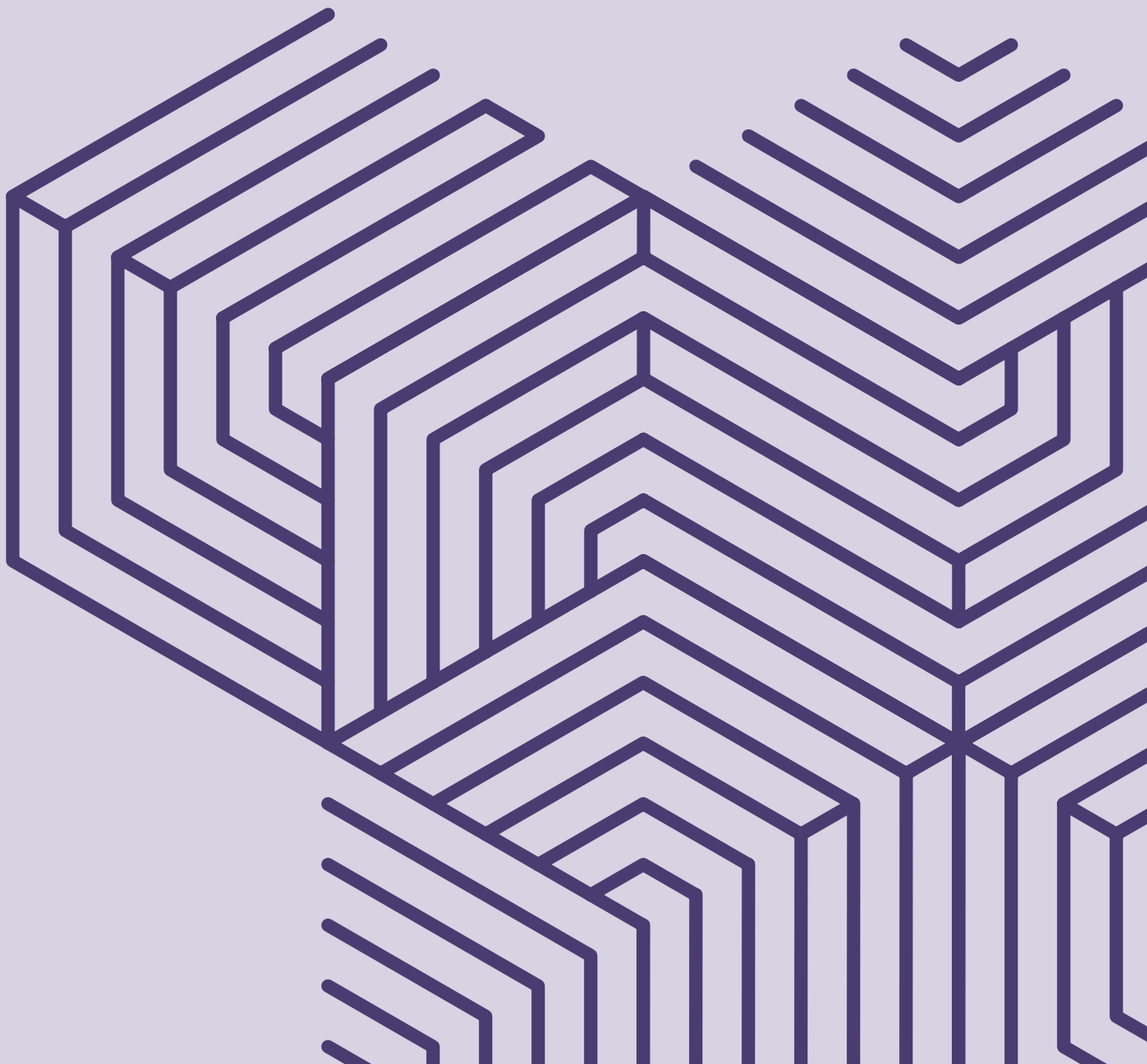


SHARING CULTURAL BELIEFS  
ABOUT APPEARANCE:  
**a design approach to improving  
social wellbeing in adolescents**

Master Thesis Strategic Product Design by Hein Gijssman | Delft University of Technology



# Colophon

—

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SHARING CULTURAL BELIEFS ABOUT APPEARANCE:  
**a design approach to improving social wellbeing in adolescents**

# Preface

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Before starting on this master thesis, I had recently become interested in the interplay between human nature and culture (for a lack of a better distinction) and between human wellbeing, the manner in which society is organised and its relationship with the natural world. Especially discovering the fluid nature of many of the beliefs concerning this interplay throughout history has increased my awareness of the role designers can play to reshape these beliefs and improve their usefulness for humanity, however small a designers' individual impact may be.

The subject of this project arose from my own experience with my body image being both a source of motivation to stick

to a healthy lifestyle, but also as a way to compare myself with others and therefore a source of insecurity. I recognise these thought patterns with people in my environment, such as within the gay community and at my sports club. Especially younger people are more susceptible to ascribe importance to the way their body looks. Seen this way, a trade-off almost seems to exist between physical health and mental health. Other interesting aspects concerning the subject are socio-economic. Eating healthy food and staying in shape costs time, money and dedication, which can turn having a healthy, fit body into a symbol of socio-economic status. All these considerations turn a seemingly simple issue into a complex societal problem.



Figure 01 — Our relationship with the natural world is determined by our beliefs

# Definitions

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## Body image

Body image is the subjective picture of one's own physical appearance, including its characteristics and one's attitudes toward these characteristics established both by self-observation and by noting the reactions of others (Merriam-Webster, n.d.; American Psychological Association, n.d.-1).

## Body (dis)satisfaction

Body dissatisfaction is the negative subjective evaluation of one's body as it relates to body size, shape, muscularity or muscle tone, weight, and fitness. Body dissatisfaction is considered to be an important negative affective factor related to body image. Typically, dissatisfaction involves a perceived discrepancy between one's current body and one's ideal body that fosters negative emotions and discontent (Cash & Smolak, 2011).

## Loneliness

Loneliness is defined by the American Psychological Association (n.d.-2) as "an affective and cognitive discomfort or uneasiness from being or perceiving oneself to be alone or otherwise solitary." Cognitive psychology emphasizes the unpleasant and unsettling experience that results from a perceived discrepancy (i.e., deficiency in quantity or quality) between an individual's desired and actual social relationships.

## Social wellbeing

Social wellbeing is still a less well-defined concept but can be understood as "the ability to communicate, develop meaningful relationships with others, and maintain a support network that [among other things] helps you overcome loneliness," (Davis, 2019).

# Abstract

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Loneliness is a large and growing problem among adolescents. Body image has a strong relationship with loneliness, especially among young people. Therefore, a promising way to increase social wellbeing among this group is by increasing body satisfaction. This report presents various aspects that should be taken into account when designing an intervention for this topic and demographic. Several designs are suggested, one of which is made into a prototype and validated.

Cognitive models theorise loneliness as a consequence of bad coping behaviours for body dissatisfaction, among other things. Body dissatisfaction often results from internalising dominant cultural beliefs about appearance. An example of a dominant belief is that having a fit body can be interpreted as an achievement of discipline and perseverance that an individual has worked hard for. The reverse then also rings true: unfit people are lazier, less disciplined and more likely to give up. Many of these beliefs are so common that they seem unchangeable. However, history shows

us that appearance ideals have changed dramatically in the past and that they result from the intricate way society is organised and how it develops within a period.

Changing these beliefs is difficult and slow, but a good place to start is by realising there is often more nuance and variety in beliefs about being healthy and fit than we assume. While one person values a low-fat sixpack for the hard work that goes into it, another values the freedom a healthy and able body provides. It seems these behaviours and beliefs are closely related to expressing identity and feeling connected with others. This leads us to the question: Are there no other, more socially healthy ways to create this connection?

The intervention this report proposes offers a fun and light-hearted reason for adolescents to discuss their aspirations and the influence of dominant cultural beliefs and discover that there are more differences between people's personal motivations and aspirations than they may know.

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## Reading guide

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The report is structured to navigate the reader through the design process that has resulted in the final concept. Design choices are explained chronologically throughout the report, with each chapter building on knowledge gained and decisions made in earlier chapters. Chapter 1 describes the project brief and design approach, laying out the segments of the process described in further chapters.

Every chapter starts by summarising its contents and listing the primary (research) questions the chapter aims to answer. Concluding each chapter, key insights relevant for the further design process are summarised and new knowledge gaps are identified. Information and design explorations less relevant to the final design and its substantiation are included in the appendix.



# Chapter 01

## *Design Brief & Approach*

- Introduction
- Brief & scope
- Why a design approach?
- Approach
- Conclusion



# Introduction

**This chapter lays out the problem space surrounding body image and social wellbeing. Firstly, it illustrates the change and increasing importance of cultural appearance ideals throughout modern history. It identifies mental and physical health issues to which these ideals relate, especially among adolescents, and cites research about the effects of highly-visual social media use exacerbating these issues. This leads to the formulation of the design brief and a delineation of the problem space for the project. The chapter concludes by laying out the design approach taken and explaining the advantages of using design methods within this complex domain.**

In 1867, Charles Darwin changed the history of the world with his publication on biological evolution: 'The Origin of Species'. Less known is that he probably set in motion evolution of a wholly different kind: the evolution of the meaning of the word 'fit'. After reading: 'The Origin of Species', Herbert Spencer coined the phrase: 'Survival of the fittest'. Due to the more singular meaning of the word 'fit' at the time, this meant: 'Survival of the better adapted', or 'most suited to the circumstances.' The phrase became closely associated with Darwin's natural selection by reproductive success. Due to this, and the rapid popular spread of the phrase, from 1869 onwards 'fit' became a classification of athletic ability and physical shape, and by extension health, for humans (EtymOnline.com, n.d.; Wikipedia, 2021).

In 1935, the word 'fitness' was first used in the sense that we know it today, but the evolution did not stop there. Gradually, the word fit moved further away from its original meaning and, probably due to the same association with reproductive success, started being used to indicate sexual attractiveness. So much so that several years ago British schools started warning against its use in that context (Who, What, Why?, 2014).

The history of this word shows the increasing importance of a physically attractive appearance in our societies. There are many theories about these changes in beauty ideals throughout history, but all of

them point towards an intricate relationship with status, economic security and society. For example, the Western beauty ideal in the time of Rubens (early 17th century) was much heavier than now, as this portrayed wealth and abundance in a time where much of society struggled with survival. Renoir (late 19th century) prefers women with a youthful appearance and broad 'birthing hips': signs of fertility and lower chances of miscarriage in a time when a women's economic security depended largely on marriage and childbirth (Thompson et al., 1999-1).

Today, the obsession with having a perfect body seems more pronounced, especially among Western youth. Professional influencers post photos of their highly trained thin and/or muscular bodies, which are often achieved through a strict diet and fitness regime. Research shows that too much exposure to these images can result in body dissatisfaction for many individuals, which in turn can trigger anxiety and depression and subsequent behaviours such as excessive exercise or social avoidance (Tamplin, McLean & Paxton, 2018). Fortunately, improving mental health in this competitive and stressful (online) environment has received increasing attention in youth healthcare in recent years.



Figure 02 — Body dissatisfaction can trigger anxiety and depression



Another phenomenon among youth that is becoming more prevalent and thus receiving more attention is loneliness (Zinovyeva, Kazantseva & Nikonova, 2016). Loneliness has been proven to have a large impact on life expectancy and wellbeing due to its close relation with depression, anxiety and stress. Especially among adolescents, the problem has long been overlooked because of the taboo surrounding this topic. Recently though, loneliness among adolescents has been getting more attention in national media, catapulted by the negative effects of the coronavirus lockdowns on youth. There are signs that body dissatisfaction and loneliness are strongly related (Barnett, Moore & Edzards, 2020).

## Brief

This project aims to increase knowledge about the interrelation between body image and social wellbeing among youth (14-24), map the stakeholder system of existing organisations in this area and identify an opportunity to move the problem situation around these issues in a desirable direction through implementing a design intervention.

## Scope

The scope of the project is limited specifically to the interaction between body image and social wellbeing among youth. Engaging with these issues in a design-led approach seems to be relatively novel and could result in a new frame for both problem situations. There may be opportunities in this environment to further research the nature of this interaction and design interventions based on this new knowledge.

## Why a design approach?

Many people in my environment were surprised when I told them about the subject of my graduation project: “I didn’t know designers did those kinds of things.” “Isn’t that psychology?” The role of design in society is changing faster than its image outside the discipline of design. Moving from product design to user-centred design to service design and strategic design throughout the last decades, the scope and influence of design are expanding rapidly (Calabretta, Gemser & Karpen, 2018).

At the same time, today’s world is becoming more and more complex. Many of our problems, whether they have to do with climate change, mental health or radicalisation, now have many stakeholders with different interests and sometimes unclear responsibilities. Meanwhile, the different ways to solve them are just as endless, in part due to the technological progress in recent decades. The fact is that design methods are well suited in navigating these kinds of complex societal problems where there is no clear problem and no single solution (Jones, 2014). This project relates to the emerging design field of Social Design in particular.

Social Design focuses on improving human lives and wellbeing and aims for design to bring about social change, which aligns with the goal of this project. The foundation of social design is the idea that designers should take social and moral responsibility for their designs and the consequences their designs have for society (Clark, 2019). According to IDEO (2015), Social Design encourages community facilitation and sharing of ideas and beliefs, without trying to change people’s behaviour per se. These principles guided decision making throughout this project.

## Approach

This thesis aims to answer several questions while working towards a design concept that can be implemented within the problem space. At the start of the project, these were formulated from the gaps of knowledge identified within the design brief. They relate to specific knowledge gaps about the source and development of body image issues, including often mentioned factors such as the effect of social media use, as well as the roles and qualities of existing stakeholders. With this information gathered, it is then possible to use design methods to identify promising opportunities for intervention. Follow-up questions resulting from newly identified knowledge gaps are described and answered in each chapter.

The design project follows the traditional Discover-Define-Develop-Deliver model (Design Council, 2019). This is commonly referred to as the ‘double diamond’

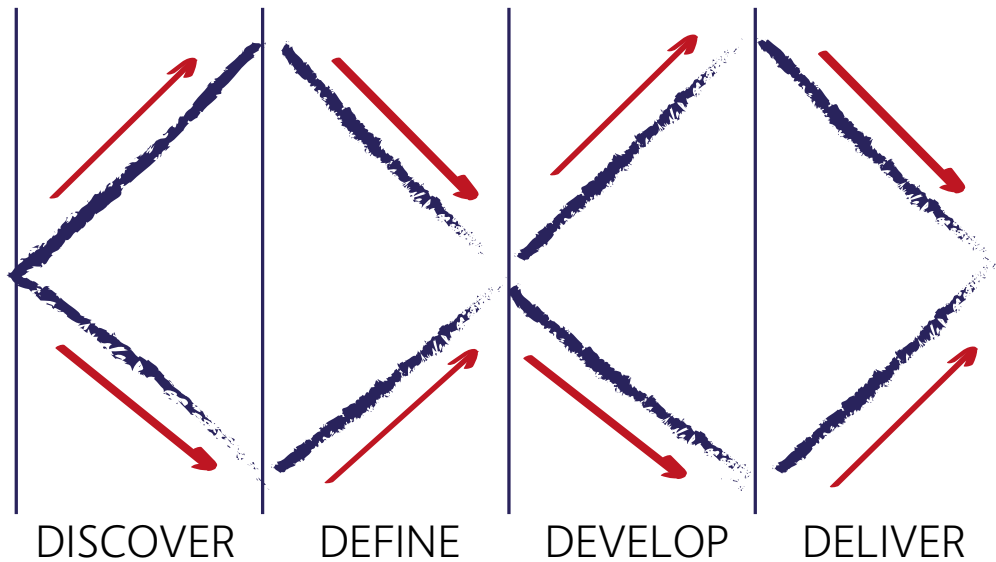


Figure 03 — 4D model (Design Council, 2019)

approach, where two diverging and converging stages follow each other (figure 03). Diverging stages are Discover and Develop, where the designer explores the issue more widely and deeply. Converging stages are Define and Deliver, where the designer decides on a way forward based on the earlier explorations.

### 1. Discover:

During the discovery phase, the aim is to explore the domain and generate a deep understanding of the problem space. Several initial research questions are investigated during this phase. Two of those focus on existing theoretical knowledge. **Chapter 2** provides a theoretical framework of body image and cultural beliefs about appearance, attempting to answer:

*How can we describe the interrelation between loneliness and body dissatisfaction among adolescents?*

*What is the effect of highly-visual social media use on this interrelation?*

The existing psychological models around body image issues, coping mechanisms and how those may lead to loneliness among adolescents can help with this. Also, there is much prior research available on the relationship between body image and social media.

In **Chapter 3**, important stakeholders, trends and characteristics of the target group are outlined, exploring suitable approaches for implementation within the domain and answering:

*What roles do existing stakeholders play in the domain of body dissatisfaction among adolescents (14-24yo)?*

Finally, the most important part of the discovery phase is reaching out to the target group and their context to determine what meaning they associate with their bodies, body images and loneliness. In short, this is where it is possible to empathise with the target group and become more familiar with their context and deeper motivations. **Chapter 4** describes several user research methods – among which two workshops with members of the target group – conducted to answer the question:

*Which beliefs and assumptions about appearance ideals are common among adolescents?*

### 2. Define:

During the define-phase, described in **Chapter 5**, all of the gathered knowledge is aggregated and reframed to find:

*What opportunities are there to implement a design intervention in the domain of body dissatisfaction among adolescents?*

This is a creative process of exploring new perspectives and ways to approach the problem. A promising perspective is decided upon and the intended effect of the solution is formulated into a design statement. This phase is also where design directions fulfilling the design statement are explored and one is settled on.

### 3. Develop:

With the problem more clearly defined and a design direction chosen, it is time to develop solutions to the design statement. **Chapter 6** investigates the design direction of serious gaming, while **Chapter 7** provides a list of requirements for the concept and describes the synthesis and iterations of that concept. Again, this is a creative process, where ideas are generated, valued and developed or combined into several concepts. Throughout these iterations, the design statement is further refined and adapted to the newest insights. This is commonly referred to as the co-evolution of problem and solution (Dorst & Cross, 2001).

### 4. Deliver:

In the last stage, the designer takes the concepts and ideas that were developed and converges these into a final design. An important aspect of this phase is the prototyping and testing of the concept.

As you may have realised while reading these descriptions, these phases of the process are often non-linear. New insights from tests can lead to the detection of knowledge gaps or new design directions, leading to a redefinition of the problem, for example. However, at some point the final design is satisfactory and the time is up. **Chapter 8** lays out the final design, its detailing and its implementation. Finally, **Chapter 9** describes the expert and user evaluations of the final design, followed by several recommendations for further development.

## Conclusion

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This project increases knowledge about the interrelation between loneliness and body dissatisfaction among adolescents from 14 to 24 years old, maps the stakeholder system of existing organisations in this domain and identifies an opportunity to move the problem situation around these

issues in a desirable direction through proposing the implementation of a design intervention. The design is developed by applying various design methods relating to social and systemic design within a double diamond-shaped design process.

