The Architecture of a healthier Lifestyle

A thesis about the responsibility of architects for designing the environment in which people make action choices because of the affordances that architects create.

Academic Masterthesis Philosophy

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PREFACE

Let me take you through a day in the live of James Scott:

James gets up in the morning and sits down at the table for his breakfast. After his meal he gets in his car and drives to work. At his office he takes the elevator to his floor and sits down at his desk. Around lunchtime he goes down the elevator to the canteen, sits at a table and eats his lunch. Back up with the elevator, sit down at his desk and he does not get up until 17.00 o' clock to take the elevator down, back to his car. He drives home, prepares himself a dinner, which he eats in front of the TV. Quickly he cleans his dishes so he can lie down on the couch to watch some TV before het goes to bed.

Do you recognize yourself (partly) in this routine? Lots of people are sitting on a chair behind their desk in the same posture all day with their movements and getting up limited to a minimal. Our current environment can be described as a 'statical-environment', in which people mostly sit, hang and lay down. The whole environment is designed for sitting (RAAAF, 2015), while medical research shows that too much sitting is unhealthy (NHS, 2014). To change to live a healthier live, this environment should change in a more 'dynamical-environment', in which people stand, walk and move. Exercising is not only good for your physical condition, but also for your mental condition (Kilpatrick, 2013). According research from the CBS (the central bureau for statistics from The Netherlands) most Dutch people think it is the job of the government to reduce the effects of this 'statical-environment', like heavy weight and obese problems. (CBS, 2015). The measurements people refer to in this research are mostly about education and informing, about educating people on what a healthy lifestyle is. But is it the responsibility of the government to change our environment from a statical to a dynamic one? This responsibility might also be one of the designers of our environment, namely architects.

After all, architects design the environment and surroundings that people live in, so the question can be raised: Do architects carry the responsibility for the environment that is designed and so responsible for the action choices that are created in that environment? To figure this out, this thesis will research the following research question:

Could and should architects contribute to a healthier lifestyle of people?

In this question 'a healthier lifestyle' means a more active attitude that can be achieved by architectural design. This accords more exercise, but also more active ways of sitting and posture. To find an answer to this question, there will be looked at several disciplines like ethics, psychology, action theory and design. The thesis will start with looking at whether architects should contribute to a healthier lifestyle of people, at the ethics of architecture. After this the thesis will shortly discuss why people choose for a certain behavior, even though they know that different behavior is better for them. This will look at the psychological aspect of the thesis: why people not already have a healthy lifestyle. In the main part of the thesis there will be discussed how architects can help people. Theretofore the thesis will make use of the theory of nudging and the theory of affordances, where the theory of affordances will be used as an action theory to explain the operation of nudging. At the end of the thesis there will be examples of how design can be used to help people with a healthier lifestyle. In these examples there will be explained how nudging and affordances play a role in the architectural design.

1 IN WHAT WAY COULD ARCHITECTS BE RESPONSIBLE FOR OUR LIFESTYLE?

Of course our lifestyle is not only the responsibility of architects, but they could be partially responsible for our lifestyle. In their book 'Nudge', the authors Richard Thaler and Cass Sunstein give a definition of a 'choice architect':

"A choice architect has the responsibility for organizing the context in which people make decisions." (Thaler & Sunstein, 2008, p. 3)

Their choice for the word architecture is not a coincidence. They use this word because organizing the context in which people make decisions is exactly the job of an architect when he designs a building. There are lots of parallels to think of between an architect and a choice architect, but the most important one is, agreeing with Thaler and Sunstein, that there is no such thing as a neutral design (Thaler & Sunstein, 2008, p. 3). An architect always has to make choices about the building, that influences the way people experience the building and the possibilities of choices the people have inside the building. The responsibility of architects lays in the fact that architects induce certain decisions in people when these people are inside the architects design. People continuously receive incentives from their environment, which influence their decisions. It does not matter if these incentives are placed consciously or unconsciously by the architect (Thaler & Sunstein, 2008). Brown professor William Warren, specialized in perception and action thinks that architects should know, and often do know, how they can create action possibilities and how those will be perceived (Warren, 1995). Because architects should know that they could influence people's choices, they have a certain moral responsibility for the direction in which they stir people. Besides this moral responsibility for designing a layout of the action possibilities, architects can also create places that invite certain behavior (Withagen & e.a., 2012). For example, a room that is very dark, out of sight of other people and soundproofed is a room that invites criminal behavior like raping. Architects should think about what they create, and what behavior this invites. They have to think about the consequences of their design, because they are partly responsible for making certain behavior happen. It is however hard to say how far the responsibility of the architect reaches, because people still are responsible for their own actions. We cannot hold an architect responsible for people who use a dark notch in a building for raping someone. The rapist still made the choice to rape someone himself. But architecture does have the responsibility to think about the possibilities in which their building can be used or misused. That is also why high-rise buildings are required to have railings or nets on the roof, to stop impulsive jumpers to jump of the building. The architect is required to take measures because he is morally partly responsible for the actions of people. And being partly responsible, even though it is hard to say how much responsible, makes that architects must realize that they have a certain power, which they can use for lots of causes, one of which is helping with a healthier lifestyle for people.

1.1 THE ARCHITECT SPEAKING

What do architects think of this? Renowned architect Herman Hertzberger shows in his book 'Lesson for Students in Architecture' that he does think about the influence a designer has on the choices of people:

"Objects that present themselves explicitly and exclusively for a specific purpose -e.g. for sitting on- appear to be unsuitable for other purposes. Extreme functionality in a design makes it rigid and inflexible, that is, it leaves the user of the designed object too little freedom to interpret its function as he pleases. It is as if it has been decided a priori what is to be expected of the user, what he may and what he may not do. The user is thus subservient to the form and the concomitant a priori 'agreement'; he is only capable of using the object, of appropriating it temporarily in a way, if what he wants to do with it corresponds to what the form dictates." (Hertzberger, 2001, p. 177)

He shows that a design becomes less flexible when it increases functionality. But most importantly he shows that a design can determine what a user can or cannot do with it. He realizes that the object stirs people in a certain direction of what they should or should not do. People are not forced to use an object in a certain way, but they certainly are stirred.

Lots of other architects do have the opinion that they have a social responsibility to their community. Maybe not per se because their designs can stir people directly, but also because they think that designing the environment contributes to many societal and social problems.

The president of the former Dutch Architecture institute (NAi), Ole Bouman, told in an interview that architecture is a discipline with a lot of responsibility:

"I think it is time again to position architecture as a discipline with an enormous responsibility. I think that architecture, and therefore the NAi, must interfere with the greatest issues of our time. [...] I think that it is shown by history that the architecture that has passed the test of time, is the architecture that provides an answer to larger social issues"
(Bouman, 2007) (Own translation)

He confirms that architecture can be used to solve larger social issues. The problem of obesity and unhealthy lifestyle could be seen as such a social issue for which architecture can be deployed. Also Harm Tilman, editor of professional magazine 'The Architect', has spoken out in response to the economic crisis over the responsibility, but also the servitude of the architect:

"I am convinced that architecture can not operate from the notions that they have kept the previous period. Architecture 3.0 will have to reposition itself in the heart of society. Architecture is by definition subservient, the only question is to who or to what ideal."
(Tilman, 2012) (Own translation)

According to him architecture is a serving profession. She could be serving to the society and to a healthier lifestyle of people. The ideal could be a healthier environment, for which architecture can put her selves at the service. There are already companies working on that and taking this responsibility, for example Arcadis, a big international building company. Architect Marjolijn Versteegden appeals to the responsibility of the architects for the environment and focuses primarily on the user's design:

"The architects must be the conscience of society. Aided by the crisis, the permissiveness is gone. You have the artistry of the architect plus the performance. You need their integrated view to determine how something is optimally used for a purpose. "[...]" How does a user handle windows that open? We think about that. You influence the indoor climate with this choice. There are window designs that cannot be open at specific times. For example, in the rush hour, if there is too much air pollution, it is so much healthier for the employees. Here you can make a prediction and design wit hit in the preliminary stages."
(Versteegden, 2014) (Own translation)

She sees that architects have the responsibility to determine with their expertise how something can be used optimal for a certain cause. This expertise should also be used to make create a healthier lifestyle for people. Her company does it by designing windows that cannot open during rush hour, but there are many design choices that can contribute to a healthier lifestyle. These are choices that architects should think about and should act in the service of, as they share responsibility for the environment in which we make the choices for our life.

