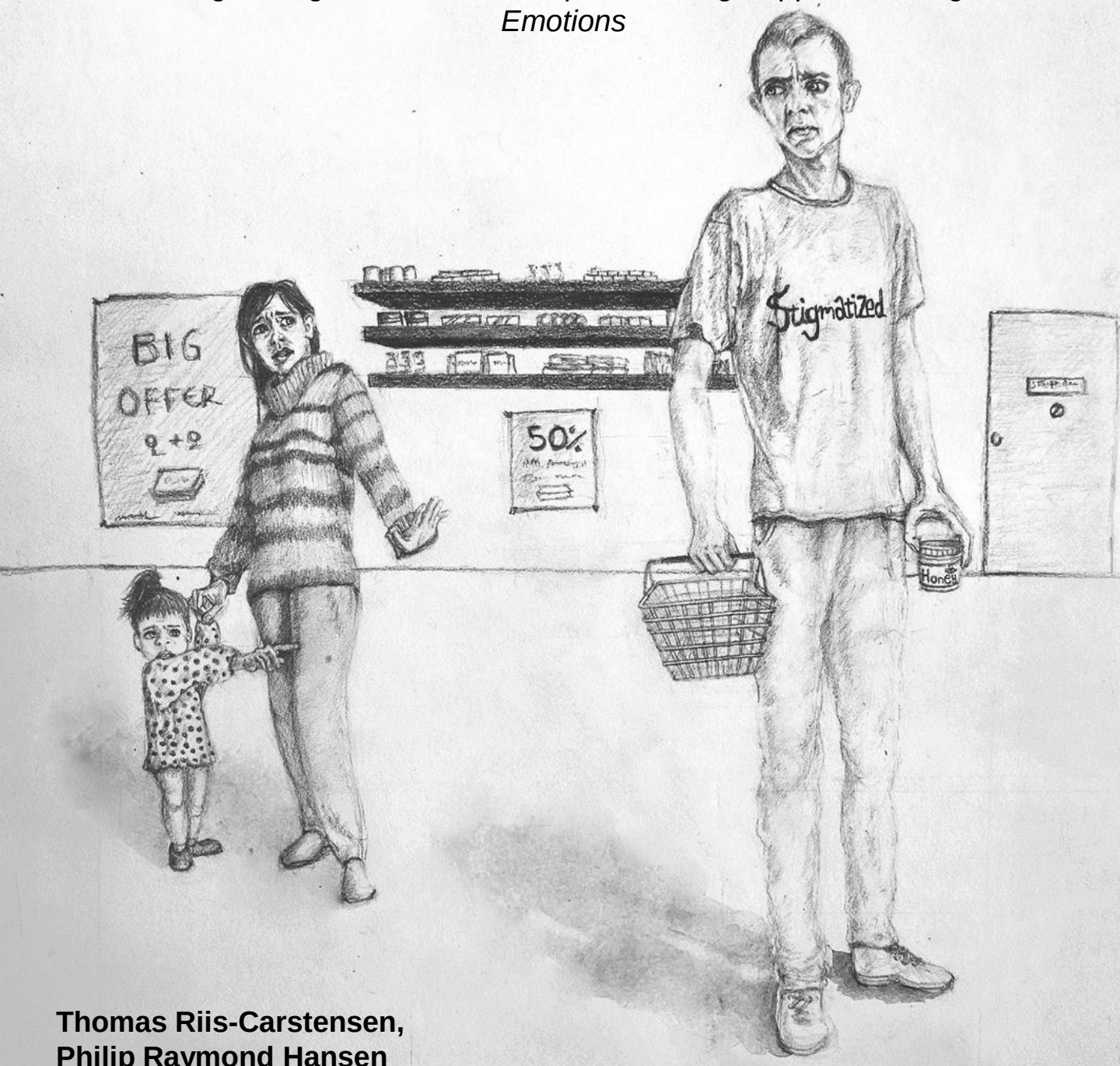
Msc in Brand and Communications Management
Master Thesis

The Impact of Stigmatisation on Consumers' Emotions and Cognition

- Inducing Changes in Brand Perception Through Appeals to Negative Emotions



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ABSTRACT

The environment is suffering from years of relentless and negligent consumption. A new 'tiny threat' has emerged, namely microplastics (small plastic particles invisible to the naked eye). Using microplastics as a case study, this thesis explores whether an untraditional strategy – using stigmatization – can induce changes in emotions and possibly lead to behaviour change. People who engage in morally objectionable behaviour are commonly stigmatised on those grounds, making them subject to dislike and avoidance. Observing stigmatised people has been proven to elicit negative emotions in the observers. Based on this, the authors explore what impacts stigmatisation has on Danish women's emotions and cognitive abilities, and whether the use of stigmatised persons can be utilized to induce a negative attitude towards products containing MP. Based on the assumption that humans pay more attention to negative entities and use emotions to guide their behaviour, the authors set up an experiment to test if it is possible for a stigmatised person to contaminate MP products and transfer his negative associations to the products he is in contact with. In lab experiments, 20 Danish women's emotional reactions towards different stimuli (a pedophile, a kindergarten teacher, and MP products) are measured using facial expression analysis software. In addition, the influence on cognitive abilities is measured through embedded surveys that collect the answers and reaction time of the participants. Surprisingly, the participants exposed to a pedophile did not show significantly higher levels of negative emotions while observing him or when subsequently seeing the 'contaminated' products. However, the participants did express higher levels of negative emotions when hearing the taboo word 'pedophile'. In addition, the participants showed high levels of anger when observing an environmentally-negligent behavior, namely intentional littering.

TABLE OF CONTENTS

Acknowledgement ..... - 3 -

1. Introduction ..... - 4 -
1.1 Problem Definition ..... - 5 -
1.2 Microplastics ..... - 6 -
1.3 Motivation ..... - 7 -
1.4 Reader's Guide ..... - 8 -
1.5 Delimitations ..... - 10 -
1.6 Definitions ..... - 12 -
1.6.1 Stigmatisation and Taboo ..... - 12 -
1.6.2 Emotions ..... - 13 -

2. Methodology ..... - 13 -
2.1 Research Philosophy ..... - 13 -
2.2 Reasoning Approach ..... - 14 -
2.3 Data Collection ..... - 15 -
2.3.1 Experiment ..... - 15 -
2.3.2 Survey ..... - 16 -
2.3.3 Desk Research ..... - 16 -
2.3.4 Case Study ..... - 17 -

3. Theoretical Framework ..... - 18 -
3.1 Theoretical Background ..... - 18 -
3.1.1 Negativity Bias ..... - 20 -
3.1.2 Sum-up ..... - 22 -
3.2 Stigmas and Stigmatisation ..... - 22 -
3.2.1 How We Stigmatise or Sympathise ..... - 23 -
3.2.2 Stigmatisation in Denmark ..... - 24 -
3.2.3 Downsides of Stigmatisation ..... - 25 -
3.2.4 Sum-up ..... - 26 -
3.3 Facial Expression and Emotions ..... - 27 -
3.3.1 Facial Expressions ..... - 27 -
3.3.2 Emotions ..... - 29 -
3.3.3 The Seven Universal Emotions ..... - 29 -
3.3.4 The Expressivity of Genders ..... - 35 -
3.3.5 Sum-up ..... - 36 -
3.4 Consumer Contamination ..... - 37 -
3.4.1 The Mechanisms Behind Consumer Contamination ..... - 39 -
3.4.2 Halo/Devil Effect ..... - 39 -
3.4.3 Sum-up ..... - 40 -

4. Conceptual Framework ..... - 41 -

5. Methods and Results ..... - 44 -
5.1 Survey - Which Stigmatised Groups Elicit Most Disgust ..... - 44 -
5.1.1 The Design ..... - 44 -
5.1.2 Measures ..... - 44 -
5.1.3 Procedure ..... - 45 -
5.1.4 Participants ..... - 45 -
5.1.5 Results ..... - 45 -

5.1.6 Discussion of Results ..... - 46 -
5.2 The Experiment - How Stigmatised Person Influence Emotions and Cognition ..... - 46 -
5.2.1 The Design ..... - 46 -
5.2.2 Measures ..... - 49 -
5.2.3 Procedure ..... - 51 -
5.2.4 Stimuli - The Film ..... - 52 -
5.2.5 Participants ..... - 65 -
5.2.6 Part One: Testing Recall ..... - 66 -
5.2.7 Part Two: Negative Emotions Throughout the Film ..... - 68 -
5.2.8 Part Three: Contamination of Products ..... - 71 -
5.2.9 Testing the Null-Hypotheses ..... - 73 -
5.2.10 Other Findings ..... - 76 -

6. Discussion of Results ..... - 78 -
6.1 Recall Ability Hypothesis ..... - 81 -
6.2 The Impact of Stigmatisation on Participants ..... - 85 -
6.3 Contamination Hypothesis ..... - 88 -

7. General Discussion ..... - 90 -
7.1 Academic Implications ..... - 90 -
7.2 Managerial Implications and Recommendations ..... - 94 -

8. Limitations ..... - 100 -
8.1 Validity and Reliability ..... - 101 -

9. Conclusion ..... - 105 -

10. Future Studies ..... - 107 -

11. References ..... - 110 -

Appendices ..... - 119 -
Appendix A – Detailed Description of Microplastics ..... - 119 -
Appendix B – General Questions from the Survey ..... - 121 -
Appendix C – Examples from Product Survey ..... - 124 -
Appendix D – Beat the Microbead App ..... - 126 -
Appendix E – Microplastics Products ..... - 127 -
Appendix G – Right/Wrong Answers per MP Products ..... - 131 -
Appendix H – T-test for Product Emotions ..... - 132 -
Appendix I – P-Values for All Products and All Emotions ..... - 133 -
Appendix J – T-tests Product Answers ..... - 134 -
Appendix K – T-tests MP-Product Answers ..... - 135 -
Appendix L – T-tests Reaction Time ..... - 136 -
Appendix M – P-value per scene per emotion ..... - 137 -
Appendix N – T-tests General Question Answers ..... - 138 -
Appendix O – Anger During Answers ..... - 139 -
Appendix P – T-tests Reaction Time MP vs. Non-MP Products ..... - 140 -
Appendix Q – Consent Form ..... - 141 -

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1. INTRODUCTION

On a global scale, the environment is suffering as a result of decades of relentless and negligent consumption. More recently, a new *"massive (tiny) threat"* (Connor, 2014) has emerged, namely microplastics (hereinafter referred to as MP). MP are tiny plastic particles invisible to the naked eye. MP are either purposely added to products (for instance cosmetics), derived from the break-down of larger plastic objects, or a by-product of wear and tear (such as textiles). Great amounts of MP are found in nature, and especially in the oceans where marine animals mistake MP for plankton and consume them. In 2025, *"the ocean is expected to contain 1 tonne of plastic for every 3 tonnes of fish"* (Forum, 2016, p. 7), and in 2050, the weight of waste plastic is estimated to exceed the weight of marine life in the oceans. Because MP wind up in the food chain, they are considered *"a serious threat to human health and marine life"* (Forster, 2016). The Ministry of Environment and Food of Denmark has made a comprehensive report regarding MP in the Danish environment (Mst, 2015). The report suggests, *"that the microplastics problem has some characteristics of a "time bomb""* (Mst, 2015, p. 9). The consequences of MP has not yet reached a widespread awareness in Denmark, and solution to defusing the 'time bomb' by changing behaviour is thus required.

Danes are concerned about the environment; in fact, 60 % of all Danes consider climate change to be a serious threat. Danes consider climate change to be the third-most serious threat in the world, just after "international terrorism" and "poverty, hunger and lack of drinking water." (YouGov, 2016). However, simply showing concern is not enough to change behaviour. Quite paradoxically, Danes also show an unwillingness to change their environmentally negligent behaviour (Nielsen, 2015). Much research has studied this 'paradox' of how consumers often behave in ways that are contradictory with their concerns (Praet, 2012; Ariely et al., 2009; Lindstrom, 2009). Consumers are not always as rational as marketers want them to be. In fact, they are often quite irrational. Consumers are emotionally driven and often follow the path of least resistance (Praet, 2012). Simply informing consumers that what they do is 'wrong', is an efficient way to educate people, but often it is not enough to induce long-lasting changes in behavior. Actually, lack of awareness of the potential repercussions of one's actions' ranks pretty far down the list (Lindstrom, 2009; Singal, 2014).

To induce longer lasting changes in behavior, marketers are often better off appealing to the consumers' more 'irrational side'. Compared to the rational side (i.e. the cognitive system), the emotional system is a much more consistent predictor of consistent preferences and behaviour (Ariely, et al., 2009). Tapping into consumers' emotions could, therefore be an efficient way to influence them and persuade them into acting more environmentally friendly.

Time and time again, various stakeholders have attempted to change people's negligent behaviour in areas such as public health, the environment and the economy - some with more luck than others. Endorsements by opinion leaders or celebrities are a method frequently used to promote a wanted behaviour, by informing about the appropriate ways to act. An example of this is the Danish campaign by Elretur 'Du skal ikke fucke med grundvandet' (translation: 'Don't fuck with the groundwater') starring Danish actor Bodil Jørgensen, aimed at raising awareness about the recycling of batteries (Farvel-batteri, 2017). Due to different cognitive biases, such as the halo effect, the use of opinion leaders and celebrities is an efficient way to influence consumers because their messages, advice or behaviours tend to be accepted by those who adore or simply just like the spokesperson (Cooper et al., 2011). Conversely, the use of stigmatisation, frowned upon people and taboo behaviour in behaviour change remains a somewhat underexplored area. What if by turning the approach upside down, and instead of promoting a certain behaviour using decent persons, advertisers made use of frowned upon persons to discourage certain behaviours (i.e. unwanted behaviour)?

In the domains of emotions, learning, information processing, attention and attitude and impression formation, there is substantial evidence that humans and animals weigh negative entities (such as negative events and negative personality traits) more heavily than positive entities; this is commonly referred to as the negativity bias (Rozin et al., 1987, 2001, 2011; Lupfer et al., 2000; Vaish, 2001). On these grounds, we look towards the law of contagion and consumer contamination where a presence of a negativity bias also exists. The law of contagion states that once two entities come in contact with one another, they continue to affect each other, even after the contact is broken. When in contact, entities can either transfer positive or negative contagion depending on the perception of the entities. Rozin et al. (2001) suggest that, in terms of contagion and contamination, a negative dominance is present. Based on the above theories, we set up an experiment to examine if stigmatised persons (i.e. disliked persons) and unpleasant emotions can be used to change Danes' attitudes towards products containing MP, and whether this connection could make the products less desirable in the future. Our research questions is:

What impacts will a stigmatised person in an informative film about MP have on individuals' emotions and cognitive abilities?

1.1 PROBLEM DEFINITION

The aim of this thesis is to instill a more negative attitude in Danish consumers towards the consumption of products containing MP. We will investigate if coupling the use of MP products with a stigmatised person will lead to a change of emotional attitudes towards the products. Based on the

theory of consumer contamination and the assumption that stigmatised or frowned upon persons can elicit negative emotions, we propose that Danish women are likely to see products touched by a pedophile as being contaminated, and thus less desirable. In addition, because people tend to give larger *"weight to negative entities (e.g., events, objects, personal traits)"* (Rozin, 2001, p. 296), we propose that coupling MP products with a stigmatised person will enhance participants' attention, their ability to recall given information, and their ability to distinguish MP products from non-MP products.

In an experiment, we investigate if a stigmatised person can contaminate various MP products and elicit negative feelings, in particular, disgust, by exposing participants to a film with an actor who engages with different MP and non-MP products. In the experimental group, the introductory speech stigmatises him as a pedophile, and in the control group, we simply alter the introductory speech and present him as an all-around good guy. Since pedophilia is an extremely frowned upon characteristic, it will (according to the negativity bias) weigh extremely heavily in the participants' impression of the actor, and should result in a negative evaluation and heightened emotional arousal. While watching the film, we measure the participants' reactions and subsequently test their ability to distinguish MP products from non-MP products, as well as their ability to recall general information from the film.