# section one

# DEVELOP

## **Chapter 02** | *Psycho-Social Factors & Interventions*

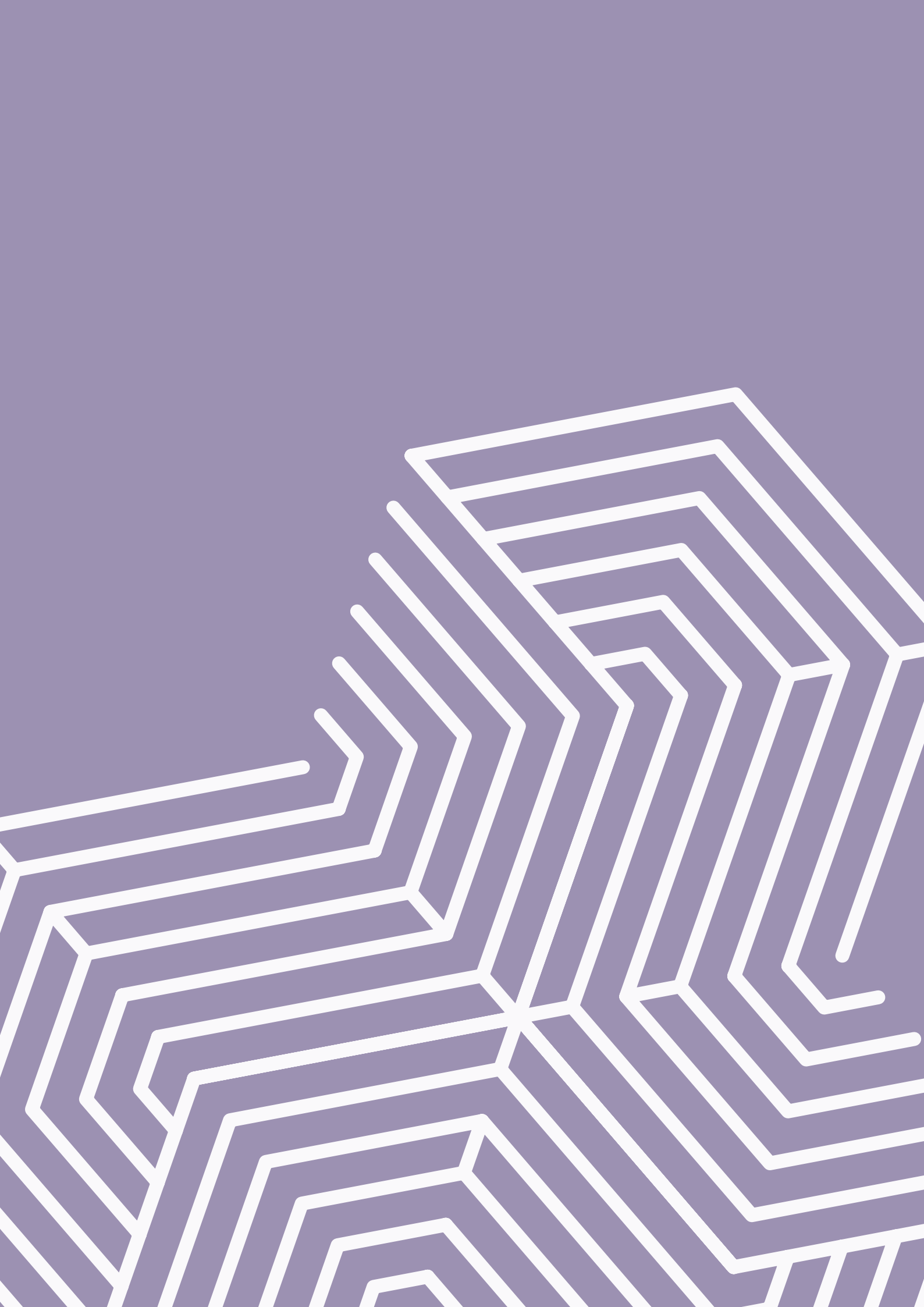
- How extensive is the problem of body dissatisfaction among adolescents?
- How can we describe the interrelation between body dissatisfaction and loneliness among adolescents?
- Which existing theories are there about the contributing and maintaining factors of body image dissatisfaction and the social processes related to it?
- What is the role of highly-visual social media in shaping these beliefs?

## **Chapter 03** | *Stakeholders & Trends*

- Which stakeholders play a role in the lives of adolescents and their physical, mental and social wellbeing?
- What current trends relate to the domain of body image satisfaction and social wellbeing?

## **Chapter 04** | *Cultural Beliefs about Appearance*

- What are common (problematic) attitudes, rules and assumptions concerning appearance among adolescents?
- Are there beliefs that can be reframed to work positively in the domain of body image?
- Which insights can help in finding ways to encourage adolescents to critically reflect on these beliefs independently?





## **Chapter 02**

# *Psycho-Social Factors & Interventions*

- How extensive is the problem of body dissatisfaction among adolescents?
- How can we describe the interrelation between body dissatisfaction and loneliness among adolescents?
- Which existing theories are there about the contributing and maintaining factors of body dissatisfaction and the social processes related to it?
- What is the role of highly-visual social media in shaping these beliefs?



The purpose of this chapter is to define the interrelation between body image and social wellbeing for this project. This is done by diving into psychological literature relevant to body dissatisfaction among adolescents and its relationship with loneliness. Firstly, the magnitude of the problem of body dissatisfaction and its effects among adolescents is outlined. Several academic psychological models are then introduced with the aim of mapping possible points for intervention and demonstrating the complexity of the issue, starting with the Cognitive Behavioural Model (CBM), which is the basis of many treatments for serious mental issues. The model is expanded with elements of Social Comparison Theory, which is especially relevant for understanding the mental process of body dissatisfaction.

With the background of these psychological processes at the level of the individual covered, research moves to the socio-cultural domain of the issue, which shows other opportunities for approaching the issue and relates well to the role of design as described in chapter one. Sociocultural Theory is introduced here and the dominant cultural beliefs described are related to the personal core and intermediate beliefs from the CBM for a comprehensive overview. The role of (highly-visual) social media in shaping these beliefs is also investigated.

## Body dissatisfaction & loneliness

Barnett, Moore & Edzards (2020) found that young adults (median age 20.4) have lower body satisfaction than older individuals, but also that the relationship between body satisfaction and loneliness is strongest among young adults. "This may reflect that social pressure on body image is greater on young people – specifically, greater importance placed on looks and internalization of the ideal body image may lead to social avoidance and feeling all alone." (p4). This social pressure is also evident among much younger age groups (Spiel, Paxton & Yager, 2012; McLean, Wertheim & Paxton, 2018). Currently, the body satisfaction of females is often lower than that of males, although there is evidence to support that a growing number of boys experience body dissatisfaction as well (Nagata et al., 2019).

# 40%

**OF BOYS BETWEEN 11-17 YEARS OLD WITH A HEALTHY WEIGHT WANT TO GAIN WEIGHT**

# 52%

**OF GIRLS WITH A HEALTHY WEIGHT BETWEEN 11-17 YEARS OLD WANT TO LOSE WEIGHT**

Nagata et al. (2019)

In contrast with girls, who often want to be thinner, boys would like to gain weight and become more muscular (Spiel et al., 2012; Nagata et al., 2019). Although these studies originate in the USA and call for caution in generalising their findings to other countries, there is anecdotal evidence of similar trends in the Netherlands and neighbouring countries (Donner, 2020; Williams, 2020). Both body dissatisfaction and loneliness are on the rise among adolescents, which confirms the importance of finding effective solutions for these problems.

## CBT-model

Cognitive Behavioural Therapy (CBT) is a highly successful method for treating mental diseases such as anxiety and depression. It is made up of reflective conversations with a therapist and learning to plan difficult activities in a structured manner. CBT is based on a causal model of cognitive conceptualisation around the development of automatic negative thoughts (Beck, 2011-1).

Figure 05 shows the basic CBT model. It shows prior experiences form our core beliefs. These, in turn, help shape intermediate beliefs, which, when triggered,

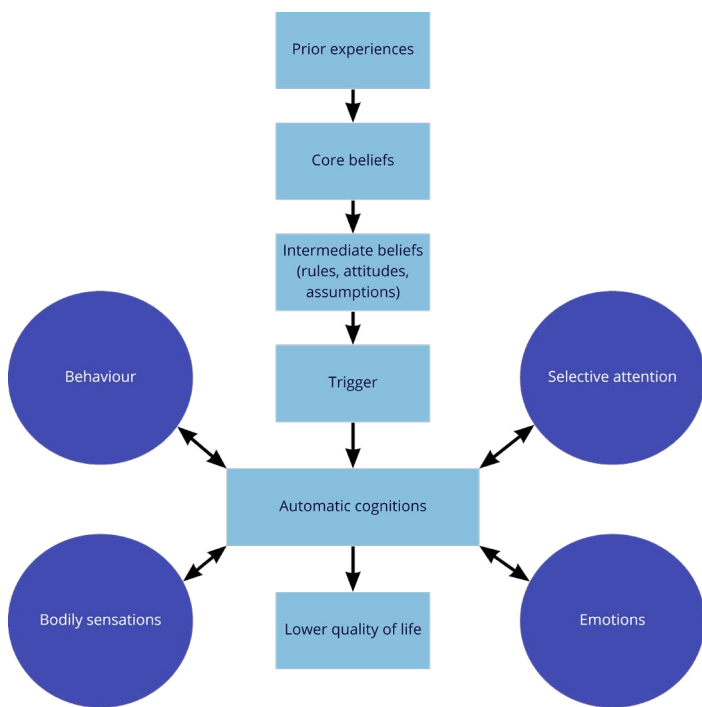


Figure 05 — The basic CBT model (Beck, 2011-1)

underpin automatic cognitions. When these automatic cognitions are negative, they can lead to dysfunctional emotions, behaviour, attention and even physical sensations. An example of a cognitive conceptualisation is given in table 1.

### Effects of body dissatisfaction

Figure 06 shows the application of the cognitive behavioural model on the domain of body image dissatisfaction. When negative body-image-related thoughts are triggered, this can evoke emotions such as anxiety, depression & loneliness. As mentioned earlier, this can cause fatigue, irritability, sulking and anger. To cope with these emotions, people often start exhibiting (unhealthy) coping behaviours. These are divided into two categories: (passive) avoidance behaviours, such as social avoidance or avoiding to eat, and (active) compensation behaviours, such as drug abuse or excessive exercising (Beck, 2011-1). Anxiety is often associated with more compensational behaviours, while depression is more closely related to avoidance behaviours. Loneliness leans mostly to the side of depression and avoidance behaviours. These behaviours can in turn lead to physical complaints such as fatigue and malnutrition, which can potentially reinforce automatic negative thoughts.

Cognition	Category	Example
Core belief		"I am ugly."
Intermediate belief	Attitude	"People will reject me."
	Rule	"I should keep away from people to protect myself from rejection."
	Assumptions	"If I seek contact with others, they will reject me."
Situation		Going to a party
Automatic Thoughts		"This isn't for me. Everyone else is so much prettier than I am. I shouldn't go."
Reaction	Emotional	Discouragement/loneliness
	Physiological	Heaviness in body, fatigue
	Behavioural	Avoids social contacts.

Table 1 — An example of cognitive conceptualisation (Beck, 2011-1)

Another effect that can reinforce negative automatic thoughts is selective attention for the subject of the thoughts (body image in this case). This can cause increased social comparison with irrelevant comparison targets such as professional models. This causes the individual to be hypervigilant and attentive about all things related to body image.

The CBT model shows that there are many stages of and causes for body image dissatisfaction and loneliness. Once in a downward spiral, problems can build up and reinforce each other. There are many points within the process where an intervention can be implemented. For example, a focus could be to reduce triggers in the environment or restrict certain behaviours. However, the root cause of the problems seems to lie with the beliefs and experiences in earlier stages of the model.

### Social Comparison Theory

An avenue worth exploring is social comparison, as the process of comparing oneself to others could be shaping the beliefs and experiences described in the CBM, especially in the domain of body image. The theory of social comparison was introduced by Festinger in 1954. He hypothesised that every individual compares him or herself with others on multiple scales (attractiveness, wealth, etc.). The comparison can be

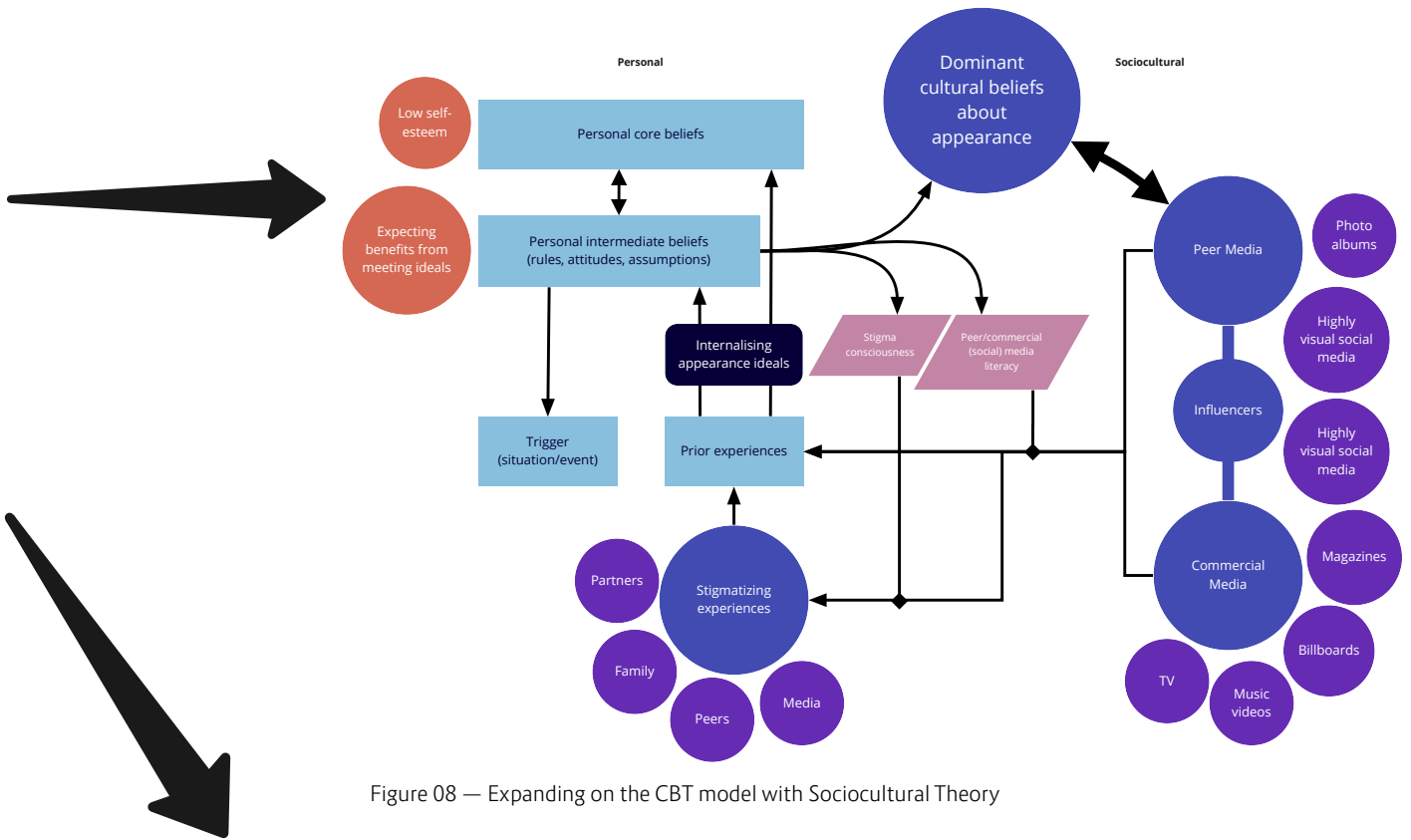


Figure 08 — Expanding on the CBT model with Sociocultural Theory

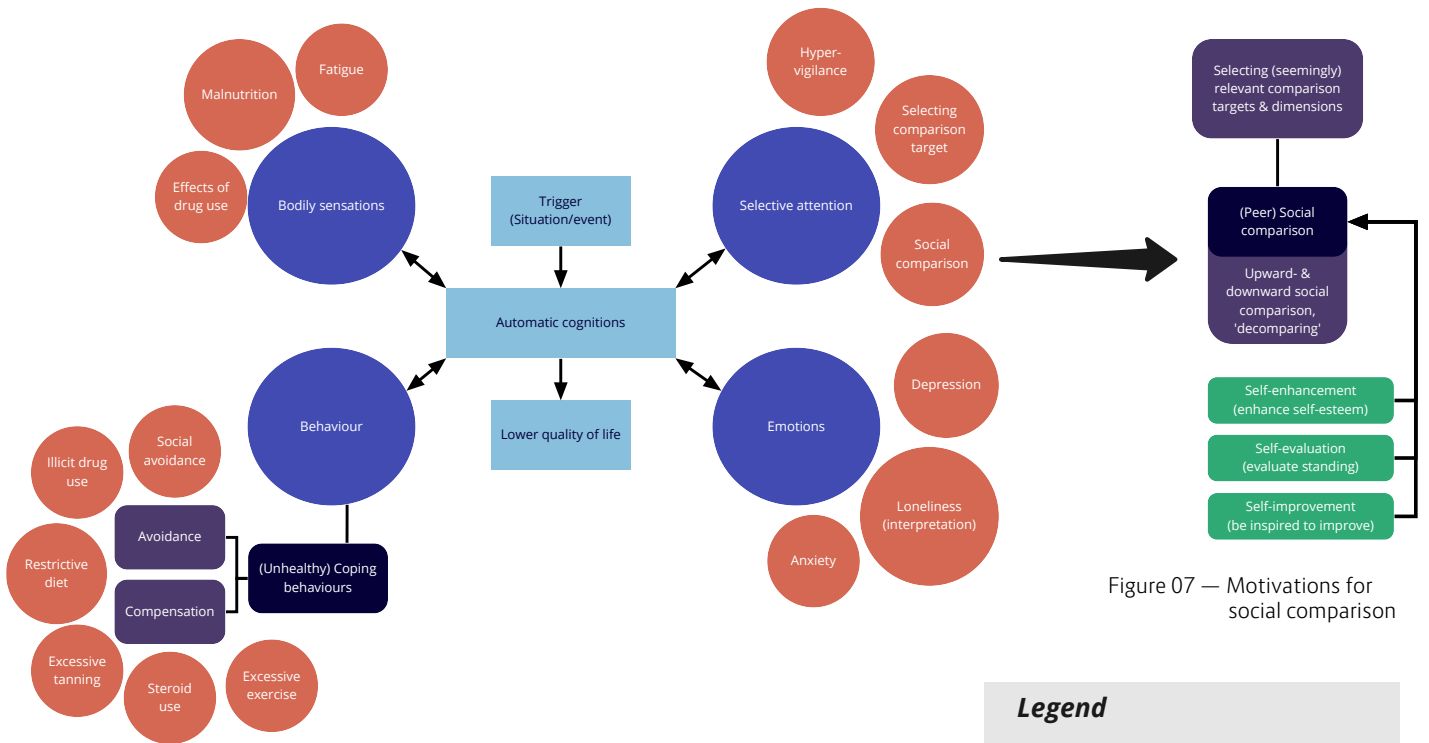
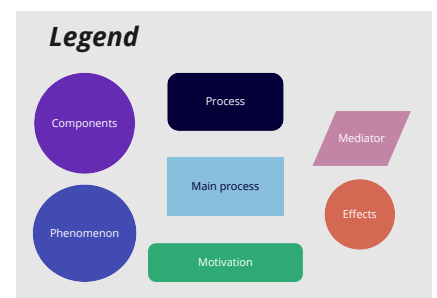


Figure 07 — Motivations for social comparison

Figure 06 — The possible effects of automatic cognitions around body image



both an upward and a downward social comparison. An upward comparison is a comparison with a person of a higher ranking in the selected scale of comparison. A downward comparison is a comparison with a person with a lower ranking in the scale of comparison. Both types of comparison can be positive or negative.

According to Festinger (1954), individuals have one of three reasons to engage in social comparison: self-enhancement, self-evaluation and self-improvement (figure 07). Self-enhancement is done to increase self-esteem. This generally involves downward social comparisons. Self-evaluation is used to evaluate one's standing on a particular scale. This involves both upward and downward social comparisons. This can lead to self-devaluation and loss of self-esteem, generating the need for self-enhancing comparisons.