1.2 THE PHILOSOPHER SPEAKING

We now have seen what architects think about their responsibility towards society, but what do philosophers think about this subject from an ethical aspect? The connection between architecture and philosophy is as old as both disciplines are. Even though philosophers think about space and community, not every philosopher thinks about the responsibility of the architect. However there are some philosophers who, like Thaler and Sunstein, make a parallel between architects and other professions. From those parallels can be derived what philosophers think of the responsibility of architects. British architect and philosopher Jeremy Till searched for metaphors that are made by philosophers about architects, because through time several philosophers used architects and architecture as a metaphor. In these metaphors it becomes clear what the role of an architect is in society according different philosophers. Some philosophers even made the comparison between architects and philosophers:

Aristotle for example already thought about the metaphor between architects and philosophers and used it to illustrate the commanding relationship of theory and practice. He uses the architect as a metaphor for rational authority (Till, 2007). There is a relationship between the theory and the practice of an architect, and he should not just know the theories that are relevant for his profession but also bring these in practice. This can be read as that an architect should know that he can influence the action choices of people, and also should know how to do this in his design.

Descartes argues that buildings should be designed and completed by one single architect, because those are usually planned better and more attractive. He defines attributes of the architect as the banishment of chance, the authority of the individual, the triumph of the rational, the building of the new on cleared ground (Till, 2007). Especially banishment of chance and the authority of the individual are important here for how an architect can be responsible for action possibilities. According to Descartes is an architect someone who can banish chances. This can be explained as that the architect knows and decides what action possibilities are

in a design, he does not leave it up to chance. The authority of the individual can be seen as the authority that an architect has, and with that authority comes responsibility. The architectural as an individual who designs a building for others, has the authority about the design and that comes with the responsibility to not leave things up to chance.

Hannah Arendt has probably the clearest metaphor of an architect, where she places the architect in line with a legislator:

"Both create the space by providing the necessary limits after which the residents themselves should constitute the public domain through the appropriation of public space" (Arendt, 1994 (1958), p. 193)

Arendt lays responsibility with the architect by providing necessary limits. The architect creates a space that has certain limitations to the possibilities people have in that space. By doing this the architects limits the action possibilities. The residents themselves are also responsible for what they do with the space by how they use it. It is a shared responsibility between the person who decides what is possible and what not, where the limits have to be and the person who is using the space. The limit can for example be seen as railings on high buildings, so people cannot jump or fall of a building. The person who uses the space cannot easily jump off the building, and sees the limit, but he also has the responsibility himself not to climb over the railing and jump anyway.

These former philosophers can be linked to the responsibility of architects by comparisons. More recently there has been thought about the ethics in architecture and how architecture should think about the way of life in our current society. Philosopher Karsten Harries from Yale University agrees with Giedion, an architectural critic from Harvard, that architecture should be interpret a way of life valid for our time. I think the way of life valid for our time they mention can be interpret as a desire to live a healthier life, because people are more and more concerned with having a healthier lifestyle. According to Harries the architect has the power to give people who inhabit buildings a place in the world:

"The 'ethical' function is related to the words 'ethos' […] and hence, when attributed to architecture, indicates its capacity to impart to the people who inhabit architectural works (buildings) a sense of 'place' or an orientation in the world." (Harries, 1997, p. 4)

This can be read as not just the power of buildings to give a feeling of existence in the world, like Heidegger argues in his architectural theory, but also that the architect has an ethical obligation towards those people who inhabit his designs because he has that power to give them an orientation in the world. In his book 'Heidegger for Architects' Adam Sharr talks about how Harries based his ideas on Heidegger when he argues that in the face of technocratic rationality, architects can offer opportunities for people, communities and societies to aspire to a more meaningful life (Sharr, 2007). This more meaningful life could be a more healthy life. A meaningful life has to do with the pursuit of life satisfaction. According to the research of psychologists Feldman and Snyder a meaningful life entails lowering negative emotions and the risk of mental illness (Feldman & Snyder, 2005). I think a meaningful life concerns physical health as well as mental health, because in literature it has often been shown that those two influence each other. So this more meaningful life can be interpret as a more healthy life where people try to minimize the risk of mental and physical illness. Harries' Ethos of architecture can be read as that the architect has a moral obligation towards the people. Architecture should not be imposed upon people, but rather aim to uplift, empower and enrich.

However philosophers might not focus specifically on the responsibility of architects, they do touch the subject by metaphors and thinking about the function of architecture in a community. Architecture is seen as rational discipline with a lot of responsibilities for society, mostly because it has the power to design the environment and set the limits wherein people act.

1.3 IMPLICATIONS OF THE ARCITECTS RESPONSIBILITY

After researching the thoughts of architects and philosophers about the ethics of architects it is clear that architects have a certain responsibility towards society, because they set the environment in which people make choices. However how big this responsibility is, is hard to say. The choices people make in a designed environment are always still the responsibility of the people themselves and probably the responsibility of others, like the government. It is however clear that architects should use the fact that their designs trigger people and influence the choices of people to help people by designing a dynamical environment instead of a statical environment.

Does this responsibility have complications for all architectural design? In every design architects should be aware of their impact on the choices of people. In this thesis however will be focused on the responsibility towards a healthier lifestyle of people. This responsibility counts for creating a healthier lifestyle within means. However this doesn't mean that the focus of every building from now on should be on a healthier lifestyle. Buildings can be imagined where the focus should be on a different theme, like durability, transparence or relaxation. Not every function will thrive best with a theme of a healthier lifestyle and not every client will benefit from a building that is focused on healthy living. It might not always be possible to optimize the building to a healthier lifestyle when there is a different, conflicting main goal for the building. However architects should consider for every building they design, how much they can contribute to a healthier lifestyle. The best results for a healthy lifestyle will be reached in buildings where people spend a lot of time during their lifetime. These types of buildings therefor are the buildings that can benefit most from a main theme of a healthier lifestyle and these are the buildings where the architect makes design choices with the idea of helping people to gain a healthier lifestyle. The buildings with the healthy lifestyle theme therefor should have functions where people spend a lot of time. Secondly it is important that the clients of these

buildings also benefit from a healthy lifestyle theme. According research of the University of California people who are more physical active (a healthy lifestyle) are more productive at their job. Researcher Chad Spoon hopes that the research:

"opens the eyes of government leaders to the many important benefits of designing cities to support active living". He added: "A city's ability to compete depends on an active population. The research is clear on this – it shows how an active city can be a low-cost, high-return investment." (Walker, 2015)

So for what buildings would it be beneficial for the client and the users to design in a theme of healthy living? This would be office and school buildings, where both employers and employees, students and professors, benefit from a healthier lifestyle because it benefits everyone to be healthier and more productive. Also people spend most of their life at school, universities and their jobs. By designing these buildings with the focus on a healthy lifestyle, it influences most people, without opposing the function of the building. Therefor architects also don't have to think about only one theme for all their buildings, but still have the challenge to think about the design that fits best for each building and think about the action choice possibilities for every function.

