013), any of the six characteristics of playful design defined by Demirbilek and Sener (2013), or even yet-undefined attributes, which the explorative, thematic nature of this research allows for. What is clear however, is that playful design tends to display *paidiac*, make-believe qualities (Deterding, 2016) and is a product characteristic that people value and are cognisant of (Blijlevens, Creusen & Schoormans, 2009). The applicability of playful design to the topic of study of this thesis, architecture, is exemplified both by the universality of the PLEX framework that Lucero et al. (2013) argue for, and by architecture being a visual art that is an extension of playful make-believe (Brunette & Wills, 1994; Deterding, 2016; Walton, 2004) that also shows overlap with the field of product design (Krampen, 1989).

Lastly, it should be critically noted that similar to Caillois' (2001) critique that Huizinga (1980) pays insufficient attention to the differences in cultures and their relation towards play, Demirbilek and Sener (2013) state that "People's emotional responses to products seem to vary between different generations, social groups, nationalities and cultures." (p. 1357). Whilst this issue of subjectivity in the manner in which background affects perception of play, products and subsequently playful products, is arguably already kept to a minimum by the choice to avoid defining play, and subsequently playful design overly strictly, it is still a phenomenon worth keeping mind throughout this thesis. Ideally, the research topic being Dutch architecture and the majority of applied academic literature stemming from a western perspective, enhances the validity of all facets of this study.

2.3 Playful Architecture

In a fashion similar to the way in which conceptualisations of play have moved away from the modernist approach of Huizinga (Raessens, 2014) towards a more lenient, abstract definition more in line with Sicart's (2014) insights on play, so too has people's relation towards architecture shifted. No longer is home modernism's frontrunner Le Corbusier's 'machine for living' (MoMa, 2006), a saying that illustrates clearly the belief that a house serves primarily the function of providing a space to live in. This modernist ideal arguably came to fruition in the form of the architectural style known as Brutalism (Grindrod, 2018), the resulting, concrete-based buildings of which are designed with 'function over form' in mind, meaning that the frivolities and picturesque details of the style preceding it were avoided at all cost. (Banham, 2011). Instead, "Users are expecting more from everyday

products" (Demirbilek & Sener, 2013, p. 1346), a sentiment that when considered alongside Raessens' (2014) 'ludification of culture', makes understandable the rise of postmodern architecture in lieu of modernism, or 'bunker architecture' (Habermas, 1987). This architectural style is described as comic (van Acker, 2020), light-hearted (Clendinning, 2002) and ultimately playful (Habermas, 1987), and while this study does not limit itself to postmodern architecture, the context of its emergence as well as its apparently inherent playfulness is at the least worth mentioning.

2.3.1 Dutch architecture

Is the often vocalised playfulness of Dutch architecture (e.g. Artemel, 2013; Holland.com, 2011; Lonely Planet, 2018; Reuland, 2018; TLmag, 2017) an evolutionary consequence of the early academic attention paid to the concept of play by (Dutch) scholar Johan Huizinga, or mere coincidence? No matter the answer, the architecture of the Netherlands is the study topic of this master's thesis, for it is not only playful, but also held in high regard internationally (Kloosterman, 2006). As Ibelings and Theodore (2009) demonstrate, Dutch buildings are signified by a deliberate reversion to traditions in terms of form, construction and function. This aspect of Dutch architecture perhaps indicates an abstraction of Demirbilek and Sener (2013) their fourth playful attribute, which is *familiarity*. This theme of continuity present in Dutch architecture is also mentioned by van Duin and Wilms Floet (2010) when they speak of China's fondness of Dutch architecture. They too delineate the five most significant architectural styles of the 20th century in the Netherlands, one of which being postmodernism. Additionally, Kloosterman (2006) largely contributes the international prestige of Dutch architecture to the innovativeness that Dutch architects achieved as a result of government interventions and incentives in the late 80s.

Altogether, this section serves to provide a brief overview of the context within which this study exists. The reputation Dutch architecture has on a global scale (Kloosterman, 2006; van Duin & Wilms Floet, 2010), as well as the described innovativeness (Kloosterman, 2006) and playfulness (Artemel, 2013; Holland.com, 2011; Lonely Planet, 2018; Reuland, 2018; TLmag, 2017), coupled with a large presence of postmodern architecture that is seen as comic (van Acker, 2020), light-hearted (Clendinning, 2002) and also playful (Habermas, 1987), brands Dutch architecture a more than appropriate topic of study for a research aimed at playful design elements in architecture.

2.3.2 Playful cities

Where the above provided the necessary context on Dutch architecture, this segment concerns itself with the broader topic of playful cities, for buildings exist not in a vacuum, but within entities of varying scale such as streets, neighbourhoods, or cities. The significance of a building's relation to its surroundings is demonstrated by Sicart (2014) when he outlines play as being *contextual*. While this characteristic is perhaps considered in a more abstract sense since it 'transcends physicality', that is not to say it is hence irrelevant for the interpretative part of considering a building's playfulness. In fact, Riikonen (2015) argues that *contrast*, which is inherently contextual, is the most significant aspect of understanding play. The playful element of *contrast* can even take on the form of absence, which he illustrates via central park, which is an extreme contrast of open space in relation to the surrounding skyscrapers of New York City, exemplar of the variety of manners in which contrast can occur in urban environments. Furthermore, the playful element of colour (Demirbilek & Sener, 2013), which can take on the form of contrasting colours (Allegos & Allegos, 1999), can manifest itself as divergent colour palettes within the façade of a building, but so too can it occur if a building strongly stands out from its surroundings as a consequence of its colour-contrast.

The modern metropolis, de Lange (2015) argues, is home to urbanites that constantly engage in role-playing in order to deal with life amongst strangers. While this act of role-playing, not too dissimilar from *mimicry* (Caillois, 2001), *Simulation* (Lucero et al., 2013) and *pretend play* (Deterding, 2016), is playful in its own right, play is not relinquished to exist only in metropoles, for as de Lange (2015) states, the city is "the locus for actual playful behavior and activities" (p. 428). Furthermore, scholarly attention for play and the city is not limited to the social perspective of urbanites existing in the city, but it is rather what de Lange (2015) calls a third strand of 'ludic architecture' that ties play into the physical form of the city.

On the topic of environmental design, Donoff and Bridgman (2017) propose a set of 27 urban ludic intervention typologies in the form of design elements. Some of these play-related design attributes include, but are not limited to: *mirror*, *biomimicry*, *suspension*, *aesthetic quality when not in use* and *humorous/whimsical design*. Notably, playful design elements are experienced dually, for an object's physical (Blijlevens, Creusen & Schoormans, 2009) and playful (Walz, 2010) properties ultimately exist in the interpretation of its 'users'. Similarly, architectural design can simultaneously be playful aesthetically, while also affording play physically, an element of design that Donoff (2014) dubs

'motivation type', of which *fun physical activity* is one. Exemplar is the inclusion of slides in otherwise mundane locations such as train stations or libraries (see figures 2.4 & 2.5). These can be playful via qualities such as their perceived out-of-placeness, or contrast to the seriousness of ordinary life (Riikonen, 2015), while also functioning as a stimulating play by causing *vertigo* (caillois, 2001), or stimulating users to *act contrary to social convention* (Donoff, 2014).

Figure 2.4 Slide in Coda library Apeldoorn (Oltmans, 2017) *Figure 2.5* Slide in train station Utrecht Overvecht (DUIC, 2016)

Riikonen (2015) goes on to outline a design methodology he dubs 'the playful lens', which is signified by 5 topics related to playfulness in urban environments: *Separation by spatial character*, *separation by rules*, *separation by temporality*, *non-instrumentality* and *invitation/communication*. He argues that "play is best understood by contrasting it." (p. 56) which is achieved by juxtaposing it with seriousness, instrumentality and the ordinary. Ultimately, Riikonen (2015) focuses on contrast in the realm of urban design, on a city-scale, though he too mentions this way of thinking translates directly to smaller design choices such as materials and colours, as would be the case for individual architectural structures. A final takeaway from Riikonen (2015) is that places aiming to be playful should minimise what he calls 'hostile design' and 'defensive architecture' such as fences and spikes. In order for a place to signal its playfulness, it needs to signal it sensorily via cues such as unique materials, colours and textures.

2.3.3 Playful buildings

On the topic of architecture, Walz (2010) states that an architectural theorist "will want to define and possibly explain playing in terms of space." (p. 21), a hypothesis that is not farfetched, as it has already become evident that "practically anything can become an

agency for some kind of play" (Sutton-Smith, 1997, p. 6) and play can exist in the physical world in material form as "an extension of the playful mind" (Sicart, 2014, p. 40).

Seeking to answer the question of how we design the space of play through an architectural lens, Walz (2010) analyses playspaces, or *playces*, and subsequently outlines several dimensions that serve to answer the matter. These categories amount to: *Play as ambiguous category*, establishing the contextual nature of the term. *Play as subjective experience*, denoting that without a player there is no play in space. *Play as modality*, meaning that play occurs physically, imaginarily, virtually or hybridly. *Play as rhythmical kinesis*, allowing play to be observed through an architectural paradigm. *Play as enjoyment*, implying it is directly tied to pleasure. *Play as designed phenomenon*, discussing the perceived suitability for play of certain physical environments. And lastly, *play and games – games and play*, a section that elaborates on play and games' interrelatedness.

The strong focus of Walz (2010) space and architecture that affords play, makes clear the importance of distinguishing between playful architecture from an aesthetic, product design perspective, and architecture that affords play. This distinction is perhaps best illustrated by the earlier mentioned example of slides in otherwise mundane locations, as they can be defined either as architectural structures that stimulate play, or as aesthetically playful objects as a result of their out-of-placeness. The emphasis of this thesis is ultimately on the aesthetic elements of playful design.

Though that is not to say there is no middle ground. Villareal (2018) for example, outlines three design phases that led to her arrival at a final *playce* design. These amount to: *play in illusion*, where she experimented with mirrors in architectural settings to both create contrast and induce vertigo. *Play in manipulation*, where users were afforded the ability to manipulate their environment via retractable seats amongst others. And lastly, *play in scale*, where architecture of continually varying scale created playful experiences by altering people's expectations of space. These three practices once more underscore the ambiguity of play, since design following *play in manipulation*, promotes a playful mindset both via its physical affordances and through its mere existence as playfully designed objects. This duality led to the inclusion of Villareal's (2018) three design methodologies as categories of playful architecture, despite their original purpose for designing architecture that affords play.