Comparison for self-improvement involves being inspired to improve yourself on a particular scale by looking up to others and their status or achievement.

The process of comparison works by selecting an individual for comparison, or 'comparison target', based on various dimensions relevant to the scale of comparison. A relevant comparison target is usually an individual with a similar social position or similar attributes. Sometimes individuals select an irrelevant target for social comparison, without even realising. In the case of body image, an example is comparing yourself with a famous model or bodybuilder, who has dedicated a large part of their life to creating and maintaining their body shape, something you might not even want or be able to do due to circumstance.

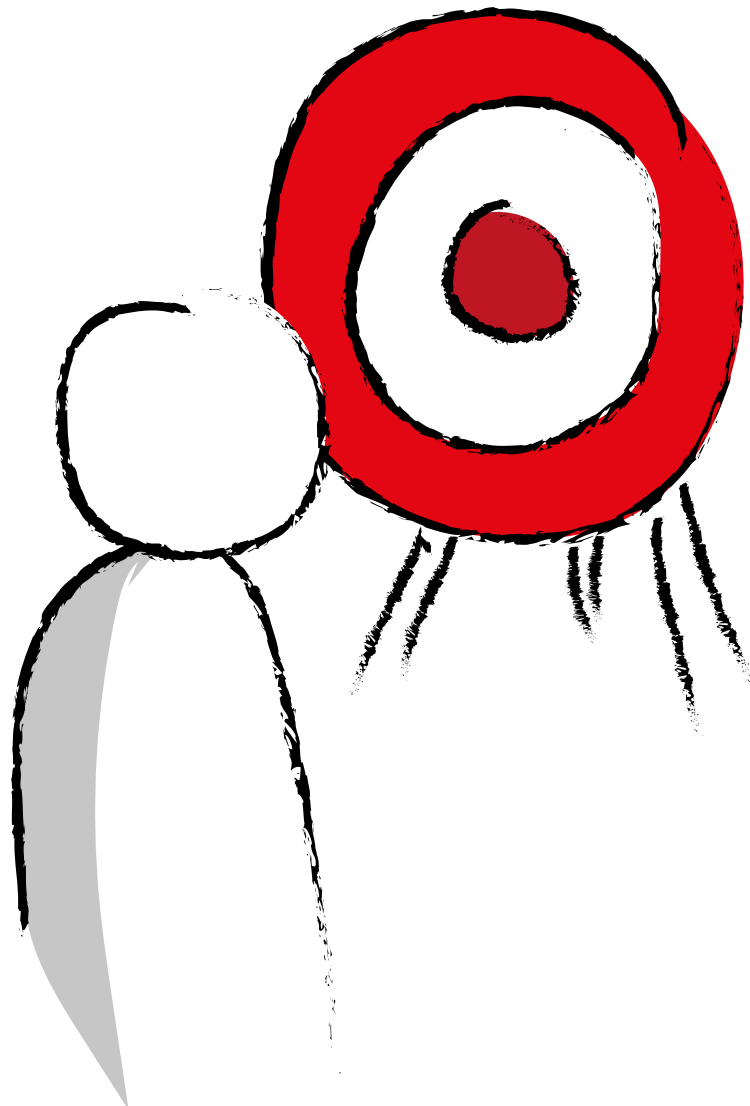


Figure 09 — People select a comparison target to compare themselves with

Since 1954, Social Comparison Theory has developed further. Halliwell (2012) determined that contrary to what Festinger initially thought, social comparison happens continuously, in every interaction. It often happens involuntarily and sometimes even subconsciously. It can be triggered by photos of a model or bodybuilder on social media, for example.

Halliwell (2012) discovered that when people engage in these comparisons involuntarily, they also 'decompare' themselves by actively finding reasons to invalidate the comparison. However, this is a 'system 2' operation (as described by Kahneman, 2012), which means that it takes considerable mental effort to constantly correct your automatic comparisons. Especially when we are tired or preoccupied with other things, we often lack the sharpness of mind to 'decompare' ourselves with an Instagram model.

This research shows that there may be opportunities for reducing body image issues by reducing the motivations for social comparison or reminding people to 'decompare' themselves with irrelevant comparison targets on social media. In practice, however, this could prove to be a challenge, due to the subconscious and continuous nature of these processes.

## Sociocultural Theory

Up to now, we have focused mostly on the bottom part of the CBT model, and how it relates to body dissatisfaction. For

a designer, however, the top part is more interesting (figure 08). The CBT model focuses on prior personal experiences, such as upbringing, family circumstances and traumatic events to explain the formation of a person's core and intermediate beliefs. As designers, we know there is a significant cultural component concerning these beliefs, some so commonplace that it does not occur that these are also based on common attitudes, rules and assumptions. This concept also forms the basis of Yuval Noah Harari's work, who explains in the popular 'Sapiens' (2015) that many of these attitudes, rules and assumptions are not static throughout history, but are strongly related to the development and organisation of society in a specific period. With respect to body image, we will call these 'dominant cultural beliefs about appearance'.

To incorporate this socio-cultural aspect, the top part of the CBT-model has been reworked to expand upon what the 'prior experiences' that shape intermediate beliefs relating to body image can consist of. These intermediate beliefs can be shared by many individuals in society, which lends them power. These beliefs are reinforced by cultural media, such as film and literature, but more recently also through social media.

On an individual level, these intermediate beliefs can be challenged through Cognitive Behavioural Therapy by creating 'corrective emotive experiences' and demonstrating to an individual that their assumptions are not



as valid or universal as they think they are (Beck, 2011-2). An example of this is asking an individual who believes attractiveness can be ranked on a fixed scale to guess the order of the top twenty most attractive celebrities, only to find out that their ranking differs from the ranking of the source magazine.

Developing an intervention that challenges these beliefs collectively sounds impossible. However, this is something that happens daily through advertisements and other marketing channels. Taking a marketing approach to solving this problem could be labelled as fighting fire with fire, though. A more interesting approach could be increasing a certain literacy around these beliefs in a collective manner, equipping adolescents with a preventive tool against the early development and critical worsening of body dissatisfaction.

## Media & literacy

Literacy in the context of advertising and media, specifically, is a well-researched topic. Social media exposure, especially the use of 'highly-visual social media' (Marengo

et al., 2018), plays an important role in the development of body dissatisfaction. However, its importance varies between groups and traditional media seemingly still play a larger role in propelling body image disturbance (Saiphoo & Vahedi, 2019). As could be seen in figure 08, many other factors also shape cultural beliefs about appearance. An explanation for the smaller than expected role of social media could be the increasing social media literacy among adolescents. However, Tamplin, Mclean & Paxton (2018) also found that social media literacy has considerably less influence on exposure effects in young males, which could mean that mostly females benefit from this approach.

Though the rise of social media is having a large effect on our society, there is no conclusive evidence that it is affecting body image issues more than other media and parallel developments in society. This calls for caution in developing interventions based solely around social media use, as there may be more significant underlying causes or indirect effects at the root of the increase in body image dissatisfaction among adolescents.

# Conclusion

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This chapter set out to answer several questions around the interrelation between body dissatisfaction and loneliness. Firstly, we can conclude that the problem of body dissatisfaction is large and growing. Secondly, the interrelation of body dissatisfaction and loneliness has a lot to do with negative social comparisons and coping behaviours. Several theories relate to the contributing and maintaining factors of body dissatisfaction and the social processes around it. The Cognitive Behavioural Model, Sociocultural theory and Social Comparison Theory inform the psychological model of body dissatisfaction and loneliness. There are dominant cultural beliefs about appearance that are based on common attitudes, rules and assumptions that originate from the way society is organised within a time period and can be reinforced by social media and traditional media. Therefore, they are easily internalised by adolescents. Social comparisons with others can then trigger negative automatic thoughts, leading to anxiety, depression and feelings of loneliness, partly due to the coping behaviours associated with these thoughts.

Individuals tend to compare themselves with others for three reasons: self-evaluation, self-enhancement and self-improvement. Though also used for increasing self-esteem or being inspired, comparisons can lead to adolescents devaluing themselves and losing self-esteem. A large problem is that the process of comparing often occurs involuntarily or subconsciously.

Finally, the effect of social media use is less clear than widely assumed, with meta-analyses showing a smaller overall effect on body dissatisfaction than traditional media. Increasing media literacy improves resilience to exposure to appearance ideals by training people to 'decompare' themselves with their comparison target, but this process requires constant cognitive effort. These findings can make social media a less attractive medium for direct interventions. Solution directions can range from increasing the resilience of youth by teaching them better coping behaviours to somehow challenging dominant cultural beliefs concerning appearance.



# Chapter 03

## *Stakeholders & Trends*

- Which stakeholders play a role in the lives of adolescents and their physical, mental and social wellbeing?
- What current trends relate to the domain of body image and social wellbeing?



**T**his chapter reports on the broader societal context around social wellbeing and body satisfaction among adolescents. Firstly, it presents the results of a stakeholder analysis around the lives of adolescents, as well as many organisations that play a role in combating loneliness and body dissatisfaction. Secondly, several relevant trends from the trend-analysis affecting adolescents and stakeholders with regards to the problem space are described. The chapter concludes with several key takeaways for further reference.

### Stakeholder analysis

The stakeholder analysis started with a brainstorming session, determining which categories of people generally play a role in the lives of adolescents. These were narrowed down to the most important stakeholders and stakeholders having to do with health, sports, nutrition and body image issues. They can be divided into roughly two categories: stakeholders that

have direct touchpoints with adolescents relating to body image and social wellbeing, and stakeholders that are more in the background, but for various reasons have vested interests in their mental and physical health (figure 10). The first category, or ‘inner circle’, is comprised of figures such as parents, teachers, friends, media figures, sports clubs, gyms and sometimes social workers. The second category, or ‘outer circle’, is comprised of larger organisations, such as research institutes, policy-making bodies, media companies, advertisers, and other private initiatives, which often set policy or possess considerable resources to further their interests. The most important stakeholders are of course the adolescents themselves. A short description of every stakeholder is provided in appendix A.

Of importance is that within preventive healthcare, there is a distinction between different levels of care. Primary preventive care takes a population-wide approach to improve overall health and wellbeing:

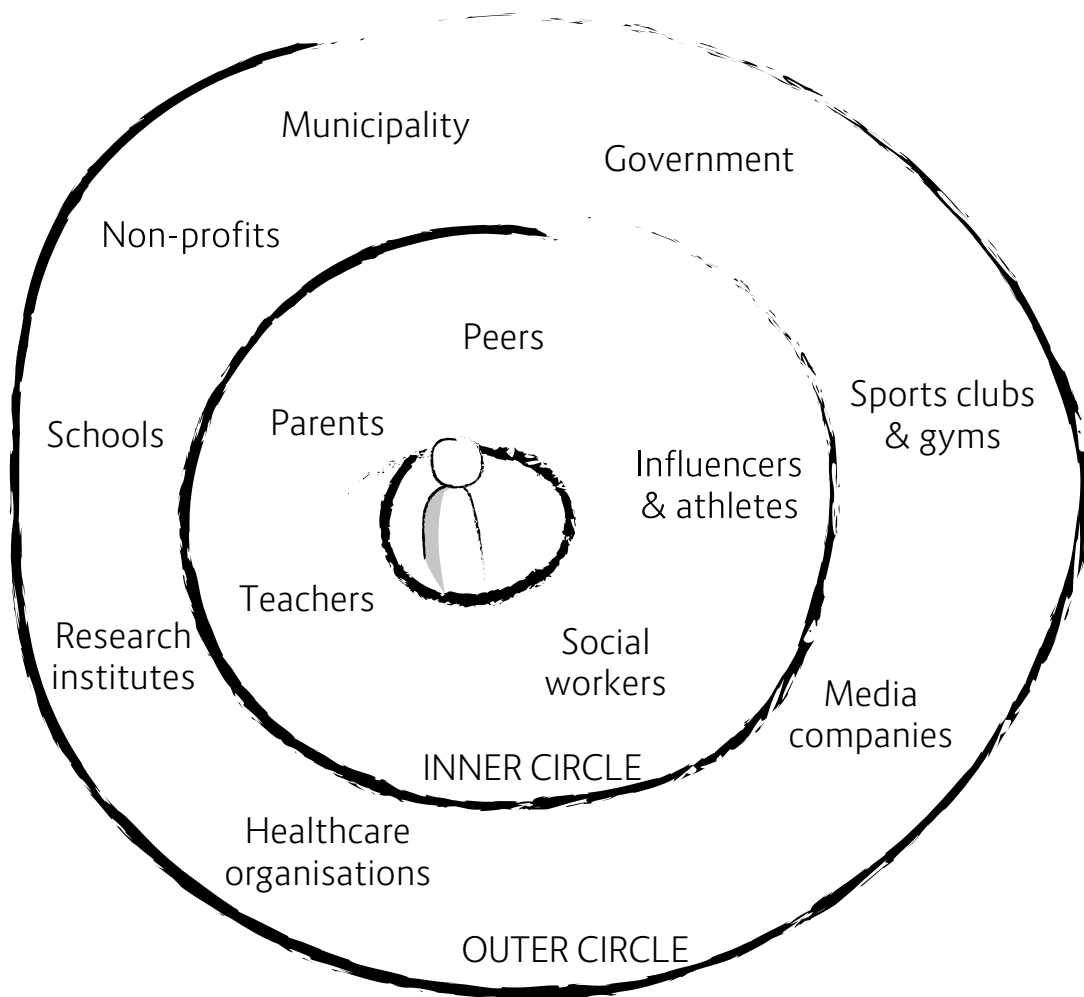


Figure 10 — The inner and outer circle of stakeholders

A nation-wide anti-smoking campaign could be an example of this. Secondary care focuses on early detection by screening high-risk groups. The widespread screenings for breast and prostate cancer fall into this category. Tertiary preventive care consists of treatments that seek to prevent further symptoms or enable patients to recover. For example, resilience training programmes help children that have been bullied to cope with negative thoughts and to improve their self-confidence (Windle, Francis & Coomber, 2011). The focus of this project is on the primary level, as these interventions tend to be cheaper and more efficient than interventions in later stages (WHO, n.d.).

In the Netherlands, a large part of youth care policy is set and paid for by municipalities, who receive national funds to cover these costs on a per-inhabitant basis (Rijksoverheid, 2020). Avenues for reaching out to adolescents are mainly through school, parents, or youth workers at a local community centre. Sometimes, national or local programmes and campaigns are set up to increase awareness of health issues. Often, these are run by a collaboration of parties brought together by a particular independent foundation and subsidised with government resources.

### Summary of insights

The analysis shows that the successful introduction of an intervention requires support from stakeholders from both the inner and the outer circle and interaction with the target group happens within three contexts: at home, at school and during leisure activities. To reach the target group and increase adoption of the intervention, the design must be enthusiastically taken up by members of the inner circle: either peers, parents, teachers, social workers or influencers. In the ideal situation, several of these groups would be highly supportive of the design.

For financial and logistical support in reaching members of the inner circle, the help of outer circle organisations is necessary. This can include research and health institutes to increase trust in the effectiveness of the solution and locally or nationally operating governments and non-profits for providing

funds and subsidies for coordinated adoption programmes.

An interesting insight is that many health-care organisations are actively encouraging healthy and active lifestyles among adolescents to combat obesity. These efforts may inadvertently exacerbate body image issues among vulnerable members of the target group. These organisations will however understand the importance of balancing the fights against obesity and body dissatisfaction. Organisations active within the advertising, fitness and beauty industries will most likely be less enthusiastic about reducing body dissatisfaction among adolescents, but will also want to protect their brand image, which provides opportunities for reaching vulnerable members of the target group as well.

### Trend analysis

In a fast-changing world, it is important to keep track of recent developments and the direction these seem to be taking within society. Aligning the design with broader developments in society can increase its adoption and impact. The trend research for this project focuses on both the physical and mental domains of healthcare and prevention (among adolescents) in society, as well as the effects of digitisation and individualism on society and wellbeing and the pushback these effects are starting to receive.

### Unattainable expectations

Throughout society, but especially among younger generations, there is an increasing belief that as long as you put your mind to something, you can do it (Global Wellness Summit, 2020). The many self-help books published in recent decades and the popularity of influencers with a supposedly ideal life are a testament to this. Though there are motivational effects, the flip side of this belief is that many set unattainable expectations for themselves and others around them, creating a stressful and competitive environment with, among other things, high body dissatisfaction among youth and increasing suicide rates. This is a trend that we also see reflected in the results of the research in chapter 4.

Failure

Sexuality

Norms

Expectation

Society

Jud

HATE



## Burnout backlash

In reaction to this increasingly stressful and competitive society, there is a backlash countering the 'Always-on society'. There are developments in improving the workplace and designing for wellbeing, alleviating stress & anxiety (TrendWatching, 2019). Businesses have jumped on this opportunity, leading Ronald Purser (2013) to coin the term 'McMindfulness' and question the intent and effectiveness of these developments. The coronavirus pandemic has accelerated the public discourse about wellbeing and the destructive effects of societal pressure on mental health.

## The social enterprise

However, we have also seen the rebirth of 'social enterprises' which put people before profit for ideological reasons. Consumers have picked up on this trend and now "Society is demanding that companies [...] serve a social purpose" (Volini, 2020). Though it is difficult to distinguish actual social businesses from well-executed promotional activities, these organisations form a useful opportunity to include businesses in the solution. This can also be a template for the introduction of the design in the market.

## Data-driven policy

Throughout many levels of government, agencies and research institutes are improving their data collection and analysis on many different metrics to better inform policy (GWI, 2020). There is an increasing interest in population health management and data relating to this in both the public and private sectors. TestJeLeefstijl is a good example of an organisation taking advantage of this, as they collect data on the wellbeing of students which they aggregate and anonymize before reporting back to individual schools and researchers. This can inform health and wellbeing efforts at both the school and regional or national levels (Allen, 2020).

## Healthy living

Due to the increasing opportunities for population health management through screening and monitoring for risk factors, the focus within healthcare is increasingly turning to wider prevention strategies and improving patients' lifestyle instead of providing treatment after the fact. Prevention

strategies are often cheaper and much more effective than reactive healthcare (Allen, 2020). However, this focus on healthy lifestyles can also cause problems when not communicated correctly. Instead, this can amplify body image concerns and loneliness among adolescents who struggle or are not happy with their physique, eventually causing depression, anxiety and eating disorders. It may be necessary to find a way to balance these effects.

## Digital life

Another factor impacting the mental and social wellbeing of adolescents is the shift towards digital living. It is well-known that there has been a large increase in the use of social media, which shows no sign of retreating from our lives. Increasing parts of life are lived online, accelerated by the lockdown measures to prevent the spread of COVID-19: Businesses often make use of brand avatars, while there are developments in remote digital healthcare and social gaming. However, the increase in social media use and the time we spend online nonetheless seems to increase feelings of loneliness (Twenge, 2018). This may signal the need for a less digitally-centred solution.

## Civil media

A more recent trend in digital media is the exploration into humanizing digital media, developing ethical tech and building cooperative digital experiences. Due to the effects of digital media on civic life through its tendency to isolate users in 'bubbles' of like-minded people, there are many initiatives to increase media literacy with regards to advertising and fact-checking which attempt to carve an ethical civic role for social media (TrendWatching, 2019).

## Serious games

Lastly, an interesting development in recent years is the increasing attention for games as a vehicle for education, training, facilitating constructive discussion and innovating organisational processes. Serious games are an effective way of playfully introducing or teaching difficult subjects to both children and adults (Van Dijk, 2020). The opportunities within this development steered the direction of this project heavily, as we will see in chapter 5 & 6.