2 WHY DO PEOPLE CHOOSE THE UNHEALTHY?

To investigate if architects really can contribute to a healthier lifestyle and how they could, it is important to understand why not everyone already has a healthy lifestyle. Even though people know that an active lifestyle and eating healthy are important for a healthy living, not everyone lives up to this lifestyle. According the article 'Volksgezondheid, gezond volk' of Ignaas Devisch from Gent University, people do feel the pressure of living healthy in our current society. They get the message from governmental institutions and are aware of the reigning moral about living a healthy life. People feel guilty when they eat cake, and feel bad when they don't have a membership for the gym (Devisch, 2007). That not all people manage to live a healthy life, even though the moral and governmental campaigns, is evident from the high figures of obesity in the Netherlands. The 2015 research of the CBS shows that 46,5% of the men and 41,1% of the women are dealing with obesity (CBS, 2015). How can it be that people still choose the unhealthy option? Lots of psychologists and neurologists have attacked this problem. How can it be that people choose toe at unhealthy, even when they don't like the choice they make themselves? This will be explained in this chapter.

2.1 The automatic and the reflective system

To understand how people make choices, psychologists and neurologists have made a difference between two different sorts of thinking: the automatic thinking and the reflective thinking. The automatic thinking contains what is called intuition; the reflective thinking contains rational thoughts (Chaiken & Trope, 1999). To give a clear overview of the difference between these two systems, they are compared and explained in the figure below:

AUTOMATIC SYSTEM	REFLECTIVE SYSTEM
Uncontrolled	Controlled
Effortless	Effortful
Associative	Deductive
Fast	Slow
Unconscious	Self-aware
Skilled	Rule-following

(Thaler & Sunstein, 2008, p. 20)

So the automatic system is what has been called the unconscious. From that system people act and make choices, without thinking those through. For example reaching with your hands for a vase that you drop, to catch this vase, is coming from the automatic system. Also actions people have done so often, actions they can execute unconscious, without thinking conscious about doing them are in the automatic system. Fox example when you wake up in the morning and turn of your alarm clock. The reflective system is what has been called conscious thinking. For actions in this system there is more time required and a certain amount of reflection. For example when you want to plan something ahead, like a route to a certain destination, then you use the reflective system.

2.2 THE DOER AND THE PLANNER

Thaler en Sunstein call the automatic system the 'doer' within us and the reflective system the 'planner' within us. These doer and planner can be very much in conflict with each other. This is because the planner mostly likes to plan ahead, and with that he wants to promote policies for the long-term. Seductions that come with excitement however tempt the doer. This tempting mostly happens when people are in a "hot" (out of control) state of mind. What is this "hot" state? Behavioral economist George Loewenstein explains this by means of his "hot-cold empathy gap":

"As discussed in Loewenstein (1996a), when in a "cold" state people often have difficulty imagining how they would feel or what they might do if they were in a "hot" state -- for example, angry, hungry, in pain or sexually excited. It may also be the case that, when in a "hot" state people frequently have difficulty imagining that they will inevitably cool off."
(Loewenstein & Schkade, 1999, p. 98)

For example when people are feeling hungry, they are in a "hot" state. If they walk by a cafeteria in this "hot" state, they experience the temptation to buy fries. However when people are in a "cold" state and walk by a cafeteria, for example when they have just had a meal, they don't feel the temptation to order fries. These "hot" and "cold" states correspond with the doer and the planner within people. When people are in a "hot" state, the doer will prevail and when people are in a "cold" state, the planner will take over (Thaler & Sunstein, 2008). In the "cold" state people can think rationally and plan ahead, and can decide to exercise more. In the "warm" state however, the same people can decide to spend the night on the couch because they feel tired after a day of work. So in the morning they can make the plan to sport at night, because they are in a "cold" state, but when it is evening, they can decide they don't want to sport anymore, because they are tired and so in a "hot" state for hanging on the couch. The doer wins from the planner that day.

2.3 EXPERIENCE, INFORMATION EN FEEDBACK

Probably many people recognize themselves in the former example of making great plans to work out, but when time comes they rather spend time on the couch. Why does the doer beat the planner? This is because people make better choices when they feature these three factors: experience, correct information and fast feedback. (Thaler & Sunstein, 2008). These three factors take time to achieve, and that is why they are covered by the reflective system and not by the automatic system. For example think about the idea of taking the stairs more often for more exercise. To start with taking the stairs more often, first people need the information that walking stairs is healthy and that more exercise is good for a person. Secondly, people need to have a certain experience to know better what it is that they choose. When people experience for themselves that after a hundred times walking the stairs you develop a better condition, people would probably more often take the stairs. But a hundred times walking the stairs, is a taking a lot of time before people experience a better condition. That is why people need the third factor: fast feedback. People like to see quick results. With walking stairs sadly there is no fast feedback, because after once taking the stairs you don't develop a better condition. Because not all three of the factors are present here, people still take the elevator and their doer wins from their planner.

Because in most situations the three factors are not present, people often are in a "hot" state. Therefor it is important to realize this while figuring out a way to help people make healthier choices. There should be focused on the automatic system in relation to the three factors. People make the best choice when they have the correct information, the experience and fast feedback. To make sure people do in the "hot" state what they want in the "cold" state, the choice they make has to have these three factors.
How architects can find a solution for this problem will be discussed in the next chapter.

3. HOW CAN ARCHITECTS CONTRIBUTE TO A HEALTHIER LIFESTYLE?

In the former chapter there has been analyzed how people make choices and are guided by their choice making by their automatic system of their reflective system. In this chapter there will be researched how architects can use this knowledge to help people to choose a healthier lifestyle. To help people make the choices they want in the "cold" state, architects should help them to make it easier to choose the right action. Architects can do this by designing the environment in which people make their choices. As discussed in chapter one, architects should think about how they can help people with their choices when they design a building. Which in this case will be office and school buildings for a healthier lifestyle. A possible way to do this is for architects to give the people a little push in the right direction, also called a nudge. Architects should give them a little push in the right direction, also called a nudge. Nudging is a behavioral science theory that is also been used in politics and economics. Since the book 'Nudge' by the already named Thaler and Sunstein has come out in 2008 there has been a lot of attention for the idea of nudging. Because there has been a lot of attention for this theory in different disciplines, it might be time to explore the possibilities that nudging can offer architecture. Can architects nudge people in a certain direction?
To figure this out, it is important to know what nudging exactly is. The theory of nudging is based on the concept "nudge" by Thaler and Sunstein:

"A nudge, as we will use the term, is any aspect of the choice architecture that alters people's behavior in a predictable way without forbidding any options or significantly changing their economic incentives. To count as a mere nudge, the intervention must be easy and cheap to avoid. Nudges are not mandates. Putting fruit at eye level counts as a nudge. Banning junk food does not."
(Thaler & Sunstein, 2008, p. 6)

This theory is thinking about how to nudge people in the right direction, the direction they want to go in when they are in the "cold" state, by positive reinforcement and indirect suggestions. Because people are often in the "hot" state, it has to be easier for people to choose the things people want in the "cold" state even when they are in the "hot" state. In paragraph 3.1 this theory will be explained.

To use the concept of nudging, for example in architecture, it is important to understand how this idea really works. The theory of nudging explains that certain design choices work and help people make the "cold" state decision, but it does not explain what really has to be done to make this happen. To understand how nudging works it is important to understand how people's behavior works. To understand how people's behavior works there can be looked at a theory about action. An action theory is a philosophical description of behavior that researches the relation between an individual and a situation. In this case between people and a building design. An action theory is necessary to explain nudging because nudging is about the relation between an individual, or multiple individuals and a situation. Nudging wants to push an individual to act in the desired way in a certain situation. An action theory therefor might be able to explain how it is possible to nudge people by understanding their behavior and actions. The action theory behind nudging is according to me the theory of affordances. This is because the theory of affordances is focused on the action possibilities that are offered in the environment. Because this theory is about the action possibilities in the environment this theory fits well with nudging and also very well with architecture, which designs the environment. The theory of affordances also fits very well with nudging because it thinks about different action possibilities that are offered in an environment and that certain action possibilities are more likely to happen. By understanding how one action possibility is more likely to happen then another, this knowledge can be used to make the desired action more likely to happen.