The earlier described house as 'a machine for living' is strongly contradicted by Fallon (1981) who instead argues that "Our buildings are not machines for various functions but places where we can act and interact and which have meanings that transcend a

particular use." (p. 183). This attitude is further visible in his design propositions for playful architecture. Fallon (1981) also demonstrates the low threshold of *fantasy play*, or *make-believe*, arguing that the mere re-use of an old industrial wharf in Boston as a museum is conducive to a playful mindset for children and adults alike, because "The new additions to the building's face seem to make the difference between 'then' and 'now' even clearer, allowing us to relive an imagined past." (p. 56).

Fallon (1981) set out to uncover design elements that elicit playful sentiments and one such characteristic is *physical manipulation of the environment*, which he further defines as manipulating a known object in new and interesting ways. Another playful architecture element that he outlines, is *humour*, which is coincidentally also mentioned by Lucero et al. (2013 and Donoff and Bridgman (2017). Fallon (1981) argues that humour in architecture is achieved through juxtaposition of "form, meaning or function of elements" (p. 41), which is in line with Riikonen's (2015) claim that "play is best understood by contrasting it." (p. 56). Furthermore, Fallon (1981) also delineates *scale*, and varying sizes of elements as playful. Which is both in line with Villareal's (2018) findings and can also be seen as an extension of *contrast*, except of size and not of colour. Additionally, he mentions *bold geometric forms* and *movement* as generating a sense of play.

Ultimately, Fallon (1981) defines a set of architectural devices that "utilize scale manipulation to enhance their play quality" (p. 120), which are: *Superadjacencies*, which constitutes juxtaposition of different elements or scales in close proximity. *Incongruities*, which differentiates a place from its surroundings. *Miniaturisation*, or expansion of familiar elements which can make one feel large in relation to their surroundings. Additionally, Fallon (1981) outlines architectural devices suited to establishing 'a sense of theatre' and 'reinterpreting the familiar'. The former is concerned with the activity of play, whereas the latter also covers the playful characteristic of a building. A way of reinterpreting the familiar is by either utilising aforementioned practices of *miniaturisation* or enlargement, or by allowing them to *serve new functions*. Fallon demonstrates this by describing the Brooklyn Children's Museum where a subway kiosk serves as an entrance to the museum rather than a subway as one would expect. Another architectural device for reinterpreting the familiar is affording people a new point of view on things. "When we can move over, around, and through things in new ways they can provoke our interest and change the way we normally perceive them." (Fallon, 1981, p. 131).

3. Methodology

This study aimed to research a field in play-related research that little attention has been paid to, by approaching how playful design elements are employed in Dutch architecture via the research question: *How does Dutch architecture employ playful design elements in its buildings?* This chapter concerns itself with the process by which an answer to the question at hand was reached, the likes of which are not insignificant, as they provide an insight into the process foregoing the analysis and conclusion of any research. Furthermore, it is a necessary part as it provides credence to the study by making clear the steps taken to transform theory into measurable phenomena. Lastly, a study cannot be repeatable and hence reliable if the methodological approach is not outlined clearly.

In practical terms, this chapter starts off by explaining the research design by elaborating on the methodological perspective and reasoning behind it (3.1). Next, the sampling method and collection of research units are described and defended (3.2). Following that, the operationalisation section outlines how theory was converted to measurements (3.3). After that, attention is paid to the manner in which collected data were subsequently analysed (3.4). And finally, the validity and reliability of this research design are critically considered and substantiated (3.5).

3.1 Research design

The earlier outlined gap in literature decidedly called for a qualitative method, for that approach can be employed to explore new phenomena, to interpret them meaningfully and to reach a fuller understanding of social phenomena (Brennen, 2017; Given, 2008). The research question '*How does Dutch architecture employ playful design elements in its buildings?*' is also qualitative by extension of that which it seeks to answer. Contrary to quantitative researches that seek to answer closed-ended questions via numerical data (Creswell & Creswell, 2018), a question of 'how' suggests an open-ended question and ensuing response. Qualitative questions are not answerable conclusively, but rather a most extensive answer to the question posed can be attempted.

While qualitative research is generally inductive in its approach, establishing overall themes from analysed data (Creswell & Creswell, 2018) and thematic analysis either takes on a deductive approach (Braun & Clarke, 2006), this master's thesis opted for a combination of the two, which as Schreier (2013) outlines, allows for advantages of both. Characteristics of what makes objects playful have previously been outlined in the

theoretical framework, and what follows is examining whether these attributes are in fact detectable in Dutch architecture. The study is therefore a mix of inductive an deductive, a rigorous hybrid approach (Fereday & Muir-Cochrane, 2006)

Although all research methods have their own strengths, the methodology of textual analysis of visual data was ultimately considered most fitting for this research. Interviews with either architects or 'users' of architecture could provide valuable insights into awareness of playfulness when designing or interacting with buildings, but textual analysis of data provides a systematic tool for highlighting overarching phenomena by means of a data-driven, iterative process (Schreier, 2013).

Looking at Dutch architecture via textual analysis is ultimately more in line with this thesis' aims than other methodologies are, for the goal is not to uncover possible intentions architects had when designing buildings, but rather to provide a holistic overview of playful elements in Dutch buildings through a lens of product design. And as such, with regards to the research question at hand, the earlier described methodology of textual analysis was deemed suitable for relating and sense-making of the collected data with the end goal of answering how Dutch architecture employs playful design elements.

3.2 Sampling

This section explains how the data was collected and which criteria were utilised to slim the overall sample. What exactly is Dutch architecture? For this study, the term was considered to constitute structures situated in the Netherlands that serve a primary function that is not play-related, such as houses, libraries, universities, bridges and offices amongst others. Art installations and statues are dismissed, as it could be argued playfulness, or their aesthetic qualities are not secondary attributes, and as such are unfit for studying play in non-play settings.

To collect these units of analysis, several sampling techniques were considered, though ultimately, qualitative research benefits from a purpose-driven one, as opposed to convenience or arbitration-based ones (Flick, 2009). Ideally, sampling purposively results in a data set limited to units of analysis highly relevant to the phenomenon of study, though the process by which the selection takes place should still be transparent and unbiased. The purpose of this study's sample was playfulness, which was subsequently the instrument that led the rest of the data collection.

Silverman (2019) describes how the detailed data analysis of a textual approach calls for a limited body of data with which to work. As such, although it may be helpful to

initially explore different kinds of data, this should only be done to establish the data set that best suits your research. After considering various data samples, the visual nature of architecture meant that textual accounts of images of buildings ultimately lent itself best to this master's thesis, as this allowed for buildings to be described to the fullest extent by interpreting them visually, while the textual representation permitted an extensive thematic analysis to ensue.

Keeping in mind the importance of objectivity and reliability, an online open-access database of buildings and images was chosen (Silverman, 2019). The website Emporis (https://www.emporis.com/) hosts building data of over 700,000 buildings worldwide, 600,000 of which include images. The vastness of their database, as well as their practical online filtering tools led to this website being chosen over others. Emporis has existed since 2000 and operates through an editorial community, data researchers, and the general public, making them a reliable tool for the research matter of this study.

3.2.1 Exclusion criteria

As mentioned earlier, the building database on Emporis' website offers various filtration tools, one of which was to distinguish between continents, countries, provinces and even individual cities. Naturally, the scope of this research meant that the buildings were limited to those situated in the Netherlands.

Aside from this, since Emporis does not offer images alongside every building listed, and a visual representation of a building was necessary for it to be included in the initial sample, those buildings that were lacking images were excluded from the selection. The database also makes a distinction between types of buildings, which include amongst others categories such as *high-rise building*, *church*, *bridge*, *monument*. Ultimately, the categories *sculpture* and *monument* were excluded from the selection, as it could be argued their primary function is their outwards appearance, in contrast to other structures such as churches, bridges and even windmills, who primarily serve a practical function, meaning their aesthetic qualities come second. This is relevant because the topic of playfulness entails the application of visible play-elements to non-play settings.

Furthermore, Emporis delineates by colour the nature of buildings, these amount to *existing*, *under construction*, *planned*, *unbuilt* and *demolished*. For the sake of this research, all but existing buildings were excluded, for the research topic is Dutch architecture that already exists, not future architecture. Including buildings under construction or even in their planning phase by means of realistic photo renderings would surely make for some

interesting, playful designs, but to the detriment of the replicability and thus reliability of the study, since these buildings may still be subject to alteration or cancelation altogether.

The final exclusion criterium was one carried out by the researcher manually, namely whether buildings depicted any signs of playful elements at first glance. In order to avoid false negatives in the form of exclusion of buildings that do indeed employ playful design elements, as well as the minimising of false positives in the form of inclusion of buildings that clearly do not incorporate playful attributes in their design, all existing scholarly theory was carefully familiarised with prior to data collection. Additionally, the characteristics serving as indicators for playfulness outlined in the following section (3.3) were also interpreted freely in order to not reject buildings whose playful nature was yet to be determined in the data analysis process. It was deemed more desirable to include too many buildings, whose playfulness would later be decided upon, than to approach the data collection overly strictly, potentially excluding perfectly playful buildings in the process.

3.2.2 Data collection process

With the parameters of exclusion having been outlined, time came to delve into Emporis' buildings database. The 700,000+ buildings the website boasts were initially narrowed down to 600,000 through the removal of all buildings void of an image. Following this, all buildings outside the Netherlands were excluded, which led to a drastic reduction resulting in around 4,000 buildings. The subsequent removal of all buildings not currently existing led to a further 1,000 buildings being left out, which meant there were now about 3,000 buildings to be analysed.

It should be noted that a building's age was not considered a relevant exclusion criterium, for the aim of this research was not to understand architects' intentions when designing a building, but rather to merely analyse what playful design elements are evident today in the architecture of the Netherlands. Hence, observing buildings from the past through a more recent understanding of play and playful design does not pose an issue.

Although combing through the buildings listed in Emporis' database resulted in many playful-looking structures being included in the data sample, the process was strenuous and ultimately did not result in a minimum of 100 playful buildings, which is the amount the methodological guidelines of this master's thesis call for. This is why two additional methods of data collection were utilised. Firstly, several playful buildings and their accompanying images and descriptions were included from memory. And secondly, the Instagram account of architectural photographer Marco de Groot (@marcorama) was

scoured for potentially playful buildings. Marco's concise descriptions of location, history and relevant architectural firms that accompany each of his photographs ensured that any buildings found through his page were easy to subsequently find and verify elsewhere on the internet.

The totality of the data collection primarily took place in line with the procedures set out in the operationalisation (see section 3.3.). Following an analysis of several thousand images of buildings, 103 were ultimately included in the data sample. Of these, 10 were excluded via maximal variation, which Flick (2009) outlines entails that of all examples found, the ones displaying the widest range of playful elements were selected so as to capture the greatest amount of diversity. Of each of these 100 buildings, their most illustrative photographs were included, be they of a higher quality, clearly emphasising the playful element(s), or showing the context of the building in the case of wider shots and images from above. An overview of the complete sampling and data collection process is provided in figure 3.1.