# Conclusion

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In conclusion, many stakeholders play a role in the lives of adolescents and are concerned with their physical and mental wellbeing. This means that the funds and expertise to develop an intervention should be widely available. These stakeholders interact with adolescents in three basic contexts: at home, at school and during leisure activities. Enthusing inner circle stakeholders such as peers and teachers is necessary to reach the target group. For financial support and legitimacy, we can look to research institutes and government subsidies. A challenge is to balance the

messaging around combating obesity and improving body image among the same target group simultaneously.

Secondly, there are several trends in the domain of body image and social wellbeing relating to social expectations, healthcare, digitisation, and education that can reinforce the efforts of this project. The trends with the most impact on this project are the development of serious games as an educational tool and the increasingly unattainable expectations within society.



# **Chapter 04**

## *Cultural Beliefs About Appearance*

- What are common (problematic) attitudes, rules and assumptions concerning appearance among adolescents?
- Are there beliefs that can be reframed to work positively in the domain of body image?
- Which insights can help in finding ways to encourage adolescents to critically reflect on these beliefs independently?

**Chapter four builds on the theory of chapter two, by posing the question: what then, are these dominant cultural beliefs about appearance among adolescents? It describes the purpose and process of the design research undertaken to answer this question. Contextmapping techniques are explained, as well as the choices for sampling and setup of the teacher interviews, cultural probes and sensitising workshops. The process of analysing the results of the design research is also described. The chapter concludes with an overview of relevant insights gained from this analysis.**

## Method

To find out which cultural beliefs are dominant among adolescents, it is important to gain in-depth knowledge from this group. In their 2013 publication 'The Convivial Toolbox', Stappers, Elizabeth & Sanders describe four levels of knowledge: explicit, observative, tacit and latent (figure 11). Explicit knowledge is the knowledge that individuals formulate in either speech or thought. This can be researched through interviews, for example. Observative knowledge is gathered by observing the behaviour of individuals. This may contradict the knowledge those individuals formulated explicitly. To penetrate the deeper levels of tacit and latent knowledge Stappers, Elizabeth and Sanders propose using 'Generative Sessions', or 'Make-sessions'. This research makes use of interviews, as well as several generative techniques from the Convivial Toolbox to gather knowledge about body image among adolescents.

The research consists of three elements:

- a cultural probe or sensitising package with a broad scope, allowing 40 participants to reflect on the subject matter and record their experiences
- two small workshops with 2x3 participants focused on the formulation and exploration of cultural beliefs and assumptions
- interviews with teachers on the subject of body image

Due to the coronavirus restrictions during the research, all activities were organised digitally via Miro, Zoom and Skype.

## Participants

In the project brief, the target group is defined as youth between 14-24 years old who could have a higher-than-average risk for body dissatisfaction. Due to the limited time and resources available for the project, however, it was not possible to recruit a fully representative sample. Preferably, the research could be carried out with participants from one or several classes from a single, typical school in the Netherlands. To obtain the most relevant information, it would be interesting to find a diverse group of students who have a larger than usual preoccupation with health and fitness. A secondary, personal learning objective during the project was to work with participants from outside the familiar academic context.

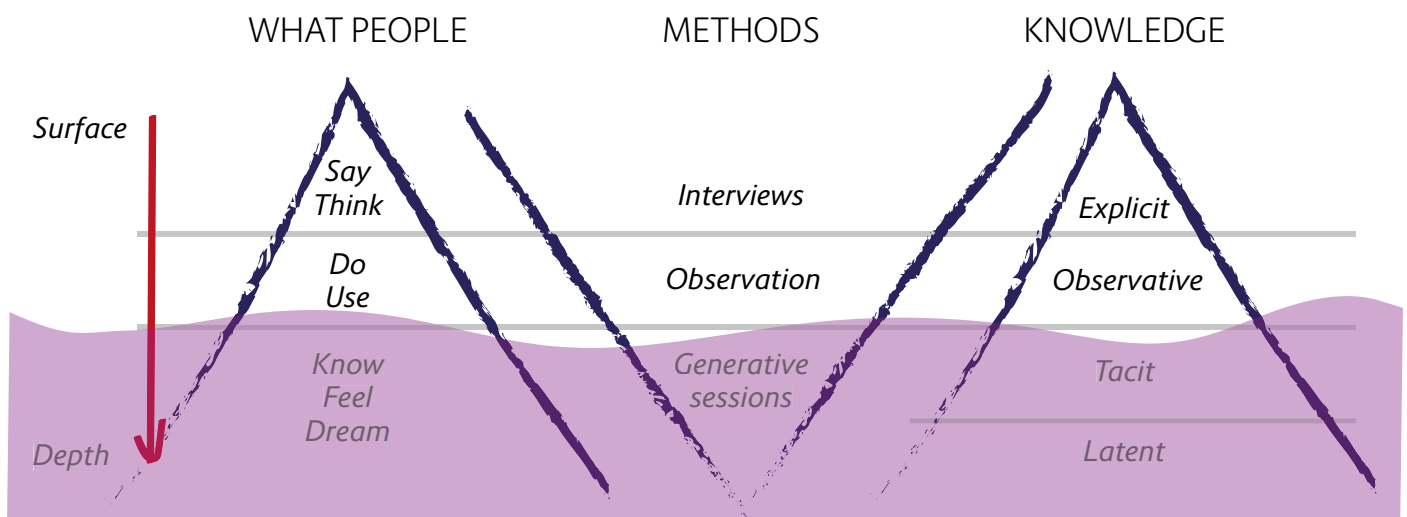
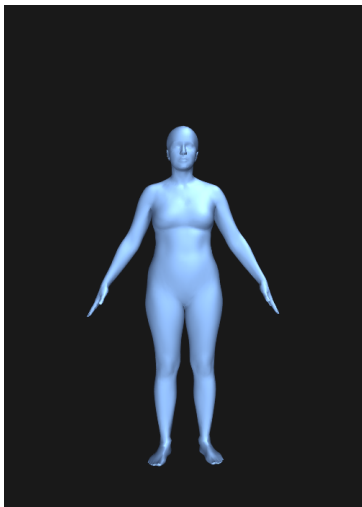


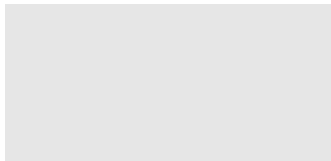
Figure 11 — Four levels of knowledge (Stappers, Elizabeth & Sanders, 2013)

**Opdracht D: Visualisatie**

2 Sla het plaatje van jouw meetgegevens op en plak die hieronder in plaats van dit plaatje.

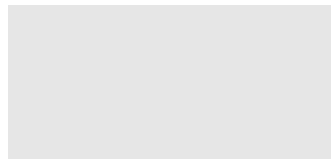


3 Vind je dat het plaatje lijkt op hoe jouw lichaam eruit ziet? Hoezo wel/niet?



4 Reset nu alle waarden, maar laat je Height (lengte) en Inseam (binnenbeenlengte) staan. Beweeg de andere schuifjes eens: hoe zou je er het liefste uitzien?

5 Welke schuifje(s) heb je het meest veranderd en waarom?



6 Sla de het plaatje van hoe je er het liefst uit zou zien op en plak die hieronder in plaats van dit plaatje.



Figure 12 — One of the assignments in the cultural probe in Miro

TestJeLeefstijl provided an opportunity to collaborate with a vocational (MBO) school in a mid-sized city in the central Netherlands. MBO 2-4 is the most common educational level in the Netherlands, which may provide some amount of representativeness (CBS, 2018). Due to its relatively wide age range, the MBO is also an attractive option. The school has several classes in the 'Nutrition and Lifestyle' track. It was assumed that Nutrition and Lifestyle students are on average more concerned with nutrition, health and lifestyle than their peers, which was used as a surrogate for higher importance assigned to physical appearance. The teacher interviews were conducted with gym teachers from the same school, who instructed students from all tracks for PE lessons and provided resilience training within the curriculum.

## Sensitising: Cultural probes

Cultural probes are a method to invite users to record and express their experiences and thoughts in various ways (Van Boeijen et al., 2013). The probes were developed, tested with participants and checked by the teachers at the school in advance. The final design had the form of a Miro 'workbook' with various assignments, including a mind-map, reflective questions and an assignment to recreate your body shape by filling in measurements in an online tool (Body Builder, n.d.) and changing values to visualise your ideal body shape (figure 12, appendix B). The workbooks were

provided to two classes in the context of a special project and introduced in a short [informational video](#) (Gijsman & Gijsman, 2020). They were informed about the use of results in this research and their ability not to participate. 40 of the 48 students completed the workbooks: 62.5% female, 1 unknown, mean age (SD) 18.24 (1.83). Afterwards, all the answers to questions relevant to the research were exported from Miro and aggregated into Excel for analysis.

## Workshops

The second element of the research went most in-depth into the meanings and motivations of being fit. Seven individuals from the target group participated across two pilot workshops, which were held in advance to iterate on the form and flow of the workshop. The results from these pilots were also included in the analysis.

For the main research, two workshops with three participants were held via Zoom and recorded. Participants were recruited from the two classes that received the sensitising workbooks voluntarily after discussing the workbooks in class. Out of these 40 students, six were interested in joining the workshops: three from each class (50% female).

The setup of the workshop was not to discuss the personal answers participants had given in the sensitising workbooks but





Figure 13 — The MIRO-board template after one of the workshops

instead to discuss motivations and ideals more broadly by approaching the subject from the surrogate topics of exercise habits and nutrition. This ensured a safe environment, where participants could project their own experiences onto hypothetical ‘others’.

The final version of the workshop consisted of nine parts and is partly shown in figure 13 (see appendix C for full template):

- **General introduction:** A general introduction about the goal, schedule, content and ‘rules’ of the workshop.
- **Personal introductions:** An introduction to the online tool ‘Miro’ and introduction round for the participants. Everyone was asked to choose a picture stimulus to help introduce themselves and their relationship with body image.
- **Discuss workbooks:** An opportunity to briefly discuss the workbooks they had completed before the workshop.
- **Laddering:** an example exercise explaining the method we would be using throughout the workshop to discuss higher motivations. Laddering comes down to endlessly asking: ‘Why?’, to find possible explanations for people’s behaviour. It is a fun and accessible starting exercise. For this workshop, an example was used from the personal introductions, on which all

participants could join in with finding possible ‘whys’.

- **Sports and nutrition:** in the first brainstorming exercise, participants had to write down at which moments in their lives they were (not) preoccupied with healthy eating or playing sports and vice versa. This mostly happened individually. This was a step-up to the next exercise.
- **Motivation:** using the previous exercise as inspiration, participants were asked to brainstorm about their personal and other possible motivations to exercise and eat healthily. These motivations were categorised together with the participants.
- **Paradigm:** five of the most important and interesting motivational clusters were chosen to discuss further. They were listed from top to bottom and participants were asked to use the laddering technique to formulate ‘paradigms’ or assumptions that underpin this motivation. This was done for all five motivations.
- **Reconsidering:** Finally, participants were asked whether the assumptions they had formulated held up to scrutiny, or that some may be false, or in need of more nuance. This often

initiated a fruitful discussion about every type of motivation.

- **Conclusion:** To round up the workshop, participants discussed their conclusions about body ideals in modern society, what their experiences with the workshop were and whether they had learned anything from each other.

The workshops were recorded in full and transcribed from the 'paradigm' section onwards.

## Interviews

In addition to researching the views and context from the youths' perspective, two interviews were conducted with PE teachers from the same school. These were structured according to the interview guide in appendix D. The purpose of these interviews was both to gain insight into the teachers' perspective on these issues and the existing approaches concerning this topic, as well as receiving a first-hand account from teachers about the developments regarding body image that

they have observed among their students through recent years.

Two teachers from the Sports Expertise Centre of the school volunteered for the interview. They were held via Skype, recorded and transcribed.

## Analysis

As soon as the first results from the research came in, they were analysed through thematic analysis, where quotes are coded and grouped into themes (Braun & Clarke, 2006). Quotes, topics and codes from the workbooks, teacher interviews and workshops were (re)imported to Miro and clustered. Several clusters are shown in figures 14 & 15. Others can be found in appendix E. Many of the themes mirrored insights gained from the literature analysis, but other interesting observations and connections were also found. Novel and surprising themes were refined into insights based on the detailed conversations during the workshops and relevant knowledge from other sources on the subject.

When do you feel good about your body?

When do you feel bad about your body?



Figure 14 — Clusters of themes described in the cultural probes



*"I don't want others to think negatively about me." — "People judge you on how you look." — "I think some people would rather hide their insecurities." — "If you look insecure, you're an easier prey for bullies."*

### People often assume there is a single scale of attractiveness.

Though becoming more reflective when questioned more deeply about attraction ideals, many participants' answers at first indicated they make many choices in their life based on the assumption that others shared the same attraction ideals as they do. This means that they attempt to attain their attraction ideals, without realising others' ideals may be different.

*"I think others find [having a fit body] just as important as I do." — "If you have a good body, (...) just a large, beautiful, muscular body, I really think that is a symbol of status." — "I don't want a 'perfect' body."*

### It is important to find balance between your physical and mental wellbeing

Many participants voiced contradictory thoughts relating to the relationship between physical and mental wellbeing, but almost all indicated that it is a question of balance: on one hand, exercising and being in a good physical shape often improves your mental state as well. On the other

hand, constantly trying to be in the best physical shape and worrying about your appearance a lot can cause stress and negative feelings. Because of this, it is best to be healthy and exercise, but not worry about it too much.

*"It's a balance between being fit and healthy and not worrying too much." — "If you're healthy, you feel good about yourself."*

### Body image issues are most prevalent among early teens

In line with research, many of the (female) participants indicated that they had struggled with their body image in the past. Several admitted being preoccupied with their physique at the moment, while others said they had had issues in the past, but cared less about what others thought about them now. This could have several explanations, most likely of which is that most adolescents have the largest issues with their body image a bit earlier in their teens, around the start of puberty when adolescents rapidly change both physically and mentally and are less well-equipped to deal with insecurity (Zinovyeva, Kazantseva & Nikonova, 2016).

*"I felt bad about my body during puberty" — "I feel better about my body now that I'm out of puberty." — "I felt bad about my body when people made jokes about my posture in secondary school." — "Now I don't care what others think."*

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## Discussion

As design research, the results provide more insight into the deeper motivations, assumptions and ideals around body image among adolescents. With a larger team and more resources, it would have been interesting to look for differences between various demographics and look for patterns in their beliefs to determine which could be helped the most by a potential design. As it is, the sample is too small to draw academic conclusions. An important flaw in the

sample which is difficult to avoid is the manner of recruiting participants for the workshops. Likely, any participants with especially large issues concerning their body image will not have volunteered to join the workshops. A teacher explained they would not like to be put in a position to discuss their body image with classmates. This should probably be made very clear in advance.

# Conclusion

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At the start of this chapter, we set out to find out which attitudes, rules and assumptions adolescents have concerning appearance and body ideals. From the research results, it appears many deeper ideals and aspirations surround body ideals in society. Not only do we value a fit body, but we also value the discipline and dedication of exercising, the restraint and self-control of healthy eating and the approval of others. This shows that body ideals are embedded deeply in our culture and psyche, so not easily challenged. Concerning reframing these beliefs, however, it may be possible to encourage adolescents to reflect critically

and nuance the beliefs around attraction ideals, generate more acceptance and understanding and help people to feel good about the future by empathising with other perspectives, achieving other goals together and reconsidering the assumption of a singular scale of attractiveness.

Finally, the workshops in the research turned out to be a fun and engaging way for participants to share their views and come into contact with other perspectives in a safe environment. An intervention could focus on increasing this effect and offer a more regular and reproducible experience.

# section two

# DEFINE

## Chapter 05 | *Framing*

- In what ways can the problem of body image and social wellbeing be framed?
- Which of these frames has the highest likelihood of yielding results?
- What is the desired effect of a design intervention within this frame?
- What are the interaction qualities and desired context of the design intervention?
- What opportunities are there to implement a design intervention in the domain of body dissatisfaction among adolescents?





# Chapter 05

## *Framing*

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- What opportunities are there to implement a design intervention in the domain of body dissatisfaction among adolescents?



The fifth chapter describes the process of framing, where the problem space and solution space are redefined based on all the insights that have been gathered previously. The first design statements and interaction qualities are formulated and decided upon with a PICK-chart. The frame is continuously updated throughout the later stages of the process. The frame is used to formulate a design statement and interaction qualities for the design. This underpins further decision-making concerning the design direction of the project. The chapter concludes with a decision and rationale to focus the context of the solution space on a school setting and further develop ideas for designing a serious game.

## Framing

Framing is the process of finding a new way to look at a problem. This is a creative exercise, where the insights from earlier research are used and different perspectives can be formulated. Ten possible frames were formulated based on the themes identified in chapter four (figure 16).

To move forward with the most promising frames, the ten frames were plotted in a PICK-chart. PICK stands for: Possible,

Implement, Challenge and Kill. It is a method often used to make explicit the thoughts that designers have about specific ideas and their opportunities. In this case, the PICK-chart was used pre-emptively to judge whether a frame would lead to realistic solution directions. The frames are plotted on the chart according to the estimated impact of its solution and the estimated effort of the solutions in that frame. The main questions asked with relation to these frames were: “How much does solving this problem increase the body satisfaction of adolescents?”, “Is it realistically possible to change this (in society)?” and if so, “How much effort do we estimate it would take to solve this problem?”. The most promising frames fall into the high-impact, low-effort category: Implement.

As can be seen in figure 16, most of the more fundamental issues around body image, such as a fit physique displaying status or discipline and people wanting to be successful, fall in the high-effort kill and challenge categories. The issue of social media displaying unrealistic ideals may be somewhat easier to tackle, but this does not solve the underlying issues, and people may well have unrealistic ideals due to other

### Frame PICK-Chart: Body dissatisfaction is a problem of:

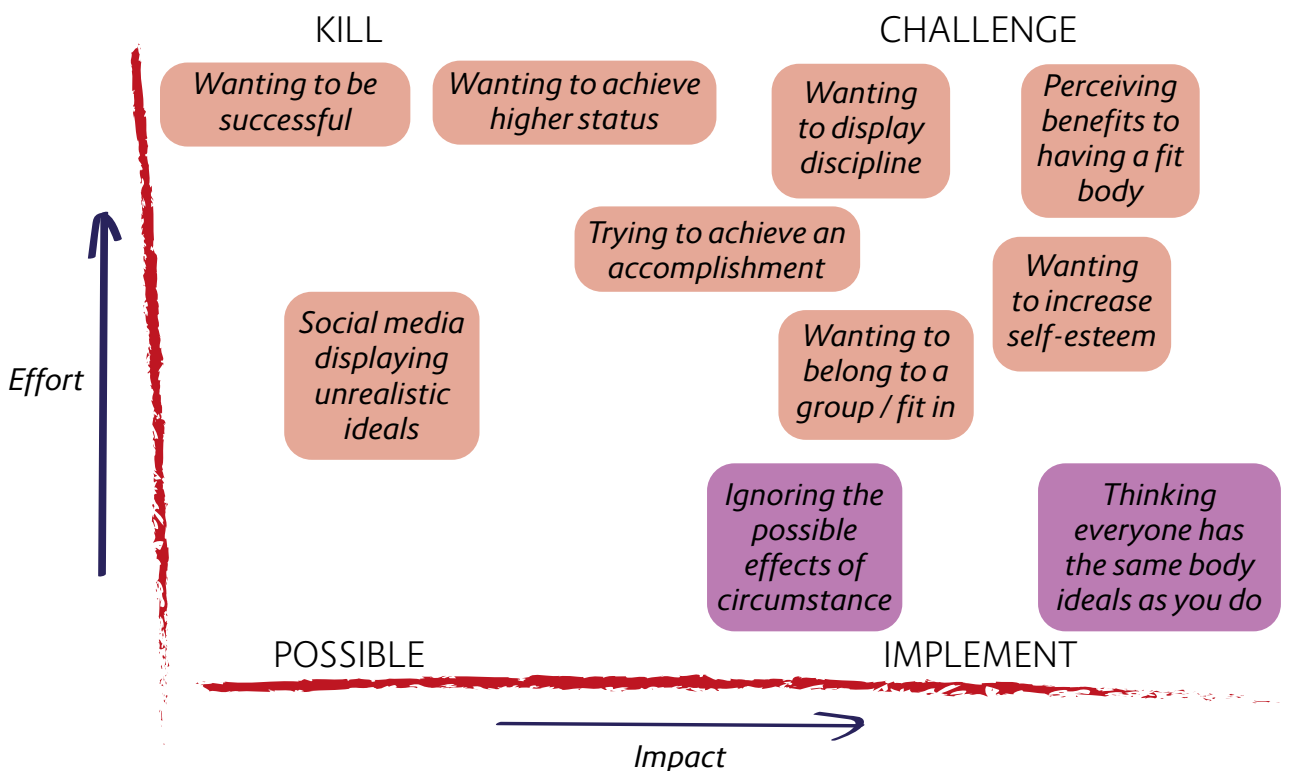


Figure 16 — PICK-chart mapping the potential of different frames

influences than social media, as discussed in chapter two.