The theory of affordances is about the idea that organisms not just observe objects in the environment, but that they immediately observe action possibilities. Because this theory is about perceiving action possibilities, it is the perfect theory to explore for architects who can influence people's actions in the designed environment. Nudging is showing how to help people choose the right action. For architects (and also all choice architects) it is important to understand what action possibilities are and how they work. To understand this, and by that understanding the underlying theory of nudging, it is important to understand the theory of affordances. This theory will be explained in paragraph 3.2.

3.1. NUDGE

In their book 'Nudge' economists Richard Thaler en Cass Sunstein explain how people can get a helping hand to make sure that their automatic system does what their reflective system wants. A 'nudge' is best explained by an example. When in a canteen healthy food, like apples, are placed at a spot that is easy to reach and easy to see for people, the apples will be chosen more often then if they were on another spot. The opposite counts as well. If unhealthy food is placed far behind and slightly out of sight, this will be chosen less often. In this case people are stirred in their food choice by the placing of the food.

With this knowledge (choice) architects can go different ways. There can be chosen to place the food in that way it makes the most profit, to place the food with which people are best helped, or randomly organize the food. The example already shows that there actually is no random, because every order promotes a certain food. According to Thaler and Sunstein it is best to choose the option with which people are best of. In this case that will be the promoting the healthy food (Thaler & Sunstein, 2008). That is the food people would choose in the "cold" state and should be tempted to in the "warm" state. The idea of nudging is to think about what benefits people in the long way and what they would choose in the "cold" state. It is only about making it easier to choose for the healthy option, not about forcing people into certain choices. In this case it is thinking about how to help people choose for a healthier lifestyle, without forcing them.

The strategy of nudging is part of the 'libertarian paternalism' movement. At first sight these two terms seem contradictory and might be perceived negatively. Nudging is libertarian because it believes that people have to be free to choose whatever they want. "We strive to design policies that maintain or increase freedom of choice" (Thaler & Sunstein, 2008, p. 5). The libertarianism is used to let people as free as possible in their choices. The term paternalism can be and is perceived as negative, because it influences the choices of people.

Thaler and Sunstein only accept paternalism when "it tries to influence choices in a way that will make choosers better off, as judged by themselves" (Thaler & Sunstein, 2008, p. 5). As discussed in previous chapters, people not always choose in the "hot" state what they want in the "cold" state. Nudging wants to influence the choices of people only in the direction of what they would choose themselves in the "cold" state. With nudging people get a nudge to choose for more exercise, the thing their reflective system wants, but not accomplishes because of the automatic system. There is quite some critique on this idea of Thaler and Sunstein, because lots of the term paternalism. One of the most cited debates is 'To nudge or not to Nudge' by philosophers Daniel Hausman and Brynn Welch. One of their points is that Thaler and Sunstein state that a policy only is paternalistic when it limits what a person can choose. But Thaler and Sunstein don't limit the set of choices; they only make certain choices more invitational. In that way none of their nudges are paternalistic (Hausman & Welch, 2010). But Thaler and Sunstein still call their theory paternalistic, so they must believe in a broader definition of the word, the more common definition of the word. Hausman and Welch argue that philosophers like John Stuart Mill would be against the idea of nudge, because paternalism is not compatible with free choice. Mill would object to the interference with individual liberty of paternalism (Hausman & Welch, 2010). The very fact that the government, or someone else, attempts to think what is best for someone makes that it infringes a person's liberty. Because how can Thaler and Sunstein really know what every individual would choose in the "cold" state. They seem to be able to decide this, and thereby be paternalistic, without limiting the choices. This is a valid point and it would be impossible to know what every individual desires. However it should not be forgotten that people always are nudged, even if it is not on purpose. Wouldn't it be a more comfortable thought that the choice architect at least tried to figure out what people would like to choose in the "cold" state and therefor make it easier, and only easier, to choose that option?

No one is forced to choose one or the other, the idea of nudging is still that the choice set is not limited and no factors are taken away. In this case it seems acceptable that architects can look at researches about healthy lifestyles and let them be guided by that. Of course they can never design for the desires of every individual, but they can try to do the morally best option to help people choose what they want in the "cold" condition. This doesn't mean people really have to take this option. Like written before, according to Devisch there is a reigning moral that healthy living is a good thing, a thing that people want to live up to. In this case it can be acceptable that architects are guided by that moral and design a building in a certain way that people can easier choose the healthier option.

In their book, Thaler and Sunstein talk about different factors that are already in the social environment and can be used to nudge people. These are: spotlight, herd behavior, laziness and financial incentives. One of these factors is especially relevant for architecture: laziness. The spotlight factor and herd behavior are very social factors that cannot be effectuated by architecture. Neither is it possible to use financial incentives for users of a building, because that has nothing to do with the design itself. That leaves laziness, which will be explained in the next paragraph.

3.1.1 INERTIA

People prefer the existing situation, the status quo also called inertia. People have to make a lot of choices in their lives. For example when people have a new smartphone. Lots of people will dazzle of all the possibilities that you have with a smartphone. How long and often should the phone ring when people call you? Do you want the phone to buzz once with a text message and twice with e-mail? These are all choices that a smartphone owner has to deal with. These are hard choices because of the three factors that are needed to make a good decision (chapter 2): correct information, experience and fast feedback. In this case smartphone owners do not have the information about what is the correct time to let your phone ring. They don't have experience with this yet, because they just bought a smartphone. And they don't get fast feedback, because it takes a couple of phone calls and messages to realize what is the best ring time and nicest buzz option. In this case smartphone developers have a solution: standard settings. This way you don't have to choose everything directly when you got a new smartphone, but you can experience and give feedback on the option that is considered good by many people consider good. Later you can always adjust these settings. People now have always had the whole set of options, but it is made easier for them to choose the standard setting. Which is probably the best setting, because it is already been tested on many people, and it can be chosen by the automatic system. The developers of smartphones use the inertia of people, or better: make life easier for people with inertia. This phenomena happens in more cases in which it is about much more important decisions than smartphones (Thaler & Sunstein, 2008). From this it follows that people are eager to choose the easiest option, the choose inertia. Because of this, the power of inertia should not be underestimated. Of course this power should be used for the good and thus the option that people would choose when they would think about it reflectively and consciously.

3.1.2 TRANSPARENCY

To make sure that sure that a nudge only nudges and not forces people, it is important to keep all options open, to keep transparency (Thaler & Sunstein, 2008). It is a big responsibility to consciously make a certain decision, which you know influences the choice of people. To make sure that there will be no invasion on their freedom of choice, it has to be transparent that all options are open. Transparency means that people still can see they have all the options. For example with the canteen story, it is clear that people still can choose the food they want, no matter where it is placed, as long as it of course is always places in sight. Taking away unhealthy food like fries is not transparent, because that would be limiting the options. Transparency in this case does not mean that with every nudge there has to be a sign with: 'watch it, you are being nudged!' It only means that all options have to be clear to people. Nudging only helps people implicitly to make a certain choice. However if there were a sign that says: 'you are being nudged!' the nudging would still work. The example of the fly in the urinals at Schiphol airport is a good one to show that nudging even works when people are aware they are nudged. In the urinals at the airport they wanted to nudge men to keep the urinals cleaner, by aiming better. By placing a fake fly in the urinals men aim better, because unconsciously they aim for the fly. These urinals with flies were installed in the 1990's and have become famous ever since. Still it has the same desired effect, men aim better in the urinal, even if they know the fly is fake and is there only to make them aim for it (Evans-Pritchard, 2013). Still these men have the option not to aim for the fly, or not even aim at the urinal at all. The fly however attracts people to prefer aiming for the fly instead of missing the urinal.