Figure 3.1 Process of data collection

3.3 Operationalisation

In essence, operationalisation is the process of defining and quantifying variables so that they become measurable (Brennen, 2017). Because of the qualitative nature of this research, playful design elements were characterised as observable indicators in architecture rather than calculable qualities. In order to make tangible the concept of playfulness in a design framework, existing academic theory outlined earlier was used to arrive at a set of observable design elements that are considered to make objects playful. These characteristics are extensive, in line with the broad nature of the concept of playfulness (Sicart, 2014), but as a consequence of their embedment in scholarly literature, the presence of each of these features arguably at the least indicates a sense of playfulness. While the amount of playful attributes present in any particular building does not necessarily directly translate to the extent of its playfulness, it does indeed prove it is playful in multiple manners.

The totality of playful elements across the fields of product design and architecture outlined in the theoretical framework were critically considered and related, to arrive at a final set of playful architecture indicators. The playful design elements used as indicators of playfulness going into the data analysis consisted of: stimulating one (or more) of the *senses*, being aesthetically *fun*, exhibiting *cuteness* via proportions or round shapes, eliciting *familiarity* and utilising *colour* contrast or recognisability (Demirbilek & Sener, 2013), providing a sense of *captivation*, *challenge*, *competition*, *control*, *discovery*, *exploration*, *expression*, *fantasy*, *humour*, *relaxation*, *simulation*, *submission*, *subversion* (Lucero et al., 2013) and being contextually *contrastful*, being *Separative by spatial character*, and visually *inviting/communicating* (to) play (Riikonen, 2015), as well as *mirror* material, displaying *biomimicry*, exhibiting *suspension*, having an *aesthetic quality when not in use* and being *humorously/whimsically* designed (Donoff & Bridgman, 2017). Furthermore, *play in illusion* via mirrors and playing with expectancies, *play in manipulation* by providing agency to users, and *play in scale* by varying in size (Villareal, 2018) and lastly, *physical manipulation of the environment*, being *humorous*, playing with *scale*, being made up of *bold geometric forms*, being able to *move*, making use of *superadjacencies*, displaying *incongruities*, utilising *miniaturisation* and *reinterpreting the familiar* (Fallon, 1981). This initial set of playful design elements ultimately led to 41 final codes, the most relevant of which can be observed alongside their descriptions in appendix A.

While each of the aforementioned qualities was already narrowed down from a broader list of attributes, that is not to say unforeseen playful qualities could not emerge during data analysis. The explorative, thematic approach allowed for this occurrence to be incorporated in the final coding scheme, and the initially established playful design elements merely served to ensure the totality of manners in which architecture can be playful was considered when time came for the data to be analysed. While the attributes were broad, they were often interrelated, and they were categorised under overarching themes in the results chapter of this master's thesis.

3.4 Data analysis

Now that the sampling procedure as well as the operationalisation have been outlined, it is time to explain which method of data analysis was opted for, and why. While there were several approaches to data analysis to choose from, including but not limited to content analysis, grounded theory and narrative analysis (Silverman, 2019), the choice ultimately fell on thematic analysis. Whilst content analysis was a solid contender due to its

aptness at dealing with textual data, as well as its methodical approach that ensures proper reliability and validity (Silverman, 2019), the systematic nature of it was ultimately deemed unfit because it emphasises the number of instances of codes more so than the potential establishment of yet undiscovered codes and overarching patterns in the way thematic analysis does (Vaismoradi, Turunen, Bondas, 2013). Only by observing patterns with a simultaneously inductive and deductive approach could a meaningful answer be given to the question how Dutch architecture employs playful design elements.

Although the systematic approach of qualitative content analysis is perhaps more beneficial to the reliability of a study than the slightly more exploratory approach of thematic analysis, Braun and Clarke (2006) propose six steps for thematic analysis of data that when followed closely minimise the extent to which reliability and validity are impeded. Their phases are as follows: For the first phase, a researcher familiarises oneself with the data. This was done via immersion in the data to the point of being familiar with both the depth and breadth of the content (Braun & Clarke, 2006). This process took place both during the collection of images of, and research into Dutch architecture, as well as prior to this thesis altogether, due to a personal interest into architectural photography. The second phase, or generating initial codes, occurs after one has familiarised themselves with the data and takes place in the form of producing a list of initial ideas and subsequent preliminary codes that are generally rather descriptive (Braun & Clarke, 2006). This phase resulted in the generation of 41 codes that described what made a building playful at first glance. Already, some of these initial codes reappeared for different images. The third step, the search for themes, the aforementioned preliminary descriptions of playfulness were grouped by type, resulting in the formulation of several themes and sub-themes, although these are not set in stone as outlined by Braun and Clarke (2006). The fourth phase, reviewing the themes, all of the aforementioned themes and sub-themes were evaluated carefully, tested for coherency on the level of data extracts, in line with Braun and Clarke's (2006) recommendations, and subsequently some data extracts were reassigned to other themes. Lastly, during this step a thematic map was established that provides a clear overview of the position of each sub-theme in relation to the main themes which can be found in appendix B. To this point, themes had not yet been definitively named, but during the fifth step they were both named and properly defined. This process included writing detailed analyses of each of the individual themes, identifying their position within the greater research (Braun & Clarke, 2006). For the sixth and final phase of thematic analysis, a report was produced that laid out the key findings, while also relating them back to both the research question and theoretical

framework. Additionally, telling data extracts were presented in the results chapter. A code tree demonstrating the main coding steps can be found in appendix B.

It should be noted that the preliminary coding took place within the software Atlas.ti. The use of this software during the most labour intensive segment of the analysis allowed for a clear overview of the numerous initial codes that were created. The following phases of thematic analysis were conducted manually in a Microsoft Word document.

3.5 Validity and Reliability

This section outlines the measures taken to ensure both the validity and reliability of this research. In any research, it is essential that that which is purported to be measured is in fact measured, even more so in the case of qualitative research, (Flick, 2009). In terms of the validity of this research, Flick (2009) mentions three main errors that can occur during qualitative research: To see a relation where there is none, to dismiss one when there is one, and lastly to ask the wrong questions. As for the reliability of any qualitative research, it entails "the degree of consistency with which instances are assigned to the same category by different observers or by the same observer on different occasions" (Hammersley, 1992 as cited in Silverman, 2019, p. 37).

From an ethics standpoint, this research posed little concern. All the images gathered and analysed are publicly available and do not recognisably feature non-consenting individuals and where possible, personal photographs were used, and for those collected online an effort was made to locate the rightful copyright owner of each individual image. Lastly, every building was analysed solely for its playful design elements, meaning no value judgments were made about individual buildings, their architects and their visions.

3.5.1 Validity

Seeing a relation where there is none is a realistic danger for a study like this one, as it was originally inspired by a gut feeling. It could well have turned out that Dutch architecture is not playful in the first place, let alone displaying playful design elements. Fortunately the opposite proved true, Dutch architecture is not only described by many as playful (e.g. Artemel, 2013; Holland.com, 2011; Lonely Planet, 2018; Reuland, 2018; TLmag, 2017), the Netherlands is also home to a significant amount of postmodern architecture which in turn is described as generally comic, light-hearted and playful (van Acker, 2020; Clendinning, 2002; Habermas, 1987). While the playful aspect of Dutch architecture was thus evident, a relation between playful design and architecture needed to

be established too. Silverman (2019) claims that a measure to enhance a study's validity is to utilise triangulation of data and methods. One such practice was the practice of combining multiple theories from different fields of study. Academic literature on playful product design, playful cities, ludic architecture and even the concept of play itself were all carefully analysed and related to one another, all to ultimately arrive at a point where the claim that Dutch architecture does indeed exhibit playful design elements could be made with confidence.

The second issue raised by Flick (2009), of rejecting a relation or principle, when there is in fact one, was not of great importance to this research, as the aim was not necessarily to prove the existence, or lack thereof, of playful elements in specific buildings, but rather to identify what these elements are, and in which manners they manifest themselves in the sphere of architecture in the Netherlands. As for the interrelatedness of playful design and playful architecture, this relation was affirmed via careful assessment of existing scholarly literature.

The final point of contention as it relates to validity raised by Flick (2009), to ask the wrong questions, can too occur at any point in the research. Whilst the research question guides the rest of the study in broad terms, any sub-questions flowing from it could too be 'wrong'. As for this master's thesis, strict sub-questions were not necessarily formulated, but rather the segments preceding the playful architecture section of the theoretical framework served as a device guiding the reader from most abstract to most concrete. They asked the questions of 'what is play?', 'what is playfulness?', and 'what are playful elements?'. These amongst others, when considered as a whole aimed to provide context and credence to the topic of playful Dutch architecture. Their purpose as building blocks for the rest of the research to lie upon means that the questions could not so much be wrong, but more so lacking in breadth. Keeping this in mind, the pyramid-like makeup of the theoretical framework of this thesis was deemed appropriate for the matter it purported to study.

The aforementioned measures taken to ensure validity relate primarily to the theoretical aspect of this study, but so too for the methodology were they kept in close regard. By only including images of a high resolution, displaying some level of context, and highlighting the elements relevant to this study, was it ensured no false positives occurred. Extensive, scrutinous textual accounts of the images ensured that any and all elements of the images were not relinquished to exist in the mental interpretation of the observer, but rather transformed into words, serving as a kind of double-take for each of the features noted down. Furthermore, extensive familiarisation with academic work relevant to the topic

beforehand ensured that false negatives were too kept to a minimum. By understanding all the forms playfulness can exist in, each of the buildings was analysed with due attention. Lastly, so as not to exclude potential characteristics of play unbeknownst to the researcher, the explorative thematic approach employed allowed for the inclusion of findings that emerged during, or even after the data analysis process of the study.

3.5.2 Reliability

The replicability of this research, or "the question whether or not some future researchers could repeat the research project and come up with the same results, interpretations and claims" (Silverman, 2011, p. 361) was taken into account during all steps of the research. Moisander and Valtonen (2006) propose two steps to satisfy the reliability of non-quantitative research. Firstly, the research process should be made transparent by means of clear descriptions of data analysis methodology. Secondly, by ensuring 'theoretical transparency' by clearly displaying the theoretical position from which any interpretation occurs. These measures were applied during this master's thesis in the form of an extensive textual account of the research design, operationalisation process, sampling procedure and criteria, and the subsequent method of analysis, as well as a clear and systematic overview of existing academic findings on the topics at hand. Extensive lists of playful design elements from scholars from diverse fields of study ensured that the elements utilised to operationalise the concept of playfulness were not grabbed out of thin air, but rather mostly pre-defined and holistic in nature.