Two frames stand out. Firstly:

*“If we look at this problem as if it is about ignoring the possible effects of circumstance, then we need people to become more aware of others’ circumstances.”*

One of the teachers mentioned this explicitly. He observed that many adolescents (and himself also, if he was not careful), are often quick to judge both themselves and others, without taking interest in their circumstances. However, every individual has an entire life story and experiences all kinds of struggles.

The frame furthest in the implement-corner was:

*“If we look at this problem as if it is about thinking everyone has the same body ideals as you do, then we need to help people realise people have many different beliefs, goals and motivations.”*

This was one of the most interesting findings from the research in chapter 4: When unchallenged, many adolescents assume beauty and physical attractiveness can be rated on a fixed scale. This is exaggerated, for example, in beauty contests (Miss

Universe) or games between friends of rating the attractiveness of passers-by on an absolute 1-10 scale. In reality, of course, people’s perceptions of beauty and attraction vary widely. When questioned, adolescents do correct themselves on this, but they can need reminding now and again.

Both of these frames have to do with maintaining many assumptions and prejudices about others’ thoughts, feelings and circumstances. It could help to penetrate and debunk these assumptions and prejudices and often remind each other of each other’s humanity. Interestingly, this is a principle that has much broader connotations in today’s world than merely concerning body image.

## Design goal

Using these problem frames, it is possible to formulate a design statement that formulates the purpose of the design within the chosen frame. According to Hekkert & Van Dijk (2014), a design statement should consist of a goal and a mechanism through which to achieve that goal. A common template is: “We want to .... by .... .” The statement was reformulated several times in this phase, aiming to correctly convey the goal and mechanism of the design and relate to the earlier problem framing.

*We want to invite youth to find a healthy balance in their physical & social wellbeing by providing a light-hearted reason and opportunity to discuss their beliefs about appearance with their peers.*

## Design statement

As you can see, the design statement describes the design goal based on the starting brief and problem framing, while deciding on a ‘working mechanism’ in the second half of the statement. The working mechanism describes how the goal can be achieved and relates closely to the interaction qualities the concept must have.

The first version of the statement was: “We want to invite youth to open up to each other about their bodies by demonstrating

the merits of showing vulnerability,” which was deemed not to fit well with a target group that generally goes out of their way to avoid showing vulnerability. This first became: “We want to invite youth to open up to each other about their (fitness) aspirations and motivations by providing a casual reason and opportunity to do so,” before being finalised. In chapter 6, the final statement is refined further based on new insights and design choices.

## Interaction qualities

Interaction qualities are the first step towards developing a design concept and the requirements it should fulfil. They are a helpful way to describe the ‘feel’ of the solution and evolve concurrently with the design statement. They also relate to the eventual design criteria: “What qualities of interaction should the design have to achieve its goal?” These qualities are based on the knowledge gathered in earlier chapters and the interesting insights that have been described there. They are presented in three groups, ordered by importance.

### Opportunity to talk & listen

The mechanism through which the design will improve adolescents’ issues around body image is by providing the opportunity to talk and listen to peers about their differing beliefs around appearance ideals, especially to adolescents who otherwise do not feel as if they have that opportunity. By discussing views on the subject and learning from others, as participants did in the workshops in chapter four, it is possible to provide each other with perspective. This is something that does not necessarily happen within the classroom, or even between friends, naturally at this age.

### Togetherness

Discussion is a process that requires input from others. To discuss intimate topics, it is important to feel safe and connected with the people you are talking with. This means that the design must facilitate a (physical) place for discussion, where users can feel connected with others. A way to achieve this is by using small groups, where everyone has the opportunity to speak up and be heard.

### Accessible

From the start, the design has been intended for a broad group of users to be of use as a prevention tool. This is because prevention is often much cheaper and more efficient than treating symptoms later in the process, as touched upon in chapter two. Also, this is the domain in which design has the largest added value, as expert psychologists have developed many forms of treatment already. Because of this broad target group, the design should

be accessible to engage with for many different people.

### Fun

Ensuring the design is a fun experience makes it easier for the more reserved adolescents to engage with the design by providing a reason other than ‘wanting to discuss body image’ for using the design. In the workshops, it became clear that this also means that the design should not be patronising or push certain views too much. Instead, it should offer adolescents a real opportunity to discuss the subject with their peers, develop their own opinions and take ownership of the topic. This connects with the principles of Social Design as described in chapter one.

### Safe environment

Discussing body image can be challenging due to the intimate nature of the topic, especially for adolescents. This means it is important to create a safe environment for adolescents to express their views and beliefs. This also makes the design more easily accessible for reserved and shy adolescents, as well as improving the chance that those who can receive the most benefit from discussing these issues actually do.

### Light-hearted

Many adolescents (especially boys) do not like to make a fuss about their feelings, instead often choosing to keep their insecurities to themselves. To keep the design credible and tempt this group to engage with the design also, it should convey an air of matter-of-factness about the subject. An important aspect of achieving this is by not making the conversation too personal, but for example by making use of psychological projection to create more psychological distance between the users and the topic of body image.

### Context

Based on the definition of the design statement and interaction qualities, it is possible to focus efforts on a specific user context of the design. This was deemed necessary to speed up progress on the design. This does not mean the design cannot be used or adapted to other user contexts during the design process, however. The main reason

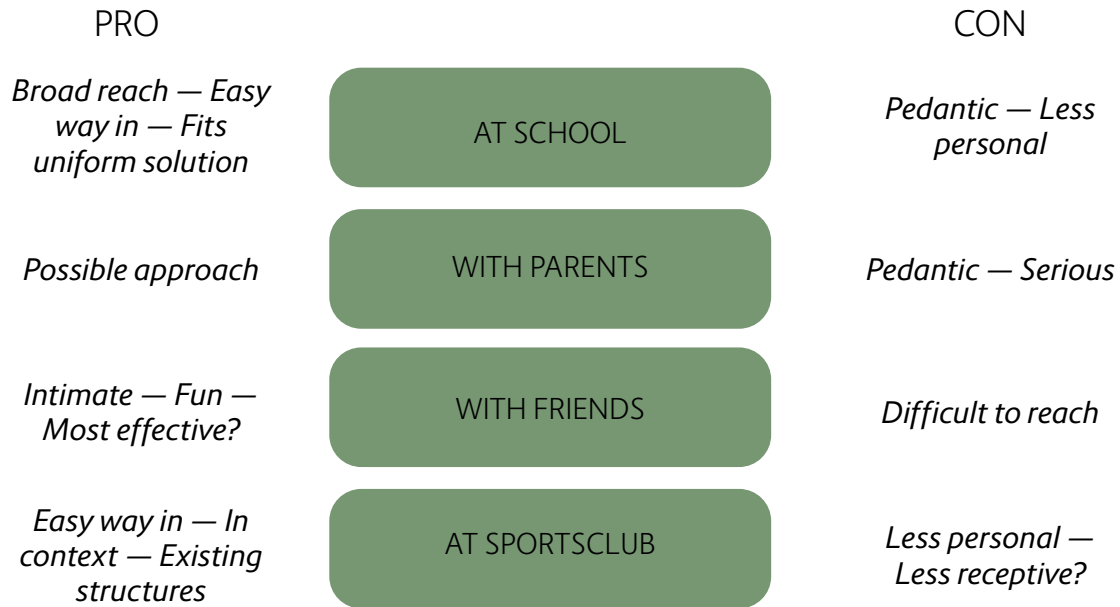


Figure 17 — Pro's and cons of four different user contexts

for defining the user context further is to focus efforts on the most impactful user context for the design.

There are roughly four user contexts within the lives of adolescents where a conversation about body image could take place: at school, at home with parents or family, somewhere with friends, or at a (sports)club (figure 17).

The most promising user context for this project was determined to be at school. This has several reasons. Firstly, school is a setting where the target group of adolescents is the most accessible. Many different organisations collaborate with schools on many different topics and this network infrastructure is already well-developed. Using school as a gateway to connect with adolescents has the added advantage of more easily enjoying (financial) support from various subsidised programmes and grants, as well as reaching a broad range of adolescents and not only those whose parents are concerned with the topic of body dissatisfaction, for example. Lastly, but maybe most importantly, due to the diversity of students within schools, it is more likely for the design to have more impact when used in school. Classmates from different backgrounds and with different life experiences will have more varied viewpoints on the subject of body image and prejudice than family, friends and teammates.

## Design directions

With the goal, interaction qualities and context defined, there are still many directions left to take. In exploring different possible design directions, another creative diverging phase was initiated. As the process of co-evolution of problem and solution dictates, the development of these directions was done concurrently with the development of the interaction qualities and user contexts described earlier in this chapter. As such, directions include more informal proposals such as 'drinking games' and 'party games'. More serious proposals include directions of creating a set of seminars or using reflective journaling, inspired by the examples of 'Me and White Supremacy' by Layla Saad and 'The Beck Diet Solution' by Judith Beck. Because of the decisions made concerning design goal and user context, these directions become less interesting to pursue. Another promising direction is using podcasts as an educational tool, both as a medium for teaching ideas, as well as a means for students to express and formulate their own ideas on the subject.

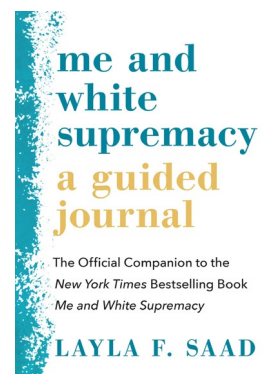
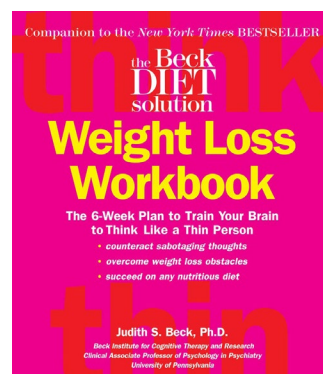


Figure 18 — Examples of reflective journaling

For making a decision, the design directions can be plotted into two dimensions (figure 19). On the vertical scale, the directions are judged on the estimated impact of a solution in that design direction. Unfortunately, this correlates strongly with their accessibility and low threshold, because a more accessible solution is almost automatically shallower and a more impactful design is almost certainly less accessible. Creating an accessible solution with high impact is the challenge to engage with during the further development of a solution in that design direction.

The horizontal scale rates the design direction on their 'fun-ness'. By making a fun design, even a less accessible design can be engaging enough to entice adolescents and benefit from word-of-mouth. As expected, the most impactful and intense directions lean towards the more serious side of the spectrum and the more accessible and shallow directions are easier to make more fun. The most interesting directions for this project, therefore, are the directions that can create a meaningful impact (generally correlating with lower accessibility) in a fun manner and so ensuring the engagement of adolescents.

This is where we revisit an important trend from chapter three: the increasing use of serious games to playfully teach about difficult subjects. Serious games are increasingly being used in educational and other contexts to facilitate discussion, teach school curricula and increase engagement with a topic. Though still a relatively novel approach, the development is increasingly being taken seriously as an alternative to or expansion of regular teaching methods. It is a good fit for the intended user group and has the advantage of being able to make use of various techniques, including storytelling narratives and, through roleplaying, the projection of issues into a fictional and thus safe game environment. A serious game can be both competitive and collaborative, with competitive generally being more engaging for the target group, while a collaborative game goal could create a more meaningful interaction between players.

The idea of making use of podcasts was parked for the moment, both because it could potentially still be included in the final format, and because asking students to create podcasts themselves could run into practical problems in more disadvantaged areas.

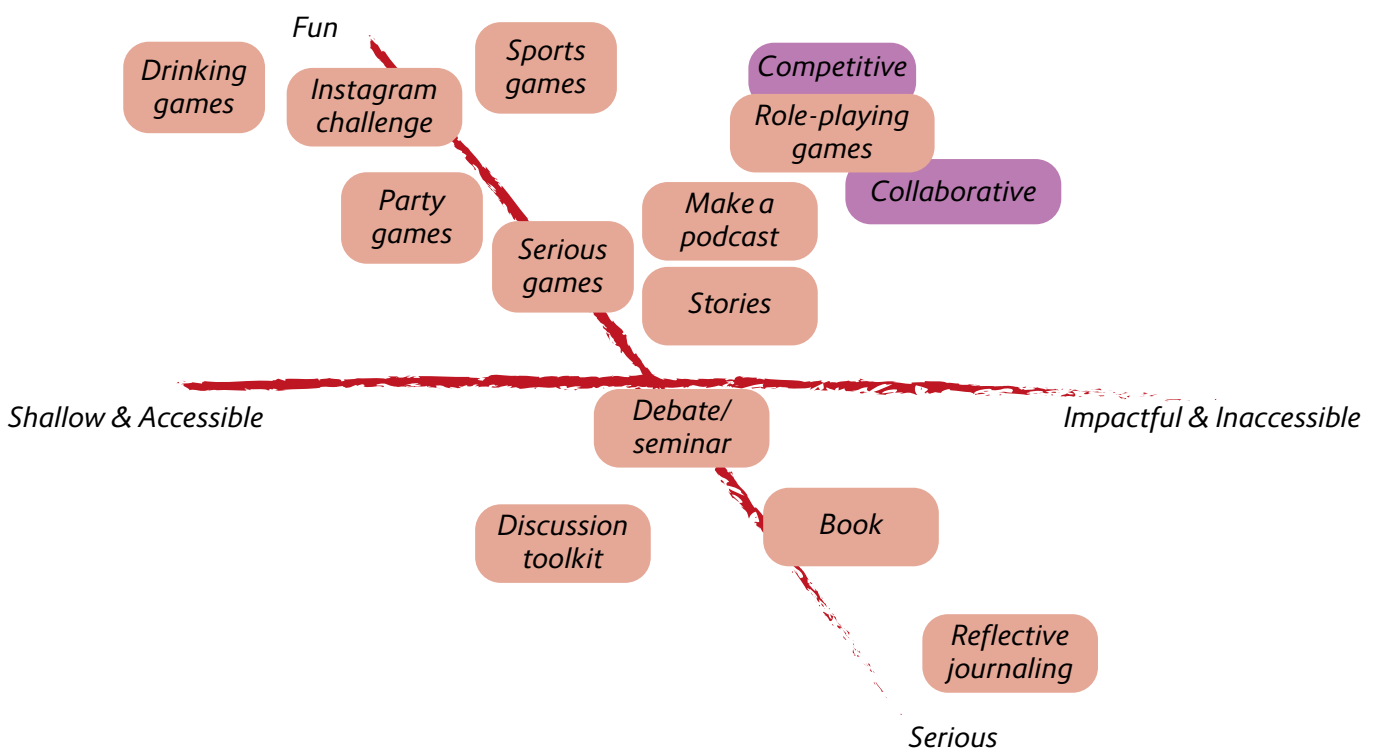


Figure 19 — Possible design directions mapped into two dimensions

# Conclusion

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This chapter started by suggesting several frames in which the problem of body image and social wellbeing can be framed. Out of these frames, two were developed further based on the estimated impact a solution to this frame would have on body image among adolescents and the estimation of the effort it would take to solve this problem frame.

*"If we look at this problem as if it is about ignoring the possible effects of circumstance, then we need people to become more aware of others' circumstances."*

*"If we look at this problem as if it is about thinking everyone has the same body ideals as you do, then we need to help people realise people have many different beliefs, goals and motivations."*

The design statement evolving from these frames formulates the desired effect of a design intervention within the frames. This statement will be further refined in chapter six.

*We want to invite youth to find a healthy balance in their physical & social wellbeing by providing a light-hearted reason and opportunity to discuss their beliefs about appearance with their peers.*

Finally, the desired context of the design intervention was determined to be at school, due to its accessibility and the diversity of opinions and beliefs among classmates. Out of several design directions, that of a (collaborative) tabletop game with role-playing (RPG) elements was determined to fit best with the interaction qualities. Within this format, there are several ways to include other fun and meaningful interactions, such as debating or sharing (personal) stories. The choice for a tabletop game is based on the interaction qualities of providing an 'opportunity to talk and listen' and creating a physical 'togetherness'. Also, this fits the context for use in school better than most other options. The use of roleplaying and storytelling contribute to the interaction qualities of 'light-heartedness' and 'a safe environment' by providing an opportunity for psychological projection.



# section three

# DEVELOP

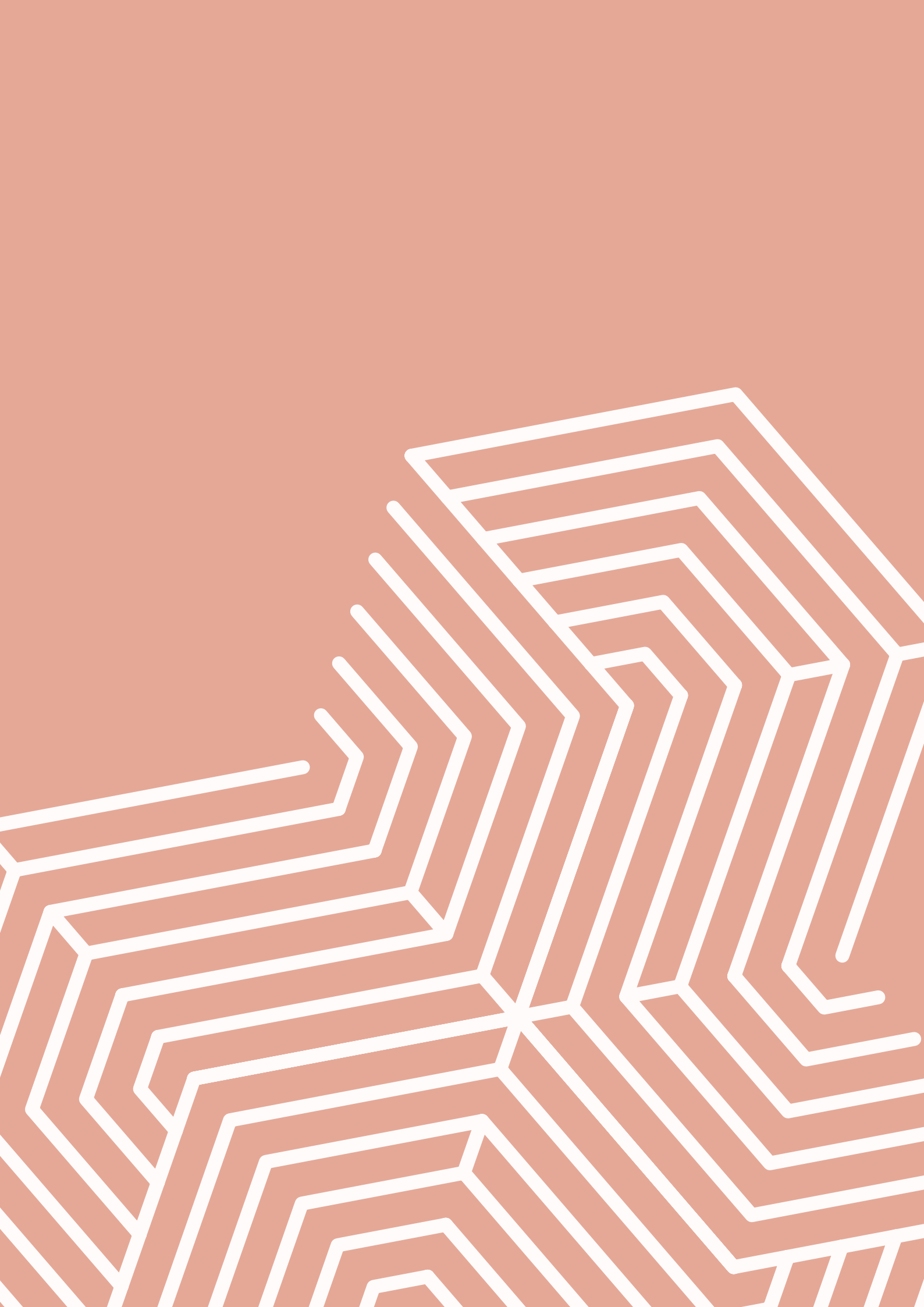
## **Chapter 06** | *Serious Game Design*

- What is the basic process of (serious) game design?
- What game mechanics are used in similar games that aim to provide a light-hearted reason and opportunity for discussion?
- What examples could inspire the design of a game that achieves the design goal?