NB! Please see the enclosed USB-drive for copies of the two film and the raw dataset from the experiment.

1.2 MICROPLASTICS

We have chosen to use MP as a case study in our thesis. The following will briefly explain MP from a global and local view. For a more elaborate description of MP, see Appendix A – Detailed Description of Microplastics. While the focus on non-biodegradable plastic as a major pollutant has existed for years (Derraik, 2002), within the subdivision of plastic, MP has recently attracted much attention. MP is commonly referred to as a *"massive (tiny) threat to the sea life"* (Connor, 2014). Even though MP is invisible to the naked eye, scientists warn that it poses a major threat and that large amounts of MP are turning up in all major oceans and on country shores. In the ocean or on the shores, fish, birds, turtles and other marine life consume the MP, mistaking it for food or plankton, which is one of major food sources for aquatic life (Beatthemicrobead, 2017). The aftermath is that it gets absorbed as a part of aquatic life organisms or winds up in their bellies. In itself, this is bad enough because it jeopardises the lives of marine animals (Derraik, 2002), but to make things even worse, it may end up in the human organism when we eat fish, seafood and so on (Miljø og Fødevarestyrelsen, 2015). Other studies have also found a presence of MP in other food sources,

such as honey or beer, but it remains unknown whether these food sources are contaminated during the manufacturing processes or due to a natural presence in the raw materials (DR, 2015a; Miljø og Fødevarestyrelsen, 2015). The impacts associated with consuming MP are still not well understood, but studies have confirmed how plastic can absorb contaminants, and how the additives from plastics can leak into the marine environment (NOAA Marine Debris Program, 2016; Miljø og Fødevarestyrelsen, 2015).

Due to its extensive and significant impact on the environment, we found the case about MP interesting and relevant to include as part of the study. Because the problem has not reached a widespread awareness, we also mitigated the chances that participants in our experiments had a preconception about the problem, which could bias the results of the study. As mentioned earlier, we focus on consumer behaviour and will, therefore, only look into consumer goods containing MP. The categories we will look into are food and beverages, textiles and cosmetics, which are further described in section 5.2.4.3 – Explanation for Choice of Products.

1.3 MOTIVATION

We both have a large interest in consumer behaviour and decision-making; in particular, how consumers' emotions guide their behavior, whether consciously or unconsciously. We are both reluctant to believe in the things consumers explicitly state because often people do not know why they do the things they do. Many of our courses and electives from our Master's degree have further spiked our interest in this particular aspect of consumer behaviour and decision-making. In our first semester, we had the course Neuroscience of Branding, where we studied how findings in neuroscience and neuromarketing could be applied in the branding of products.

In the third semester, we had other supporting electives such as Neuroeconomics and Irrationality, Behavioural Economics and Behavioural Finance, which provided us with essential knowledge of topics like decision-making and how emotions can influence consumers choices. In Neuroeconomics our lecturer taught us about the various methods and techniques that can be used to analyse how stimuli affect us on a physiological and neurological level. These learned techniques and methods created an interest in the understanding of facial expressions and how they can be used to reveal how consumers feel.

We have both studied Branding and Communication Management at Copenhagen Business School. Besides our interest in neuroscience, we both have an interest in marketing and branding. We therefore wanted to find out if we could find a gap within marketing that we could fill with new findings, which is the ultimate purpose for researchers (Amaratunga et al., 2002).

During a scientific business project we conducted in the second semester, we focused on how the fear of rejection can have a significant influence on consumers' behaviour, and how consumers *"continuously make adjustments to conform to the norms of other individuals and society"* (Lieberman, 2007, p. 271). In the course exam, we came up with a proposal for a project that looked further into how fear of rejection could, for instance, lead consumers to distance themselves from certain products. The proposal wanted to look into how observers scrutinize certain behavior and how different types of purchases seemed to become taboo for some consumers. The use of taboo in marketing is a rather unexplored area, but we believe it can have a significant influence on the consumer's behaviour and decisions. We started researching the area and found secondary literature that led us to theory and other findings on stigmatisation. We concluded that it was worthwhile to look further into taboos and stigmatisation, and that these concepts should be the topic of our thesis.

To study how stigmatisation can be utilized to influence people, we wanted to use a novel and relevant case study about something that Danes did not have any hard-held beliefs or presumptions about. This is how we ended up with MP. We considered this topic highly suitable because a) from a marketing perspective, it is a somewhat new and underexplored phenomenon, b) findings show that MP could have a significantly negative impact on the environment, and c) it is a problem that is likely to have an impact on the generations to come. The opportunity to find a solution or contribute in a positive way to this environmental problem was very motivating for both of us, and it definitely helped us stay determined throughout writing the thesis.

1.4 READER'S GUIDE

To answer our research question and examine how stigmatisation affects individuals - in particular, their emotions towards products containing MP - the following part presents how the thesis has been structured.

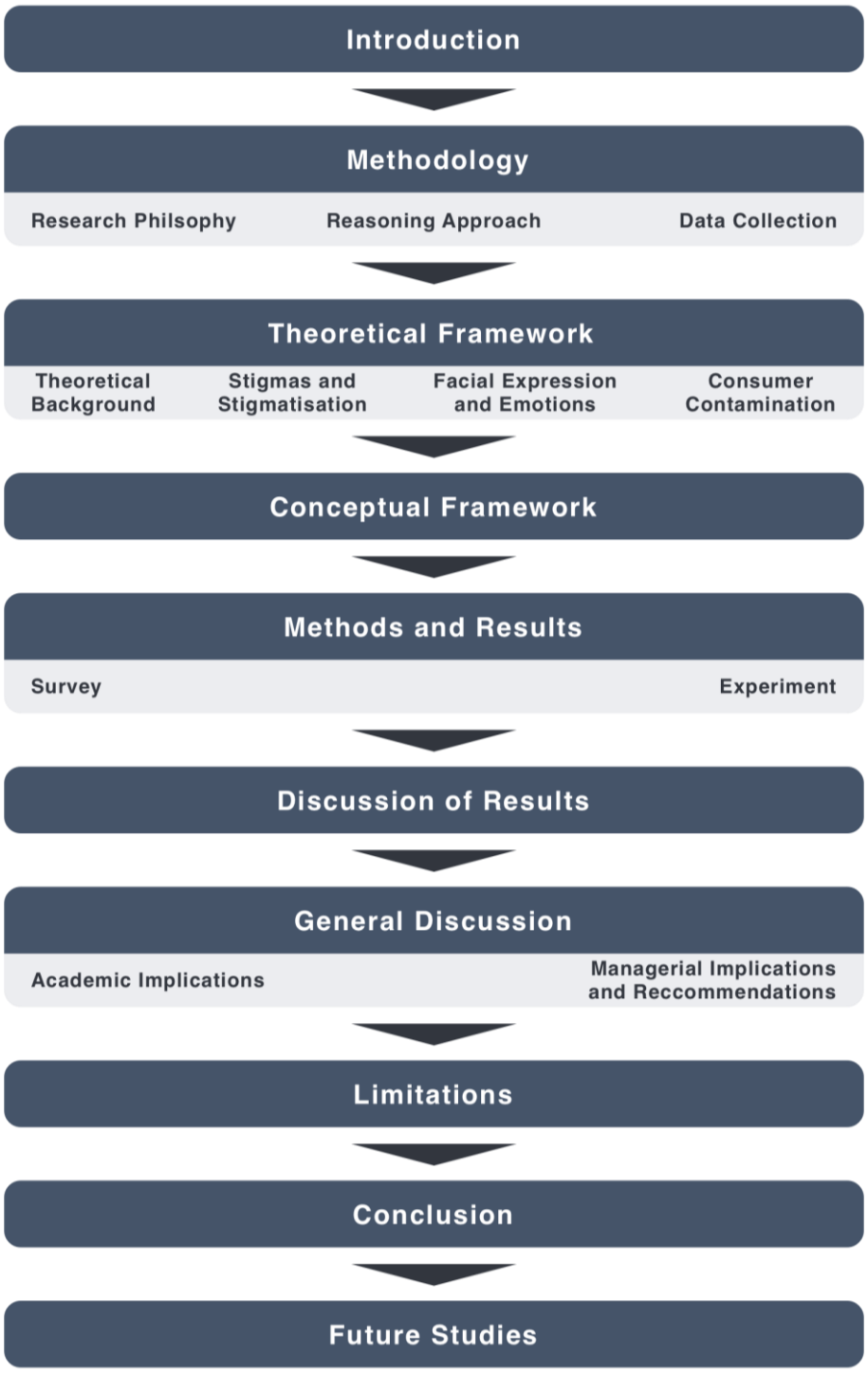


Figure 1. Guide to the thesis

Introduction is the first section; it describes the background that has laid the foundation for the research question. The first section includes various subsections like a problem definition, which describes our aim of the thesis and how our research question will be studied. Moreover, our chosen research philosophy is presented, namely positivism, and how it has influenced our study

throughout the project. Lastly, we describe the delimitations of the study. We also clarify what we mean when we refer to different concepts such as stigmatisation and emotions.

In the *Methodology,* we reflect upon the methods we have chosen to use throughout our study. We explain how we used different methods to collect secondary and primary data. The reader will also find a thorough description of our experiment and the film, which played a significant part in the experiment.

Theoretical framework is structured around four key concepts, namely our own "Theoretical Background", "Stigmas and stigmatisation", Facial expressions" and "Consumer Contamination". In each review of the concepts, several subsections with relevant findings have been added.

In the *Concepual Framework*, our chosen concepts and theories about stigmatization, emotions, facial expressions and consumer contamination are described and shown how they ought to work in conjunction with one another.

Methods and Results is structured around our two methods, namely the survey and the experiment. This part outlines the design and considerations behind each method and presents the data and findings we obtained. The findings are then used to test our hypotheses and further used in the *Discussion of the Results.*

In *General Discussion,* we merge our findings from the earlier discussion with later obtained knowledge within relevant marketing practice and academic fields.

In *Limitations* we critically reflect upon the obtained data and discuss the general limitations of our thesis as well as the validity and reliability of our findings and methods.

The final parts of the thesis, *Conclusions* and *Future Studies* summarises our main findings and comes with recommendations for further research within the scope of this thesis' topic.

1.5 DELIMITATIONS

It was necessary to delimit our master thesis, as the overall study ought to be seen only as a pilot study. The findings from the study cannot be considered conclusive, and should only be seen as providing insights for a more in-depth study. The following subsections will highlight and discuss the main limitations of this thesis.

When policy-making makes something taboo

When something is seen as improper or unacceptable, it can become a taboo, and simply talking about or engaging in said thing can be considered taboo. However, things that are prohibited or excluded from use, for instance, because of government bans, can also be considered taboo. Making the consumption of MP products taboo through bans would probably be the most efficient way to decrease the consumption of MP products in Denmark, but because the focal point of this thesis is on changing consumer behaviour through contamination and appeals to emotions, we will not take policy making as a means to change behaviour into considerations.

Stigmatisation

Although this thesis sets out to examine how stigmatisation can be used to prohibit unwanted behaviour (in our case the use of MP products), we were only able to test how one particular stigmatised group, namely pedophiles, would affect the participant's cognition and emotional responses. Since this stigma is quite provocative and extremely frowned upon, the effects of using another group of stigmatised persons might be lower. Based on a survey (for more details see 5.1 Survey – Which Stigmatized Groups Elicit Most Disgust), we intentionally chose an extreme stigma like pedophilia, because we wanted to use the group most likely to find proof for our hypotheses, namely that stigmatised persons can contaminate products simply through touch or ownership. Because our study did not include other types of stigmas, we are thus unable to determine whether stigmas, in general, produce the desired effect, or only pedophiles are able to do so.

Geographic and demographic limitations

Our study only focuses on Danes, because we wanted to gain a larger understanding about effects of stigmatisation on Danes emotions and cognition. The majority of Danes, like to see themselves as open-minded and unprejudiced people (TV2, 2016). Therefore, we found it interesting to see if Danes, despite this self-perception, could fall victim to the use of stigmatisation in a somewhat manipulative experiment. We also wanted to look at the MP problem from a Danish perspective, which is why it made the most sense to focus on a Danish population. Our study, also exclusively focused on Danish female students because this segment was more accessible and because the lab we used for the experiments was located at Copenhagen Business School.

Choice of single case study

When choosing a case study, one can choose either a single case study or a multiple case study. In a single case study, the researcher includes one single unit compared to several units in the multiple case study. In general, it is preferred to use a multiple case study, as the findings from this research design are deemed stronger compared to a single case study (Yin, 2009). However, due to time constraints and lack of resources, we decided to proceed with a single case study.

Longevity of the interventions

Initially, we wanted to use data from COOPs member database and look at the participants' previous consumption patterns to assess how frequently they purchase MP products. We then wanted to make the proposed experiment, and subsequently look at their consumption patterns after the intervention, to see if there was an actual change in their behaviour. However, COOP were not willing to cooperate with us and did not want to grant us access to their member's data. The findings from this study were, therefore, only obtained from the experiment. The experiment was purely experiential and did not include any followups. As such, it is not possible for this thesis to conclude whether the interventions we made had a long-lasting impact on the participants. We will elaborate on this limitation of the study later in section 10. Future Studies, where we will discuss possible ways to enhance the external validity.

1.6 DEFINITIONS

Stigmatisation, taboos and emotions are vital concepts in this thesis. This chapter will briefly define these concepts to ensure that the reader is on the same page with the concepts as us.

1.6.1 STIGMATISATION AND TABOO

Although the two terms *stigmatisation* and *taboo* are not entirely the same, there is a close relationship between the two. Merriam-Webster (2017) defines "**stigma**" as: *"a mark of shame or discredit"* (Merriam-Webster, 2017) and "**to stigmatise**" as: *"to describe or identify in opprobrious terms"* (Merriam-Webster, 2017) and a "**taboo"** is defined as: something *"banned on grounds of morality or taste",* example*: "the subject is taboo"* (Merriam-Webster, 2017). As such, something (an action, a held belief, etc.) can be considered taboo, and people engaging in said action(s) or holding onto said belief(s) are prone to be stigmatised on those grounds. These definitions and

interpretations of the terms are the ones we will use throughout the thesis. Please notice that we will mainly be looking at stigmatisation, but it is important to understand the similarities of the two terms.

1.6.2 EMOTIONS

Due to its far-reaching impact on for instance thinking, information processing, behaviour and decision-making, emotions have been a hot topic for the past three decades (Izard, 2010). Yet the definition of what "emotion" really means remains unclear, why theorists and researchers often use the term differently. In her review article "The Many Meanings/Aspects of Emotion: Definitions, Functions, Activation, and Regulation", Carroll Izard (2010) attempts to establish some consensus on the definition of emotion, which have more than 90 different definitions, but concludes *"that it cannot be defined as a unitary concept"* (Izard, 2010, p. 363). Because of the many different definitions, it is important to establish what definition of emotion we use in this thesis. In this thesis, emotion is defined as an organised set of responses, which are either negative, positive or neutral, and have the capability to motivate cognition, actions and behaviour, and are expressed by different signaling systems. Emotion can, therefore, be measured in various ways, including through subjective self-reports looking at physiological responses such as facial expressions, skin conductance reactions, pupil dilation, etc., or through direct measures of brain activity (Fox, 2008).

2. METHODOLOGY

"Methodology is the philosophy of methods" (Jupp, 2006 p. 175). This part will present how we structured our and how the underlying philosophy of science has affected our study. First, a description of the chosen philosophy – accounting for our epistemological and ontological view - is presented. Additionally, we present our reasoning approach while making it clear how we, as researchers, approached the literature. Afterward, account for our methods for collecting data. Finally, we explain the aspects regarding validity and reliability in relation to the chosen methods and our considerations behind using them.

2.1 RESEARCH PHILOSOPHY

It is vital to determine the philosophy of science for the research in the initial phase, as the chosen philosophy will affect how the researcher view the world (Fuglsang et al., 2007), and how the res-

earcher's proceed with the research. No research philosophy is superior, but some philosophies are simply more suitable for doing distinctive things. Using an inappropriate philosophy could result in a sub-optimal research strategy. Additionally, it can also result in wrongly used methods for the collection and analysis of one's data (Mark et al., 2009).