It is transparent that there are other options. This is important because if not all the options would be open, there would be no freedom of choice. Freedom of choice is a necessary value for a liberal world. Thaler and Sunstein value freedom of choice as one of the highest goods as libertarians. With their transparency

they fit the still high regarded principle of freedom of John Stuart Mill:

"This, then, is the appropriate region of human liberty. It comprises, first, the inward domain of consciousness [...]. Secondly, the principle requires liberty of tastes and pursuits; of framing the plan of our life to suit our own character; of doing as we like, subject to such consequences as may follow [...]. The only freedom which deserves the name, is that of pursuing our own good in our own way, so long as we do not attempt to deprive others of theirs, or impede their efforts to obtain it." (Mill, 1859, pp. 15-16)

Pursuing our own good in our own way is the most important one in this citation and therefor also the one that might not fit Thaler and Sunsteins idea of nudging. They themselves explain it as 'pursuing our own good in the "cold" state'. This might be a more narrow definition of freedom, where is a lot of critique on, for example by Hausman and Welch, but nonetheless it is possible to explain Mill's principle in that way.

3.2 AFFORDANCES

To understand how affordances are the underlying action theory for nudging, it is important to explain concept of affordances. The theory of affordances comes from the ecological psychologist James Gibson at the end of the '60's. In that time it was quite a revolutionary idea that when organisms perceive an object, they immediately perceive the action possibilities of that object. The name 'affordance' is a derivation of the verb 'to afford'. Gibson's own definition is as follows:

"The affordances of the environment are what it offers the animal, what it provides or furnishes, either for good or ill." (Gibson, 1986, p. 127)

An affordance is an action possibility, which is offered by an object. The theory of affordances is an action theory because it is based on the consequences of an interaction between an individual and a situation (in this case every possible situation in the environment). The theory tries to explain how behavior of organism's works based on incentives in the environment. Because this theory can explain why people behave a certain way in a certain environment, this theory can explain how nudging works. By understanding the theory of affordances, it is possible to make certain action possibilities more likely to happen, and that is exactly what nudging is trying to do: making the actions that people want to do in the "cold" state, happen in the "hot" state. The connection with architecture is not a coincidental one and has already been made by Gibson himself. At a symposium about perception in architecture he made a bold statement: "architecture and design have no satisfying theoretical basis" (Gibson, 1982, p. 413). He proposed there that the ecological psychology, and in particular the theory of affordances could be such a theoretical basis. This thesis tries to be in line with Gibson's ideas. Even though the theory of affordances is applicable to all organisms, in this thesis there will be only focused on humans, therefor the word people will be used, even though the ideas may

apply to all organisms. What is an affordance? An affordance is the action possibility that an object offers to people. For example a glass offers the possibility to fill it with water and use it to drink. Objects can offer multiple action possibilities and also offer different action possibilities for different people. A glass of water for example offers the possibility to drink from it, but also the possibility to pour over someone else. So the affordances that an object offers can be different per person. The affordance is thus not only depending on the object in the environment, but also on the person by whom the object arouses the affordance:

"An affordance is neither an objective property nor a subjective property; or it is both if you like. An affordance cuts across the dichotomy of subjective–objective and helps us to understand its inadequacy. It is equally a fact of the environment and a fact of behavior. It is both physical and psychical, yet neither. An affordance points both ways, to the environment and to the observer." (Gibson, 1986, p. 129)

Besides the fact that an affordance is part of the environment and of the behavior of the person, is an affordance not dependable on peoples needs:

"The concept of affordance is derived from these concepts of valence, invitation and demand but with a crucial difference. The affordance of something does not change as the need of the observer changes. The observer may or may not perceive or attend to the affordance, according to his needs, but the affordance, being invariant, is always there to be perceived. An affordance is not bestowed upon an object by a need of an observer and his act of perceiving it." (Gibson, 1986, p. 138)

To go back to the example of the glass of water: people see the possibility to drink from this glass, whether they are thirsty or not. People don't need to desire water to see the action possibility of a glass of water. Philosopher Erik Rietveld, who together with his architect brother Ronald Rietveld is working on affordances in

architecture, goes even further than Gibson and argues that people are ready for action, even if they don't desire this certain action:

"Perceived affordances don't ignore the proficient body, but make it ready for action. The reconciliation to the context is essential here. They can be explicit without the involvement of the thinking a call skilled reaction, a reaction that takes into account the context of the particular situation here and now." (Rietveld, 2011, p. 164) (Own translation)

Rietveld shows that the context is very important for how people deal with an affordance. An affordance can address to the automatic system, without interference of the reflective system. He does not use these exact terms, but he talks about the fact that affordances for example can address to habits, which people can execute without reflecting on their action. He talks about actions without reflections. These types of actions, in which the affordance leads to an action without interference of reflection are important, because that is what is needed for nudging: that affordances can lead to actions without having to reflect, so without being in the "cold" state.

Rietveld also touches on something else important: the idea that an affordance is only perceived by the proficient body. This means that people who do not have the right skills, or do not know of the right skills, cannot perceive certain affordances. It is clear now that affordances lead to different actions for different people. Affordances are always there in the environment, but not all people will notice them. To notice them, people need certain skills. They need to be able to perform the action, or at least know that the action is possible. Secondly, the action that will happen between a person and the environment depends on which affordance in the environment is most inviting. In the next two paragraphs these two factors that are necessary to influence the out coming action of a person perceiving an affordance will be explained. These two factors are very important to understand, because with understanding these two factors it is possible stir people's actions.

An affordance itself does not nudge people. There are always countless affordances in the environment of people. The way an architect uses an affordance, or better said: makes a specific affordance invitational, provided that the person has the right skills, makes that it can nudge people.

As mentioned in the former paragraph, different people can perceive different affordances in an object. This is because every person features a unique set of skills. Independent of peoples skills there are countless affordances. The affordances themselves are independent of the observer. A person only perceives certain affordances when he has the right skills. When someone does not have the skills for a certain affordance, he won't perceive this affordance. For example a baby does not perceive as much affordances as adults, because a baby does not have certain skills yet. However when this baby does learn the needed skills, he will perceive the affordances. Children still need to discover which affordances the environment offers them (Adolph & e.a., 2010). Rietveld links the acquisition of new skills to the automatic system:

"When we have acquired a new skill, the relationship between body and world has changed. From that moment on we are able to address to the options for action (affordances) relevant in the given situation. Reflection is often not needed there. (Rietveld, 2011, p. 172) (Own translation)

The acquisition of skills changes the relation between body and world. This happens unconsciously, in the automatic system, without reflection. Besides the fact that baby's don't have the same skills as adults, a difference of skills between people can also be the result of cultural variety. Anthropologist Tim Ingold even thinks that what we call cultural variety, is the result of different skills in different cultures:

"Much if not all of what we are accustomed to call cultural variation in fact consists of variations of skills. By skills I do not mean techniques of the body, but the capabilities of action and perception of the whole organic being (indissolubly mind and body) situated in a richly structured environment" (Ingold, 2011, p. 5).