## **Chapter 07** | *Conceptualisation*

- Which requirements should the game design need to fulfil to achieve the design goal?







# Chapter 06

## *Serious Game Design*

- What is the basic process of (serious) game design?
- What game mechanics are used in similar games that aim to provide a light-hearted reason and opportunity for discussion?
- What examples could inspire the design of a game that achieves the design goal?

Chapter six takes the design direction of a (collaborative) tabletop game with roleplaying elements defined in chapter five as a starting point. The decision to design a serious game raises several questions. In the chapter, the concept of game flow is introduced and the advice and insights from a professional serious game developer are summarised. The chapter then illustrates several examples of other (serious) games and their mechanics.

## Serious games

Chapter five concludes with the decision to start designing a (collaborative) tabletop game with role-playing elements. In some ways, this brings us to the start of a wholly new design process. Not having any experience with designing games, some additional research was necessary. This consisted of three parts: enlisting the expertise of a professional game designer and looking into relevant literature, researching the various pros and cons of specific game mechanics that can be used, and finding out what other examples exist of (serious) games with a similar purpose or subject.

### Game flow

The starting point for designing any (serious) game is developing the game flow. The game flow follows two criteria. Firstly, it should delicately balance the learning curve and difficulty of the game. If the game asks too little of you, you become bored. If it asks too much, it causes stress or anxiety and causes you to zone out (Csikszentmihalyi, 1990), see figure 20.

Secondly, the game simulates a real-world situation or problem. This is a key functionality for serious games, as it creates a

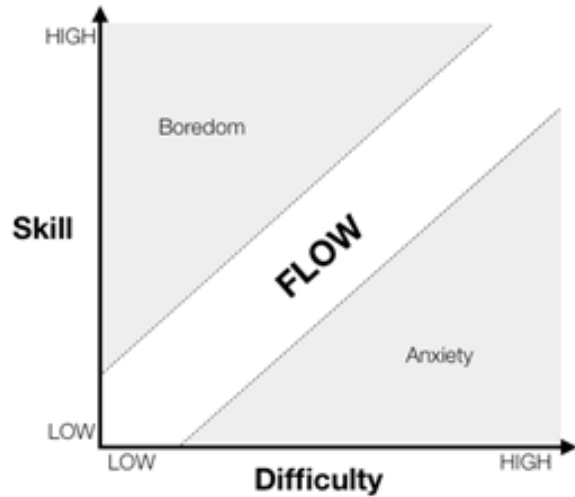


Figure 20 — A game should aim to keep players in the 'flow'.

certain psychological distance from the real-world issue it simulates allowing for a smaller personal and emotional investment. However, because the point of the game is also to project learnings back on the real-world situation, this needs to be facilitated as well (Oude Veldhuis, 2020), see figure 21.

A serious game simulates a situation or problem in reality. By simulating this situation, it is possible to 'teleport' players to a neutral ground or a safe space, where their actions have little consequence on anything outside of the game. This allows players to explore new approaches to the situation more freely and forms the safe space where the serious game takes place. During the game, the players are steered to explore new approaches and new experiences. These experiences should be reflected upon after the game and then related to the real-world problem or situation. This completes the learning cycle of the serious game and leaves the players with new insights or ways to approach the real-world problem (Letanche, 2019).

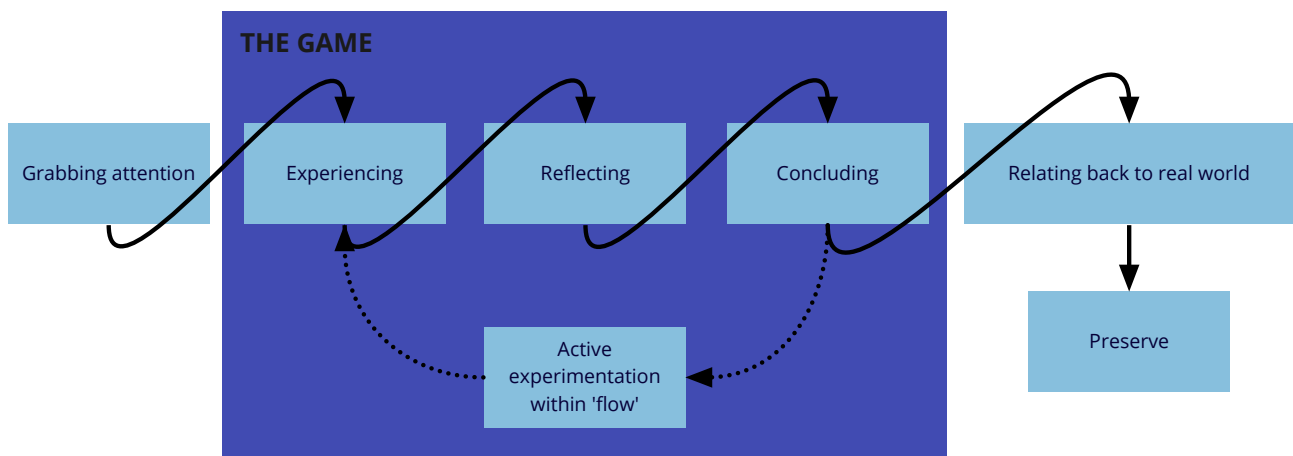


Figure 21 — Learning model for serious games (Oude Veldhuis, 2020)

## Tips from an expert serious game-designer (Raccoon Games):

- Make sure to formulate the main message: What is the takeaway or conversation players have at the coffee machine after finishing the game?
- Make use of projection: Try to enable players to project themselves and their experiences within the setting of the game to make a larger impact.
- Keep the game as simple as possible: a pitfall is trying to simulate reality too closely and including too many confusing or unnecessary elements. Try to start simple and increase the complexity as the game progresses.
- Before looking at mechanics, design the flow of conversation during the game. How do you want players to experience the game? Then try to 'facilitate' this discussion with game elements, by deciding on the type of interaction necessary and finding ways to make it fun to play.
- Make the game fun to play: use time restraints, make elements competitive or use attributes to roleplay (hat/coat), for example.
- Try out different compositions of group versus individual activities.
- Use the peak-end rule: Finish the game on a high and if possible, include the main message in that high.
- Make sure to include a reflection on the main takeaway at the end: What stood out? What did players learn?
- Last but not least, a game is: 'Beter goed gejat dan slecht bedacht', which means it is good to take inspiration from other games and use game elements that have proven themselves before.

## Mechanics

There are many possible game mechanics to use within games. These range from ways to determine the turn order to constricting communication, the use of chance or the building of alliances. The website BoardGameGeek (n.d.) has an extensive overview of the mechanics that are currently used in board games. Several examples are given in appendix G.

## Examples

There are many examples of popular board and card games. The exploration of these examples was semi-structured. Three distinct categories were determined to be of particular interest. The first consists of the much-sold 'icebreaker' games, which have a similar goal of initiating conversation. The second category comprises serious games with a similar goal of inviting discussion and challenging perspectives. Lastly, existing games with a similar theme also served as inspiration for ideation.



Figure 22 — Examples of 'icebreaker' games.

## Icebreakers

Icebreakers are the types of small card games aiming to help people to get to know each other a bit better. They often consist only of a deck of cards with (unusual) questions for people to ask each other and discuss. These decks are themed in certain categories, such as 'Team Spirit', or 'Puberty'. Two are very popular in the Netherlands: 'Openhartig'

and ‘Gespreksstarter’. In a sense, these are less a game than they are an icebreaker. The second variant of these games is the ‘dilemma cards’. Similarly, they invite discussion between players about certain dilemmas. These are good examples of simple concepts that can be fun and invite conversation about unusual topics.

Another notable product that does not quite fit this category but is quite similar nonetheless, is ‘Eigenwijsjes’. These ‘coaching cards’ are not a game you can play, but instead, the cards coach you with motivational phrases. Though simple, they have sold around 200k copies in the Netherlands (Dubbelzes Uitgeverij, 2019).

### Serious games

It is a bit more difficult to find examples of serious games than other games. Both because they have only become popular recently and because many serious games are made for a specific client or context, so not mass-produced for consumer sale. Two examples are games made by Raccoon Games to facilitate internal discussion about an organisation’s core values, both in the form of a puzzle players have to solve together while learning about the ins and outs of the organisation’s high-level strategy and goals (Raccoon Games, n.d.).



Figure 23 — Puzzling with core values (Raccoon Games)

Another example by Raccoon Games is the ‘Change Game’, which simulates changes in the work environment of an organisation, and challenges players to adapt to this change and discuss the changes happening in their own organisation.

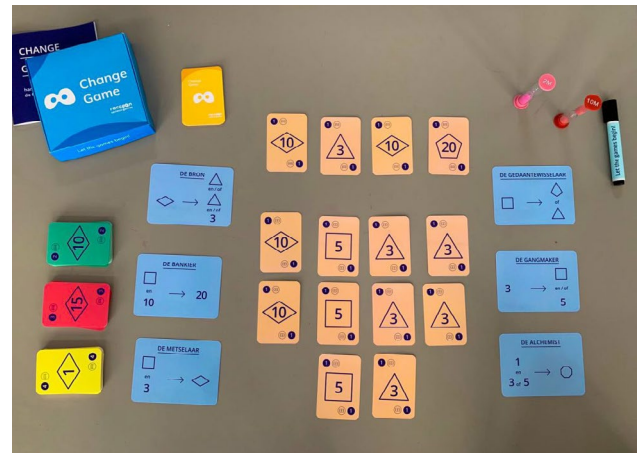


Figure 24 — Change Kitchen (Raccoon Games)

Finally, there is the example of the Vitam Vitality ‘Schijf van Vijf’, which uses different kinds of questions and game elements to invite discussion on the topic of vitality. Players earn points by learning about and listening to each other while discussing their opinions.

### Similar topic

For the final category, there are several examples of regular card and board games that have to do with lifestyle, life stories and role-playing elements. One interesting example is ‘Similo’, a cooperative guessing game where the players have to guess one secret character out of twelve, by interpreting the clues of the storyteller, which consist of playing other character cards and stating whether those are similar or different to the secret character. While working with associations and stereotypes, this game encourages the use of stereotypical elements, however.

Mechanisms: Communication Limits, Cooperative game.



Figure 25— Similo

A similar, but more competitive game is 'Dixit', a popular game where one player picks a card from their hand and makes up a clue. The others then choose a card matching the clue from their own hands, the cards are shuffled and players vote on which card they think was the original. Due to the scoring, the clue should neither be too clear, nor too abstract.

Mechanisms: Race, Storytelling, Targeted Clues, Simultaneous Action Selection, Voting.

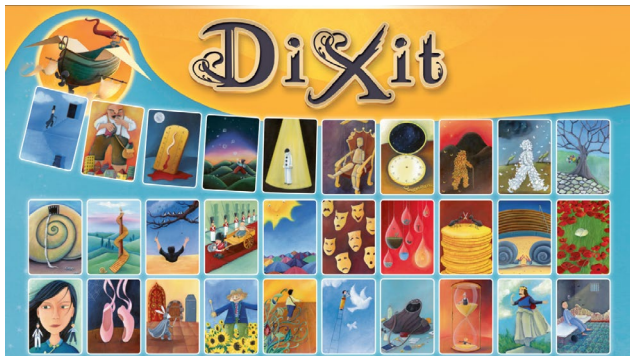


Figure 26 — Dixit

'Story Cubes' is a storytelling game, which uses a set of nine dice with different icons on every side to inspire players to tell an original story. There are different sets with different themes of icons, such as 'voyage', 'heroes' and 'mystery', which can be combined in different ways.

Mechanisms: Die icon resolution, Storytelling, Cooperative game.

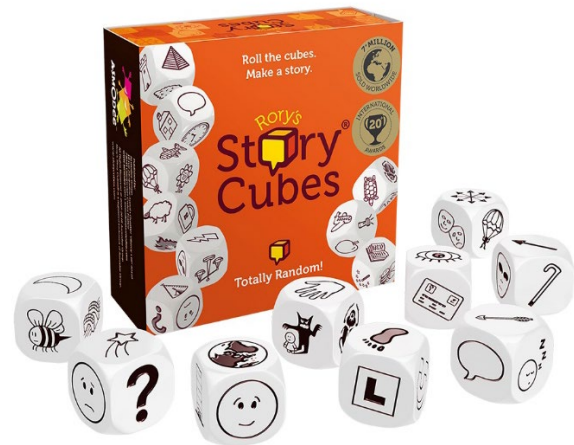


Figure 27 — Story Cubes

As you can see, many games make use of triggers or statements to initiate discussion, as well as role-playing elements and storytelling to simulate the real-world environment to discuss the topic in a safe, fictional environment. Targeting clues and communication limits, combined with the innovative scoring system of Dixit can make sure that the simplification of the game world still requires players to find nuance instead of polarising by exaggerating stereotypes and tropes.

# Conclusion

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This chapter started with an exploration of serious game design. Experts and literature explain that serious game design starts with defining a message you want the players to take away after playing. This informs the game flow (or dynamic), which lays out what players should experience and feel during the different phases of the game. The flow should be neither too simple, nor too complex. After this, the game flow is

translated into specific interactions and game mechanics. In similar games, different game mechanics are used to provide a light-hearted reason and opportunity for discussion, such as role-playing, storytelling and targeted clues. A particular example is the card game Dixit, which has an innovative scoring system that rewards players for using nuanced clues.



# Chapter 06

## *Conceptualisation*

- Which requirements should the game design need to fulfil to achieve the design goal?



**The chapter concludes by defining the main message of the game based on the design statement and developing the game flow based on the setup of the workshops described in chapter four. The interaction qualities from chapter five and the new insights gained about game design are used to develop a brief list of requirements.**

## Game Design

To move on from this point, the goal and flow of the game have to be decided upon. The goal of the game is more than just to provide an opportunity to discuss, but, as the expert game designer advised, also to convey a message. This means that in addition to 'providing a reason and opportunity to discuss beliefs about appearance', the game must take a position and decide on the main takeaway for players.

Looking back at the frames chosen in chapter 5: "If we look at this problem as if it is about thinking everyone has the same body ideals as you do, then we need to help people realise people have many different beliefs, goals and motivations," and "If we look at this problem as if it is about ignoring the possible effects of circumstance, then we need people to become more aware of others' circumstances," and taking position more clearly, we can refine the design statement into:

*We want to invite youth to find a healthy balance in their physical & social wellbeing by helping them discover through conversation that their beliefs about appearance depend much on their own perspective and experiences.*

The main message of the game then becomes:

*People are diverse and not everyone has the same beliefs, motivations and goals (relating to body image). You can decide for yourself.*

Message

## Flow

The (successful) structure of the workshops was used as the basis on which to develop the game flow. In the workshop, there were five basic elements:

- Introducing the workshop and each other
- Using a surrogate topic for participants to project on (creating a safe space)
- Defining motivations, assumptions and worldviews around diet and exercise
- Challenging those worldviews with each other
- Discussing what everyone learned

Based on the model for serious games, these elements were developed into:

1. The game creates a safe space through roleplaying and projection.
  - » (Through establishing a character for players to project onto.)
2. Players gain familiarity with and/or formulate (their own) assumptions and attitudes to do with diet, exercise and bodies.
3. Players find out not everyone has the same beliefs and opinions about this.
4. Players discuss and challenge their and other's assumptions and attitudes.

## List of requirements

The newly gained knowledge about serious games and the definition of the main message and flow of the game provides a further opportunity to refine the specifications of the design into a list of requirements. The list of requirements builds upon the interaction qualities defined in chapter five. The qualities of togetherness and light-heartedness are mostly covered by the format of a tabletop serious game

with role-playing elements. The tabletop requirement ensures there is a physical place for players to discuss the topic in a small group. The role-playing requirement should ensure the psychological projection mentioned in the 'light-hearted' interaction quality. The following requirements and wishes further define the interaction qualities of providing an opportunity to talk and listen, accessibility, creating a safe environment and being fun.

## Requirements

---

### 1. Convey message

*reward taking a different perspective or challenging stereotypes.*

This is the main message and goal of the game, based on the design goal and framing discussed in chapter five.

*"The main message of the game is clear."*

*"The game rewards players for taking a different perspective or challenging stereotypes."*

### 2. Safe environment

*facilitate a safe environment for discussion.*

As discussed in chapter five, this is necessary for players to be able to voice their beliefs and opinions.

*"Adolescents will not feel personally attacked or insecure while playing the game."*

*"Adolescents will feel free to talk about the topic of body image during the game."*

### 3. Fun

*be engaging for adolescents.*

As discussed in chapter five, this provides another reason to play the game than merely discussing body image, increasing receptibility and word-of-mouth promotion for the game among adolescents.

*"The game is fun to play."*

*"I would recommend the game to adolescents I know."*

### 4. Opportunity to talk & listen

*include at least one moment of reflection.*

To have an impact on the real world, players have to have a moment to reflect on the learnings from the game.

*"The game enables players to reflect upon their body image and the application of potential new-found insights in the real world."*

### 5. Accessible

*be finished within 30 minutes and be discussed within one lesson.*

For use within a school context, it is best for the game not to take up more time than available during one tutoring class. Average period lengths are around 50 minutes to one hour. Saving time for an introduction and in-class discussion, that leaves around 30 minutes for the game itself. A longer game is possible as long as there is a shorter variant for in-class play.

*"The game is easily applicable in a classroom environment."*

*"It is possible to play the game and discuss players' experiences in one class period."*

## Wishes

- 1. Opportunity to talk & listen**  
*relate clearly to body image.*

Though the evolution of the framing does not require the game to specifically discuss body image, it has been the focus of this project and a clear link to the topic is preferable.

*"The game relates clearly to the topic of body image."*

- 2. Fun**  
*be novel.*

This helps the game to stand out from other solutions and create a buzz around its launch.

*"The game is novel"*

- 3. Accessible**  
*be simple to understand.*

For use in a short time frame, the game mechanics should be easy to understand. This also helps it appeal to a broad target group.

*"The game is easy for adolescents to understand and play."*

- 4. Opportunity to talk & listen**  
*have high replayability.*

For a higher impact, players should be able to play the game repeatedly and take ownership of and expand on the game themselves.

*"Adolescents will play the game more than once."*

- 5. Convey message**  
*place the message at the peak-end.*

For a high impact and clarity of the takeaway message, the message should coincide with an exciting moment of closure within the game.