Another aspect of this research that contributes to its reliability, is the use of an open source database to collect the images of Dutch buildings from. Freely accessible databases are considered inherently more reliable than those that are not, as they allow for more straightforward reproduction of the sampling process of the study (Silverman, 2019).

Aside from aforementioned measures taken to ensure the reliability of this research, the methodical, though explorative, approach to data analysis employed too aided this aspect of the study. The well-established six phases of thematic analysis outlined by Braun and Clarke (2006) were followed closely, which resulted in a research that is both rigorous and readily replicable.

4. Results

The aim of this study was to understand Dutch architecture from an angle of playful design. The Netherlands with its bespoke playful buildings proved an ideal subject for such analysis. Rather than approaching the topic from a field of gamification or playful urban city planning, playful design literature opened the door for asking the question: *How does Dutch architecture employ playful design elements in its buildings?* In this chapter, the results of a scrutinous thematic analysis of 103 visual representations of Dutch buildings retrieved from an extensive database of over 4,000 buildings in the Netherlands are presented. The process of coding the images following the six phases of thematic analysis outlined by Braun and Clarke (2006) yielded a total of four identifiable themes. These themes outline the various manners in which Dutch buildings concretely utilise playful elements, and amount to firstly, *play via reference*, which covers aspects where buildings (latently or manifestly) make reference to material objects appearing in the world (4.1). Secondly, *play via subversion*, which touches on manners in which architecture subverts social norms and undermines expectations (4.2). Thirdly, *play via contrast*, a theme that exhibits traits of all others, but in essence deals with ways in which buildings communicate playfulness via contrast of some sort (4.3). And lastly, *play via nudging*, which outlines those elements that are designed to trigger an effect of some sort in its 'users' (4.4).

4.1 Play via reference

Play is highly contextual, and while the third section on play via contrast elaborates on that notion, this one covers the concept of allusion. As Demirbilek and Sener (2013) outline, familiarity is a powerful tool in the field of playful design, as it can allow individuals to deduce a product's use, though the use of metaphors can also elicit joy. By utilising particular colour combinations, buildings can make reference to concepts such as nobility (Allegos & Allegos, 1999), but Dutch buildings more specifically often pay homage to traditions in terms of form, construction and function (Ibelings & Theodore, 2009). A more notable manner in which architecture exhibits elements of playful design however, is through forms of biomimicry, which is one of Donoff and Bridgman's (2017) design interventions that promotes play in an urban environment. This act of designing structures modelled after biological entities also plays into the concept of familiarity, implying products' uses and eliciting a sense of familiarity with a construct one has never seen before.

During the thematic analysis, the act of imitation in a general sense, came forward as an extension of biomimicry. Imitating any object found in the world, not merely those in nature, can be playful. Not only did Caillois (2001) outline mimicry or the act of simulation as a facet of play, when it occurs in architecture, it is often accompanied by other elements such as scale manipulation (e.g. blowing up ordinary objects to humorous proportions). The unanticipated finding that a substantial number of playful buildings have received colloquial nicknames directly related to that which is being imitated, further substantiates the idea that imitation is a logical extension of biomimicry as an element of playful design in architecture.

The various playful attributes found within the theme *play via reference* are further elaborated upon in the coming segment, where descriptive examples are provided so as to further substantiate the findings of the analysis. Although a total of 7 codes ultimately fell under this theme, the most meaningful shall be further covered.

4.1.1 Cuteness

Where imitation is an extension of biomimicry, cuteness is perhaps the inverse. It is a more abstract concept that covers buildings' attributes in more general notions than the often concrete objects that biomimicry makes reference to. Demirbilek and Sener (2013) outline that when designing playfully, roundness and variation in proportions is interpreted by humans as cute, which in turn elicits unconditional happiness, a characteristic that Huizinga (1981) considers central to the concept of play. Extending the scope of cuteness beyond form, particular colours by means of their familiar capacities (Allegos & Allegos, 1999) can also be associated with cuteness (Cheok, 2010).

The concept of cuteness is perhaps not too dissimilar from what Juul (2011) dubs *juiciness*. Where games may provide excessively visceral feedback to mundane player actions, physical architecture can exhibit cuteness via particular colours or shapes to similarly elevate ordinary buildings to playful ones. It is for a reason that many of the world's most popular video games (particularly mobile phone ones) are both cute and juicy (see figure 4.1). Logically, cute buildings are subsequently tied to positive emotions close to playfulness on a conceptual level.

Rank		Game	Company	Release Date
1		Candy Crush Saga	King	Nov. 2012
2		Fruit Ninja	Halfbrick Studios	Apr. 2010
3		Angry Birds	Rovio	Dec. 2009
4		Subway Surfers	Kiloo	May 2012
5		Despicable Me	Gameloft	Jun. 2013
6		Clash of Clans	Supercell	Jun. 2012
7		Temple Run	Imangi	Aug. 2011
8		Angry Birds Rio	Rovio	Mar. 2011
9		Temple Run 2	Imangi	Jan. 2013
10		Words With Friends	Zynga	Jul. 2009

Figure 4.1 Most downloaded games from the iOS App Store (Suckley, 2015)

Good examples of buildings exhibiting the playful design characteristic of 'cuteness' in their physical form, are the fittingly titled "De Bubble" in Eindhoven (see figure 4.2), as well as its bigger brother "De Blob", situated in the same city (see figure 4.3). Not only are these structures cute in their own right, the contrast of their rounded shapes and their square, urban surroundings further accentuates this element.

Figure 4.2 The Bubble in Eindhoven (De Architect, 2013)

Figure 4.3 The Blob in Eindhoven (Zwart, 2016)

Living in a cute building is also possible, something that the "Bossche Bollen" in Den Bosch are a testament to (see figure 4.4). These rounded houses with circular windows lack the contrast of standing out from their direct surroundings, as they exist in a small swarm, though their forms are distinctly cute. Their form, up to the chimney, is reminiscent of the Toad house found in Super Mario 3D Land (Nintendo EAD, 2011) (see figure 4.5). A video game that makes use of cute visuals to appeal to younger audiences.

Figure 4.4 Bolwoningen in Den Bosch (van Munster, 2019)

Figure 3.5 Toad house in Super Mario 3D Land (Nathan, 2017)

In terms of colours that are associated with cuteness, Cheok (2010) finds that both the colours pink and blue are strongly associated with cuteness, with adults finding bright reds and blues most cute, and children opting for cyan and pink instead. This capacity for a building's attribute, namely colour, to communicate cuteness, is visible in various Dutch buildings. Most notably, both Didden Village in Rotterdam (see figure 4.6) and Strijp-S in Eindhoven (see figure 4.7) exhibit a nearly artificially bright hue of blue which fits squarely into the colour range adults would consider cute (Cheok, 2010).

Figure 4.6 Didden Village in Rotterdam (Archineering, 2020)   *Figure 4.7* Strijp-S in Eindhoven (Verhoeven, 2018)

More aimed at the young, the Klokhuis in Almere (see figure 4.8) consists primarily of the exact bright pink tone that children find most cute (Cheok, 2010). Interestingly, this building was designed entirely by children, further lending credence to Cheok's findings. The klokhuis also features a slide which not only affords physical playful behaviour, but also communicates its playground status. As Sicart (2014) explains, playgrounds are devoid of functionality other than being a context for playing. Where the slides in the CODA library and Utrecht Overvecht train station serve a utilitarian purpose, The Klokhuis' slide solely promotes play, thus designating it a playground.

Figure 4.8 Klokhuis in Almere (Hotspot Holland, n.d.)

4.1.2 Biomimicry

Biomimicry and its overarching concept, imitation, play with notions of familiarity. Not only was biomimicry found to be one of 27 ludic interventions in urban design (Donoff & Bridgman, 2017), so too were elements of familiarity (Demirbilek & Sener, 2013) and inversely, reinterpreting the familiar (Fallon, 1981), which are concepts closely tied to imitation. The concept thus promotes playfulness in its own right, but also makes use of the familiar in multiple manners, an act that is also directly tied to playful design.

When a building mimics an object from nature, it refers to the familiar, but also reinterprets it, assigning a new meaning to it in the process. Although the concept of reinterpreting the familiar shall receive due attention in a coming section, the application of biomimicry was visible in the design of several Dutch buildings.

One rather illustrative example is the Ecofactorij in Apeldoorn (see figure 4.9), a building designed to literally represent a leaf, both in shape and colour. It not only makes use of manipulation of scale in the process, overexaggerating the size of the leaf, but the cultural association between greenery and sustainability is perfectly in line with the Ecofactorij's mission statement, showcasing once more the allusive qualities of specific colours (Allegos & Allegos, 1999), as well as the playful design practise of scale manipulation in action (Fallon, 1981; Villareal, 2018). A video game that has traditionally utilised colours and shapes in similar fashions to imply a building's purpose, is Pokémon. More specifically, the grass-gym building (see figure 4.10) in Pokémon Sword and Shield (Game Freak, 2019) employs leaf iconography to denote its purpose.

Figure 4.9 Ecofactorij in Apeldoorn (architectenweb, 2011)

Figure 4.10 Grass-type gym building in Pokémon Sword and Shield (Carrasqueira, 2019)

Another example of architecture imitating that found in nature, is the playfully named "De St@art", or the tail, situated in Apeldoorn's primate zoo De Apenheul (see figure 4.11). This structure in the shape of a tail proves that names given to buildings based on that which they imitate, are not necessarily colloquial. Perhaps a consequence of what Raessens (2014) dubs the ludification of culture, is that organisations are becoming aware of playfulness as a relevant phenomenon.

Figure 4.11 De St@art in Apeldoorn (Locaties met Meerwaarde, n.d.)

4.1.3 Imitation

Where imitation departs from biomimicry, is in that it also encompasses objects that are man-made. Not only does Huizinga (1980) dub play a mode of pretension, Caillois' (2001) classifications of play, *mimicry,* refers to simulation. The concept of imitation is inherently simulative, for to mimic something else, one must at the outset simulate something it is not. All buildings coded as exhibiting biomimicry included the code for imitation, but not inversely so. It is important to consider the cultural factor present in any form of imitation, for what is familiar, and what isn't, and consequently how it is reinterpreted in the form of a building, differs from society to society. But, what becomes evident, is that the playful act of imitation is not exclusive to the living.

A telling example of this is "De Kapsalon", a train station better known as Rotterdam Centraal (see figure 4.12), which to most Dutch patently draws inspiration from a local dish served in aluminium trays, designwise. The Rotterdam-based Kapsalon dish is not the only object people consider the station to imitate however. A tally of nickname votes found that aside from a Kapsalon, people felt Rotterdam Centraal also represents a shark's mouth, which underlines the intersubjective nature of play (Blijlevens, Creusen and Schoormans, 2009; Walz, 2010).