The differences between people of different cultures are a result of the different skills they feature. These differences are noticeable when different people are in a richly structured environment, like an architectural design. These differences in skills result from the difference in environment. Because people live in different environments, there are different skills they need to learn. This is resulting in different skillsets and thus in a difference in perceiving certain affordances. Because people then perceive different affordances, they are categorized as different cultural varieties. So all different people perceive different affordances depending on their skills. Not perceiving certain affordances is thus the result of missing the skills. These skills, like all skills, however can be learned. This is important to know, because for stirring people's actions, they first need to possess certain skills to perceive certain affordances that will lead to the desired actions.

3.2.2 INVITING AFFORDANCES

In this thesis there will be thought in line with Gibson on the point that affordances are possibilities for action. Also in this thesis there will be agreed with Gibson on the fact that affordances are always present, even when they are not perceived and that they are always present, no matter if people are in need for the affordance or not. The needs of people do not influence the possibility of perceiving affordances. The skills of people however do influence the perceiving of affordances. So without the skills people cannot perceive the affordances. This is in line with design researcher Don Norman, who says that affordances are not always perceived:

"Affordances represent the possibilities in the world for how an agent (a person, animal, or machine) can interact with something. Some affordances are perceivable, others are invisible." (Norman, 2002, p. 19)

Don Norman however also states that affordances do not always exist:

"Whether an affordance exists depends upon the properties of both the object and the agent" (Norman, 2002, p. 11)

This is not the same as not perceiving an affordance. Affordances always exist, like Gibson states, but they are not always perceived, because of the lacking of skills. Only perceived affordances result in actions.

The last ten years there has been a lot of attention for inviting affordances, mostly in the discipline of industrial design and movement science. This idea is researched by Rob Withagen, movement scientist at the University of Amsterdam, who thinks that the environment does not contain a neutral multiplication of affordances from which people make a choice, but that the environment can make a certain affordance more inviting for people or even urge people to do a certain action (Withagen & e.a., 2012). There is always one affordance in the environment that is

more inviting for the observer. This can be a different affordance in a different situation. That one affordance is more attractive to the observer means that one of the many action possibilities that a person perceives is more inviting for this person and therefor results in action. Gibson however did not think that it would help to make an affordance more prominent to stir actions. He thought that it was possible to improve an affordance by making it more compatible with the human body (Gibson 1982). Improving an affordance, as Gibson calls it, can be seen as making it more inviting. I think Gibson would agree that an affordance could be more inviting if it is more compatible with the human body. Gibson thinks there is a difference between making an affordance more prominent and making an affordance more compatible with the human body. I think these two are the same in that way that an affordance can only be more inviting if it is more compatible with the human. Not only the human body in just a physical way, but with the human as a whole, physical and mental. If you look at it in this way, there is not really a difference in my idea, Gibson's idea and the current idea in literature about inviting affordances.

     This concept of 'inviting affordances' is proved in the research of industrial designers Ju and Takayama. In their research they proved that an automatic door, which opens and stays open for a couple seconds, invites more people than an automatic door that opens and closes immediately. The respondents experienced the pausing door as inviting, or even as urging, while the immediate opening and closing door gave a feeling of unwillingness (Ju & Takayama, 2009). With this test Yu and Takayama not only proved that some affordances are more inviting, but also that Gibson was not completely right about making an affordance more prominent. However if you see that the automatically opening door is more inviting because it is more compatible with the human body, this research does agree with Gibson. When a designer makes the doorway of a door more prominent, people will be more likely to go through the door:

"To improve an affordance to enter a building, a designer would make the pass ability of the doorway more obvious. To improve an implicit interaction to enter a building, a designer would make the doorway express that the passerby was welcome to enter." (Ju & Takayama, 2009, p. 2)

The manipulation of a design can make certain actions be more plausible. The environment is not full of neutral affordances, but can invite a certain action and even urge people to a certain action. Not every affordance is inviting. For affordances to exist it is not necessary that an actor observes them. However for an affordance to be inviting, the affordance has to be perceived by an actor (Withagen & e.a., 2012). So the affordances always exist, unregarded the perceiving of an actor, but an affordance can only be inviting if there is an actor present that can consider a certain affordance as inviting. Whether an affordance is inviting depends on the actor that perceives the affordance. The actor is not the only factor that influences how inviting an affordance is. Rob Withagen started to make a list of factors on which the inviting character of an affordance depends:

1. The skills of the actor are of influence of the inviting character of an affordance. The relation between skills and the possibilities that the environment offers don't only decide which affordances are perceived, but also which affordances are inviting.
2. From an evolutionary perspective some affordances are more important than others. For example affordances that are crucial for survival or reproduction are probably more inviting for an actor.
3. Culture is probably a determining factor. Certain affordances will be perceived and act upon easier in one culture than another.

4.   Aspects like personal history seem important. For example negative experiences of an actor with a certain kind of food, can assure that this food will not be inviting for the actor the next time.

(Withagen & e.a., 2012)

Withagen states that this list is not finished and just a start. This list shows that the inviting character of an affordance is closely related to the skills of an actor, to the internal information of an actor and to the feedback that an actor receives. This sounds a lot like the three factors that are needed for a good decision: experience, information and feedback, as explained in paragraph 2.3. These three factors usually characterize decisions in the "cold" state. Nudging tries to help people making this "cold" state decision, which is based on information, experience and feedback, in the "hot" state. To nudge people in the "hot" state, it might be necessary to also make use of these three features that help making a good decision. It seems like the factors that are making an affordance inviting, correspond with the factors that are needed for a good decision. The invitational character of an affordance can therefor be the bridge between the automatic system and the reflective system. Affordances can speak to the intuition of people, to their automatic system. But the automatic system usually does not make decisions on the factors information, experience and feedback. To make an affordance inviting this affordance might need to contain these three factors of a good choice. If the affordance is based on these three factors, it will be unconsciously recognized as the right choice, and therefor be the most inviting. It then is inviting because it is addressing the three factors that are recognized by people as the factors of good choice. These three factors are explained slightly different in the automatic system than in the reflective system, because these systems respond to different things. For example in the reflective system the right information is needed to make the right decision. This also counts for the automatic system: an affordance needs to fit the information that is in the automatic system. Evolutionary and cultural aspects, or instincts, are unconsciously present in a human. An affordance can address to these aspects and therefor be more inviting. It speaks to the inner information a person possesses. Gaining experience is usually taking a lot of time and therefor covered by the reflective system. But people already have certain experiences and certain skills. An affordance should address to the existing experiences and skills because those are in the automatic system and therefor possible to reach in the "hot" state. Feedback is necessary for the reflective system and for the automatic system. Especially for the automatic system it has to be fast. An affordance therefor should have a component of (positive) feedback in it that can address the automatic system, so it has to be feedback that can be received directly, without reflecting on it. By addressing these three factors an affordance is helping people to make the choice they actually want to make. To make an affordance more inviting it is necessary for the affordance to address to these three factors. The four factors of Withagen can be rearranged into these three factors:

1.   The first factor is information. There is knowledge or recognizing of affordances necessary to make an affordance more inviting. This knowledge can arise by cultural aspects. Different environments give a need for different skillsets, which result in different cultures. People have experiences with different environments, therefor different skillsets, and therefor perceive different affordances. Information could also be seen as evolutionary instinct. For example taking the shortest route is an evolutionary instinct people have in case they need to flee. By placing an affordance like a staircase in line with the shortest route, and the elevator in line with a much longer route, the affordance of the staircase is more inviting.

2. The second factor is experience. This represents the skills of an actor that are needed to perceive an affordance. The affordance being perceived is a necessary condition for being inviting, so the actor needs a certain experience to be able to see the affordance. He needs his skills and develops skills by experience. By being more compatible to the skills of people an affordance can be more inviting. A lazy staircase for example, addresses better to the skills of people than a very steep staircase that is difficult to climb.