*"A game element at the end of the game conveys the main message of the game."*

- 6. Fun**  
*be competitive.*

A good way to engage adolescents especially is to include at least some competitive elements.

*"The game is competitive."*



Figure 28 — The list of requirement builds upon the interaction qualities

## Iterations

The definition of the game flow informed the development of the five concepts. These varied from simple ‘discuss this statement’-concepts and matching-games to an elaborate life-simulating boardgame. All five of these were judged according to the defined requirements using a Harris Profile (table 2). Two of the five original concepts, ‘Judge the Judger’ and ‘Know Thy Friends’, were found to be the most attractive. Both had interesting player interactions and were simple enough to be able to detail within the remainder of the project. These concepts were prototyped and tested once physically with three family members of the researcher. During these tests, there was confusion about the higher-level goal of the game, as some game rounds caused heated debate and increased differences between players. This indicated the games did not reward taking different perspectives correctly and were not far enough removed from the real world to create a safe environment.

A decision was made to combine elements from both concepts into a single concept and prototype. By combining the elements of both games, it was possible to move the game further into a fictional game world. The combined concept makes use of the ‘character creation system’ from ‘Judge the Judger’, but instead of judging the validity of this combination of character attributes, players now have to elaborate on the story by assigning the character a ‘belief’ from ‘Know Thy Friends’, which other players have to guess. The details of the final concept and its considerations are laid out in the next chapter. A more detailed explanation of the initial five concepts can be found in appendix H.

A simple prototype of the combined concept was tested physically with three different players (appendix I). This resulted in names being added to the character attributes to make it easier for players to come up with a story and to add more diverse prejudices and include genders in the game. The participants also came up with some extra variants for the game.



Figure 29 — User test with several concepts (left)

Figure 30 — User test (close-up, below)

Figure 31 — Iterative testing (right)

# Conclusion

In conclusion, the requirements for a game design specifically can be formulated from the interaction qualities discussed in chapter five. The interaction qualities of togetherness and light-heartedness were considered fulfilled by the physical tabletop and role-playing aspects of the design direction. Other requirements cover the remaining interaction qualities.

Several concepts were developed and tested, which led to elements from two concepts being combined into a further design. The 'character creation system' from 'Judge the Judger' was combined with the 'belief statements' from 'Know Thy Friends' to create a game that creates a safer environment for discussion further removed from the players' real-world experiences.

List of requirements	1 Judge the Judger					2 Know Thy Friends					3 Mix & match puzzle					4 Character Quartet					5 Dreamcatcher (boardgame)																																																																																																																																																																																																																																																																																																																												
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Table 2 — Harris profile of five initial concepts

# section four

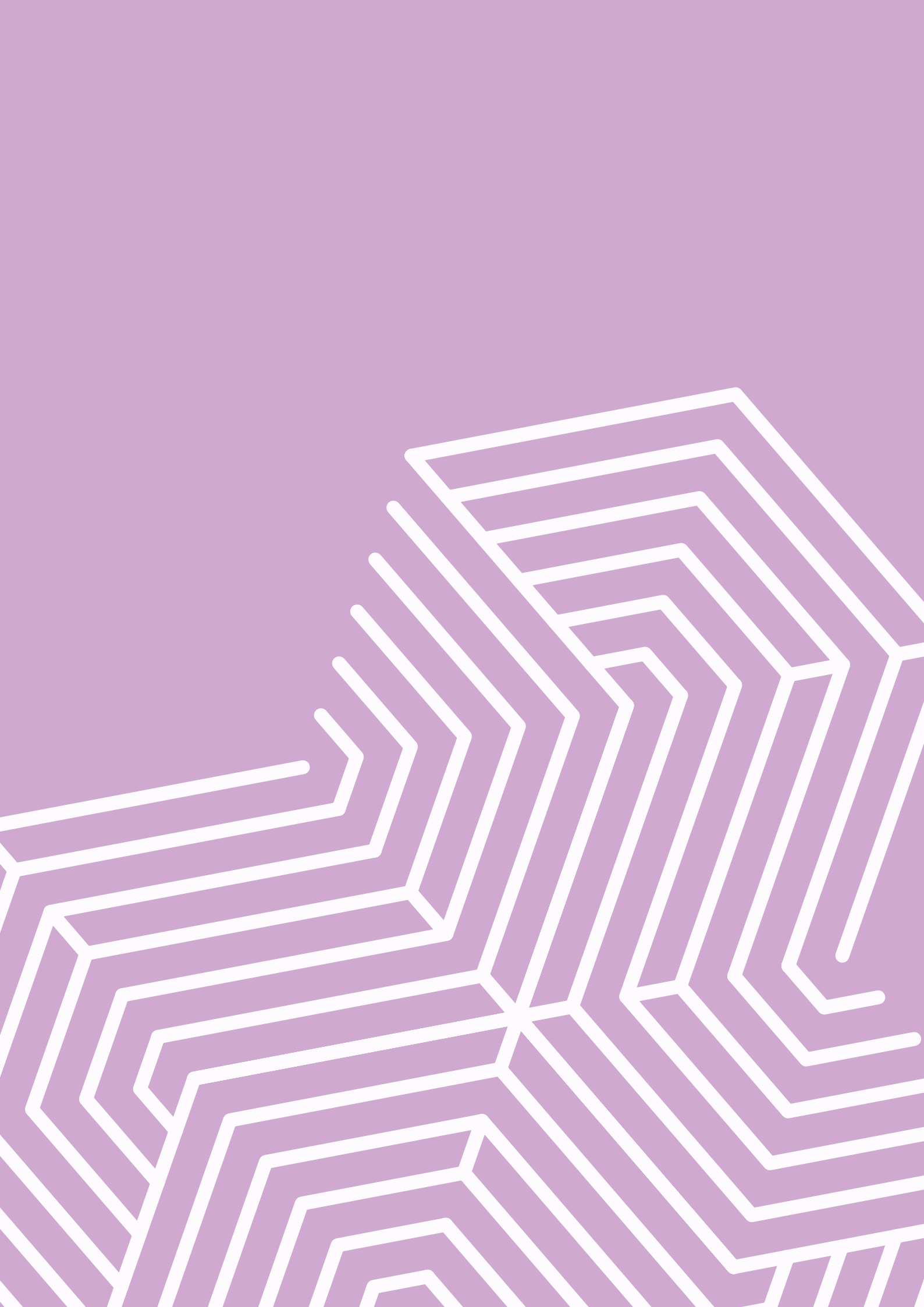
# DELIVER

## **Chapter 08** | *Detailing*

- How does the game intend to meet the design goal?
- How can the game be used in the intended context?
- How is the game distributed and promoted among stakeholders?

## **Chapter 09** | *Validation*

- Does the proposed design meet the criteria to be successful in its intended context?
- What are the strengths and weaknesses of the design in its current form?
- What changes or additions could improve the design?





# Chapter 07

## *Detailing*

- How does the game intend to meet the design goal?
- How can the game be used in the intended context?
- How is the game distributed and promoted among stakeholders?



**Chapter seven presents the culmination of all previous chapters. The concept is developed, tested and improved to become the final proposal. This chapter includes the probable use scenario and implementation of the product within the previously defined context of school.**

## Imago

The title of the game is 'Imago'. This is Dutch for 'image', in the sense of a general impression that a person, organization, or product presents to the public. The game message, flow and requirements developed in chapter six provide the starting point for the final design. The five earlier concepts have been discussed in chapter six and elaboration can be found in appendix H.

*People are diverse and not everyone has the same beliefs, motivations and goals (relating to body image). You can decide for yourself.*

Game message

## Game flow

The game flow of the final concept is further refined based on the basic game flow described in chapter six. It includes several phases:

1. Gaining familiarity with assumptions and attitudes (beliefs) to do with diet, exercise and bodies.
2. Creating a safe space through roleplaying and projection.
  - a. Establishing a fictional character for players to project onto.
3. Developing a life story for the fictional character.
  - a. Empathising with the fictional character.
  - b. Considering which beliefs this character might have based on their attributes.
  - c. Telling a nuanced, believable story about this character and their life.

4. Listening to each other's stories well.
  - a. Considering which beliefs the character might have based on this story of their life.
5. Finding out other players have come to a different conclusion about the character's beliefs.
6. Discussing these different conclusions and learning more about their own assumptions and attitudes.
7. (Formulating their own assumptions and attitudes to do with diet, exercise and bodies.)



Figure 32 — 3rd visual iteration of IMAGO playing cards

## Playing cards

The game combines two important elements developed in the earlier concepts. These are 'character creation cards', and 'belief cards' (figure 32). The belief cards were developed using the results from the research in chapter four. Many of the beliefs are (in)direct quotes from participants when asked about certain topics. Others were edited to make them slightly more distinguishable. A list of the beliefs used can be found in appendix J. You may notice that some are not directly related to body image issues. That is because many of the beliefs underpinning these issues have a deeper origin, as elaborated on in chapter four.

The character creation cards use four attributes to build a character of stereotypes: the player draws a name, a (high-school) type, a life goal and a greatest fear. The full list of cards can be found in



appendix J. Some of these attributes may at first seem contradictory, but with further inspection, they create an interesting persona out of these different stereotypes. Players may recognise names, cliques from school and their own goals and fears. The characters serve as a way to move the game to the 'safe space' mentioned before. Because everything that is discussed in the game concerns only the fictional character and not the real world, it is easier for players to talk about these beliefs and their opinions about them. As discovered during the iterative tests in chapter six, discussing the beliefs on a more personal level can result in disagreement and players feeling personally attacked, which is exactly the opposite of the intended result.

The classic stereotypes or 'high-school cliques' were sourced from several blogs and popular culture 'high-school television series', including a wide range of both more traditional stereotypes, as well as newer and less well-defined types.

Lastly, the life goals and greatest fears included in the game were either based on the research in chapter four or inspired by a similar mechanic in the videogame 'The Sims', which uses a wide variety of goals and fears for its life simulator. These were used to make a multidimensional character out of the stereotypes mentioned above.

The names were added to the concept last, as an addition to both make it easier for players to start their story and to challenge stereotypes about gender also. They were sourced from a site that lists popular names in the Netherlands. They range through the alphabet and were made sure to range through many ages, ethnicities, and socio-economic backgrounds that could perhaps be associated with them.

## Game mechanics

The game mechanics themselves are based heavily on the mechanics of 'Dixit'. This is because, during the testing, the contradiction between making a game (a characterisation of reality) about stereotypes and prejudice became clear. The mechanics of 'Dixit' navigate this well, by punishing players for making too straightforward or stereotypical stories and rewarding players for navigating nuance

and obscurity. A bonus is that the mechanic is competitive, which the expert serious game designer referenced in chapter five recommended as a good way to make a game fun, especially for adolescents. Lastly, it is a mechanic that has already proven that it can result in an interesting and fun game.

## Race

There is a competitive element where the first player to reach 30 points wins the game.

*Increases competitiveness*

## Storytelling

The player who is the storyteller on that turn uses the character creation cards as stimuli for creating a story about the character.

*Increases psychological projection & safe environment*

## Targeted Clues

Within their story, the storyteller gives clues about which belief the character has. They want some, but not all players to guess the right belief. The best outcome for the storyteller is when just one player guesses the right belief.

*Encourages nuance during gameplay*

## Voting

Players vote on the belief they believe the storyteller played.

*Encourages player interaction & empathising with different perspectives*

## Simultaneous Action Selection

All the other players simultaneously decide on which belief to play and these are revealed at the same time.

*Drives home the main message at the end of the game round (peak-end)*

## Reflection

To make sure that players do not just play a fun game, but also take away the intended message, it is important to include a moment of reflection during the game. These moments of reflection happen naturally in between rounds when

discussing the (unexpected) results of the vote. At the end of the game, there is room for a more elaborate reflection on the beliefs. In one test, players were interested in seeing all the different beliefs and character creation cards at the end, which led to some reflection there naturally also.

Finally, the game has high replayability, which means players can come back to the game with the same group, or introduce the game to other people. Part of the reflection is also to add your own beliefs and character attributes to blank cards in the set. This results in the final step described in the game flow, where players can start to formulate and reflect upon their own beliefs and assumptions, also outside of the domain of body image, diet and exercise.

## Implementation in context

From early on in the project, it was decided that the design should have a wide application. In chapter 5, several contexts were explored and the school context was predicted to be the most fitting. However, the criteria included a goal of broad appeal and replayability outside of school too.

School provides a good environment to be introduced to the game. Within the context of a tutoring class or resilience training, the game and its subject can be explained carefully, ensuring a safe environment through the moderation of a teacher. Afterwards, there is room to discuss the learnings and experiences from the game with a larger group, which provides the opportunity for more varied insights to be

gained and conclusions to be made and discussed, increasing the impact.

If the game is fun enough, others may purchase the game to play with family or friends, either by recommendation via someone from school or because of their own interest in the topic of the game.

## Distribution

As for distribution, schools also provide a good way to reach adolescents. The game can be marketed to teachers and schools via umbrella organisations, school councils and healthcare organisations, for example. Endorsements from professionals and organisations in the field are crucial for this approach to be successful. Schools can be provided with educational sets, including enough sets of the game for a class and additional educational materials for teachers. This can be financed by schools themselves, or sponsored by other (non-profit) organisations.

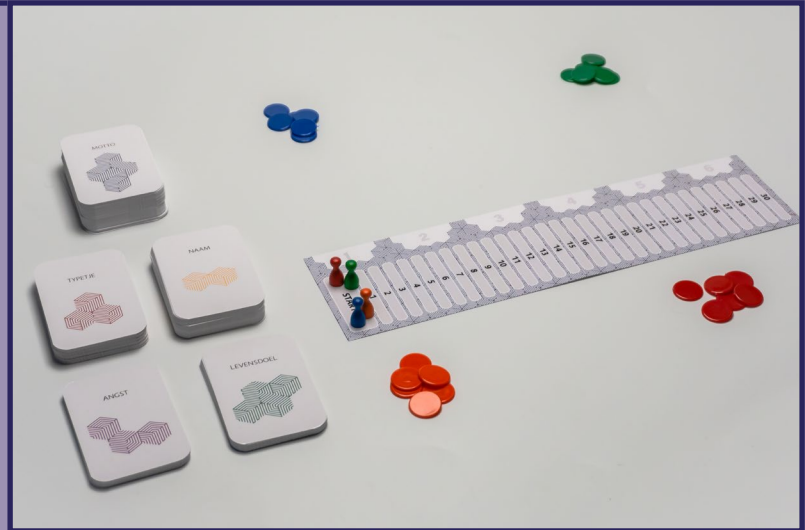
In addition to this institutional approach, the game should also be available for individual consumers. These would be parents or (older) adolescents who have heard of the game via word-of-mouth and are intrigued by the topic or may want to open up a conversation about body image with a person they are specifically concerned about. The game will be available for purchase online and in specialised game stores. Additional interesting sales channels could be bookstores and other (travel) retail stores, as the pricing would fall within the 'casual birthday/Christmas present' category.



# Rulebook: IMAGO

## Contents

- Motto cards
- Voting tokens
- Scoring board
- Scoring pieces
- Attributes
  - » Name cards
  - » Type cards
  - » Life goal cards
  - » Greatest fear cards



## Setup

Shuffle all the decks and place them on the table. Deal 6 beliefs to every player. (3 players: 7 beliefs) Do not show your hand of cards! Deal as many voting tokens as there are players.

## Gameplay

### The storyteller

The player whose turn it is is this round's storyteller. They draw one card from each deck (except for the deck of beliefs!) and lay these visibly on the table. They look at the 6 beliefs in their hand and choose one to play (face down).

Now it is time to tell the life story of your character, using their name, type, life goal, greatest fear and (secret) motto. The storyteller doesn't have to elaborate on all attributes, but may not contradict them. You can start with: "This is [name] and....." Good luck!

### Choosing beliefs

After hearing the story, each other player chooses a motto (3 players: 2 beliefs) from their hand that they think matches the character the closest. They pass their card to the storyteller, without showing it to the other players.

The storyteller shuffles their card with the other cards and places them randomly face up on the table. The cards will be numbered left to right.

### The vote

The goal of the other players is to determine which motto was the one described in the story by the storyteller. Each player (except for the storyteller, of course) secretly votes for the motto they think belongs to the storyteller by placing a voting token with the corresponding number face-down on the table. Once everyone has voted, all the voting tokens are revealed!

### Scoring

- If all or none of the players have voted for the storyteller's motto, the storyteller doesn't score any points and everyone else scores 2 points.
- If this is not the case, the storyteller scores 3 points, as well as everyone who voted on their motto. If only one player votes on the storyteller's motto, both receive 4 points instead of 3.
- Each player (except the storyteller), scores an (additional) point for each player that voted on their motto instead of the storyteller's.

The players keep track of their scores.

### End of turn

After each turn, take some time to discuss the life story of the character and the motto's everyone placed. Why did you get it right or wrong?

Afterwards, each player draws a new motto in order to have 6 cards in their hands again. The role of storyteller moves to the next player.

### Game end

The game ends when any player reaches 30 points. The player with the most points wins the game!

*What did you learn about the other players? Did you agree with all the motto's?*

### Tips

- If the storyteller is too specific, all the players will guess the right motto and the storyteller won't get any points. However, if they are too vague, no one will guess the right motto and they won't get any points either. The trick for the storyteller is not to be too specific and not to be too vague either. This can be difficult at first, but you'll get the hang of it after a few turns!

- Just like above, try to keep the story long enough to disguise your tips (or everyone guesses your motto!), but not so long as to bore the other players (or no one will guess your motto!).
- Make sure to listen to your storyteller well.

### Variants

1. Does storytelling prove too difficult? Then you can shuffle the goals and fears into the same deck, removing a constraint from the characters.
2. Instead of the storyteller creating a story, you can allow each other player to ask the storyteller one question for the character to become clearer.
3. You can also try the game by drawing just from one or two of the attribute cards. How does this impact the game?
4. You can mix the variants or come up with your own!

### Example of turn

The storyteller draws one of each attribute card.



All the other players vote with their tokens face down on the table.



The storyteller has told his story and everyone lays their motto cards on the table. The motto cards are shuffled and placed face-up on the table.



The votes are revealed and the scores are marked on the scoreboard.





# Chapter 08

## *Validation*

- Does the proposed design meet the criteria to be successful in its intended context?
- What are the strengths and weaknesses of the design in its current form?
- What changes or additions could improve the design?



**The purpose of chapter eight is to evaluate the impact, feasibility, desirability and viability of the proposed design as best as possible in the time available. The chapter includes professional assessments from several experts judging whether the design meets the criteria to be successful in its intended context, followed by a discussion of its strengths and weaknesses. The concept is also assessed by several members of the target group based on their experiences while playing the game. The chapter concludes with several recommendations for further improving the design from chapter seven, opportunities to implement the design in other contexts and an outline of other opportunities within the solution space for future designers tackling this or similar challenges.**

The concept was assessed by both experts and users according to the requirements listed in chapter six. The requirements were formulated into interview questions and statements for use in a survey. These could be rated on a 7-point scale. The qualitative results of both evaluations are sorted into three categories: gameplay, or improvements relating to the gameplay itself; game goal, or improvements to the opportunity for players to reflect on their beliefs; and context, or improvements to the context for use of the game for additional impact.

## Expert evaluation

Four experts were interviewed remotely. The interviews started with an explanation of the background of the project and the goal of the concept. The actual game mechanics and scoring of the game were explained in a short [demo video](#) (Gijsman, 2021). The expert interviews were conducted in a semi-structured way while using the survey as a topic list and the researcher clarifying anything that may not have been clear from the earlier explanation. In this way, each expert could base their judgement on their full understanding of the concept and meanwhile explain their considerations, questions and initial reactions to the concept.