The researcher can choose between several philosophies. The chosen philosophy in this thesis is *Positivism.* A researcher following positivism will try to conduct the research in a value-free manner (Mark et al., 2009). Positivists rely exclusively on observable aspects. That science *"should avoid metaphysical concepts"* (Hunt, 1991, p. 33). This is seen in the positivists' ontology, where humans should be seen as independent and objective social actors and thereby avoid concerns regarding abstract thoughts (Mark et al., 2009).

Positivists often adopt the philosophical attitude of a natural scientist and try to produce law-like generalities based on observed phenomena (Hunt, 1991). They do not want *"to describe how things are, but are keen to say why things are the way they are"* (Bryman, 2012, p. 175). This means a positivist's view on acceptable knowledge, and thereby the epistemology builts on observable phenomena, which contributes with facts and data (Mark et al., 2009). Concepts within this philosophy are operationalised, and as such, it is possible to measure them quantitatively and thereby reduce the social world into smaller elements that can be used to create fundamental laws (Cooper et al., 2011).

2.2 REASONING APPROACH

As positivists, we will have a deductive approach. *"Science should restrict itself to knowledge with certainty* [and] *inductive reasoning is therefore impermissible"* (Hunt, 1991, p. 33). We will use a *"deductive logic of the natural sciences"* (Horna, 1994, p. 121) when testing the relationship between different concepts and variables. With a deductive approach, the researcher starts out by collecting and reviewing theory in order to derive hypotheses. The hypotheses are then tested through empirical methods. Positivists thereby *"test hypothetical-deductive generalisations"* (Amaratunga et al., 2002, p. 18) and develop their own hypotheses. This is a common way to develop hypotheses, as positivists *"use existing theory to develop hypotheses"* (Mark et al., 2009, p. 113). We collected relevant theory and based on a literature review, developed three hypotheses, which were tested "*in order to further develop the existing theories"* (Mark et al., 2009, p. 113). It is important to highlight that our hypotheses should be seen as statements about what we expect

will occur (based on our findings from other litterature). It is therefore uncertain if it will actually occur. In addition, hypotheses should not be considered as a theory, but instead *"a derivative of theory"* (Stewart et al., 2006, p. 479). Our three hypotheses fall within the field Consumer Behaviour in the marketing field, and we try to extend Consumer Behaviour theories by adding *"unique perspectives to those theories borrowed from other disciplines"* (Stewart et al., 2006, p. 477). The other disciplines are Neuroscience, Cognitive Psychology and Communication.

2.3 DATA COLLECTION

For many years, marketers and brand managers have relied heavily on surveys and self-reporting techniques when measuring people's feelings, perceptions, attitudes, intentions, motivation, and so on. While these methods are useful and easy to use, they are often criticised for not reflecting the true reality of how people feel. Much of our behaviour is guided by our unconscious mind, which is often difficult to put into words (Praet, 2012). As a result, we have chosen to not to use data collection methods like interviews and focus groups due to the lack of reliability in this data where one cannot be sure that the participant is actually telling the truth. In addition, it is common that positivists will prefer to use quantitative research methods for *"the development of testable hypotheses and theory, which are generalisable across settings"* (Amaratunga et al., 2002, p. 22). The following subsections will describe our considerations behind the use of our two methods. Subsequently, we will present this thesis' secondary data.

2.3.1 EXPERIMENT

Experiments are frequently adopted in various consumer and psychology studies to isolate effects (Bryman, 2012). They often try to "*determine the cause of something* [and] *are carried out in a relatively controlled environment that enables the researcher to manipulate one of the variables"* (Jupp, 2006, p. 167). We will conduct our experiment in a laboratory to ensure that both the control Group And the experimental group will be undertaking the same experiment in the same environment and with the same external factors (Jupp, 2006).

In studies performed in uncontrolled environments, it can be difficult to isolate effects (Bryman, 2012), as *"it is often difficult to obtain direct evidence of temporal sequence"* (Jupp, 2006, p. 312). In our experiment, we isolated the effect of stigmatised individuals' ability to contaminate MP products by having an almost identical setup in both the control Group And experimental group, only

altering the speech that introduced the person in the film. This is a common setup in order to test a stimulus or treatment in psychological experiments (Jupp 2006). The aim of the experiment is to determine natural laws and to *"determine whether the experimental group changes significantly, over time, on the outcome variable in comparison with the control group that is not exposed to the experimental treatment"* (Jupp, 2006, p. 106). If there are significant differences between the experimental Group And the control group, then it can be because of the intervention (Jupp, 2006), which, in our case, will be the different stimulus given to the experimental group.

2.3.2 SURVEY

In our experiment, we wanted to expose the participants to an extremely revolting person. Before the experiment, we therefore set out to study which stigmatised groups were perceived to be the most disgusting. Despite the criticism of surveys, they can still be considered a useful tool to quickly obtain a general assessment of different phenomena, as they are *"at a reasonable cost and effort, as well as providing statistical "proof""* (Amaratunga et al., 2002, p. 23). Online surveys allow the researcher to easily collect quantitative data and help the researcher to gain an overview in regards to specific subjects (Saunders et al. 2012). Moreover, online surveys are an efficient method to quickly research the attitudes, beliefs, etc. towards specific aspects (Bryman, 2012), and *"survey research* [is] *preferable for studies that require generalizability"* (Jupp, 2006, p. 122). We found this method suitable in gaining a generalised understanding about Danes' perception of stigmatised groups, which was a necessary insight because we had to take this into consideration in our experiment, instead of simply relying on hunches.

2.3.3 DESK RESEARCH

Secondary data has had a vital importance in our study, as it helped get familiar with the research field (Jupp, 2006) and provided us with the foundation for our three hypotheses. Through desk research, we conducted a comprehensive search for relevant journals and books. We tried to limit ourselves to studies by researchers with the same philosophy as ourselves, as it is important to *"bear in mind the theoretical approach taken by the original researcher and critically evaluate the original data, and the method in which they were collected, in terms of the perspective of the current research"* (Jupp, 2006, p. 248).

Academic journals within the fields of Consumer Psychology, Neuroscience and others have been of major importance in our thesis. All the literature referenced in the thesis was chosen based on its relevance and applicability in terms of understanding how phenomena such as negativity bias, stigmatisation, emotions and consumer contamination can influence us on a daily basis. Besides extending our knowledge, the journals also supported us with extensive bibliographies, enabling us to find even more relevant literature within the research field. By gathering data through desk research, we achieved a more comprehensive understanding of our chosen research field (Juul 2002), and the findings enabled us to find supporting theories and suitable methods, which we elaborate more on in section 4. Conceptual Framework.

2.3.4 CASE STUDY

Case studies are preferred when the researcher is examining a contemporary phenomenon (Yin 2009) and are widely used within social sciences to give the researcher a common knowledge (Fuglsang et al., 2007). We have chosen to use a single case study because we wanted to go in-depth with the chosen case study (Yin, 2009), even though we are aware that positivists normally prefer the use of multiple case studies. By using a single case study, we would gain contextual knowledge that would evolve our research in the chosen field (Halkier et al., 2010, p. 466). We used documents and observations to gain a deeper understanding of the MP case

When we chose our single case study, we set aside time to find a suitable case study, as a case study selected on unsure assumptions can result in an unsure study design (Yin, 2009). We used Yin's five rationales in making sure that the case study was suitable to work with, and also to test our hypothesis and theories. If we look at our chosen single case study, four of the five rationales were evaluated as pertinent. Yin's first rationale states that a case study *"represents the critical case in testing a well-formulated theory"* (Yin, 2009, p. 47), and this is supported in our case study due to the fact that it will be possible for us to extend, confirm or even challenge theories and thereby contribute to theory and knowledge building. We evaluated the case as a unique case and it thereby complies with the second rationale (Yin, 2009). No other researcher (to our knowledge) has examined how stigmas and taboos can be used in regards to consumer's perception of MP. Other researchers have examined how stigmas and taboos can be used in regards to case studies like smoking (Stuber et al., 2009) and obesity (Schvey et al., 2011), but it seems like no one else has tried to link stigmatisation and taboos with MP.

The case study complies with the third rationale, as MP are rather common in most consumers' everyday lives; it is present in a wide number of everyday products (Beatthemicrobead, 2017). The case study also fulfills the fourth rationale because it is possible for us to gain insights into the subjects' unconscious perception of MP. This would not be possible for us to examine if Copenhagen Business School had not provided us access to the technology and software, which is described in subdivision 5.2.3 Procedure. The fifth rationale regarding *"a single-case study is the longitudinal case"* (Yin, 2009, p. 49) does comply with our single case study, as we investigate the MP case at various moments in time. This can be seen in the practice of combining earlier findings about MP with newer findings.

3. THEORETICAL FRAMEWORK

This chapter of the thesis will describe the theoretical areas, which will help answer the research question. The thesis includes theories stemming from the following fields: Cognitive Psychology, Consumer Behaviour, Neuroscience and Communication. We have divided this chapter into four subparts. We will start out by describing the theoretical background for this study. After establishing the theoretical background, we will go into depth with theories that can help us understand how stigmatised persons are likely to influence our perceptions and feelings, and lead to behaviour and attitude change. The literary works will be seen in relation to the case of MP. After each subpart, we will sum up the presented literature and derive hypotheses based on each subpart

3.1 THEORETICAL BACKGROUND

"Human behavior is the product of an endless stream of perceptions, feelings, and thoughts, at both the conscious and the unconscious levels"

(Mladinov, 2012, p. 40)

Traditionally, fields like Economics and Consumer Behaviour have posited that people are rational agents who only seek to maximise material utility (Fehr et al., 1999; Martin et al., 2011). Unbounded rationality, unbounded willpower, and unbounded selfishness were all characteristics of the rational agent in the standard economic model of human behaviour (Thaler et al., 2008). However, the days of the rational agent seems to have passed in favour of a more realistic interpretation of human behaviour and decision-making. New subfields within Economics, Marketing and Consumer Behaviour have emerged, and in contrast to traditional economic theory, these fields adopt a more

realistic approach by studying the effects of psychological, physiological and emotional factors (among others) on decision-making and behaviour. By identifying anomalies that demonstrate clear violations of the assumptions in the standard economic model, researchers within fields like Behavioural Economics have created alternative theories that account for these anomalies (Loewenstein et. al, 2003; Loewenstein et al., 2005). To find out what actually occurs when we act in discord with the predictions of standard economic theory, neuroscientists have opened up what was previously considered a 'black box', namely the brain, also referred to as *"the organ of decision making"* (Kenning et al., 2012, p. 426), and provided valuable insights into why consumers act the way they do.

In this thesis, we are interested in the tools that marketers can implement to persuade consumers to act in more environmentally sustainable ways. Historically, psychologists have disagreed about the processes behind moral judgment. Freudians see moral judgment as a product of emotional and non-rational processes, while others (such as Piaget and Kohlberg) see it as a product of reasoning and cognition (Green et al., 2002). However, recent findings from cognitive neuroscience are converging on an answer: *"emotions and reasoning both matter, but automatic emotional processes tend to dominate."* (Green et al., 2002, p. 517). In a sense, when one contemplates about acting in sustainable ways or not, it is a matter of individual moral judgment. Besides playing a role in moral judgment, research has also proven that emotions have a large impact on cognition, actions and behaviour and how they can be revealed by facial expressions (Izard, 2010). Facial expressions (i.e. facial activity) have also been proven to influence people's affective responses; this is referred to as facial feedback, which will be described in more detail in part 3.2.1. Facial Expressions. Together, these findings underpin the relevance of looking into emotions and facial expressions when studying how consumers can be persuaded to act more sustainably. Therefore, much of this thesis is devoted to examining how different emotions can be provoked, how they affect us, and how our facial expressions reveal emotions. Since we want to persuade consumers to decrease or stop the consumption of specific products, namely products containing MP, it makes sense to see if we can influence consumers' affective responses towards these particular products in a negative way. To do so, we look towards the aforementioned concepts of stigmatisation and consumer contamination. However, before doing so, we will first describe the negativity bias, a heuristic explaining how negative emotions, persons, events, etc. are more likely to influence us compared to positive ones.

3.1.1 NEGATIVITY BIAS

The negativity bias was the concept that initially turned our attention towards stigmatisation. The negativity bias is a heuristic or bias that supports the premise that stigmatised (i.e. disliked) people are likely to have more influence than well-liked persons are. We will look at the negativity bias in terms of its impacts on different aspects including, emotions, learning and attitude and impression formation. After accounting for the negativity bias, we will look to stigmatisation, a major topic of this thesis. We will explain some of the processes behind stigmatisation and how the phenomenon influences us.

The negativity bias states that humans (as well as animals) give a greater *"weight to negative entities (e.g., events, objects, personal traits)"* (Rozin et al., 2001, p. 296) compared to positive entities. There are various demonstrations of how the negative bias particularly influences *learning*, *attitude* and *impression formation*. From an evolutionary perspective, it makes sense:

> *"In the extreme, negative events are more threatening than are positive events beneficial. The clear example here is death, a final, irreversible event. Avoiding risks of death must be a matter of the highest priority in the evolutionary scheme"*
> (Rozin et al., 2001, p. 296)

Learning and memory recall

In the domain of learning, human and animal studies also suggest that a negativity bias exists. An important facet of learning is the affect system; the components of the nervous system responsible for appetitive, i.e. positive, and aversive, i.e. negative information processing. The affect system *"directs attention, guides decision-making, simulates learning, and triggers behaviour"* (Cacioppo, 1999, p. 133). Cacioppo et al. (1999) argue that the affect system reacts more strongly to negative information. Other studies show that *"negative reinforcement, as opposed to comparable positive reinforcement, leads to faster learning that is more resistant to extinction in both human adults and in animals"* (Vaish et. al, 2008, 2). From an evolutionary perspective, it makes sense that we attend more to the negative facets of life, rather than to positive. As the quote above mentions, not paying attention to negative information (such as threats or endangering events) could ultimately lead to fatalities or injuries, whereas positive information does not carry life or death consequences; this is often referred to as negative potency (Rozin, 2001).

Some studies also show clear evidence for a negative bias in recall of early memories, (Blonskii, 1994; Kreitler et al., 1968), while others argue that, in general, we possess a positivity bias when it comes to memory recall (Matlin et al., 1978). These studies primarily examined memory recall for past events (perhaps from one's childhood) and not for product information, like the information this study intends to measure. We agree with Rozin et al.'s view in their review article about the negativity bias, namely that *"the major reason for positivity bias* [in memory recall] *is not that negative events are inherently less memorable, but rather that they are neutralized over time."* (Rozin, 2001, p. 305). This would only make sense for one's mental well-being, and it is consistent with the synthetic happiness theory as proposed by Daniel Gilbert (Gilbert, 2006). Since this study's time scope is rather short, it is not possible for us to measure the long-term impact of our interventions. We will instead focus on the aspect of learning and recall in the short term.

Impression making

In terms of impression making, a negativity bias also exists. The reason resides in the idea that highly diagnostic characteristics are more heavily weighted when we form impressions of others, and that extreme and negative behaviours are generally more diagnostic than extremely positive behaviours. An explanation for this can be found in the following example:

> *"Observing immoral behaviour is highly informative because it is assumed that only immoral people behave this way—especially because immoral behaviour is usually not sanctioned—whereas moral behaviour is less informative because both immoral and moral people may behave morally given the situational demands favouring moral behaviour"*
>
> (Lupfer et al., 2000, p. 1354)

An immoral person could, for instance, be a person who refuses to help an old lady cross the street, whereas a good (i.e. moral) person could be someone who helped. According to the negativity bias, the immoral person is more intensely seen as a crook, while "the helper" is seen as a moral person. In essence, what happens could be described as a disproportionate relationship between bad and good deeds (or in our case negative and positive personality traits). Denying help grants -3 points, whereas helping would only grant +1 point on a fictive morality scale.