Figure 4.12 Rotterdam Central Station (Team V Architectuur, 2014)

On occasion, a building's object of imitation is also directly tied to its function. The design of Kinepolis in Zoetermeer (see figure 4.13) features a gigantic film strip wrapping around and through the building. Not only is it a playful take on the traditional cinema, it too makes use of drastic scale manipulation in the process.

Figure 4.13 Kinepolis in Zoetermeer (Collectie Kinepolis, 2018)

On the other hand, the opposite is more often the case, such as with the Stedelijk Museum's modern annex in Amsterdam christened "De Badkuip" (see figure 4.14). This modern expansion of the over 200 year old museum not only bears unambiguous resemblance to a bathtub, it too contrasts staunchly with its surroundings. A playful architectural intervention such as this one, not only livens up the area in an aesthetically playful sense, it also influences the Stedelijk Museum's image and reinterprets what one would consider a museum to be.

Figure 4.14 Stedelijk Museum Amsterdam Annex (Marshall, 2017)

4.1.4 Nicknames

A somewhat unanticipated finding, the idea of which also did not arise during extensive familiarisation with scholarly literature, is that of nicknaming. Seemingly nearly exclusively reserved for playful buildings, are colloquial nicknames that refer to that which they resemble. Although this finding is not an element of playful design that buildings possess, it is a relevant consequence of their design nonetheless.

Interestingly, renowned critic of modernist architecture, and advocate of new urbanism, Léon Krier, states that "The nickname is the most definitive and devastating criticism that a building can receive" (Krier, 2011, p. 31). He argues that nicknames are the correct term of kitsch objects, which is arguably the inverse of what modernism set out to achieve through its philosophy of "form follows function".

The findings of this study too, indicate that it are often those buildings designed along modernist lines that attain nicknames, though not as a result of their being kitsch, but rather as a logical consequence of man's search for play in all aspects of life (Sicart, 2014). Postmodernist buildings, while also playful, perhaps leave little room for interpretation in their expressive design. The earlier mentioned Kinepolis in Zoetermeer unambiguously resembles a film strip, whereas the modernist Evoluon in Eindhoven (see figure 4.15) received its nickname "De UFO" without necessarily imitating one fully. Another such building designed with "form follows function" in mind, is the Gasuniegebouw in Groningen (see figure 4.16). This building constructed in the organic style has been dubbed "De Apenrots", or the monkey rock, and it too is testament to the tendency of people to ascribe playful nicknames to buildings based on their appearance.

Figure 4.15 Evoluon in Eindhoven (ANP, 2021)

Figure 4.16 Gasuniegebouw in Groningen (HollandLuchtfoto, n.d.)

4.2 Play via subversion

The concept of subversion is central to playful design specifically, and the notion of play more generally. The act of breaking societal norms is present in Huizinga's (1980) definition of play when he describes it occurs outside the realms of everyday life, but it is also more directly argued by Sicart (2014) who claims one of play's key characteristics is its disruptiveness and ability to change current conditions and beliefs.

On the topic of playful design, by means of their playful experiences framework, Lucero et al. (2013) outline subversion as one of 22 legitimate attributes applicable to playful design processes. Furthermore, Fallon (1981) also explains how in the field of architecture "When we can move over, around, and through things in new ways they can provoke our interest and change the way we normally perceive them." (p. 131), a statement that demonstrates the subversive capacities architecture may possess.

Although the theme *play via subversion* ultimately encompassed a total of 12 codes, several of the most illuminating shall be discussed in further detail, so as to provide an overview of how Dutch buildings may convey their subversive qualities, which is subsequently a component of what makes them playful.

4.2.1 Suspension

The act of physical suspension is not only an aspect of the concept of illusion that the subsequent section shall cover, it is also one of Donoff and Bridgman's (2017) playful

design elements. Buildings that suspend large portions of their mass in seemingly gravity-defying manners may cause a person to look twice in passing. Not only does it subvert norms of what buildings ought to be, it for a second triggers people to reassess their understanding of gravity, playfully provoking introspection and proving once more that play is inherently disruptive (Sicart, 2014). This process ultimately stimulates citizens to interact with architecture not only on a physical level, but a mental one too.

Not only does the Belvédère tower in Rotterdam, which is better known as Toren op Zuid (see figure 4.17) stand under an angle of inclination close to that of the Tower of Pisa, it is also that much more playful because of it. What would otherwise be an building like any other has been made playful through a combination of LEDs and an impressive act of physical suspension.

Another building located in Rotterdam makes use of similar toothpick-like columns to uphold a large brick of steel and glass that at a glance appears too heavy to be suspended in the manner that it is. Unilever in Rotterdam (see figure 4.18) may remind some of a matchbox supported by its own matches, though its playfulness is also aided by its aged surroundings that provide a stark contrast with its modern look.

Figure 4.17 Belvédère tower in Rotterdam (Alkondor Hengelo, 2018)

Figure 4.18 Unilever offices in Rotterdam (van den Heuvel, 2012)

Aside from structures being supported by columns far too small for their mass (visually that is), another phenomenon that is observably being employed in unison with suspension, is a form of movement. Far from literal movement, many buildings appear as if

pushed, stretched or twisted by a titan, their façade being the result of which. The Manhattan tower in Roermond (see figure 4.19) exhibits the latter clearly. Another more angular, nonetheless still playful approach is visible in the Nhow Rai in Amsterdam (see figure 4.20), where the inner of three triangles has seemingly been offset by nearly 90 degrees. This phenomenon is reminiscent of Sicart's (2014) claim that play comes from the appropriation and deformation of structures.

Figure 4.19 Manhattan tower in Roermond (Gijselhart, 2020)

Figure 4.20 Nhow RAI in Amsterdam (Herfst, 2019)

4.2.2 Illusion

The aforementioned practise of displaying gravity-defying feats of suspension, is perhaps a form of illusion, although the concept of illusion is that much more broad. An illusion, or something that is not what it seems to be, is inherently subversive, but as a game of illusion it is also part of Caillois' (2001) classifications of play. Believing something that turns out to be untrue undermines expectations and in the process stimulates reflexion. It is thus also another of play's key aspects, disruptive (Sicart, 2014).

In the field of architecture, Villareal (2018) describes the use of mirrors in architectural settings to stimulate playful design, though this application is ultimately part of *play in illusion*, one of three phases of her design process. Through clever use of materials,

shapes and lighting, buildings can create optical illusions which are subversive and in turn make them playful.

Putting Villareal's idea of mirrors into practice, is L'Arc en Ciel in Deventer (see figure 4.21), a building that is partially covered in mirror-like windows. Its French name meaning rainbow, stems from its specially constructed glass that reflects a variety of colours based on the angle of the light hitting it.

Another example of illusory design, is the Depot Boijmans Van Beuningen in Rotterdam (see figure 4.22). This buildings plastered with mirrors makes use of literal mirrors placed at specific angles to reflect the skyline of Rotterdam fully.

Figure 4.21 L'Arc en Ciel in Deventer (Onna, 2016)

Figure 4.22 Depot Boijmans van Beuningen (Faché, 2020)

An interesting form of an illusion that is not dependent on materials such as mirrors nor on suspension, is the Polak building on the Erasmus University Campus in Rotterdam (see figure 4.23). This building's interior with all its staircases has been likened to works of the artist M.C. Escher (see figure 4.24), known for the seemingly impossible worlds depicted in his paintings. The highly culture and context-related nature of Polak's illusory quality is simultaneously its charm and its demise, for only those familiar with Escher's work may form a connection between the two. Proving once more that playfulness ultimately exists only in the eye of the beholder.
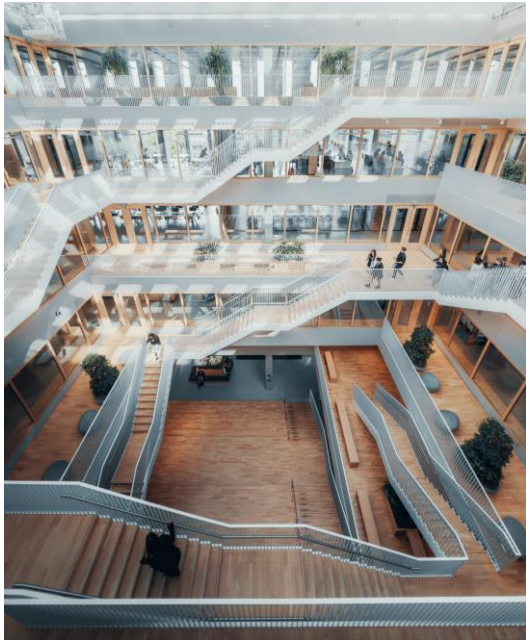
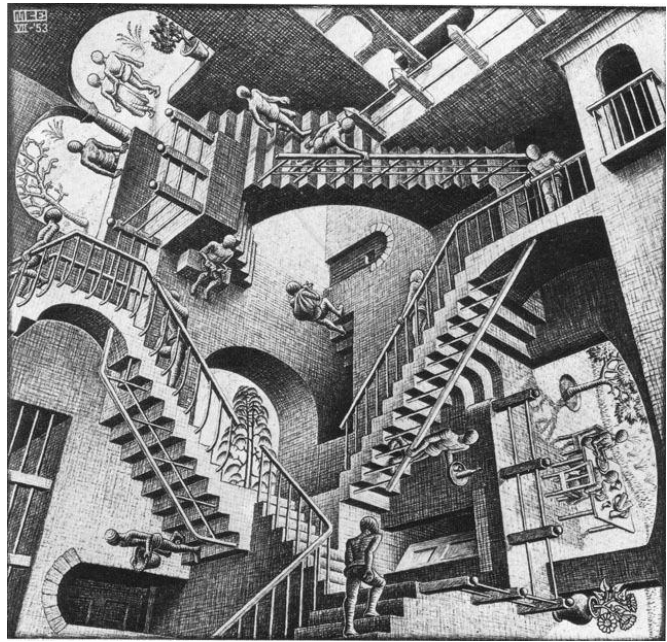*Figure 4.23* Polak building in Rotterdam (Cvetanovic, 2021)

Figure 4.24 Relativity (Escher, 1953)

4.2.3 Reinterpreting the familiar

One way of subverting norms, is by reinterpreting the familiar. Fallon (1981) describes how a subway kiosk can be repurposed to now serve as an entrance to a museum. A playful procedure that in the process assigns new meaning to both subway kiosks and museum entrances from a cultural perspective. The latter can be observed as occurring in playful buildings on a regular basis. Their outlandish design is sufficiently far removed from the ordinary that it in turn stimulates people to reinterpret the familiar. Who is to say offices, homes, bridges and parking lots ought to look the way they have always done? Sicart's (2014) disruptive notion of play would certainly agree, and playful architecture appears in practise to habitually challenge this notion.