3. The third factor is feedback. When an actor gets sick of eating certain food, he gets negative feedback from this experience. This food will be less inviting next time. The other way around would work also, that positive feedback makes an affordance more inviting next time. For example by making the view of a staircase more rewarding than the view of an elevator, the affordance of the staircase is more inviting.

With these three factors that make an affordance inviting, there is finally a bridge between choices from the "hot" state and the "cold" state. How? There has been explained that in the "cold" state people make rational choices. In the "hot" state, people make intuitive choices. In the classical idea people mostly make good choices in the "cold" state, with the three factors information, experience and feedback. In scheme that looks like this:

"Hot"   "Cold"
 ↓   ↓
intuitive choice   rational choice
                                ↓
                               information
                               experience
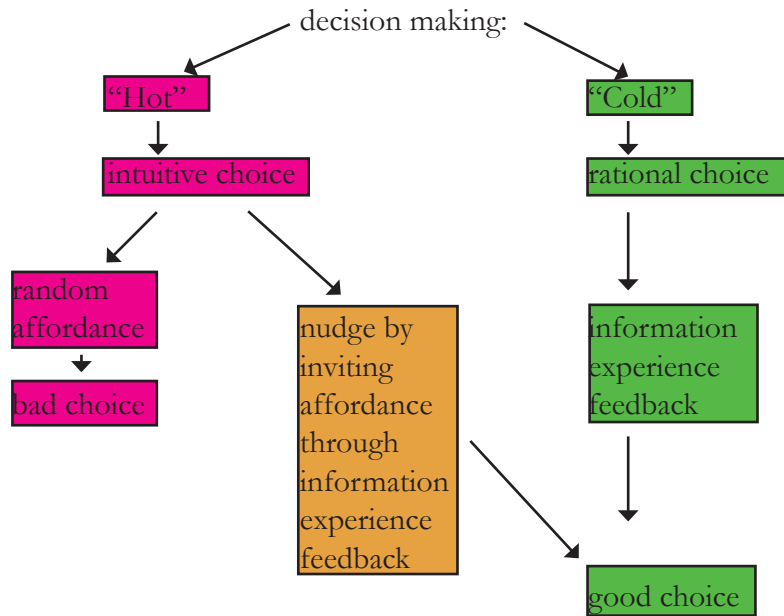   feedback
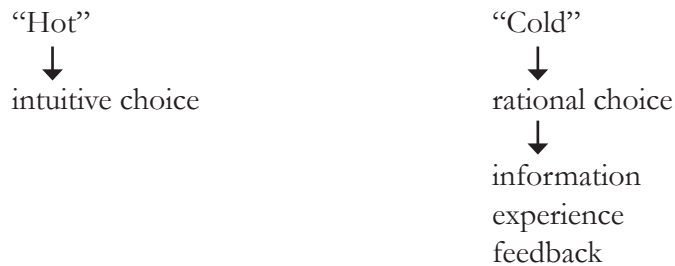
But by nudging people with inviting affordances it is easier for people to make a good choice based on information, experience and feedback when they are in the "hot" state. The scheme would therefor change into this:

"Hot"   "Cold"
 ↓   ↓
intuitive choice   rational choice
 ↓   ↓
information   information
experience   experience
feedback   feedback

What does this mean for architects? This means that architects have to speak to a person's information and experience and give them fast feedback to make an affordance inviting for people in the "hot" state as well. It is for example easy to let people in a "cold" state make the right decision to walk up stairs, but as people slide from "cold" to "hot" it is important that they still make the right decision. Nudging wants to help people with making the right decision intuitively, therefor the affordance leading to the desired behavior should be inviting. Being inviting means that is has to contain at least one of the factors of good choice. The more factors that an affordance has, the more inviting it will be. Nudging therefor makes use of inviting affordances to help people who are trusting on their intuition. This results in the following scheme:

decision making:

"Hot" → intuitive choice

"Cold" → rational choice

intuitive choice → random affordance → bad choice

intuitive choice → nudge by inviting affordance through information experience feedback

rational choice → information experience feedback → good choice

nudge by inviting affordance through information experience feedback → good choice

In the "hot" state people can perceive any affordances that can lead to a bad choice. In the "cold" state people have information, experience and feedback and reflect on this, which leads to a good choice (in which a good choice is the choice that they themselves want to make). However with nudging people are stirred by an inviting affordance that will lead them through information, experience and feedback to the good choice, the choice they would make in the "cold" state.

In the next chapter there will explicitly be explained how these three factors could be used to nudge people into a healthier lifestyle with architectural design examples.

4. HOW TO DESIGN THE ENVIRONMENT FOR A HEALTHIER LIFESTYLE?

In this chapter there will be explained how nudging in architecture can work for a healthier lifestyle by making affordances inviting. To make an affordance inviting it has to feature the correct information, experience and fast feedback in the "hot" state. The more factors it features, the more inviting it is. People in the cold state already will make the right decision for themselves, so nudging is only interested in how to help people in the hot state, when they trust on their intuition. Therefor an architectural design has to be designed in such a way that the desired affordance will be most inviting for people in the "hot" state. To show that this is possible by making an affordance fulfill the three factors there will be given three different examples that contribute in different ways to a healthier lifestyle of people. In the examples there is chosen for the most inviting affordances, and therefor examples that feature mostly three factors. An affordance that only features two or one factor is also inviting. However the more factors an affordance features, the more inviting it is and the likelier it is that the desired action will result.

All examples fulfill the requirement of transparency that nudging states. The people still have choices and there are lots of other affordances in the buildings. Only one affordance is made more inviting and therefor people are nudged to act on that affordance.

This is the staircase of the James B. Hunt Jr. library of the North Carolina State University, designed by the Norwegian architecture firm Snøhetta. This architecture firm sees the problem of obesity in the Western world and tries to do something about that with its designs. This staircase is placed in the middle of the routing and is executed in an explicit color.

Information:

This staircase is more in your face than the elevator left of the stairs because you walk right into it after entering the building. Secondly the stairs are colored yellow while everything else is in greyscale. This immediately speaks to people's evolutionary or cultural instinct for choosing the closest and easiest option. In case you have to run, what is the easiest way out? That is in this case the staircase, and that is why people are drawn to it. Secondly the color speaks to evolutionary and cultural instincts, because yellow is an alarming, but happy color, where grey is not. Therefor people are easier drawn tot his staircase then the elevator because it speaks to their intuitive information.

Experience:

The staircase looks comfortable with people sitting on them. The stairs have a place to rest on them, so people don't have to be afraid of not making it to the top, they can easily rest and sit on them halfway there. The stairs also look comfortable because of the height of the steps. This speaks to people's first factor information. The staircase looks inviting because people feel that they are able to climb them. People know instinctively that they can climb them, that they have the right experience to do that. By making a solution for vertical movement that no one has experience with, it will not be inviting on the instinctive level.

Feedback:

There needs to be a quick positive feedback for people to know they made the right decision. In this case that is the affordance to sit comfortable on the steps, without people walking over you. By making that affordance more inviting, sitting on the stairs, is like a reward for climbing the stairs. You have a higher position, which is preferred by people, and can watch people walking by. By taking the elevator, it is not possible to sit on the stairs. You always have to at least partially take the stairs, up or down, to sit on them.

images 1 (above left), 2 (abover right) and 3 (below)

Architectural firm RAAAF by Erik en Ronald Rietveld thought together with visual artist Barbara Visser about the problem of how much people sit. People are sitting too much and mostly in a posture that is not good for them or not productive. Lead by the theory of affordances they thought of a new way of sitting, a landscape of sitting, which offers lots of new sitting possibilities. The landscape offers different new affordances to work standing up, laying or sitting. "The affordances of the experimental work landscape challenge people to change work postures during the day" (RAAAF, 2014) (Own translation).