When we form impressions of others, the same disproportionate relationship is evident. People exhibiting negative personality traits, compared to people exhibiting positive personality traits, are likely to leave a longer lasting impression on us, which is more memorable in nature.

3.1.2 SUM-UP

The negativity bias states that our psychological state to a larger extent is influenced by things of a negative nature (i.e. events, personality traits and objects). The presence of a negativity bias exists in various domains including emotions, learning and attitude and impression formation. Some theorists argue that the negativity bias is deeply rooted in us because, from an evolutionary perspective, it made the most sense for us to pay attention to negative events (those of a harmful or lethal nature). Ignoring such events could ultimately be fatal. Based on this, we propose that exposing participants to a stigmatised person (with negative traits) is likely to leave a stronger negative impression on participants, relative to the impression left by the non-stigmatised person. We also propose that the negative traits are more likely to catch participants' attention compared to positive ones, enhancing recall for the particular characteristics. Once again, due to time constraints, we are not able to measure the long-term impact, only the short-term impact on recall ability.

3.2 STIGMAS AND STIGMATISATION

As mentioned earlier, stigmatisation (or stigmas) is a major topic in this thesis. The word "stigma" is Greek and originates from the Ancient Greeks. The term is used to describe the signs or marks that were burned into the body of individuals, such as slaves, criminals, and morally depraved persons, to show their belonging to said groups (Goffman, 1963). It was usually persons who ought to be avoided by the general public who got stigmatised. The stigma thus worked as a visual aid to help distinguish the "bad" from the good. Erving Goffman did much of the seminal work on stigmas and stigmatisation. He defines stigmatisation as a *"process of global devaluation of an individual who possesses a deviant attribute"* (Kurzban et al., 2001, p. 187).

Today, while less apparent, many individuals and groups are still stigmatised due their behaviour, beliefs, attitudes, sexuality, mental illnesses, ethnicity, etc. (Kurzban et al., 2001). The prevalence of stigmatisation can, in large part, be attributed to people's innate desire to belong and to have non-aversive interactions with other people (Baumeister et al., 1995). In a sense, stigmas can be seen as "signs" that have helped us to *"avoid poor social exchange partners."* (Kurzban et al., 2001, p.

187). In addition, the term "stigma" has also been extended to refer to other entities than "marked persons", it is also used to refer attributes associated with products, places or technology (Kasperson et al. 2001). While the increased focus on MP can lead to a stigmatisation of MP products, we do not look at the extended version of the term. We mainly seek to uncover how disliked (i.e. stigmatised) persons influence our participants' perception of MP.

3.2.1 HOW WE STIGMATISE OR SYMPATHISE

When we encounter a stranger, his appearance is *"likely to enable us to anticipate his category and attributes, his 'social identity'"* (Goffman, 1963, p. 2). This typically happens automatically and unconsciously, making us unaware of the underlying processes. Normally, when we do not know anything about a stranger, evidence that he is different from oneself can arise. When these differences are less desirable attributes, we tend to reduce him in our minds *"from a whole and usual person to a tainted, discounted one"* (Goffman, 1963, p. 12). To be more precise, we stigmatise the person.

> *"A defining and immediate reaction to stigma seems to be avoidance. Measuring interpersonal or social distance is a common method used to examine stigma and it refers to people's willingness to avoid versus interact with individuals"*
> (Vaes et al., 2016, p 3).

As Vaes et al. notes, social distance plays a role in how we react to stigmas. When the social distance is low, we can even show support for stigmatised persons or groups. A stigmatised person will typically experience support from two types of individuals, *"those who share his stigma* (...) *and the 'wise', namely, persons who are normal but* (...) *intimately privy to the secret life of the stigmatised individual and sympathetic with it"* (Goffman, 1963, p. 26). For instance, the stigmatisation of homosexuality has undergone a change during the past decades. Homosexuals have gained more acceptance and support from non-homosexuals, and as a result are not as severely stigmatised as they used to. In our thesis, we want to expose the participants to a stigma that causes a large degree of avoidance. To avoid or limit support from the participants in the upcoming experiment, we will, therefore, choose a stigmatised group that is extremely disliked and has few supporters.

3.2.2 STIGMATISATION IN DENMARK

Stigmatised groups can emerge on different grounds. Goffman (1963) has defined three types of stigmas that can provide a breeding ground for stigmatisation, namely:

1. Abominations of the body (such as physical deformities or illnesses)
2. Blemishes of individuals' character (as a result of ill-behaviour, unnatural passions, sexuality, treacherous and rigid beliefs, mental disorders, imprisonment, etc.)
3. Tribal stigmas of race, nation, and religion

We will limit ourselves to the first and second types of stigmas because we do not want to enter the political debate about races, nationalities or religion. Instead, this thesis will deal with the first and second type, namely abominations of the body and blemishes of individuals' character.

The first type of stigma refers to the stigmatisation of groups who are stigmatised due to visible or invisible traits. Visible traits include physical deformities and disabilities that are inborn or caused by injuries. A report from 2008 conducted by Sundhedsstyrelsen concludes that Danes often stigmatise people with a visible disability, by treating them as small children that cannot take care of themselves (Sundhedsstyrelsen, 2008, p. 32). Invisible traits can be illnesses such as HIV/AIDS, a group that is often the target of stigmatisation (Leary et al., 1998), which is also the case in Denmark. Many Danes believe that HIV/AIDS can infect them simply through touch (Cowan, 2016), whereby many stigmatise the infected ones due to fear (Etiskråd, 2014, p. 5). This fear of HIV/AIDS is congruent with another study, which researched how some considered AIDS-infected persons as a source of contamination of products. The study showed that the majority would not use products owned or used by a person infected with AIDS, as these products were 'contaminated' and seen as less desirable (Rozin et al., 1992). We elaborate more on the theory about consumer contamination in section 3.4. Consumer Contamination

The second type occurs as a result of deviations in character traits and *"relates to* (…) *attributes that are not clearly and outwardly visible, but may or may not become visible upon social interaction"* (Ritzer et al., 2011, p. 618). This type of stigma may include groups who are stigmatised because of their character, for instance, mental illnesses, sexual deviations and imprisoned persons (Goffman, 1963). A report from 2010 conducted by Dansk Sundhedsinstitut (Danish Health Institute) studied how people with a mental illness are being stigmatised in Denmark. The report showed that some Danes are distancing themselves from mentally ill persons (Stigma, 2010, p. 16). Other people who also experience isolation from others are abusers of

alcohol and/or drugs, which are considered one of the biggest stigmas in Denmark (Stigma, 2010, p. 9).

Sexual deviations are another hot topic in Denmark because Danes have always been known to be extremely tolerant, which can be seen in the fact that Denmark was the first country to terminate the prohibition of pornography (Karkov et al., 2016). In addition, Denmark was the last country in Northern Europe to prohibit bestiality (i.e. sexual intercourse with animals) (Clement, 2014), which was prohibited in 2015 (Retsinformation, 2017). This sexual deviation, together with incest and pedophilia are three kinds of extreme sexual deviations that are highly frowned upon in Denmark, thus causing strong negative emotions among the Danes (Faktalink, 2005). Studies from abroad also conclude that sexual deviations (like incest and pedophilia) cause strong negative emotions like disgust, as this behaviour is seen as immoral and despicable (Ekman et al, 2011, p. 197).

The final stigma within Goffman's second type is regarding imprisoned persons, who are also stigmatised by Danes. Many convicted people experience that their family distances themselves from them and that it is difficult to get a job and a position in society (Gf, 2017).

3.2.3 DOWNSIDES OF STIGMATISATION

Stigmatisation can be a sensitive topic, and if one wants to use it as a 'tool' to influence people, one needs to be wary of the consequences that stigmas can lead to for the stigmatised individuals. One consequence of stigmatising people is that other people begin to consensually disassociate themselves from the individuals who are perceived to be members of the stigmatised group (Leary et al., 1998), or even worse, they begin to dehumanise them (Harris et al., 2006). According to the belongingness hypothesis, human beings have an innate desire to belong and have non-aversive interactions with other people (Baumeister et al., 1995). Baumeister et al. (1995) propose that belongingness or lack thereof, have *"multiple and strong effects on emotional patterns and on cognitive processes"* (p. 497). In extreme cases, peer rejection, feeling ostracised or stigmatised can lead to ill effects on the "left-out" person's health and well-being (Baumeister et al., 1995; Begen et al., 2011). A study by Eisenberger (2003) also demonstrated how peer rejection or social exclusion from groups caused severe psychological distress among the subjects, and how the feelings associated with the distress activated the same brain regions as physical injuries do. Because individual(s) who are subject to stigmatisation are often left with a feeling of not belonging, it can, in the worst case, lead to severe psychological distress for the target.

An example of a group who is often a target of stigmatization is people who smoke. Jennifer Stuber (2009) examined how people who smoke experience a decline in social acceptability and that smokers are often looked down upon by society. Stuber concludes that *"stigmatization is an effective but frequently unacknowledged tool that allows the public health* (...) *to discourage seriously harmful behaviours"* (Stuber et al., 2009, p. 588). However, she also notes that the use of stigmatization should be used with precautions, as it can have fatal consequences for the stigmatized individuals.

There is evidence supporting the hypothesis that the innate desire to belong (to a group) *"is a powerful, fundamental, and extremely pervasive motivation"* (Baumeister et al., 1995, p. 497). As such, we propose that creating the perception that belonging to a certain group (those acting in environmentally unsustainable ways) leads to pronounced risks of social exclusion will influence people to the extent that they want to change their behaviour. However, because of the different consequences associated with being stigmatised and socially excluded, we have chosen not to stigmatise the participants in the upcoming experiment, but rather expose them to a stigmatised person.

3.2.4 SUM-UP

Stigmas are often attributed to people who are considered morally depraved (i.e. exhibiting negative personality traits). In Denmark, various groups are stigmatised on different grounds. For instance, disabled persons, HIV/AIDS-infected persons, people with sexual deviations and currently/former imprisoned persons are often victims of stigmatisation. When 'normal' people are exposed to a stigmatised person, the immediate reaction seems to be avoidance, but in some cases when the social distance is low, we sympathise with the victims of stigmatisation. In the upcoming experiment, we want the participants to distance themselves from the stigmatised person and his/her actions. We will, therefore, choose a stigma that is extremely frowned upon (i.e. bears a lot of negative information within in) as this will limit possible support from the participants.

As mentioned earlier, the negativity bias states that negative information weighs heavier in human information processing and that we are more attentive to negative information. An extremely frowned upon stigma will likely weigh extremely heavy in the participant's impression of the stigmatised person (resulting in an extremely bad impression). In addition, a stigmatised person, due to the negativity bias, is likely to leave a larger and longer lasting impression on the participants

in the upcoming experiment. We propose that, when exposed to a stigmatised person, the participants will show enhanced attention and will be more likely to recall information about the stigmatised person. They will also be better at distinguishing MP product from non-MP products. Our first hypothesis is thus:

Women exposed to a person with a negative stigma will have a higher recall for products containing MP and general information

3.3 FACIAL EXPRESSION AND EMOTIONS

This part will look at facial expressions and emotions, in particular, how negative emotions influence human's decision-making. We will also describe how facial expressions are able to reveal unconscious emotions. Instead of looking at it from a valenced perspective, we will adopt an emotion-specific approach and describe some of the emotional reactions that are likely to occur as a result of interaction or exposure to a stigmatised person (or group). In addition, we will describe how these emotions can make people distance themselves from products containing MP in the future.

3.3.1 FACIAL EXPRESSIONS

An interesting aspect of facial expressions is that they are "*beyond the individual's volitional control"* (Lewis et al. 2008, p. 212), and as such, they provide a reliable measurement for how people really feel. The notion that facial expressions can reveal what emotions we feel has been around for decades. In his book "The expression of the emotions in man and animals" (first published and edited by his son Francis Darwin in 1890), Darwin demonstrates how the muscular movements of the face are triggered by emotions, the so-called physical responses to a mental sensation. Throughout the book, Darwin shows how emotional states can be detected simply by looking at human and animal expressions and movements (Darwin, 2009). Because the same expressions are evident in animals and humans (also in infants, 'the insane', old people and people with different cultural backgrounds), Darwin inferred that with much probability *"such expressions are true ones, - that is, are innate or instinctive."* (Darwin, 2009, p. 16) In his book, Darwin notes:

> *"The study of Expression is difficult, owing to the movements being often extremely slight, and of a fleeting nature. A difference may be clearly perceived, and yet it may*

be impossible, at least I have found it so, to state in what the difference consists"

(Darwin, 2009, p. 13)

Today, new methods of detecting and analysing facial expression have emerged, making the study of expressions much easier than back when Darwin wrote his seminal works (Wolf, 2015).

Besides Darwin's contributions, much literature about emotions and facial expression has permeated from his ideas. Anthropologist and psychologist, Paul Ekman, has studied body movements, facial expressions, and emotions and contributed with various theories. His research from 1967-68 about the tribes in Papua New Guinea provided strong evidence supporting Darwin's claims about facial expression being universal and innate (Ekman, 2017). In a review article from 2016 by Ekman, nearly 250 researchers who study emotions were surveyed to evaluate the status of the field of research (response rate of 60%). In the study, 88% of the participants endorsed the *"compelling evidence for universals in any aspect of emotion"* (Ekman, 2016, p. 32), thus showing support for the work done by Darwin and Ekman (among others). Because facial expressions provide reliable measurements for studying people's emotions, we will use facial expressions to gain insights about people's emotions in the upcoming experiment.

Besides revealing how people feel, facial expressions have also been proven to influence people's affective responses; this is referred to as facial feedback loop hypothesis. Darwin also suggested that in *"the presence of an eliciting emotional stimulus a person's emotional experience can be either strengthened or attenuated depending on whether it is or is not accompanied by the appropriate muscular activity."* (Strack et al., 1988, p. 768). In a study by Strack et al. (1988), they demonstrated how forcing people to have a particular expression led to a change in people's reported evaluation of different cartoons' funniness. In their study, they told participants to put a pen in their hand (control condition), between their lips (giving people a sad expression), or in between their teeth (making people smile) while looking at four different cartoons. What they found was that when people were in the teeth condition, they, on average, evaluated the cartoons funniness higher, which suggests that simply expressing an emotion—such as a smile—is enough to make one infer that it is because we find something amusing. Their study also clearly suggested "*that recognizing the meaning of the facial response was not a necessary precondition for the effect. Rather, it seems that the interplay between an emotional stimulus and an innate motor program* (...) *is the determinant of the emotional experience.*" (Strack et al., 1988, p. 776). Based on this, we propose that presenting stimuli to individuals, which elicits relevant negative expressions, will affect

people's emotional experience without them being aware. To clarify, if we present one stimulus to a group that elicits expressions associated with disgust or anger, while at the same time exposing them to different products, they will experience heightened disgust or anger toward the products.

3.3.2 EMOTIONS

As mentioned earlier, emotions can be defined in various ways. We view emotions as an organised set of responses, with the ability to motivate cognition, actions, and behaviour. Emotions are expressed by different signaling systems, for instance, verbally, via body language, facial expressions, physiological responses, neural activity, etc. (Mauss et al., 2009). Because of the broad scepticism about the validity of consumer's explicitly stated feelings and opinions (Mauss et al., 2009; Praet, 2012), we favour the measurements of emotions made possible by modern technology. In this thesis, we use facial expressions as a depictor of how people feel and assume that even though emotions are meant to help individuals respond to the events evoking the emotion(s), the changes in cognition, actions and behaviour persists even after the event has occurred (Lerner et al. 2001). Lerner et al. (2001) sum it up:

> *"emotion-related processes guide subsequent behaviour and cognition in goal-directed ways, even in response to objects or events that are unrelated to the original cause of the emotion"*
> (Lerner et al., 2001, p. 146)

Rather than looking at it from a valenced perspective, we will look at it from an emotion-specific perspective as urged by Rucker et al. (2004) and others (Lerner et al., 2001; DeSteno et al., 2000). The reasons behind the emotion-specific approach are grounded in the fact that two similarly valenced emotions *"may differ substantially with regard to their level of activation and arousal"* (Rucker et al., 2004, p. 9). We will, therefore, briefly account for the seven universal emotions, and subsequently go into detail about the relevant emotions for this study.

