

The Art of Behaviour

nudging towards healthy habits

Delft University of Technology
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Myrthe den Heeten
4724240

Roel van de Pas
Engbert van der Zaag
Pieter Stoutjesdijk

1

What is the relation between your graduation project topic, your master track (Ar), and your master programme (MSc AUBS)?

One of the goals within the Architectural Engineering studio is to seek inspiring architectural solutions for both environmental and societal issues. By thinking differently about our current building culture engineering can provide affordable and healthier housing solutions for denser cities.

However, a specific assignment combining architecture and engineering was not yet given at the start of the studio. This caused me to search for one. Within the studio of architectural engineering the focus will mostly lie on tackling materiality and environmental issues. To broaden my project I conducted research into how engineering can influence social aspects as well.

Currently, the focus in the building industry mostly lays on sustainable architecture. Frameworks like cradle to cradle, bio based economy and circular economy have developed philosophies on materiality use and production. While the field of sustainable architecture is developing an added light needs to be shed on the users of the buildings themselves. As the impact of the built environment on health is becoming more evident architects hold a responsibility to not only design healthy for the environment but also for the people that use the buildings.

Nudging, a relatively unknown subject within the built environment, can provide additional information on the relation between behaviour and the built environment. The concept of nudging can help tackle a societal issue (health decline) with architectural solutions.

This connects to several topics of the master of Architecture as well. The 1 million homes, climate neutral by 2050 and renovation challenges all require an integrated approach of engineering with societal factors.

2

How did your research influence your design/recommendations and how did the design/recommendations influence your research?

Contemporary architecture mitigates negative effects on health. Modern healthy architecture aims to positively influence health. Nudging can take this even further. This concept of nudging started within the field of economics and psychology. Its a way of influencing behaviour towards a certain choice while preserving the freedom of choice. It has been proven to work within society, however this knowledge hasn't been much applied within the built environment yet. Architects and planners can individually decide on design, but there are no general guidelines on influencing behaviour that has a positive impact on health within the field of architecture. Choice architects are all around us, yet actual architects do not have the tools yet to implement valuable knowledge within the built environment.

This is why I propose a framework within my research. The framework proposes design elements that influence different types of health (i.e. mental, social and physical) within different levels of society (i.e. individual, relational and communal) and can be used by architects and urban designers throughout a design phase. This allows architects to facilitate healthy behaviour, while also enable users to increase control over their own health.

Architects can get inspired by the framework, as well as find evidence of the effect of the nudge so that argumentation of the application of the design elements becomes stronger.

The picture below shows how it works. Click the health type, the health level and scale you need, and it will provide you with possible design elements you can use to improve health in a project.

design design elements	health types			health level				scale	
	mental	social	physical	individual	relational	communal	societal	building	surrounding
food garden	■	□	■	■	□	□	□	■	□
fitness area	■	□	□	■	□	□	□	■	□
furniture views outdoor	■	□	□	■	□	□	□	■	□
place for withdrawal	■	□	□	■	□	□	□	■	□
shading system	■	□	□	□	□	□	□	□	■
Open plinth with multiple entrances	■	□	□	□	□	■	□	□	□
public art	■	■	□	□	□	■	□	□	■
walking trail	■	□	■	□	□	□	■	■	□
common kitchen facilities	□	■	□	□	■	■	□	■	□
communal spaces	□	■	□	□	■	■	□	□	■
playground	□	■	■	■	■	■	□	□	■
playgrounds with ground markings	□	□	■	■	■	■	□	□	■
public amenities	□	■	□	□	■	■	□	■	□
bike service	□	□	■	■	□	□	□	■	□
hiding elevator	□	□	■	■	□	□	□	■	□
inviting staircase	□	□	■	■	□	□	□	■	□
variety of climate environments	□	□	■	■	□	□	□	■	□
facilities that support exercise	□	□	■	□	□	□	■	■	□
open spaces	□	■	□	□	□	■	□	■	□
drinking fountains	□	□	■	■	□	□	□	□	■
smoke free spaces	□	□	■	■	□	□	□	□	■
walkability	□	□	■	■	□	□	□	□	■
lighted streets	□	■	□	□	□	■	□	□	■
signage	□	□	□	□	□	■	□	□	■

I searched for a design assignment that connected well to my research. I found this in a renovation project of the rehabilitation clinic Reade, located on the Overtoom in Amsterdam. The organisation is moving, and the municipality expressed that the empty building could transform into housing combined with health functions. This assignment connected perfect to my research, as this allowed me to directly incorporate my framework into my design.



The toolbox, as well as the research towards the infill of design elements lead me to use much research into my project. As my project focuses on different health types within the building I could directly use the toolbox. It gave me a whole list of design elements I incorporated, such as placement of furniture, daylight provision and social amenities throughout the design. In the picture above more examples are shown.

3

How do you assess the value of your way of working (your approach, your used methods, used methodology)?