Information:

This landscape speaks to the evolutionary information that people have about different postures. Before people decided to sit on chairs behind desks, they had different postures during the day. Even before there were buildings, people were not likely to sit in one position all day. The landscape invites to change positions because that affordances are constantly provoking people. In normal office buildings, people don't get incentives for other positions, because there are only fifty other desks that are exactly the same as the one they are sitting behind already. This landscapes speaks to that information and invites people to work in different postures that they like.

Experience:

The landscape speaks to experiences of people. Is there anyone who can sit on a chair in the same posture for 9 hours without getting some back pains or other pains? This landscape appeals to the experiences of people. People have experience with standing, laying and sitting. It speaks to all those experiences instead of just the experience of sitting. Therefor almost everybody feels attracted to it; also people who cannot work sitting all day, because they don't have enough or good experiences with that.

Feedback:

Finally the landscape gives fast feedback, because at the end of the day people don't feel cramped or feel back- and neck pains from sitting in the same posture all day. Secondly the feedback can come from being more productive. The results are not finished yet, but it looks promising that the landscape makes people more productive than a normal office desk and chair.

image 4

This example is actually meant as an art piece instead of an architectural design, but can be very well seen as an architectural design. It is made by Krijn de Koning and Dominique Pelletey for the Artcite exhibition in Windsor in Canada in 1994. Even though the installation is not meant as an architectural design it can easily be used in architecture. It makes the affordance of one path more inviting then all the other routes to the next room. By doing that on a bigger scale it can make people walk extra miles and therefor exercise more.

Information:

The different color of the path speaks to the evolutionary and cultural information that that is the path you need to take. That path is accentuated with color and thresholds, so it is the easiest thing and least complicated thing to walk on the path.

Experience:

It speaks to our experience that this is the right path, because walking up and down steps is difficult and can be dangerous. It speaks to the very intuitive experience of falling from a step and therefor invites people to only take the path. Also it speaks to the experience of finding something at the end of a path, in this case the doorway. It feels like the logic way to the door, even though it is not the shortest route.

Feedback:

There is no concrete feedback here. But even without having all three of the factors, the affordance is inviting. This example shows that to be inviting an affordance does not have to contain all three factors.
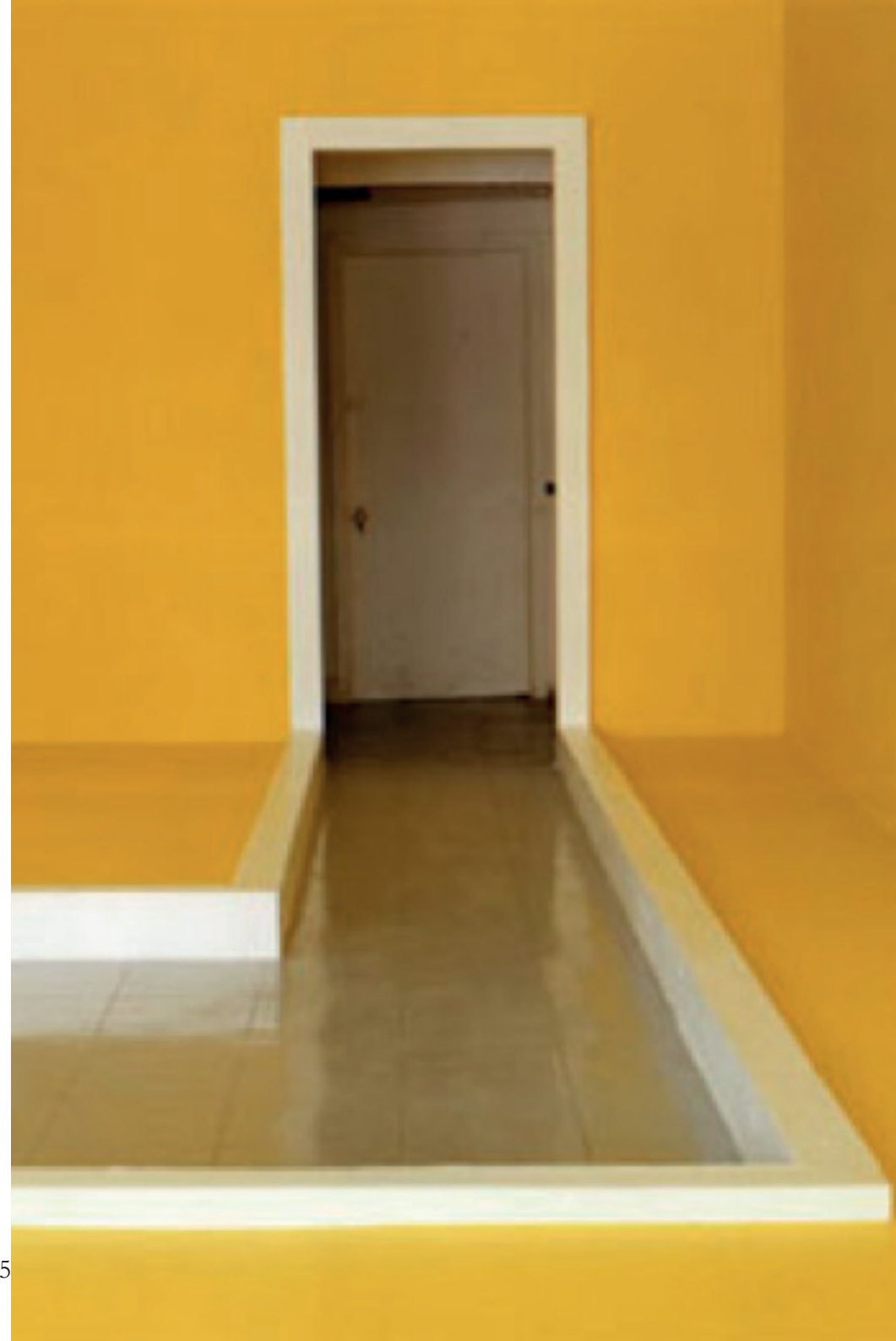
image 5

5 CONCLUSION

Considering the fact that an architect designs the environment in which people make choices it is at least partly the responsibility of the architect that he thinks about what choices are possible in his environment. Architects have a certain responsibility towards the community for which they design. Therefor they should help this community with their needs. In this case with their needs to being able to choose what they want in the "cold" state when they are in the "hot" state.

The problem of obesity is a big one in the Western world, and people themselves want to do something about it. The designed environment they live in can help with that desire. Nudging wants to help people with making the right choice in different disciplines. One of those disciplines in which nudging can be applied is architecture. But to able to use nudging it is important to understand the action theory behind it.

Nudging can be explained with the theory of affordances. This theory is based on the concept that with everything in the environment, an actor perceives action possibilities. These action possibilities come in automatically, without reflection. People make the right choice based on three factors: information, experience and feedback. This are usually aspects of choices made in the "cold" state. To make an affordance inviting, it needs some requirements. It turns out that these requirements can be categorized as information, experience and feedback. By having one or more of these factors an affordance becomes more inviting. The more factors, the more inviting an affordance is.

By knowing this, architects can use the knowledge of making an affordance inviting to nudge people. Nudging happens when people think intuitively. Affordances are very good perceivable intuitively. By making the desired affordance inviting, it increases the chance that people make the right choice, in which the right choice is the choice they want to make in their reflective state.

Parts of this thesis should be worked out even further. It is clear that an architect has a responsibility towards the community, but in extends to which? This can have important implications to building laws and restrictions. Can those extend to health issues? For example that architects should always think about make the use of stairs more inviting?

There is also much more to learn about affordances and how the can nudge people. Especially about the inviting character of an affordance. This theory that an affordance is inviting when it contains one or more of the following factors: information, experience and/or feedback should be tested in reality. Which could be a very interesting following project for an architect (like me).

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