3.3.3 THE SEVEN UNIVERSAL EMOTIONS

The seven emotions that Ekman has found to be universal are shown below (Ekman et al., 2011).

Disgust	*"Repulsion by the sight, smell, or taste of something; disgust may also be provoked by people whose actions are revolting or by ideas that are offensive."* (Ekman et al., 2011, p. 365)	
Anger	*"The response to interference with our pursuit of a goal we care about. Anger can also be triggered by someone attempting to harm us (physically or psychologically) or someone we care about."* (Ekman et al., 2011, p. 365)	
Fear	*"The response to the threat of harm, physical or psychological. Fear activates impulses to freeze or flee. Often fear triggers anger."* (Ekman et al., 2011, p. 365)	
Surprise	*"The response to a sudden unexpected event. It is the briefest emotion."* (Ekman et al., 2011, p. 365)	
Sadness	*"The response to the loss of an object or person to which you are very attached."* (Ekman et al., 2011, p. 365)	
Contempt	*"Feeling morally superior to another person."* (Ekman et al., 2011, p. 365)	
Happiness	*"Feelings that are enjoyed, that are sought by the person. There are a number of quite different enjoyable emotions, each triggered by a different event, involving a different signal and likely behavior. The evidence is not as strong as it is for the emotions listed above."* (Ekman et al., 2011, p. 365)	

Table 1. Overview of emotions/expression. Source of pictures: iMotions 2017

Each of the basic emotions denotes a family of related states and each emotion family can be distinguished from one another, as well as from other affective states. The affective responses connected with each emotion are *"preprogrammed and involuntary, but are also shaped by life experiences."* (Ekman et al., 2011, p. 364). As the table above shows, the different emotions can be categorised as having negative valence or positive valence. In this thesis, we only deal with the emotions that have a negative valence, and will therefore only go into depth with the expressions associated with negative emotions. The four negative emotions we will look into are disgust, anger, fear and contempt. We have left out sadness because this emotion and the associated expressions happen as a result of a loss of an object or a person (Ekman et al. 2003), and is, therefore, irrelevant for this experiment. However, we will instead account for the context-specific emotion, namely, surprise.

Disgust

Disgust is described as a distinct sensation that is elicited when we experience something revolting, *"primarily in relation to the sense of taste, as actually perceived or vividly imagined* (...) [or secondarily] *through the sense of smell, touch and even of eyesight"* (Darwin, 2009, p. 265). In many cases, it is not only the object but the context that is disgusting. An object *"may become disgusting by different experiences (e.g. associations)*" (Rozin et al., 1987, p. 29*)*. Darwin describes an experience that elicited disgust:

> *"In Tierra del Fuego a native touched with his finger some cold preserved meat which I was eating at our bivouac, and plainly showed utter disgust at its softness; whilst I felt utter disgust at my food being touched by a naked savage, though his hands did not appear dirty."*
>
> (Darwin, 2009, p. 269)

The quote above is a good example of how disgust can be elicited not only through one's own senses, i.e. the native touching the meat, but also by simply observing someone else touching something. The example bears a large resemblance to the theory of consumer contamination (Argo et al., 2006), which will be explained in section 3.4 Consumer Contamination. In a sense, the touch of the native 'contaminates' the food, ultimately leading the observer to feel disgusted.

Besides causing revulsion, disgust—like the other basic emotions—has a distinctive *"facial expression, an appropriate action (distancing of the self from an offensive object), a distinctive*

physiological manifestation (nausea)" (Rozin et al., 1987, p. 23). What we, in particular, are interested in is the 'appropriate action'. Disgust is typically displayed *"with an open mouth, nose wrinkle, and tongue protrusion as part of a vomiting response"* (Lewis et al., 2008, p. 211).

While studies on disgust are often reviewed in relation to *"revulsion at the prospect of (oral) incorporation of an offensive object"* (Rozin et al., 1987, p. 23), that is in relation to food rejection, we do not limit ourselves to that category. Instead, we use the expanded concept and view it in a broader sense. In particular, how we can find other people disgusting, which is also referred to as interpersonal disgust (Harris et al., 2006) (Rozin, 1999). Rozin categorises interpersonal disgust in four different groups of learned triggers: the strange, the deceased, the misfortunate and the morally tainted. An example of how this type of disgust can be triggered is evident in Harris et al.'s study about responses to different out-groups. Based on findings from prior studies that show that the medial prefrontal cortex (mPFC) is activated when we engage in social cognition (Amodio et al., 2006), Harris et al. (2006) researched participants' responses to different out-groups using neuroimaging. They found evidence that the participants in the study expressed the worst kind of dehumanisation (showing disgust and contempt) when viewed pictures of 'the lowest of the low', i.e. low-low social groups (Harris et al., 2006) such as drug addicts and homeless people. The analyses *"revealed mPFC activation to all social groups except extreme (low-low) out-groups, who especially activated insula and amygdala, a pattern consistent with disgust"* (Harris et al., 2006 p. 847). According to Rozin, these out-groups could be characterised as "the misfortunate." Ekman (2001) also describes different examples of how certain people or their actions can elicit interpersonal disgust, for example, people who mistreat animals are often viewed with disgust. The same goes for people *"who indulges in what others consider sexual perversion"* (Ekman et al, 2003, p. 190). Ekman et al. (2003) found that, among the college students in their study, the *"most frequently mentioned trigger for extreme disgust (mentioned by 62 percent) was in response to morally objecttionable"* (Ekman, 2003, p. 192), and that almost half of the morally objectionable behaviours had associations to sexually repugnant actions (such as having sex with a young child).

Anger

Anger can cover a range of different experiences, from slight annoyance to rage (Ekman, 2003). Angry feelings vary in strength, but also vary in the kind of anger felt. For instance, anger can be experienced as hatred, revenge, and resentment. The aforementioned types of anger cannot really be referred to as emotions due to their percistency, and can, therefore, be called emotional attitudes or

attachments (Ekman, 2003). In this thesis, we only deal with momentary emotions, and not long-lasting ones, and will therefore focus on the short-term feelings and expressions associated with anger. Anger has strong associations to both fear and disgust. For instance, when angered we may fear "*the harm the target of anger may inflict or* (...) *one's own anger"* (Ekman, 2003, p. 130). Other times, when angered, we are repulsed/disgusted by the target and merge the disgust with anger. When angered, our heartbeat raises and respiration increases; we either get into flight or fight mode (Ekman, 2003) (iMotions, 2016, p. 9). Anger is considered the most dangerous emotion as it often comes with harmful actions, such as physical attacks on the target causing the anger. In other instances, it results in verbal attacks such as shouting and screaming insults or profanities.

> *"If we have suffered or expect to suffer some wilful injury from a man, or if he is in any way offensive to us, we dislike him; and dislike easily rises into hatred."*
>
> (Darwin, 2009, p. 142)

In our study, we do not expect participants to show the type of anger associated with the urge to hurt the anger evoking target. Instead, we expect to see the type of anger resulting from observing offensive behaviour, leading to intense dislike. Since anger often is elicited as a result of fear or threats, we do not expect this emotion to be highly evident because the film in itself is not a fear evoking film. Even if it was an anger or fear provoking film, studies show that women are less prone than men to show strong reactions to anger or fear films (Kring et al., 1998).

In a study by Lerner et al. (2001), they demonstrated how anger had an impact on participants' estimation of risk. When people were in an angry state, they became more optimistic about risk estimates and thus more risk-seeking (Lerner et al., 2001). Congruent with the study by Lerner et al., anger might prove to have an influence on participants' optimism in the upcoming experiment.

Fear

Fear is seen as an emotional response to physical and psychological harm and threats and often triggers the flight or fight mode. When we are in a fearful state, our blood rushes to the larger muscles in the legs preparing us to flee (Ekman, 2003). This bodily reaction stems from the past, where evolution has prepared us to flee from sudden threats. Even though we seldom resort to fleeing the responses adopted from our ancestors are still evident. The body movements associated with fear

are typically a backward movement of the head and body. The facial expressions typically include raising the eyebrows, raising the upper eyelid and tensing the lower eyelid.

> "*During fear, blood goes to the large muscles in the legs, preparing us to flee. That doesn't mean we will flee, only that evolution has prepared us to do what has been most adaptive in the past history of our species."*
>
> (Ekman, 2003, p. 170-171)

Fear is interesting because when consumers are in a fearful state, they become more risk averse and (Lerner et al., 2001). In terms of certainty and control dimensions, fear is different from anger, despite the fact they are both negative emotions. When we are in a fearful state, there's a sense of situational control (opposed to individual control) and uncertainty, which explains why we are more risk averse during fear events (Lerner et al., 2001).

Contempt

Contempt is not as extensively studied as the other emotions, perhaps because it is the least recognisable and discriminable of the basic emotions (Tracy et al., 2008). Although related, contempt is different from disgust. Contempt is only felt towards people and the actions of people, but not towards tastes, objects, etc. and as such, you can feel contemptuous toward people who act disgusting or are disgusting (Ekman, 2011).

Contempt is often accompanied by a feeling of superiority (usually morally) over the object of contempt. Ekman (2001) believes that contempt is a negative emotion, although we may sometimes feel good when feeling contemptuous. This is likely due to the feelings of superiority, which are closely associated to contempt. However, the subsequent feelings felt after experiencing contempt are unpleasant; for instance, embarrassment. When feeling contemptuous, we often raise the chin, as if we are looking down our nose at someone, or tighten and slightly lift the lip corner (Ekman, 2011). As mentioned earlier, it is often morally depraved persons who are stigmatised, and because contempt often occurs when we feel morally superior over someone, it is likely that some stigmatised groups can elicit contempt in people.

Because contempt is a feeling directed at people or their actions, it does not make sense to account for this emotion when we analyse whether participants in the upcoming experiment show contempt for the products, both during the video and afterward when they are asked to distinguish between

MP and non-MP products. Instead, we will only look at contempt measurements in the data derived from the stimulus of the film to see if the stigmatised person will infer a higher level of contempt than the non-stigmatised.

Surprise

Surprise is the briefest of all emotions, and only lasts a few seconds at most. As surprise passes, it merges *"into fear, amusement relief, anger, disgust, and so forth"* (Ekman, 2003, p. 165), and sometimes into no emotion at all if the surprising event turns out to be inconsequential. For an event to be surprising, it must be sudden. When *"an unexpected event unfolds slowly, we aren't surprised"* (Ekman, 2003, p. 166). Surprise is a context-specific emotion; for instance, running into a classmate in school is unlikely to cause one to be surprised, but running into the same person on a vacation abroad could lead to feelings of surprise because the event would be unexpected. It has been argued whether surprise can be called an emotion because of its' brief nature, but in Ekman's perspective it *"makes sense to include surprise in our discussion of emotions, just noting that it has its own special characteristic—a fixed, limited duration"* (Ekman, 2003, p. 167). Because we are concerned about the negative valenced emotions, we will limit the review of this emotion to unpleasant surprises, which can lead to negative emotions.

In terms of facial expressions, surprise is expressed with the eyebrow raising, the eyes widening and the mouth opening (Ekman, 2003; Darwin 2009). Besides observing unexpected events or hearing something unexpected, surprise can also occur as a result of disconfirming a previously established belief or an already held belief (Reisenzein, 2000). To put this in perspective to our upcoming experiment, participants who are exposed to a person with a negative stigma might not be as surprised about inappropriate behaviour. On the other hand, when participants are exposed to a person with positive traits, they might not expect him to engage in inappropriate ways and thus act more surprised when seeing him actually do so. Because of the special characteristics of surprise, i.e. its' brevity and the uncertainty about its' valence, we will not address this emotion in the same way as the other negatively valenced emotions.

3.3.4 THE EXPRESSIVITY OF GENDERS

There is a general misconception that women are more emotional than men. This is largely caused by common stereotypes and by the evidence we see on a daily basis. Women seem to *"smile more*

often, cry more often, and laugh more often than men. Women just seem to feel more than men do—boys don't cry, after all" (Epley, 2014, p. 192). Smiling, laughing and crying are all external evidence (i.e. emotional expressions) signaling how people feel, but not necessarily a true depiction of how we actually feel. Emotional experiences also leave physiological traces (such as sweating, heart palpitations, dizziness, etc.), which cannot be seen by the naked eye but can be measured using laboratory equipment.

Research has shown that women indeed are more expressive in their emotions compared to men, but that men and women show the same emotional reactions (on average) on a physiological and experiential level (Kring et al., 1998). In a two-study experiment, Kring et al. (1998) demonstrated how men and women when exposed to emotional films, *"did not significantly differ in their reports of the specific target emotions that the films were intended to elicit"* (p. 698), but that women were more expressive in terms of facial expressions. In addition, women's greater expressivity did not appear *"to be accounted for by either greater or lesser skin conductance reactivity"* (p. 699). Another interesting finding relevant to this study was the differences in skin conductance, which *"varied according to emotion type, particularly for negative emotions"* (p. 699). Men showed greater reactivity to fear and anger films while women showed greater reactivity to disgust and sad films. In our experiment, we have chosen not to use SCR (only as a disguise) and instead limited our methods to eye-tracking and facial expressions. Since women are more expressive and more prone to show reactions to disgusting aspects, we have also chosen to limit our study and only have women undergo the experiment, well aware that this, in turn, decreases the generalisability of the study.

3.3.5 SUM-UP

Emotions have been shown to play a large role when it comes to moral judgment (Green et al., 2002), and to draw a reference to the MP case. In this thesis, buying products with or without MP (in some product categories) is a matter of moral judgment. Emotions are an organised set of responses that can motivate cognition, actions and behaviour (Izard, 2010). Emotions help us respond to events, and the changes they cause in terms of cognition, actions and behaviour have been shown to persist after the emotion-evoking event has occurred (Lerner et al., 2001). Emotional responses are mostly involuntary and are revealed through our facial expressions, physiological responses, or neural activity (Mauss et al., 2009). There is also evidence suggesting that facial expressions can lead to changes in emotional experience – the so-called facial feedback loop.

Rather than using unreliable measurements such as self-reporting, we favour the aforementioned methods because they open a window into people's unconsciousness. For a long time, facial expressions have served as a reliable measurement, and due to the accessibility made possible by modern technology, we will measure facial expressions to measure how people respond to the stimuli presented to them in our upcoming experiment. There are seven emotions that are universally evident among humans due to their unique and distinct characteristics (Darwin, 2009; Ekman, 2011). Because our study revolves around the principles of the negativity bias, we are mainly concerned about the negative emotions, namely disgust, anger, fear, and contempt. Surprise which is either valence-specific based on the context will also be included. Sadness is left out due to its insignificance to this study. The emotions we expect to be most evident in the upcoming experiment are disgust and contempt. In particular, disgust, because previous studies have shown that pictures of stigmatised groups, such as drug addicts and homeless (Harris et al., 2006) or simply observing morally objectionable behaviour (Ekman, 2011), elicits feelings of disgust in observers.

This part also described the common misconception that women are more emotional than men (Epley, 2014). Studies have shown that this is not true, but that women are more expressive than men and that, on average, they show the same physiological responses and report the same on an experiential level. Because women are more expressive, their emotions are more easily revealed by facials expression. Therefore, we decided to limit the upcoming experiment to female participants. Finally, the literature review has led us to the following hypothesis:

Women will elicit negative emotions when exposed to a stigmatised person

3.4 CONSUMER CONTAMINATION

This part will go into detail with another major concept that plays a vital role in our study, namely consumer contamination. Consumer contamination is the notion that someone or something is able to contaminate other entities simply through physical or abstract contact (such as touch or ownership). This will be seen in relation to how disliked persons have the ability to make products undesirable by touching them or being in their presence. It will also look at consumer contamination in relation to the emotional responses that facilitate the effects.