In the same way that the Cube houses in Rotterdam (see figure 4.25) reimagine the orientation in which cubic housing units are traditionally placed, so too do certain bridges challenge the conventional approach to crossing a body of water. Where the Petrus en Pauluskerk in Maassluis (see figure 4.26) forces us to rethink the materials with which a church is constructed, the aforementioned slide in train station Utrecht Overvecht calls for an alternative mode of short-distance transportation.

Figure 4.25 Kubuswoningen in Rotterdam (Poot, n.d.)

Figure 4.26 Petrus en Pauluskerk in Maassluis (De Architect, 2010)

Another building that makes use of, but also reinterprets, the familiar via crafty suspension that in the process is somewhat of an illusion, is Lânskip in Hindeloopen (see figure 4.27). This house gives meaning to the phrase "to turn one's world upside down", as at times, literally flipping something over illustrates for how long you have been doing things the traditional way.

Figure 4.27 Lânskip in Hindeloopen (van den Berg, 2020)

Despite not being positioned upside down, this building to many abominable, though arguably worthy of its own study altogether, is the Aan de Stegge office space in Goor (see figures 4.28 & 4.29). Aside from appearing to have come straight out of Willy Wonka's factory, and making use of a rich array of contrasting colours, shapes, materials and sizes, the building's mere existence and usage undermines any traditional notion of what an office should be. Perhaps this conglomeration is the magnum opus of a ludified culture.

Figure 4.28 Aan de Stegge in Goor (Ischa1, 2009)

Figure 4.29 Aan de Stegge in Goor (Stotteler, 2018)

4.3 Play via contrast

One theme that overarches all others and runs through the concept of play altogether, is the notion of contrast. Riikonen (2015) argues that this inherently context-related concept is key to understanding play, and Sicart (2014) defines play as necessarily contextual.

How this rather abstract term manifests itself in Dutch architecture, is explored further in the coming section. Allegos & Allegos (1999) mention how contrasting colours can be utilised to generate an emotional response in people, though as Riikonen (2015) describes, contrast can occur in various manners. The mere absence of a building or its parts can create a visual contrast between it and its dense surroundings. Aside from this, manipulating scale, and juxtaposing various sized objects also constitute forms of contrast (Fallon, 1981; Villareal, 2018).

The theme *play via contrast* ultimately embodied 38 out of 40 total codes, including an unanticipated one relating to modern expansions of antique buildings. Several of the most illustrative findings are further explored in this segment of the thesis, so as to provide a holistic overview of manners in which Dutch architecture utilises contrast to convey its playfulness.

4.3.1 Colours

One of, if not the most notable thing on any building, is its exterior colour. Colour is conducive to playfulness, as argued by Demirbilek and Sener (2013) and Riikonen (2015), and since an object's colour is often a result of the material it is composed of, separate attention will not be paid to the code of contrasting materials, rather it will be largely included in this section. Although colour contrasts between buildings and their surroundings are a valid playful element, as can be seen in the earlier mentioned Didden Village in Rotterdam, the focus of this part is primarily on colour contrasts within an individual building. After all nearly every playful building analysed in this study stands out from its surroundings in one way or another, though use of colour contrasts within the façade of a single building is less of a common phenomenon.

There exist subtle and eccentric uses of internal colour contrast in Dutch buildings. Exemplar of the former is the Biblion in Zoetermeer (see figure 4.30), where small elements of the building's exterior have been painted bright alternating colours that as a result arguably elevate the entire structure from dull to playful.

Figure 4.30 Biblion in Zoetermeer (Aarts, n.d.)

Similarly, evenly sized cubes of mass appear to have been removed from OurDomain in Amsterdam (see figure 4.31). The resulting imprints have been painted colourfully, contrasting heavily against the otherwise grim brick façade. This building's clever use of omission and colour contrast demonstrates that sometimes less is indeed more. Furthermore, the manner in which squares are missing from the building's shape reminds of the destruction that TNT explosions in the video game Minecraft (Mojang Studios, 2011) leave behind (see figure 4.32)

Figure 4.31 OurDomain in Amsterdam (van der Burg, 2020)

Figure 4.32 Minecraft TNT crater (SamAcarious, 2017)

Buildings that are perhaps less sly in their exposition of playfulness through colour contrast, are the "Casa Confetti" in Utrecht (see figure 4.33), Floriworld in Aalsmeer (see figure 4.34), Bredero Mavo in Amsterdam (see figure 4.35) and Heesterveld, also in Amsterdam (see figure 4.36). What all these buildings seemingly splattered by explosions of

colour have in common, is that they utilise bright, saturated, contrastful colour combinations that are so atypical in urban environments that they may even bewilder people. Ultimately what they achieve however, is that they in the process stimulate folks to interact with them on a psychological level as well as on a physiological level, since colours are able to stimulate our visual senses (Demirbilek & Sener, 2013), which when considered in unison, even if just for one moment, is more than most buildings accomplish.

Figure 4.33 Casa Confetti in Utrecht (Gurak, 2013)

Figure 4.34 Floriworld in Aalsmeer (Kievits, 2020)

Figure 4.35 Bredero Mavo in Amsterdam (Hendriks, n.d.)

Figure 4.36 Heesterveld in Amsterdam (ANP, 2016)

4.3.2 Times

One of thematic analysis' strengths is that it allows for the emergence of unforeseen findings. During evaluation of all 103 Dutch buildings, one such discovery took place. A small, though not insignificant number of buildings exhibited a playful form of contrast that could be described as being material-related, though simply assigning them that code would undermine their originality.

The playful contrast brought about by modern extensions of, and additions to, antique buildings is separate from mere contrast of shape, colour or material. The clash of new and old can be characterised as a form of conceptual contrast, a contrast of times. Although placing a modern-looking building amidst older ones, as is apparent in the case of

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Unilever in Rotterdam, and to a lesser extent the annex of the Stedelijk Museum in Amsterdam, provides a playful contrast no less, including the contrast of times within a single building is a phenomenon of its own.

Perhaps most illustrative is Hermes' store in Amsterdam (see figure 4.37), where half of the antique Dutch façade's red bricks have been substituted by transparent glass ones. The result is a building that retains its authentic traditional form, while also catapulting itself into the 21st century aesthetically. In a similar manner, the neoclassical design of museum De Fundatie in Zwolle (see figure 4.38) has too been propelled forward several centuries by the addition of a steel, tiled ellipse, that simultaneously neatly contrasts the building's orthogonal design.

Figure 4.37 Hermes store in Amsterdam (Nouveau, 2019)   *Figure 4.38* Museum De Fundatie in Zwolle (Jacobs, 2013)

Where De Fundatie dared go the whole mile, Capital C in Amsterdam (see figure 4.39) didn't quite dare. The end-result is a less bold, but nevertheless playful contrast of new and old. A final example of contrasting times that has in the process arguably become an artwork, but is relevant either way, is Bunker 599 in Culemborg (see figure 4.40). By slicing this WW2 bunker in half, and offering visitors passage through it, two worlds collide. What better way to experience another age than to physically traverse through it? As was the case with OurDomain in Amsterdam, sometimes less is more. The modern intervention in this case contrasts with the historic bunker on a conceptual level.

Figure 4.39 Capital C in Amsterdam
(Capital C Amsterdam, 2019)

Figure 4.40 Bunker 599 in Culemborg (RAAAF, 2019)

4.3.3 Shapes

The act of scale manipulation takes place in the form of shapes. A way in which buildings can exhibit playful contrast other than through its colours and materials, is through its various forms and shape sizes (Fallon, 1981; Villareal, 2018).

Outside the realm of biomimicry and imitation covered in earlier examples such as the Stedelijk Museum in Amsterdam, the Kinepolis in Zoetermeer, the Ecofactorij in Apeldoorn, and Rotterdam Central Station, it is rare for buildings to clearly exhibit contrast of scale. It could be argued that the comically little columns upholding the KPN Tower and the Unilever offices in Rotterdam are examples of contrast via scale, though more often it is the form of a shape that brings about a sense of contrast in buildings.

An example of contrasting shapes is the Ravel Residence in Amsterdam (see figure 4.41), where the otherwise cubic shape of the building is disrupted by countless circular (cute) windows, which are protrude from individual square panels. In similar fashion, Niekée in Roermond (see figure 4.42) and The Bubble in Amsterdam (see figure 4.43) decorate their angular façades via cute spider-eye-like bulbous windows.

Figure 4.41 Ravel Residence in Amsterdam (Jan Snel, 2017)

Figure 4.42 Niekée in Roermond (De Architect, 2011) *Figure 4.43* The Bubble in Amsterdam (The Bubble, 2017)

Aside from reinterpreting the idea of what a home should look like, the Pyramid Houses in Almere (see figure 4.44) combine stars, circles, rectangles and triangles within one building, although the renowned Inntel Hotel in Zaandam (see figure 4.45) goes a step further by patching traditional Dutch houses of various shapes and sizes onto a single façade. The hotel is colourful, massive, illusive, it makes use of the familiar, but also reinterprets the familiar, and is that much more playful as a result of it.

Figure 4.44 Pyramide woning in Almere (JM Concepten, 2020)

Figure 4.45 Inntel Hotel in Zaandam (Inntel Hotels, 2017)

There is however one piece of Dutch architecture that is evidently more playful, were it a contest. This building defies logic and may well have spawned from an architect's fever dream, but The Groninger Museum in Groningen (see figures 4.46 & 4.47) is not an architectural rendering. Not only does the building utilise contrasting shapes, colours,

materials and scales of all sorts, its postmodern design transcends hierarchy and places all artistic styles on the same level, according to its architect.

Figure 4.46 Groninger Museum in Groningen (Hesmerg & Hesmerg, n.d.)

Figure 4.47 Groninger Museum in Groningen interior (Appelboom, n.d.)

The Groninger Museum demonstrates that a building's degree of playfulness is elastic. Despite the intersubjective nature of a concept such as play, this analysis shows that the application of multiple playful elements accumulate as opposed to diminish architecture's playfulness. It is not so much the individual components of a building that ultimately decide a building's level of playfulness, it has to be considered in relation to its direct and indirect surroundings. A neighbourhood where all buildings are playful, results in one where they lack an element of contrast to their environment.

4.3.4 Neighbourhoods

As mentioned earlier, one of thematic analysis' strengths is that it allows for the discovery of unforeseen findings during the coding process. One such unanticipated result is that of playful neighbourhoods. Most buildings covered thus far benefited from somewhat dull surroundings, which in turn emphasises their playfulness, though this is not necessarily the case.

It appears that as time goes by, buildings are designed more eccentrically. Proof of this phenomenon is the city of Almere. This town situated in the Flevoland province, is young as cities can be, the first homes having been built in 1975. The earlier covered Pyramid homes in Almere are located in the Overgooi neighbourhood, which is characterised by its housing lots virtually void of building restrictions.