## Participants

For the expert evaluation, four experts whose expertise covers three different domains were consulted. These were: serious game design, prevention in mental

healthcare and practical experience in education. There were two experts in serious game design from the faculty staff of Industrial Design Engineering, a policy-maker for prevention and trainer at GGZ Delfland and a teacher at Deltion College MBO. These were interviewed separately but in a similar manner and asked about the same topics.

## Results

According to the questioned experts, points of attention for the concept are mainly ease of understanding, impact on body satisfaction and replayability. Without exception, the experts advised to do further user testing across different ages and school levels, to find out how the game is experienced and whether the game is suitable for all ages and levels. In addition to their judgements on the requirement dimensions, the experts also had general points of feedback. Summaries of the expert evaluations can be found in appendix K.

### Game goal

#### *Impact*

The experts all indicated it is difficult to estimate the impact the concept has on body image. This is something that would depend largely on the amount of reflection the game triggers and the opportunity for deliberate discussion about the topic. Although there are several moments during the game that could trigger discussion and reflection, both the serious game design experts and the GGZ-trainer suggested that it is possible to define these moments more clearly within the game. Actively encouraging conversation or other interactions between players during the game should be a priority. In general, for serious games to work in a short time frame such as during school, the message and topic should be very clear while playing the game. Nudging players or hoping they find out by themselves often does not work.

#### *Game narrative*

According to the serious game designers, it is crucial to exaggerate and elaborate on the game world. You can use a believable game world narrative to drive home the real-world message. This means separating the game-world and real-world objectives while highlighting the connection between the two for players. Practical examples

could be expanding on the narrative and the 'why' of the game world (i.e., 'Players are tasked to match characters with their morro's because due to a failed scientific experiment, everyone has forgotten their identity.')

and relating the scoring system to something that embodies this goal (i.e., 'empathy points').

## Gameplay

### Rules

All experts indicated that the rules of the game are relatively complicated and need to be explained clearly to keep players engaged. Especially for more easily distracted students, an attractive video or short and visual explanation of the game would help a lot, according to their teacher. A serious game expert also noted that it is important to include both the in-game objective and the real-world objective of the game in this explanation to increase the educational effect.

### Gameworld

The experiences within the game should be consistent with the game world narrative and relate to the real-world message. This makes it easier for players to make judgments that they are still unsure about in the real world. Another way to achieve this effect is by exaggerating the game world through humour and caricature, preferably by using stylised graphics and illustrations. This would be a welcome addition to the game for many reasons, including that people are more likely to play a game with a graphically interesting and 'cool' game narrative and experience.

### Wording

Furthermore, all the experts commented on the wording of concepts within the game. In general, it is preferable to use very every day, easy to understand language over more fitting, but less-known words. This is something to test and improve upon with the target group. One game designer suggested using 'typetje' ('stereotype') instead of 'karakter' ('persona'), for example. Something else that is important for avoiding confusion is to make sure all the words used have a singular meaning and are used consistently. For example, 'life motto' is clearer than 'belief'.

## Context

### Replayability in a school context

There were also questions from most of the experts about how a replayable game would work in a classroom context. They pointed out that any game is unlikely to be played more than once within the classroom due to the limited time available within the curriculum, so any replay would have to happen outside of class. Following this, the second question is whether students who first play the game in class would then also want to play the game outside of class. Most experts thought that will not be the case, generally speaking. If students should play the game outside of school, it makes sense to make use of an onboarding strategy more focused on out-of-school play. This does not mean that the school should not be involved, but that their role should be less obvious.

### Target group & competition

An important insight that the GGZ-trainer and teacher provided was that often the students who are most vulnerable to problems with their body satisfaction (perfectionist, anxious, prone to stress & performance anxiety) could be scared off by the competitive element of the game. However, they were also quick to confirm that within an average class, a little competition would probably be well-received. They suggested two versions of the game, so both groups could be served well and a teacher could decide for their class what would be the better fit.

The GGZ-trainer also mentioned that many teenagers younger than 16 increasingly have problems with their body image. It would be interesting to see whether the game is suitable for that target group.

### Classroom materials & teacher guide

Finally, for use in-class, it would be helpful to add a classroom guide for teachers including several class exercises or even suggestions for larger assignments. According to the interviewed teacher, teachers can be apprehensive about discussing difficult topics such as body image. A guide outlining a structure and several possible outcomes for a classroom discussion after playing the game could be a useful addition for many teachers. This could include a discussion on social media, as that topic is not mentioned in the game itself.

### Table 3: Topic Table

The topics relate to the criteria as indicated in table 3. The statements are scored from 1-7, so the midpoint lies at 4.0. The results are indicative and based on a low number

of participants. The qualitative feedback from the tests should be considered when interpreting this data. The expert evaluation includes data from three experts, while the user evaluation consists of four respondents.

Criterion	Interaction quality	Description	Statement Expert Survey	Expert score (avg)	Statement User Survey	User score (avg)
<b>Game Goal</b>						
Req. 1	Convey message	Reward taking a different perspective or challenging stereotypes.	The main message of the game is clear. (n=2)	5	The main message of the game is clear to me.	6
Req. 0						
Wish 1	Opportunity to talk & listen	Relate clearly to body image.	The game will have a positive impact on the body image satisfaction of adolescents. The game relates clearly to the topic of body image.	3.7 6.3	I feel better about myself after playing the game. The game relates clearly to the topic of body image.	6.75 6.25
Req. 4	Opportunity to talk & listen	Include at least one moment of reflection.	The game enables players to reflect upon their body image and the application of potential new-found insights in the real world.	5	There is time to think about your own beliefs during the game.	6
Req. 1	Convey message	Reward taking a different perspective or challenging stereotypes.	The game rewards players for taking a different perspective or challenging stereotypes.	5.3	The game helps you to empathise with others or think about stereotypes.	6.5
Wish 5	Convey message	Place the message at the peak-end	The reveal of votes at the end of a game round conveys the main message of the game.	5.7		x
<b>Safe environment</b>						
Req. 2	Safe environment	Facilitate a safe environment for discussion.	Adolescents will feel personally attacked or insecure while playing the game.	2	I felt attacked or insecure while playing the game.	1
Req. 2	Safe environment	Facilitate a safe environment for discussion.	Adolescents will feel free to talk about the topic of body image during the game.	5	I felt free to talk about everything I wanted during the game.	6
Req. 5	Accessible	Be finished within 30 minutes and be discussed within one lesson.	The game is easily applicable in a classroom environment.	6.3	The game would be fun to play with classmates during class.	6.5
Req. 5	Accessible	Be finished within 30 minutes and be discussed within one lesson.	It is possible to play the game and discuss players' experiences in one class period.	5.7		x
<b>Engagement</b>						
Req. 3	Fun	Be engaging for adolescents.	The game is fun to play.	5.3	The game was fun to play.	6.5
Req. 3	Fun	Be engaging for adolescents.	I would recommend the game to adolescents I know.	5	I would recommend the game to my friends.	6.25
Wish 2	Fun	Be novel	I haven't seen a game like this before.	6	I haven't played a game like this before.	3
Wish 3	Accessible	Be simple to understand.	The game is easy for adolescents to understand and play.	3.3	The game is easy to understand and play.	6
Wish 4	Opportunity to talk & listen	Have high replayability.	Adolescents will play the game more than once.	4.7	I would like to play the game again.	6.75
Wish 6	Fun	Be competitive	The game is competitive.	6	The game is competitive.	5



Figure 33 — Digital prototype developed in VASSAL for online testing due to COVID-19 restrictions

## User evaluation

The evaluation also included a full user test of the game and its digital prototype. Four members of the target group were introduced to the game and shown the same demo video explaining the gameplay. After this, they were asked to play the digital version of the game (figure 33) with each other via Zoom while being observed by the researcher. In this process, the researcher intervened as little as possible and made observations about the gameplay and any difficulties the players encountered. Before being asked about their initial reactions and feedback, the players were asked to fill in a survey with similar statements to those in the expert survey but rephrased for better suitability to the target group.

## Participants

Due to time restrictions and an unfortunate school holiday schedule, it was not possible to conduct user tests with the same user group as described in chapter four before the project deadline. Instead, the user test was held with more easily accessible members of the target group. Four users participated in the test: 75% female, aged 15-17, VWO-level. It should therefore be noted that the participants were on average somewhat younger but with a higher educational background than the initial target group.

## Results

The user test yielded many insights about the game, both strengths and points of improvement (appendix L). Though the average scores in the survey were rather positive, the evaluation with participants afterwards shed light on several specific qualities and shortcomings of the game. Interestingly, players rated the game higher than expected by experts on the scales of a positive impact on their wellbeing (if not body image), ease of understanding and replayability. They judged the novelty of the game lower on average.

### Game goal

#### *Reflection*

A part of the game that needs improving is the encouraging of reflection and discussion during the game. In only one of the 13 rounds did the round end with a discussion about the topic and player choices. At the end of the game, this also failed to naturally materialise. It is important to note here that the participants were not instructed to reflect on the cards with each other upfront.

During the evaluation, participants indicated they were often curious about other players' choices and did feel an inclination to discuss this in some rounds. However, there was also a feeling that the group should get on with the game itself. Asked whether they had put themselves in others'

shoes during the game, a participant mentioned that they hadn't realised this so much while playing, but wholeheartedly agreed that this had been the case. The consensus during the evaluation was that not every round had needed to be discussed (in the interest of time), but some could have and that would have improved the experience. Whether the players had also reflected on their own beliefs about appearance varied per person, but generally this required an additional trigger.

*"The game is about things that are important in real-life also."*

*"It happened quite often that I wanted to know what your thoughts were [about a motto they played]. Some were quite intense, but I was afraid to ask because we went on to the next round."*

## Gameplay

### Duration

The game took longer than expected. Instead of the assumed 30-45 minutes, reaching 30 points took 13 rounds in about 75 minutes. With more discussion and reflection that would become longer. It took around 45 minutes for the first player to reach 15 points and 60 minutes for the belief cards to run out. This shows the second half of the game went considerably quicker than the first half. Though participants indicated that the duration of the game was not a problem, for use in-class the game should be shortened considerably, which means that there are significantly fewer rounds to be played. The 65 belief cards ran out after 10 rounds with the four players. Though the cards can easily be reused within one game, it is preferable to add more belief cards, goals and fears to the game for more replayability.

### Gameplay

Participants needed the first rounds to familiarise themselves with the game and balance their stories to score points. For example, the first two rounds resulted in all players guessing the right belief. After this, that did not happen again, although there were two rounds later on where nobody guessed the right belief. Participants indicated that at the start of the game they were focusing mostly on understanding the game mechanics and less on the content of

the game. This also improved throughout the game. Participants suggested that a little card or rulebook with the scoring put down clearly would help well as a reminder if players forgot the exact rules for the scoring during the game.

Another point of attention for the game is the 'dead point' where the storyteller thinks about what story to tell. This could take some time. Though no participants mentioned this as bothersome, it might be beneficial to look at this point of gameplay further.

*"What's fun is that you can earn a lot of points in one round, so that keeps everyone on edge."*

*"You guys have really good cards, guys! How can I ever choose between these?"*

### Cards

More testing is needed to definitively determine this, but cards with more generally formulated motto's seemed to be used more often than the cards relating specifically to body image. Participants indicated that it was sometimes difficult to match a body image motto with a described character. Of course, this is exactly the point the game tries to make, so to show this more clearly, it may be possible to only include beliefs relating specifically to body image. Another option to improve this fit is to add more body image related attributes to the characters.

*"My cards don't fit with this one, that's a bit difficult." — "I don't have good cards for this one."*

During the evaluation, participants indicated recognising many of the belief, goal and fear cards as their own or those of their friends. However, these were often associated with other parts of identity, future ambitions and even career plans, less so with body image issues. Finally, some specific cards had to be explained to the others by one of the players. These included 'memelord' and 'philantropist'. On the whole, the cards were considered well-fitting and diverse.

*"I'm not quite sure what the definition of that is."*

## Context

### Fun

All participants thought the game would be fun to play with their classmates. Several humorous comments and jokes were made while playing the game, which lightened

the mood. Participants did indicate that a physical setting would improve the playing experience vastly and increase the opportunity for discussion and reflection.

*"After losing the game, laughing: You guys just don't understand me!"*

## Strengths & Weaknesses

The results of the expert- and user evaluations are summarised in a set of strengths and weaknesses of the current game concept.

### Strengths

- Fun to play
- Easily adaptable (rules, competitiveness, duration)
- Relatable beliefs, goals, fears
- Diverse characters
- Players feel safe while playing
- Players feel better about themselves after playing
- Low cost

### Weaknesses

- Few in-game triggers for discussion and reflection
- Too long for use in-class (in the current format)
- 'Wordy' game (opportunity for attractive & exaggerated graphics)
- No meaningful in-game narrative
- The scoring system needs getting used to
- Frequent use of cards less to do with body image
- Some unclear wording
- Tries to work both as an educational tool in-class as well as being a fun game outside of it

## Recommendations/Further development

Based on the results from the expert and user evaluations, there are some quick-wins and some more fundamental improvements still to be made to the game concept. These include:

- Changing the wording of several concepts to simpler phrases
- Adapting the scoring system to create a slightly shorter game
- Including a clear and graphic reminder of the scoring system
- Adding a meaningful in-game narrative

- Adding several more triggers for players to discuss and reflect upon their beliefs within the gameplay
- Adding exaggerated and more elaborate graphics fitting the narrative
- Adding several extra beliefs or "motto's" and rephrasing others to relate more to body image
- Creating a teacher guide and lesson programme for in-class use

Another part of the concept that could be elaborated on also, is the onboarding strategy. Finding a way to popularise the game among adolescents with more of a behind-the-scenes role for schools should be a priority before the actual launch.

# Conclusion

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This chapter aimed to determine whether the proposed design meets the criteria to be successful in its intended context. While the final tests were limited in scope and should be verified more extensively, the proposed design seems to perform well and is a fun game to play. User test participants gave high scores on all dimensions except novelty. Experts, who had not been able to play the game themselves, were more cautious, especially about achieving the design goal itself, the complexity of the game rules and replayability. Attention should be given to further developing the

game world and its narrative and creating in-game experiences for discussion and reflection.

Though maybe not quite ready for a full roll-out, Imago is a promising game concept. With several more tweaks, iterations and a more elaborate visual style, Imago can become a low-cost intervention encouraging adolescents to discuss cultural beliefs about appearance. Further improvement could come in the form of including a teacher guide or lesson programme for teachers with the game.



# Conclusion

- Conclusion
- Reflection
- Acknowledgements
- References



# Conclusion

**This project set out at the so-called ‘fuzzy front-end’ of the problem space around body image and social wellbeing. The aim was to increase knowledge about the interrelation between body image and social wellbeing among adolescents from 14 to 24 years old, to map the stakeholder system of existing organisations in this domain and identify an opportunity to move the problem situation around body image and social wellbeing in a desirable direction through the implementation of a design intervention.**

During the **DISCOVER** phase, existing literature was researched to find out about the interrelation between body dissatisfaction and loneliness. It turns out these problems are related and are becoming larger among adolescents. A significant factor contributing to body dissatisfaction is the internalisation of cultural beliefs about appearance in society. Analysis extended to mapping the stakeholders that play a role in the lives of adolescents and their physical, mental and social wellbeing. Organisations in the ‘outer circle’ are interesting partners for subsidies, expert knowledge and legitimacy, while members of the ‘inner circle’ are indispensable allies for reaching the target group themselves. Several trends relating to the domain were also determined to relate to body image and social wellbeing, among which the increasing popularity of serious games. Based on the results of these analyses, it was determined that an intervention within school is the most promising and that a serious game is one of the most interesting design directions for this context.

After wrapping up the desk research, the **DISCOVER** phase moved to user research. The research aimed to increase knowledge about common cultural beliefs concerning appearance among adolescents. This led to the insight that discussing these beliefs with each other and finding out that most people have different perspectives on the topic is already a large step for most adolescents.

In the **DEFINE** phase, the knowledge gathered in previous chapters was used to decide on a frame for approaching the problem space, which informed the required interaction qualities of the design. Several opportunities to implement a design intervention in the domain of body image were explored in this phase. Throughout the process, the design statement evolved to:

*We want to invite youth to find a healthy balance in their physical & social wellbeing by helping them discover through conversation that beliefs about appearance depend much on their perspective and experiences.*

After defining a design direction, the project moved to the **DEVELOP** phase. Firstly, theory and examples of serious game design were explored, which informed the conceptualisation of the design. After several iterations of developing and testing concepts, a final design game design for ‘Imago’ was developed and prototyped both physically and digitally. Imago uses cards with character attributes and beliefs about appearance discussed by participants within the user research to invite conversation. The full design was detailed and presented in the **DELIVER** phase.

Finally, the design and prototypes were evaluated by experts and users. Although the tests did not provide conclusive results about its performance in achieving the primary goal of the design and further validation is still necessary, the game was generally received well and judged to be fun and have potential. Additional improvements for immersion and educational value were suggested. Though not yet fully ready for wide-scale use, Imago is a promising concept. With several tweaks and a more elaborate game narrative and visual style, Imago could become an effective intervention encouraging adolescents to discuss cultural beliefs about appearance and through this improve their social wellbeing.

# Reflection

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**In my design brief, I had formulated three learning ambitions to work on during my graduation. The first was pushing myself to go outside of my comfort zone and interact broadly with the target group. Secondly, I wanted to become more familiar with design methods and theories concerning complex societal systems and gain insight more insight into human behaviour. The last ambition was to gain experience with convincing stakeholders of your efforts and getting them on-board. In some ways, I achieved these ambitions. However, a project such as this rarely goes exactly as expected.**

I am grateful for my experiences reaching out to members of the target group outside of my environment. In the end I had not been able to finish the co-creation journey with the students from Deltion College as I would maybe have liked to. However, their input at the start of the project was extremely valuable for the project and organising the body image 'webinar'/ contextmapping probes and facilitating the workshops were a rich learning experience for me. Though the rules around COVID-19 asked for some improvisation, the workshops were a success and well-received by students.

Concerning systems design, the project slowly veered away from a systems-oriented solution and more to an interaction-oriented approach. Though the project started out with some rigorous stakeholder mapping, it became clear that a solution should be flexible to have the most chance to be adopted by several stakeholders. The fact that the project

was not aligned with any specific organisation likely contributed to this. Instead of changing the way the system works, the design fits within the existing network of stakeholders. However, this pivot led to the project moving further into interaction design, a field I have less experience with. This led to a steep learning curve, where instead of diverging and deliberating about the effects of possible solutions, I needed to test, and test, and test some more in order to make choices and move forward. This change of gears was challenging, but in the end I believe I pulled it off. Though there are many things still to be improved upon in the concept, a way onto actual production is slowly coming into view.

Finally, I am satisfied with my goal of learning to engage and enthuse stakeholders more effectively. Contradictorily, I think this may have been propelled by not finding a well-matching organisation to 'work for' at the start of the project. Not having a problem owner meant that I had to do all the networking and explaining to stakeholders myself, with few others vouching for me. Luckily, I found several enthusiastic people who also saw the need for design solutions in the domain of body image and social wellbeing.

Overall, the project has been a great learning experience, both in its content and process. Working all by myself during COVID-19 has been an additional challenge that has taught me to care for my own wellbeing, find motivation and keep doing the work during the more trying parts of the project.

# Acknowledgements

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After the many hours spent throughout my design education fighting out disagreements with team members, discussing this or that idea, and what the best way forward is, it is quite a shock to suddenly find you all by yourself for six months. The coronavirus lockdowns of the university throughout most of the project definitely did not help with casually testing my thoughts and ideas with fellow students. I discovered that it really is necessary that people ask you about your progress, so you can try to explain, fail and find out you have been stuck in your head fixating on all the wrong things for the past week. Luckily, I had the help of many fantastic people along the way.

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Hein Gijsman

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