The effect of consumer contamination occurs when a product is touched by another person, and as a result, the product is subsequently perceived as 'contaminated' by the observer, making it less de-

sirable (Argo et al., 2006). Consumer contamination can be seen as a result of the law of contagion, which was initially propounded by E. B. Tylor (1871/1974) and later expanded upon by James Frazer (1890/1959). It has further been conceptually elaborated on by Marcel Mauss (1902/1972).

> *"According to the law of contagion, things that once have been in contact with each other may continue to influence each other, through the transfer of some or all of their properties. This influence remains after the physical contact has ceased, and may be permanent ("once in contact, always in contact")."*
>
> (Rozin et. al, 1989, p. 367)

The notion that someone or things can influence other entities and transfer their properties simply through contact has been around for ages. The law of contagion is one of the three laws of sympathetic magic, and in his book "The Golden Bough", Frazer (1922) examines how these different laws throughout time have influenced human behaviour, making them either seek out or refrain from various things or actions. The three laws of sympathetic magic consist of contagion, similarity, and opposites. All laws of sympathetic magic consist of either positive or negative "magic." This thesis will mainly deal with the law of contagion as it fits well with the purpose of passing on contagion from one source to other sources. Positive contagion occurs when a respected, loved or revered person gets in contact with an object, rendering it more beneficial than before. Negative contagion, on the other hand, occurs when a disliked, frowned-upon or feared person get in contact with an object and devalues it or render it dangerous (Rozin et al., 1989). *"The early anthropologists saw contagion as a belief of "primitive" people, but it is now clear that it is universal"* (Rozin et al., 2001, p. 306). An example that might seem farfetched today is the example of how men in Tonga who had *"happened to touch a sacred chief, or anything personally belonging to him, had to perform a certain ceremony before he could feed himself with his hands; otherwise it was believed that he would swell up and die"* (Frazer, 1922, p. 473). Examples of how consumer contamination exists today are widespread. It can take minimal contact for something to get contaminated; consider a dish that has brief contact with a cockroach or a worm. Most people would be reluctant to consume the food even after a brief contact with one of the entities, which makes sense from a hygienic perspective (Rozin et al., 1989). Another prime example, perhaps of a more symbolic nature, is the 'Adolf Hitler sweater' example:

> *"why would many individuals become more upset by wearing an innocent-looking sweater that was once worn by Adolph Hitler than by holding a book written about*

him, with his name and picture all over the cover and the story of his life inside? The explanation of "stronger association" begs the question of why brief contact should result in such strong associations."

(Rozin et al., 1989, p. 369).

3.4.1 THE MECHANISMS BEHIND CONSUMER CONTAMINATION

In a study by Argo et al. (2006), they studied some of the driving mechanism behind consumer contamination, such as *'proximity to contact'*, (the physical location of a product, indicating how close a product is to consumer's reach), '*time elapsed since contact* and *number of contact sources'*. The results of the study showed that close proximity to contact and a large number of contact sources had a negative impact on purchase intentions, consumer evaluations and willingness to purchase. In contrast, time since the product was perceived to be touched disseminated the effects of the consumer contamination (Argo et al., 2006).

"although consumers were cognizant that no physical contamination was engendered to the product by the implied touching, they were still influenced by the contamination from the other consumer. Indeed, the lingering perceived essence of another seems to be enough to stigmatise the product for the consumer"

(Argo et al., 2006, p. 91)

One interesting finding of the study was that feelings of disgust were specifically facilitating the consumer contamination effects, whereas other negative emotions did not *"appear to drive the lower evaluations and purchase intentions for a product that has been touched by other consumers"* (Argo et al., p. 86).

3.4.2 HALO/DEVIL EFFECT

The reverse type of contagion namely positive contagion also exists. For instance, if a product or something is signed by a celebrity, the product becomes more valuable. The halo/devil effect explains why other people can influence the perception of products, and is closely related to the ideas in the law of contagion. The halo effect states that people who act in a rightful way and demonstrate good behaviour are more easily accepted and valued by their fellow peers (Nisbett et al., 1977, p. 251). It explains how we tend to let impressions of an individual, created in one area, bias our perception of him/her in other areas (Nisbett et al., 1977).

The reason why the use of opinion leaders is so prevalent can, in large part, be attributed to the halo effect, which can be seen in the use of George Clooney in the Nespresso Ads. Who is a famous actor to say whether Nespresso coffee is good or not? The answer is he is not, but he has left good impressions about himself from his acting work, which can cloud people's judgment of him. According to the halo effect, this can leave the impression that he knows something about coffee as well. In a sense, he creates a positive contagion around the Nespresso brand and the products he is in contact with during the commercial. On the other end of the scale, we have the devil effect, also known as the horns effect (or reverse halo effect). It states that people who do not demonstrate good behaviour or who possess frowned upon values will, to a greater extent, be rejected by fellow peers (Gibson et al., 2015). The devil effect occurs when a person possesses *"a certain* [negative] *identifying trait"* (Gibson et al., 2015, p. 267). According to the devil effect, simply observing someone with undesirable personality traits is likely to make one avoid incorporating any of his/hers behaviours. Instead, people distance themselves from that person or group who share identical personality traits with the 'devil'.

> *"The devil effect also emerges in a similar fashion among labeling interactions* [which] *can bring with it a negative stigma. This stigma, caused by the participation in an out-group or possession of a certain identifying trait, can be seen as the trigger for a devil effect"*
> (Gibson et al., 2015, p. 267)

Even though persons triggering the devil effect have negative associations, they can have an exceptional influence as motivators (Lockwood, 2002). Just like positive role models like George Clooney can *"inspire others to pursue similar excellence"* (Lockwood 2002, p. 854), negative role models *"can inspire one by illustrating a feared, to-be-avoided self"* (Lockwood 2002, p. 854). Due to the negativity bias, we propose that the devil effect is likely larger than halo effect.

3.4.3 SUM-UP

Consumer contamination occurs when products are touched by another person or appears in their presence, and subsequently is seen 'contaminated' by the observer. The theory states that even when contact is broken, the products remain contaminated. A product can either be positively contaminated or negatively contaminated depending on the person touching the product. Two supporting theories that explain when or how something can be either positively or negatively con-

taminated are the halo and devil effect. When a well-liked person (such as an opinion leader or celebrity) is associated with a specific product, the positive associations that people have with the person can be transferred to the products, leaving them more desirable. Conversely, when a disliked person becomes associated with products, the negative associations he/she bears can contaminate the products, leaving the product less desirable or even undesirable.

Previous research on consumer contamination primarily focused on how the products in situ were affected. However, to our knowledge, no one has focused on how products not in situ are affected by consumer contact. To elaborate on this, when studying consumer contamination, the focus has been on how a particular product, for instance, a t-shirt that just has been worn, is seen as contaminated but not how other related t-shirts are affected. For instance, is it possible to contaminate the perception of a specific product (and thereby all other identical units) simply by showing someone engaging with it? We want to test whether it is possible for someone to contaminate MP products, and subsequently make individuals elicit disgust when exposed to a picture of the product later on.

We propose that, when exposed to a stigmatised person (with extremely negative personality traits) who elicits negative emotions, that person will contaminate the products they engage with. Based on the aforementioned, we thus hypothesise:

MP products touched by a stigmatised person will subsequently be seen as 'contaminated'

When we refer to a product as "seen as contaminated", we imply that people show increased disgust towards the product upon subsequent exposure.

4. CONCEPTUAL FRAMEWORK

The theoretical and methodological framework has outlined and described the different theories from which we have derived our hypotheses as well as the appropriate methods to test the hypotheses. This part will describe the conceptual framework behind the study. The chosen concepts and theories about stigmatisation, emotions, facial expressions and consumer contamination (among others) have been chosen, because there seems to be an overlap between the phenomena they each seek to explain, and therefore they ought to work well in conjunction with one another. The methods have been chosen with respect to the chosen research philosophy of the study, namely positivism, but also with respect to the means we have access to in this thesis, in particular, the facial expression analysis software.

As mentioned in the introduction, the environment is suffering as a result of relentless and negligent consumer behaviour. Previous attempts at persuading people to act more environmentally friendly have mainly focused on informing people about the correct/appropriate ways to act or not to act. For instance, by showing a 'liked' person doing the 'right thing' or by having a well-liked person endorsing correct behaviour. We want to turn things upside down, and instead of having a well-liked person the 'right thing', we show a 'disliked' person doing the 'wrong thing'.

Illustration 1. Stigmatised persons impact on observers

The graphic above illustrates the general idea behind using stigmatised persons (i.e. disliked persons) in marketing. According to the negativity bias, we are hardwired to pay more attention to things of negative nature (events, persons etc.), and are more influenced by negative emotions. That is why we want to explore how this bias can be exploited. In frame one, the consumer is deciding between two products. Due to preferences, habits, convenience etc., he buys the product he always does and does not even consider buying the alternative. In frame two, the consumer is exposed to a stigmatised/disliked person who uses the same product as him or behaves in the same ways as he does. According to the literature review of stigmatisation above, stigmatised persons can be those who are morally depraved and different from the general public. When 'normal' people are exposed to those who are extremely frowned upon, it can lead to strong negative emotional reactions. According to the law of contagion and consumer contamination theory, when a disliked person gets in contact with an object (i.e. uses or buys a product), the negative aspects associated with the person will be transferred to the object. When we are in a negative emotional state, our facial expressions (among other signaling systems) are influenced and reveal how we feel. Vice versa, when we hold particular facial expressions, the emotions associated with the particular expressions also have an influence on people's emotional experiences. We, therefore, propose that stigmatised persons who elicit negative emotions will lead to negative facial expressions, which will then lead to negative emotional experiences.

As depicted in frame 3, when the person finds himself in the same purchase decision (as depicted in frame A), he will then elicit negative emotions for the previously preferred product. If the product is a necessity, he will look for alternatives, and perhaps even go out of his ways to find a product that does not elicit negative emotions.

To put it in perspective to the MP case, in frame 1, the consumer might have a propensity to buy products containing MP, such as yellow dishcloths, simply because it is a part of his ritual. In frame 2, he sees an extremely morally depraved person use the same products, thus 'contaminating' the product leaving it less desirable. In frame 3, he finds himself in a buying situation again, where he has to buy new products (such as dishcloths), but now the products are eliciting negative emotions. He then looks for a substitute (for instance MP-free dishcloths), which have no negative emotions associated with them.

We set out to examine which stigmatised groups or persons are extremely frowned upon in Denmark. We subsequently tested whether one particular type of stigma would lead to heightened negative emotions when seeing a film with the stigmatised person using different products containing MP. We measured the participant's facial expressions (i.e. emotional responses) throughout the film and while exposing them to products from the film. These results were then compared with a control group, where we examined the differences between the control Group And the experimental group, thus measuring the effect of the intervention. To answer our research question, "*What impacts will a stigmatised person in an informative film about MP have on individuals' emotions and cognitive abilities?*" we have derived three hypotheses based on the literature review in the theoretical framework. In order to test the hypotheses, we will make three null hypotheses, which we will seek to reject with the findings from the upcoming experiment. The three hypotheses and null hypotheses are as follows:

H1: Women exposed to a person with a negative stigma will have a higher recall for products containing MP and general information

$H1_0$: Women exposed to a person with a negative stigma will not have a higher recall for products containing MP and general information

H2: Women will elicit negative emotions when exposed to a stigmatised person

$H2_0$: Women will not elicit negative emotions when exposed to a stigmatised person

H3: MP products touched by a stigmatised person will subsequently be seen as 'contaminated'

$H3_0$: MP products touched by a stigmatised person will not subsequently be seen as 'contaminated.'

5. METHODS AND RESULTS

This part will describe the methods and results from the two studies we made, namely the survey about views on stigmatised groups in Denmark, and the experiment aimed at testing our hypotheses. The results from the online survey are presented and discussed first, as this was the initial study we made to determine which stigma to proceed with for the experiment. After describing the results from the survey, we will describe the experiment in detail and present the relevant results from the experiment that are needed to test the three hypotheses.

5.1 SURVEY - WHICH STIGMATISED GROUPS ELICIT MOST DISGUST

Earlier in our theoretical framework, we discovered how different groups are victims of stigmatisation in Denmark. We, therefore, made a quick indicative survey to point us in the direction of a stigmatised group we could use in our experiment.

5.1.1 THE DESIGN

Even though the literature review suggested that disabled people and people with visible deformities are being stigmatised due to their visible stigmas (Sundhedsstyrelsen, 2008, p. 32), we chose not to include these groups in the online survey. Instead, we focused on other stigmatised groups, who a) were more likely to elicit disgust and b) who were stigmatised on less unfair grounds than these groups. The questions in the online survey ended up being primarily about people with morally objectionable behaviours, such as people with extreme sexual deviations, like beastiality, incest, and pedophilia. Based on the findings from the literature review, we chose stigmatised groups who were like to elicit strong negative emotions, in particular, disgust, among the participants.

5.1.2 MEASURES

The survey tested which of the following six stigmatised groups that Danish women found the most disgusting: People committing bestiality, People committing incest, Pedophiles, Murderers, AIDS/HIV infected and Drug/alcohol abusers. Besides asking questions about the respondents' views on different stigmatised groups we also asked respondents about demographic questions

regarding sex, age, and nationality, making it easier to sort out the views of the particular group we were interested in.

5.1.3 PROCEDURE

We used the online survey provider SurveyHero to set up our questionnaire. The link to the online survey was distributed on Facebook. We posted the survey link in different Danish groups with different of members to avoid only receiving responses from our own immediate network.

5.1.4 PARTICIPANTS

117 participants participated in the online survey and there was an almost equal distribution of the genders. Our response consisted of 47% women and 52,9% men. 76% of the participants were in the age distribution 16-29 years old, 17,79% in 30-45 years old and 5,98% in 45+ years old.

5.1.5 RESULTS

With regard to the question of what person type they thought was the most disgusting, the whole sample answered 64.95% pedophiles, 22.22% people committing incest, 8.54% murderers, 1.71% drug/alcohol abusers, 2.56% people committing beastiality and 0% HIV/AIDS infected. When excluding men from the sample, it is possible to see that women answered 60% pedophiles, 27.27% people committing incest, 9.09% murderers, 3.64% people commiting beastiality, 0% on drug/alcohol abusers and 0% on people infected with HIV/AIDS.

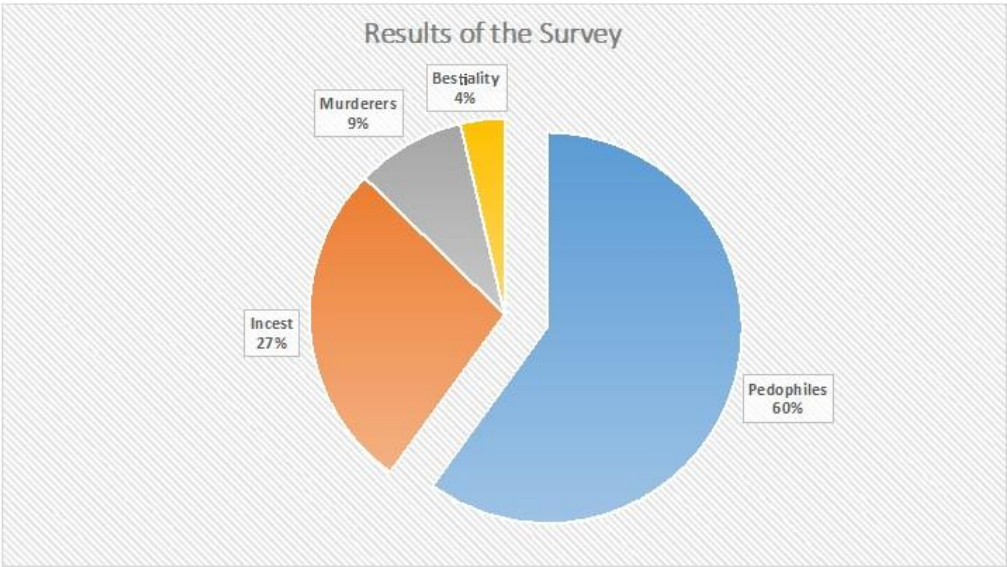


Diagram. 1. Who do Danish women find most disgusting?