Although the playfulness of Almere's buildings is not restricted to specific neighbourhoods. The Regenboog (rainbow) neighbourhood features homes of all colours imaginable, and the Pink Klokhuis mentioned earlier is also located in yet another region of the city. The wave (see figure 4.48) and MyOffice (see figure 4.49) are but two examples of the countless examples of playful architecture is ripe in this youthful city.

Figure 4.48 The Wave in Almere (van Loo, 2010)   *Figure 4.49* MyOffice in Almere (MyOffice, n.d.)

More constrained within a single new housing estate, is the Vossenpels neighbourhood in Nijmegen. This "plant your flag" community sells plots for people to build their own houses on. The location, size of the lot, and design of the building is in their own hands. The result is an area rife with playful buildings such as the home on Baumgartenstraat 29 (see figure 4.50). Thus far, over 250 people have "planted their flags", and the lively design of their homes demonstrates that when left to themselves, Homo is perhaps Ludens after all.

Figure 4.50 Baumgartenstraat 29 in "Plant je Vlag" neighbourhood in Nijmegen (Geografische Wandelingen, n.d.)

A final example of a playful neighbourhood is the Roombeek district in Enschede. The reason behind the many playful buildings located here is less pleasant, since a large chunk of the neighbourhood's architecture was destroyed during a massive fireworks disaster in the year 2000. In a similar fashion to how the heavily bombarded city of Rotterdam now boasts many playful buildings, which this chapter is proof of, the Roombeek quite literally rose from its ashes, making way for a renewal of the neighbourhood, resulting in many bold buildings having been built there. The Museumlaan 12 (see figure 4.51) with its colourful glass panels decorating its façade, is only one of the many eccentric buildings scattered throughout the area.

Figure 4.51 Museumlaan 12 in Roombeek neighbourhood in Enschede (Thoma, 2010)

4.4 Play via nudging

The last theme emerging from the data explains Dutch architecture's design elements that trigger an effect in people more so than observable playful attributes of specific buildings. Buildings' design can nudge users towards playful behaviour amongst others. The findings of this theme are valuable as they illustrate how architecture can be designed to stimulate playful behaviour of its users, while simultaneously appearing playful. The earlier mentioned example of a slide situated in a train station perfectly encompasses this theme, as it both visually conveys playfulness by extension of its seemingly out-of-placeness, and by physically affording play to commuters.

This duality present within the theme *play via nudging* is explored further in this section of the chapter, where several illustrative examples are provided so as to further substantiate the findings of the analysis. Although a total of 11 codes ultimately fell under

this theme, some of the most telling shall be further elaborated upon, as they best represent the scope of this theme.

4.4.1 Control

Despite perhaps not intuitively being interpreted as playful, the concept of control is closely tied to playfulness. Not only can it be seen as an extension of what Huizinga (1980) describes as taking place according to freely accepted rules, creating a sphere that is separate from the 'real world', so too does control exist within the utmost *ludus* part of Caillois' (2001) continuum of play. Aside from this, the concept of control also appears both in Demirbilek and Sener's (2003) playful product design typologies, as well as in Lucero et al.'s (2013) PLEX framework. Furthermore, Sicart (2014) describes play in relation to architecture by stating "Sometimes the beauty of play resides in the tension between control and chaos. Sometimes playing is voluntarily surrendering to form; sometimes it is being seduced into form, being appropriated by a plaything. Some other times, the pleasure comes from the appropriation of those forms, breaking and deforming them to play with them." (p. 83).

This statement outlines how control was interpreted in the case of analysing Dutch buildings. The code *controlling*, was applied to those buildings that appear to control their users' behaviour in one way or another. This mainly occurs in the form of forced pathing, a practise that forces its users to surrender to a building's form and adhere to that which it was designed for. Inversely, Sicart (2014) also describes how the sport of parkour can neglect a building's design and instead appropriate its form, which in turn affords those doing parkour play.

In the Netherlands, the phenomenon of architecture nudging its users' movements often manifests in the form of bridges and staircases. Although these structures are innately designed to afford commuters passage from point A to point B, they do often incorporate other elements of playfulness in their design. The Luchtsingel in Rotterdam (see figure 4.52) is a bridge that controls users' pathing whilst also displaying uncommon colours and strongly contrasting its direct environment aesthetically.

Figure 4.52 Luchtsingel bridge in Rotterdam (van der Stelt, n.d.)

Similarly, the bright yellow staircase in the Roommate Bruno hotel in Rotterdam (see figure 4.53) controls guests pathing through a more rectangular take on the traditional spiral staircase. Moving further groundward, the Moses Bridge in Halsteren (see figure 4.54) allows people to traverse across a body of water via a controlled path, while also playfully making reference to religious lore of a man parting the seas, and in a way reinterpreting how humans traditionally approach crossing a river.

Figure 4.53 Yellow staircase Roommate Bruno hotel in Rotterdam (Cvetanovic, 2020)

Figure 4.54 Moses Bridge in Halsteren (Kerkhove, 2012)

The earlier mentioned phenomenon of design nudging behaviour, is also visible in the play-facilitating devices known as board games, as well as their modern counterparts, video games. The board game 'Snakes and ladders' (see figure 4.55) utilises visual cues to both restrict and afford users controlled movements across the playing field. Similarly, Pugh (2018) outlines how the game Uncharted 4 (Naughty Dog, 2016) (see figure 4.56) employs visual design elements to nudge players towards particular behaviour and movements.
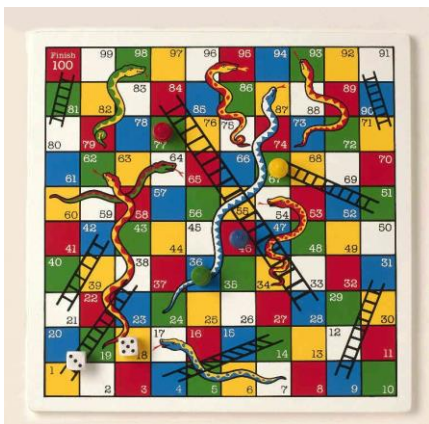

Figure 4.55 Snakes and ladders boardgame (SA People News, 2011)

Figure 4.56 Uncharted 4's visual cues nudge player behaviour (Pugh, 2018)

4.4.2 Vertigo inducing

The concept of self-induced vertigo as a form of play is established by Caillois (2001), who differentiates between a paidiac, spontaneous and a ludic, designed variant. Perhaps the most impulsive form of play comes to mind, where children twirl to the point of dizziness for the sole purpose of having fun. A matured, digital version of this behaviour is visible in many three-dimensional games that make use of their realism to (un)intentionally induce vertigo in their players, racing games may employ motion blur to enhance the effect, and gamers may occasionally experience unwanted dizziness from the rapid visuals presented to them in any video game. A physical variant of this is the playgrounds which is by design, or what Caillois (2001) dubs *ludus,* made to provoke vertigo (Sicart, 2014)

In relation to (generally static) architecture, the structured design of buildings puts them into the latter category. Although a building's propensity for causing dizziness is by design, its effect on people is ultimately subject-dependent. Gliding down a slide is likely to induce vertigo in most, but not everyone will experience dizziness from heights, and some may even become nauseous at the sight of repetitive shapes constructed in a particular fashion.

The straightforward, yet still rather rare mechanism for inducing vertigo in architecture's users, is the slide. This century old playing device sometimes finds its way into buildings, where qualities such as their perceived out-of-placeness, and juxtaposition to the seriousness of ordinary life only further accentuate their playfulness (Riikonen, 2015). Aside from affording people the opportunity to experience vertigo, slides in otherwise mundane settings, also stimulate users to behave contrary to social convention (Donoff, 2014).

The slides inside of the Coda Library in Apeldoorn (see figure 4.57), and in the Utrecht Overvecht train station (see figure 4.58) are perfect examples of the playful force that vertigo inducing apparatuses can exert on their otherwise banal surroundings. Interestingly, the latter slide demonstrates that contrary to Huizingan notions of play, it is not implicitly fun. A commuter late for his train could hypothetically opt for the slide over the stairs for purely pragmatic reasons, while in doing so acting contrary to convention and causing self-induced vertigo.

Figure 4.57 Slide in Coda library Apeldoorn (Oltmans, 2017)   *Figure 4.58* Slide in train station Utrecht Overvecht (DUIC, 2016)

As mentioned earlier, vertigo is not necessarily experienced as a consequence of drastic physical movement. An example of this is the appropriately named bridge "De Twist" in Vlaardingen (see figure 4.59). This brightly coloured overpass is enclosed by a wooden structure that a giant appears to have twisted by nearly 90 degrees. The result is a playful bridge that maintains the capacity of inducing vertigo in those who pass through it. Additionally, it bears a striking resemblance to the physically rotating level design experienced in the virtual world of the game Control (Remedy Entertainment, 2019), where players traverse through an ever-changing concrete monstrosity (see figure 4.60). The game plays with the idea of making the rigid visibly malleable, similar to the code *movement* that was found in this study.

Figure 4.59 The Twist bridge in Vlaardingen (Lee, 2013)

Figure 4.60 Twisting hallway in the video game Control (JO_yamayama, 2021)

5. Conclusion

In an age of increasing ludification, in a country known for its playful architecture, this study set out to understand how it is that Dutch buildings utilise playful elements in their design. This underexplored topic was approached by means of a thematic analysis that ultimately resulted in the discovery of 4 main themes that collectively encompass the manners in which Dutch architecture employs playful design.

Buildings use various design attributes to *nudge* users towards specific behaviour, these elements are also present in the field of playful design and video games. Exerting an influence of some sort on persons elicits playfulness, and can consequently elevate the relationship of people with architecture.

Another significant characteristic of playful buildings, is the use of *reference* via imitation, biomimicry and the familiar. Simulating (un)natural objects of varying sizes and employing nostalgic colour combinations amongst others, can make architecture playful to an observer.

One more key element of playful structures, is that they *subvert* norms and expectations. While this notion is central to the concept of play, buildings exhibit this trait through optical illusions, gravity defying overhangs and reinterpreting the familiar on a cultural level.

Lastly, and most crucially, a theme overarching all others, namely a degree of *contrast*, is present in all aspects of play. If there is no juxtaposition of some sort present, architecture does not benefit from the inherent playful quality that contrast possesses. Via colours, shapes, styles and more, contrast can signal playfulness and buildings from the mundane.

The combination of these four themes answers the question this study set out to answer. The process underlying the exploration of this underresearched topic has resulted in several implications, on a theoretical, academic (5.1), and practical (5.2) level. Furthermore, limitations of the study as well as potential topics of interest for future research are discussed (5.3).