Within my research the question: 'How can modern architectural nudge techniques be applied to improve overall health in the built environment?' is answered using academic literature and case studies followed by the development of a framework. First the connection between health and the built environment was established, which provides the base of the framework. Second, a list of prerequisites of ethical nudging was established, which allows architects and other non-experts within the field of nudging to set up their own ethically correct and working nudges. This knowledge, together with relevant reference projects and design elements made up the layout and content of the framework.

The final layout of the framework was mainly dictated by findings from chapter 2 and literature studies on a usable guidance tool. A database of existing design elements provided the content of the framework. These design elements are found in literature studies, existing case studies, findings from existing design trends described in chapter 2 and from existing nudging techniques outside of architecture described in chapter 3. The final framework is one that architects can use to implement nudging techniques that improve health.

I think the approach to first conduct a lot of literature research on nudging was correct. As this is a relatively new concept this gave me a clear understanding of the subject. However, I also provided ways in which an architect could set up one's own nudges in an ethical correct manner. If I am being critical at my process, I could have also dedicated this energy towards improving the framework further. This approach did give a clear overview of the ethical implications of nudging, but from an architect's viewpoint the design elements are much more of value. Additionally, I could have referenced this information in my paper to provide full overview to a possible reader.

4

How do you assess the academic and societal value, scope and implication of your graduation project, including ethical aspects?

Nudging is a relatively new concept within the built environment. There has been research within the fields of computer science and marketing but using nudging with design elements is something that can be developed a lot. This research focuses on that. Actually using nudging towards a good purpose while being ethically and morally justifiable makes for a very interesting topic in my opinion. In addition the developed framework is that of an open source format, which means it can be used and complemented by other architects and urban designers. Professionals can add their findings, but also be inspired by seeing many different design elements that positively influence health, which will hopefully lead to a better understanding of the importance of integrating health within a design.

As for ethical aspects, nudging in itself is already an ethical dilemma. But the beauty of choice architecture lays in the word choice. The framework in my research does not aim to propose how architects can force users into certain directions, but only to offer a set of guidelines into healthier alternatives. For example, by designing a shared bike service people are probably more likely to commute by bike, but owning a car cannot be made impossible. The framework will always be about facilitation, and not forcing. Findings of this research can raise awareness on the influence architecture can have and may also open a debate on the responsibility architects have to design for a better and healthier future.

Additionally, the guidance tool offers opportunity to architects to improve health using design. However, health is a complex subject, that comprises of much more than behaviour. In an aim to make the most impact on user health an architect should not only correctly design in relation to behaviour, but also materiality, climate, greenery and much more. Research fields like biophilic design could be implemented complementary to achieve the best result.

Lastly, research within the field of nudging is young and still evolving. It is difficult to pinpoint the exact effectiveness of changing behaviour as nudging is not an exact science. The theory behind a nudge together with initial results can be sound, but long term research might show other findings.

5

How do you assess the value of the transferability of your project results?

Architects and urban designers can benefit from the proposed framework. This framework contains design elements aiming to improve different types of health, as well as implementation within different levels of society. With this framework designers and architects can be inspired by design elements that help improve user health, as well as provide evidence for their effectiveness to lower the threshold for implementation.

However, I feel like the framework could use a lot of work. As I was unknown within the field of nudging a lot of time went into research of the concept itself. The idea behind the framework I think is still good: to inspire. I just think that there maybe a better way to achieve this. A website, an app or an interactive setup might work even better than a simple list of design elements. You can click on the link to see design elements and projects, but a way to instantly get visuals is way more valuable.

6

Personal comments

It would be great if the framework could be further developed into a form where all nudges are approved by specialist from the fields of behavioural and ethical psychology. This way, an architect or urban designer can freely use the design elements with the insurance of conducting the nudges correctly without having to worry about effective and ethical concerns.

Because the field of nudging is still evolving the tool should be able to evolve too. For this I made a couple of recommendations for the future:

- The framework should be readily accessible and growing. The final version of the tool should be formatted in an interactive way with examples included.
- In the future extra filters should be added, such as a selection of user types. In addition a design element should be able to be supported by multiple sources to increase validity
- The design elements within the database should in the future be approved by specialists within the field of ethical and behavioural psychology
- The tool should comprise of multiple design elements within each health type, level of society and scale so that architects can choose between a large number of elements.

This period of research provided me with a lot of knowledge into nudging. It still is a fascinating thing how spatiality, building organisation and optical tricks can greatly influence behaviour. I dove into much existing knowledge. Looking back, I could have incorporated my design much more throughout my research. Now the tool provided design elements for my design, and me thinking about what an architect might need out of the tool provided much of the framework. However, this could have been a more interchanging process of going back and forth between design and research. Now, I made design descisions rather late, incorporating it earlier would have improved my process. Overall, I'm still really content with both my topic and my design assignment.