5.1.6 DISCUSSION OF RESULTS

The results from the questionnaire implied that the majority of the participants thought that pedophiles were the most disgusting person type, followed by people committing incest. This fits together with Ekman and Sullivan's (2011) findings. Their studies indicated that sexually repugnant actions (such as pedophilia) is extremely frowned upon and will most likely trigger to negative emotions like disgust (Ekman, 2011). In addition, convicted pedophiles are having a hard time in Danish prisons as they are being persecuted and beaten by their fellow inmates, and often they are seen as outlaws who belong to the bottom of the hierarchy in prison (Bindslev, 2003). As some people choose to chase pedophiles and violently attack them, it could be read as a form of rage the person(s) feels towards the pedophile. Even though we wanted to find the person type that the Danes finds most disgusting, and thereby not the one who perhaps elicits most anger, it is important to remember that anger has strong associations to disgust (Ekman, 2003). Finally, it is important to highlight that even though none of the women answered HIV/Aids or abusers, it does not necessarily mean that the participants do not find these stigmatised groups disgusting. Instead, it probably just means, that in relation to the other extreme groups, these groups are considered insignificant.

5.2 THE EXPERIMENT - HOW STIGMATISED PERSON INFLUENCE EMOTIONS AND COGNITION

Based on our findings from the survey, we chose to examine how a person stigmatised as a pedophile would have an impact on the participants in the experiment. The experiment is aimed at testing our three hypotheses. The results will be presented in the order of the hypotheses, starting with hypothesis 1 and subsequently discussed in relation to the theoretical framework and other relevant literature. After presenting the relevant results and discussion for each hypothesis, we will present other relevant and interesting findings from the experiments and discuss them.

5.2.1 THE DESIGN

For our experiment, we decided to make a film (see the enclosed USB-drive) informing the viewer about the problems of MP. Throughout the film, the viewer receives information about the extensive amount of MP present in our daily life. The aim of the film was to see if the same film could have a different impact on the participants' emotions if we simply altered the description of the

person in the film. After having watched the film, all participants participated in two different surveys, one about general information from the film and one about the products shown in the film. To ensure that all participants in the experimental Group Actually heard/paid attention to the manipulation, i.e. stigmatising the actor as a pedophile and describing him as unsympathetic and egoistic, we asked participants in the experimental group's questions about said information (see Appendix B – General Questions from the Survey). These questions worked as excluding criteria because if for some reason the participant(s) did not catch this information, we deemed that the manipulation would not have occurred. The figure below shows how the experiment was set up and what data was gathered from each part of the experiment, which is used to answer our three hypotheses. During the film participants emotions are measured and we will use the data from this part to test hypothesis 2. After the film we ask participants questions about general information from the film and measure their reaction time as well as right/wrong answers. We will use this data to answer hypothesis 1. As the figure shows, we also test whether participants in Group A, pass the excluding criteria question. Lastly, we show 18 products pictures with questions asking whether the products contain MP or not. We measure their reaction time and right/wrong answers as well as emotional reactions towards MP products. The data about their reaction time and right/wrong answers will also be used to test hypothesis 1, while the data about their emotional reactions towards MP products will be used to answer hypothesis 3.

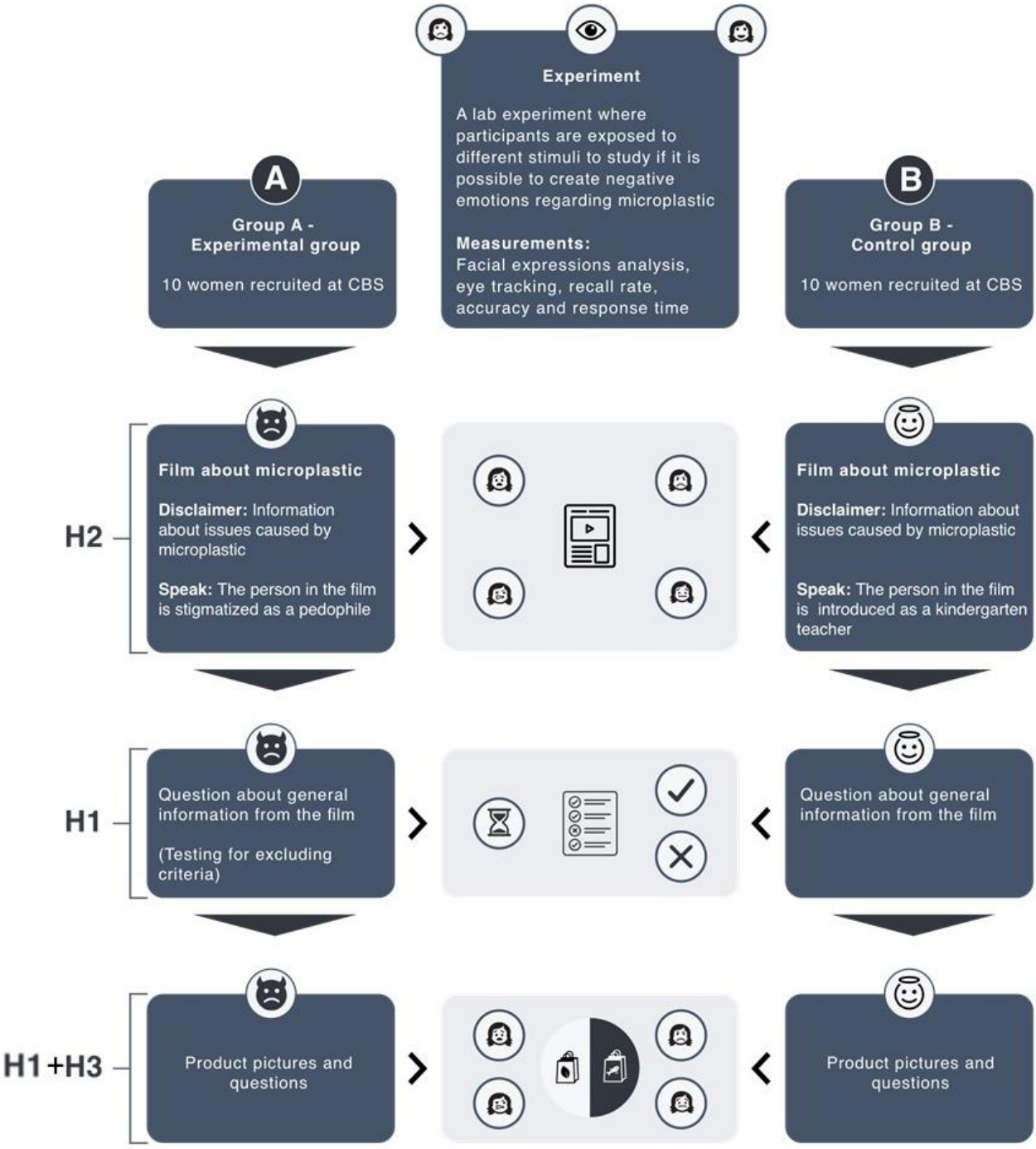


Figure 2. Design of the experiment

Pilot test

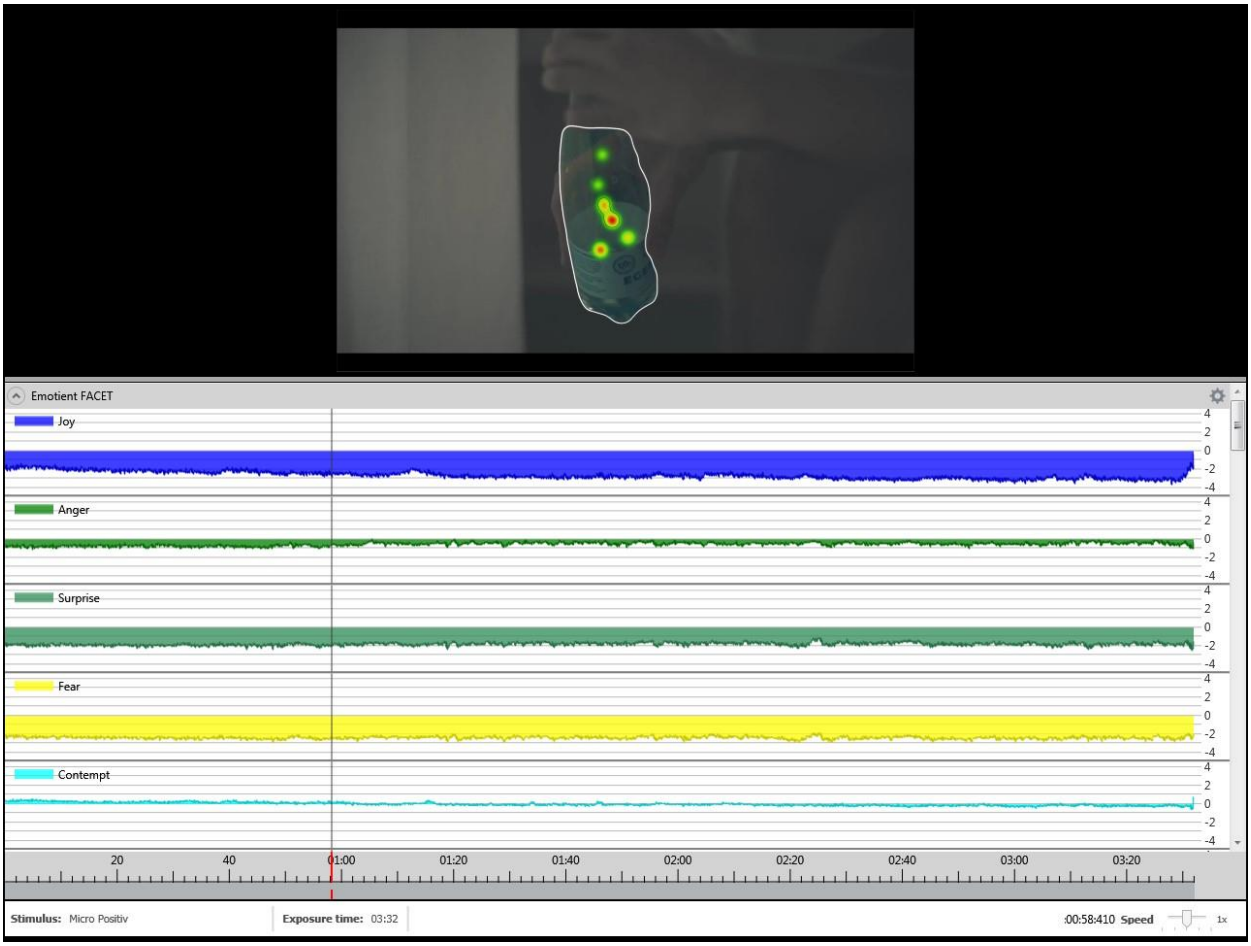
To test that the experiment's setup was working right, including hardware and software, several pilot tests were performed in the laboratory. Besides making us accustomed with the hardware and software, the main reason behind performing these tests was to identify problems and challenges in the experiment's design. The pilot tests revealed some significant flaws, which, for instance, can be

seen in the original disclaimer, which had taken the modality principle into consideration, presenting the information both visually and auditory. According to the modality principle, doing this ought to be more effective (Jong, 2010). However, the results from the pilot tests revealed that the viewer had difficulties in recalling what had been presented to them at the beginning of the film, which could be seen in their answers to the exclusion criteria. We thus concluded it was not beneficial for the experiment to present the information both visually and auditory, and we changed it to only having the auditory speech.

5.2.2 MEASURES

The participants were recorded on a high-resolution Tobii T60 XL running at 60Hz with a 1920x1200-pixel 24-inch screen with an integrated eye tracker (Tobiipro 2017). We used software from iMotions (version 6.3) and the Emotient FACET technology module to analyse the recordings of participant's facial expressions and its built-in post-processing function (iMotions, 2017) to clean the data and ensure that the data would be of better quality (iMotions, 2013).

Because the measurements of facial expressions are so important for this study, we set a minimum threshold for the FACET quality of 95%. This ensured that the participants' data could be considered valid in terms of the quality of the recordings. All participants fulfilled this requirement, with an average FACET quality of 99,96% in Group A and 99,88 in Group B. In addition, we used an eye tracking function, which tracked where participants were looking at the screen during the experiment and supporting us with insights about visual attention (iMotions 2016, p. 37). In the example below, a heat map for one of the frames in the film is shown. The heat maps show where most attention is directed, where the red areas show where most of the participants looked. This measure was mainly used to test that our participants were paying attention, especially during the scenes when they were presented to an MP product.



Picture 1. Example from imotions showing emotient facet and eye tracking

As the picture above shows, the software also recorded the participant's face while they watched the film and compared it with its embedded databases, which *"contains statistics and normative distributions of all feature characteristics across respondents from multiple geographic regions and demographic profiles"* (iMotions 2016, p. 22).

Finally, we downloaded the raw datasets from iMotions and extracted them to Microsoft Excel, where we cleaned them for further analysis. This resulted in three datasets for each group: sensor data (for the expression measurements during the entire experiment), the results of the survey about general questions from the film, and the results of the survey about the products. Due to the extensiveness of the sensor datasets we extracted, which included more than 25.000 observations on over 100 different measurements per participant, we narrowed the dataset down to the data relevant for our study, namely negative emotions. Based on the review of negative emotions in the theoretical framework, we computed an aggregate for disgust, contempt, anger and fear, but also kept the value for each emotion to see if there were any interesting differences between them. We then computed different averages of each emotion and our own aggregates, for example, average emotions per par-

ticipant per scene, average emotions per participant per product, etc. To account for differences in the participants' neutral expressions, we used the standard Emotient baseline function in iMotions, which assesses the participants' neutral expressions when presented to neutral stimuli (i.e. a grey background with a fixation cross). We then computed the median for each participant's baseline measures and subtracted from the two datasets (iMotions, 2016).

5.2.3 PROCEDURE

The experiment was held in the Decision Neuroscience Research Group Senselab at Copenhagen Business School. The laboratory had the following equipment:

- Tobii T60 XL screen
- Secondary screen with live view
- Desktop computer with iMotions (version 6.3) software installed
- Various equipment (headphones, mouse/keyboard, partition wall and extra lamps)

At the enrolment, the participants were asked to read and sign an informed consent form (see Appendix Q – Consent Form), in which the participant gave us permission to use the findings from the experiment in our study. After having signed the form, the participant was informed about how to sit and behave during the experiment, for instance, keeping movements to a minimum during the experiment, as this can interfere with the recordings. Moreover, eating and drinking was not allowed as this could cause the sensors to misread the participant's expressions, thus reducing the validity of the data (iMotions 2016, p. 28). While this information was given, the other researcher attached the Shimmer (an SCR measurement equipment) to the participant's index and ring finger. The SCR equipment did not collect any data during the experiment, but it was used as a way to have the participant focus on this equipment instead of the screen, thus acting as a deception.

Afterward, the participant was seated 60 centimetres from the Tobii T60 XL screen, as this is the recommended viewing distance (Tobii, 2014, p. 19). The software had a built-in function, which informed us whether the participant had to move closer or farther away from the screen. Next, variables such as height differences and body structures were accounted for by lifting or lowering the screen until the participant's eyes were centred. Finally, the participant was asked if she was comfortably seated, as it was crucial that she was not straining herself during the experiment, as this could have an impact on her facial expressions.

Next, the participant had to go through a nine-point eye calibration procedure on the screen. This consisted of looking at a white background where a red dot moved to fixed positions in a calibration grid. The software then informed the researchers whether adjustments were needed for a better calibration. When the calibration was completed, the researcher told the participant to be relaxed and look at a grey screen for five seconds. During this procedure, the software established a neutral baseline and collected the participant's neutral facial expression when exposed to a neutral stimulus i.e. the grey screen (iMotions, 2016, p. 29).