5.1 Theoretical implications

The purpose of this research was to explore the manner in which Dutch architecture utilises playful design elements. Its findings offer specific theoretical implications for existing scholarly works on the topic as well as for the broader field of play-related studies.

The following section relates the findings of this master's thesis to existing theories, confirming, contradicting or nuancing them.

The first theoretical implication of this study's findings, is related to what Raessens (2014) dubs the ludification of culture. A logical extension of this phenomenon would be to expect to find that modern buildings more often exhibit playfulness than older ones. This is partially true, the results of this research indicate that although it are often buildings from the last two decades that utilise playful elements in their design, it is just as often older architecture that this is true for. Although the qualitative nature of this study makes it difficult to extrapolate the findings to the broader field of architecture, the Netherlands is known for its innovative architecture from the 80's (Kloosterman, 2006). Furthermore, a significant number of buildings analysed in this master's thesis stem from the 60's amongst other time periods, demonstrating it is definitely not a phenomenon exclusive to modern times. However, the few playful buildings remaining from earlier decades may be a case of survivor's bias, making it difficult to state anything on the topic conclusively. The unanticipated finding of entire playful neighbourhoods does nevertheless further lend credence to the idea of a culture increasingly ludified, as each individual neighbourhood analysed has originated with relative recency.

Another implication of this study is that architecture is indeed an appropriate medium for studying playful design. Both the PLEX framework by Lucero and Arrasvuori (2013) and the product design devices outlined by Demirbilek and Sener (2003) proved smoothly applicable to buildings as opposed to products. Although architecture is inherently not usable for playful experiences, approaching it were it a product, several design interventions were relevant nonetheless. Similarly, urban design interventions by Donoff & Bridgman (2017) also posed no problem when being considered in relation to buildings. Naturally, playful typologies outlined for architecture specifically (e.g. Fallon, 1981; Riikonen, 2015) demonstrated they were smoothly employable for the analysis of buildings, meaning that ultimately this study confirms the validity of playful architecture interventions as proper measures of playfulness in buildings, and additionally proposes an extension of playful product and urban design elements as being suitable for the research of architecture, approaching it as being in essence a product.

Considering that play exists truly in contrast (Riikonen, 2015) as a result of its being inherently contextual (Sicart, 2014), this thesis' findings propose an extension to the concept of contrast, particularly in relation to architecture. Where Fallon (1981) and Villareal (2018) outline several forms of playful contrast that buildings can exhibit via manipulation of scale,

this study finds several instances of a more conceptual notion of contrast, where often antique buildings are renovated or annexed in a manner that preserves their original design and additionally juxtaposes it to modern materials. The result of this phenomenon is not merely a contrast of colours, but rather the observer experiences two architectural styles concurrently, resulting in a contrast on a conceptual and not merely aesthetic level.

A final implication of this study's results, is one related to Dutch architecture. Although the qualitative approach of this research makes it difficult to make conclusive statements on playfulness in the Netherlands, or relate the findings to other countries, it can with confidence be said that Dutch architecture does indeed exhibit playful design elements. This finding confirms the logical consequence of a substantial presence of postmodern buildings, which are generally considered to be playful (Clendinning, 2002; Habermas, 1987; van Acker, 2020). Though not all, several of the buildings analysed fall under the guard of postmodern design, substantiating existing associations between playfulness and the architectural style. A point of nuance however, arises in relation to the unanticipated finding of buildings receiving playful nicknames. Where Krier (2011) regarded this phenomenon as kitsch reserved for modernist eyesores, this study finds it are in fact often the concrete, seemingly meaningless modernist structures that elicit playful sentiments in their observers which manifest in the form of nicknames.

5.2 Practical implications

Naturally the findings of this study do not only have theoretical implications. Practical inferences for the field of architecture can also be made. Seeing as playfulness is generally considered a desirable trait in products (Demirbilek & Sener; Lucero et al., 2013), this should also apply to buildings. The practical implications of this master thesis' results are twofold, aimed at producers and users of architecture alike.

For creative industries in general, and the discipline of architecture more specifically, being aware of current trends such as the so-called ludification of culture in the context of digital media, which photography and video games are part of, is highly relevant. For architects, this study delineates four concise approaches to incorporating playful elements in buildings. The many playful buildings of the Netherlands may or may not have been designed with play in mind, but they do appear to follow a pattern. Although the themes uncovered were deducted from playful attributes already present in existent buildings, labelling them can make it easier for architects to implement them in their designs intentionally. Not only does doing so make architecture more enjoyable on a physical level

via nudges, slides and colours that stimulate the senses, but it also promotes interactions between people and buildings on a mental level. Buildings that contrast their environments, imitate nature and play with the mind via illusions, can in turn make users more cognisant of the structure they interact with. In a way it can humanise architecture, a phenomenon that manifests through colloquial nicknames amongst others. Furthermore, playful buildings prove that society is malleable, subverting public norms and reinterpreting the familiar every step of the way. Keeping in mind playfulness in the design process helps architects humanise their buildings, avoiding 'dehumanised' architecture that Brutalism is often associated with (Goux, 2016; Grindrod, 2018).

For users of architecture, be they inhabitants, passers-by or aficionados, this research serves as a sort of glasses to view architecture through. Using this study as a guide for understanding playfulness in architecture can help one put to words the exact aspects of a building that makes it playful to them. The existing playful design typologies, frameworks and devices come a long way, but ultimately fall short in translating effortlessly to architecture. The themes and their sub-themes outlined in this master's thesis encompass their qualities and dismiss their inadequacies. Playfulness is often a highly subjective matter (Blijlevens, Creusen and Schoormans, 2009; Walz, 2010), that is felt clearly, but difficult to define. That is why understanding the broader concept of play, as well as the more applied fields of playful design, playful cities and playful architecture can ultimately enlighten citizens as to their surroundings. Viewing architecture not just as means to an end, a house to live in, an office to work in, and a bridge to traverse, but as an expression of an architect's vision, a societal zeitgeist and an interplay of one or more architectural style's philosophies can make metropolitan life that much more fulfilling.

5.3 Limitations and future research

This closing segment of the thesis concerns itself with any limitations the study faced, as well as recommendations for possible future research. A first limitation is the inherently subjective, interpretative nature of qualitative research methods which diminishes the validity and reliability of any study. As described in the methodology chapter, every possible measure has been taken to minimise these effects.

For validity's sake, the foundation of this research lays upon an extensive theoretical framework that aimed to encompass wholly the existing scholarly work on the fields of play studies, playful design, playful architecture and any supplementary topics of interest. Via careful consideration of the beneficial and insufficient aspects of pre-established playful

typologies such as the PLEX framework and others, a holistic approach to studying playful buildings was formed prior to the performance of any analysis.

For reliability's sake, the methodology of thematic analysis was executed as systematically as feasible, following closely the phases outlined by Braun and Clarke (2006) and keeping to a minimum any potential personal beliefs as a researcher that may influence the replicability of this study. Being cognisant of one's own background, from an academic and social standpoint, aided in lessening any potential interference this might cause during the research process. Additionally, a freely accessible database was used for data gathering, ensuring the study remains repeatable and verifiable.

A final limitation pertains to the nature of the units of analysis. The medium of pictures lends itself well to studying architecture and gathering data, but it also comes short in experiencing a building to its fullest extent. Visiting all 103 buildings in person proved unworkable with the given time, though the researcher in question was already familiar with many of the buildings examined. As for those unaccustomed to, images of every potential perspective were considered prior to coding. Navigating the direct surroundings via Google Maps, as well as viewing aerial photographs of the buildings were but some of the steps taken to ensure the validity of the codes ultimately assigned.

Alas, for practical reasons amongst others, this master thesis' scope was limited to the architecture of the Netherlands, possibly making it tough to extrapolate the findings outwards, thought that is also where future research possibilities lie. Reproducing this research in other countries could provide insights into the universality of this study's findings, and could also give rise to even more unforeseen playful design elements. Furthermore, the range of themes and the codes lying at their basis, though broad and concise, are by no means definitive. Future research of a similar approach could build upon this study's framework and potentially uncover yet unforeseen individual codes or even themes altogether. What could also prove interesting, is a study into the physical manners in which buildings afford play. This study focused primarily on buildings' aesthetic attributes, though the interaction of people with architecture's physical forms by means of parkour amongst others, may also bring about new findings.

A topic worthy of its own study, is the phenomenon of nicknames. Little academic attention has been paid to this occurrence, though it speaks volumes both of humanity and of the particular structures that are blessed with their own nickname. Finding out what makes a building 'nicknameable' and what inspires people to humanise architecture in this manner is fascinating in its own right. The final suggestion for future research endeavours relates to the

other unanticipated finding, namely playful neighbourhoods. This pattern arose during the analysis performed for this study, but it should be examined further. It may be interesting to observe the character of those buildings that are designed free of governmental restrictions. Particularly in a country such as the Netherlands, where architecture often follows strict regulations so as to fit in with the desired streetscape, the stark contrast with these unhindered neighbourhoods should be researched further. Perhaps its findings might come one step closer to the answer whether humans of the ludified age, when left to their own accord are indeed playful.

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Appendix A: Coding book

Below is an overview of some of the codes used in the analysis alongside a brief description.

Code	Description	Example
Controlling	Guiding people's behaviour	A staircase or bridge that offers a set route
Manipulable	Alterable by people	Movable sunscreens on a building's façade
Vertigo inducing	Causing dizziness	A twisted bridge that causes vertigo in people
Cuteness	Rounded shapes & pink/cyan colours	Cute circular houses and pink buildings
Biomimicry	Designed after nature	Buildings shaped like leafs or animal tails
Imitation	Mimicking any object	Museum in the shape of a bathtub
Nicknames	Familiar or humorous name given to a thing	"De Apenrots", "De UFO", "Het Potlood"
Suspension	To hang from something	A building with large, unsupported overhang
Illusion	Misleading appearance, impression or belief	A building plastered with reflective mirrors
Reinterpreting the familiar	Understanding the ordinary in a new light	A traditional home positioned upside-down
Colours	Appearance resulting from reflected light	building with contrasting or complementary hues
Times	Time periods and their Architectural styles	An antique building annexed modernistically
Shapes	Geometric figures and their forms	A house shaped like a pyramid
Neighbourhoods	District or community in a town or city	An area without building restrictions or guidelines

Appendix B: Coding tree

Below is an overview of the coding process from initial codes to the final themes. For each category the most relevant initial codes were included for illustration.

Themes	Initial codes
Play via nudging	Controlling
	Vertigo inducing
Play via reference	Cuteness
	Biomimicry
	Imitation
	Nicknames
Play via subversion	Suspension
	Illusion
	Reinterpreting the familiar
Play via contrast	Colours
	Times
	Shapes
	Neighbourhoods