Afterward, the film played while the software recorded the participant's facial expressions. When the film was over, a survey regarding the film appeared, which the participant answered (Appendix B – General Questions from the Survey). One of these questions was about his stigma and functionned as an exclusion criterion to ensure that the participant had paid attention during the session, and not missed the information with the intervening variable. Finally, the participant was asked to point out the products containing MP, which was done by separately showing the products that were used in the film with the question *"Does this product contain microplastics?"* (Possible answers: 1. Yes, 2. No, 3. Don't know) (see Appendix C – Examples from Product Survey).

5.2.4 STIMULI - THE FILM

The film we made came in two versions (both versions are located on the enclosed USB-drive). One in which we expose the participants in Group A to a stigmatised person and in Group B where we expose the participants to a non-stigmatised person. The film was identical in both groups (to control for the independent variable) but varied in the presentation of the 'actor'. Based on the results of the online survey, we decided to use pedophilia as the stigma in the experimental group. We will now outline how the film was put together, and what considerations we had in terms of visuals and audio. We will also describe each of the scenes. The film is a total of 3 minutes and 32 seconds long.

5.2.4.1 VISUALS AND AUDIO

The following subsections will explain different aspects of the film and account for the different considerations behind the visuals and audio in the film. Thereafter, the disclaimer and the important scenes in the film are briefly described in which our considerations are elaborated.

Throughout the film, we wanted to make sure that the viewer was able to distinguish between MP and non-MP products. The screenshots above are examples from the film, showing how we used graphics to mark the MP products. When an MP product appears in the film, the frame freezes, the MP product is marked and magnified, and slowly moves towards the viewer, while the color outside of marked area is toned down. This choice was based on Murdock's (1992) findings regarding '*creative'* and '*on-set* product' placements in films. By placing products or brands in the background in a scene, it will be seen as giving them a '*creative'* position, which is the case for the non-MP products in our film. In contrast, the MP products have an *on-set* placement in the scenes, which will *"generate a higher level of recognition than those who are subtle"* (Brennan et al., 1999, p. 326).

We chose to freeze the frame for three seconds and magnify each MP product individually when they occur in the film as our *"eyes quickly move to an object that is out of place in a scene"* (Rayner 1998, p. 398), likely making the participant fixate on the MP product for a longer time. The magnification was supported by a 'looming' effect (e.g. making the MP products appear to approaching the viewer), which should automatically capture the viewer's attention according to Franconeri et al. (2003). Each time an MP product was magnified, and the frame was frozen, a sound of a camera shutter plays. This was mostly done to give the film a 'professional look', but also to catch the attention of the participant. Since the sound was identical each time, the viewer should over time learn that when the sound appeared, an MP product was present.

The movement during the magnification of the MP product and the toned down background also made it more likely to the catch participants' attention (Johnson, 2014). The freeze frame with the magnified MP product results in a longer exposure time, which ultimately should *"lead to increases in perceptual memory"* (Hippel et al., 1944, p. 530), likely making the participants recall rate higher for the MP products. Based on the heat maps from the film (see below under each), one can see that the graphics had the desired effect.

We chose to have some ambient background music playing throughout the entire film. We carefully chose music that was not too loud or upbeat so as not to distract the participant's attention with the auditory aspect of the video. Adding music has been proven to affect listener's subjective perception of time (Kellaris et al. 1992, p. 373). In addition, the background music also gave the film a more 'professional feel' and decreased the likelihood that the participants would lose interest, focus,

or simply get bored, which could potentially lead them to show expressions related to boredom or frustration, thus decreasing the chance of getting the desired results.

Finally, the introductory speech about the person in the film appears in two versions. One in which the person is presented as a pedophile (Group A), and one as a kindergarten teacher (Group B). The speech is described in more detail in the following subsections. We made sure the information regarding the stigma and non-stigma was given simultaneously (0.414 seconds - 0:417 seconds) in both versions, making the two scenes comparable in terms of measuring the participants' emotions.

5.2.4.2 SCENES

The film contains one disclaimer and six main scenes. The following subsections will describe the various parts in the film and reveal our considerations behind each part. We have chosen not to include the scene in between the various main scenes (e.g. when the person is walking from the bedroom to the bathroom), as these parts were only included to give the film a more 'professional' feel and secured a natural transition between the scenes.

Part 1: Disclaimer

This is the first part in the film, and it runs from 0:000-0:369 (min; sec).

Since people *"generate perceptions and meanings that are consistent with their prior learning"* (Wittrock 2010, p. 41), the aim of this part was to ensure that the viewer received a fundamental knowledge of MP. By doing this, we made sure that all participants had some knowledge about MP, and not only those who were knowledgeable about MP prior to the experiment. If some of the participants already had an extensive prior knowledge and understanding of MP, they would likely have preconceptions about the problems related to MP, which could lead to biases, and ultimately uncertainties about the effect of our intervention.

We secured a fundamental knowledge among the participants of MP through a disclaimer, where a speaker informs the viewer about the consequences of MP. We wanted to keep the disclaimer as brief and concise as possible, whereby there was a limit to what we could include in the speech without making it too long (e.g. that MP can be blind to the naked eye). This was done because people have a limit in regards to their attention span (Kahneman, 1973), which was taken into consideration when we wrote the speech. We chose a young male (27 years old) as a speaker in the film because younger viewers tend to evaluate younger speakers more positively than older speakers

(Stewart et al. 1982, p. 94). In addition, we chose a speaker who had a low-pitched voice, because low-pitched voices tend to be *"evaluated more favourably than high-pitched voices"* (Krishna 2011, p. 10). We instructed the speaker to record the speech in a medium rate as slow speakers are *"consistently judged to be less truthful, less fluent, less persuasive, more passive, and weaker than fast or medium rate speakers"* (Stewart et al. 1982, p. 92). Finally, the speech was recorded in Danish as the participants in the experiment were from Denmark. The speech, translated into English, says the following:

"Many products in your everyday life contain microplastics. The wastewater treatment plants are not equipped to filter microplastics whereby it unimpeded ends in nature and particularly in the oceans, where marine animals consume the plastic. This means that there is an increased risk that you will consume microplastics. The complications associated with the consumption of plastic are still uncertain, but studies indicate that it can reduce your fertility and lead to several types of cancer.

In the following film, you will be introduced to a person and get a glimpse of the extent of how much MP rife in the products he uses daily. Products containing microplastics will be highlighted during the film."

Scene 1: The bedroom

This is the first scene in the film and it runs from 0:370-0:599 (min; sec).

The first scene takes place in the bedroom, where the character wakes up while the speaker introduces him. The introduction appears in two versions (spoken in Danish): one with a negative introduction speech (i.e. stigmatised-version) and one with a positive introduction speech (i.e. positive version).

<u>The English translation of the negative introduction:</u>

"This is Emilius, he is 31 years old, lives south from Køge and is a pedophile. He has just served his three-year prison sentence for assaults on two children from the kindergarten he worked in. Emilius is currently unemployed. However, he has a hard time to find a job not only because of his criminal record, but also because he is perceived as being unsympathetic and selfish."

The English translation of the positive introduction:

"This is Emilius, he is 31 years old, lives south from Køge. He works as a kindergarten teacher, in a kindergarten for socially deprived children. Emilius has always had a passion for helping the people around him and is therefore frequently volunteering for Børnefonden and the Cancer Society. He is very popular and has always been considered to be a very likable and sympathetic person."

We had made various considerations in regards to the speech as we attempted to make the two speeches equally long and only switched out necessary words in order to either present him as a positive person or a negative person. We chose the name Emilius for the person in the film as statistics showed that only 18 people in Denmark had this name in 2017 (Dst, 2017). This decreased the chance that any of our participants would have a biased attitude towards this name or associations related to this name as *"prejudice and stereotypes can operate without the conscious intent or awareness of social perceivers"* (Devine 2001, p. 757).

Picture 2. Screenshots from the film "Egekilde bottled water" (Group A on the right, Group B on the left)

The screenshot above is from the film and shows how we used graphics to highlight the MP product, ensuring that the participants would focus on the product. As the heat map on each picture shows, we got the intended results, as all participants in both groups fixate on the product.

Scene 2: The bathroom

This is the second scene in the film, and it runs from 1:003-1:279 (min; sec).

This scene takes place in the bathroom, where two MP products are visible on the bathroom table.

Picture 3. Screenshots from the film "Gillette shaving foam" (Group A on the right, Group B on the left)

Picture 4. Screenshots from the film "Loreal active face wash" (Group A on the right, Group B on the left)

The person enters the bathroom, and the film pauses. The two products containing MP are individually magnified as can be seen in the screenshot above from the film. He grabs out for one of the products and uses the product while he showers. After the shower, he takes a moisturiser from the bathroom table, the film pauses, and the product is magnified (see below). He then applies the moisturiser unto his face and subsequently brushes his teeth.

Picture 5. Screenshots from the film "Clinique anti aging moisturiser" (Group A on the right, Group B on the left)

Scene 3: The kitchen

This is the third scene in the film and it runs from 1:279-2:279 (min; sec).

This scene takes place in the kitchen and starts with the person opening the refrigerator. The film pauses, and a six-pack of Carlsberg is marked and magnified (see below).

Picture 6. Screenshots from the film "Carlsberg six-pack" (Group A on the right, Group B on the left)

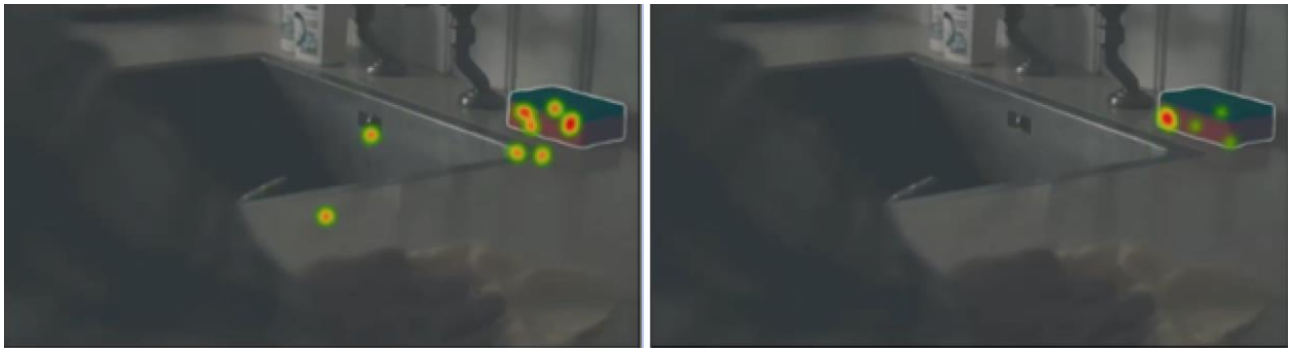
He then takes some breakfast products out from the refrigerator and places them on the countertop and starts preparing his breakfast. The film pauses while he holds a product containing MP and the product is magnified, as seen in the screenshot from the film below.

Picture 7. Screenshots from the film "Jakobsen honning" (Group A on the right, Group B on the left)

After his breakfast, he opens a drawer and takes out another MP product, whereby the film pauses and the product is magnified (see below).

Picture 8. Screenshots from the film "Clean altmuligklude" (Group A on the right, Group B on the left)

He turns on the water in the sink while wringing the yellow cloth and then proceeds to wash the countertop. The film pauses, and the next MP product is magnified, as seen in the screenshot from the film below.



Picture 9. Screenshots from the film "cleaning sponge" (Group A on the right, Group B on the left)

Scene 4: The hallway

This is the fourth scene in the film and it runs from 2:280-2:399 (min; sec).
This scene took place in the hallway, where he puts a fleece sweater on. The film pauses, and the MP product is magnified, as seen in the screenshot from the film below.

Picture 10. Screenshots from the film "Fleece sweater". The warning triangle says "Fleece contains microplastics" (Group A on the right, Group B on the left)

As it was difficult to show that the sweater was made of fleece, we concluded it was necessary to add a warning sign to the frame and a short description that fleece contains MP. To make sure the sign and the presented information was caught by the participant's attention, we used the high contrast and distinctive colours yellow and black, which are recommended to catch the viewer's attention (Johnson 2014, p. 45). The two heat maps clearly show that the participants looked at the warning sign and the text, whereby the sign had the desired effect.

Scene 5: The car

This is the fifth scene in the film and it runs from 2:400-3:140 (min; sec).

In this scene, the person drives a car while applying a lip balm containing MP. The film pauses when the MP product is shown, and the product magnifies (see below).

Picture 11. Screenshots from the film "Nuxe lip balm" (Group A on the right, Group B on the left)

Scene 6: The exit

This is the last scene in the film and it runs from 3:140-3:320 minutes.

Picture 12. Screenshots from the film "littering scene" (Group A on the right, Group B on the left)

In the last scene, the person drops a piece of plastic, notices it and proceeds on his way to the super-market without picking it up. The scene does not contain any MP products, but we chose to include this scene to see if we were able to provoke any reactions among the participants. In addition, it is possible to see from the heat maps of the two pictures that the participants have looked at the plastic that was dropped.

Selected scenes

Besides the six main scenes, which were described above, we have further selected four specific time points in the film the time points are at the same in both the stigmatised and non-stigmatised version. The first selected time point is the "Pedophilia stigma", which is from 0:401 – 0:470 minutes. It is within this specific time interval that the speaker informs the participants in Group A that the person is a pedophile and has assaulted two children, and in Group B, the speaker informs the participants that he is a kindergarten teacher. It is, therefore, within this time interval that our intervention is taking place, whereby we wanted to see the exact expressed emotion in regards to participants in Group A and compare these results with the findings from Group B.

The following two selected scenes are the "Face washing scene" from 1:070 – 1:130 minutes and the "Driving scene" from 2:437 – 2:525. These two intervals have been chosen as the person in the film is in focus here and there are no products clearly visible, whereby the participants are only exposed to him. The datasets from these two intervals will reveal what emotions the participants express towards him when they are "alone" with him.

The last selected scene is the "Littering scene" from 3:146 – 3:205 minutes. This scene was chosen as it is exactly at this time point that he drops the litter in the parking lot. We found this interval interesting, and we wanted to see how the participants would react emotionally when they see that he does not pick it up.

5.2.4.3 EXPLANATION FOR CHOICE OF PRODUCTS

This part will account for the various considerations behind the choices of the products we used in the film in the experiment. The products we showed in the film consisted of a range of everyday products, and also included problematic products containing MP, as well as non-problematic products. We used the app "Beat the Microbead", an app you can scan a product's barcode with in order to find out if a product contains MP (See Appendix D – Beat the Microbead App).

Problematic products

All the products that were highlighted throughout the film have been proven to contain MP and, as such, they pose a threat to the environment, according to various studies (Liebezeit; 2015; DR, 2015a; Beatthemicrobead, 2017). The products we chose belong to different product categories:

food and beverages, cosmetic products and textiles. Each category is described, and the documentation for their pollutive impacts is provided.

Food and beverages

In the film, we included three products from this category, namely an Egekilde Bottled Water, a Carlsberg six-pack and a Jakobsen's Honning (see below).

Picture 13. Food and beverages appearing in the film

The first MP product from this category that was exposed to the participants was Egekilde bottled water in scene 1. This product was chosen to be included in the film as a secondary study found evidence that this product contains two to six particles of MP per litre (DR, 2015a). Even though this is a somewhat small amount of MP, the large consumption of bottled water in Denmark (Vandetsvej, 2017) can make this product constitute a problem. A daily consumption of bottled water could result in a daily consumption of MP, which is inadvisable due to MP's deleterious effect on one's health and the environment (Mst, 2015).

The second MP product in this category was the six-pack of Carlsberg visible in scene 3 in the film. According to the aforementioned study, this product contains 20 to 34 particles of MP per litre, which is a significant amount of MP compared to bottled water (DR, 2015a). Beer was the second most sold product in Denmark in 2015 (Holck, 2016), and statistics shows that in 2014, the Danes drank on average four beers per week (Dst, 2017), which could result in a large intake of MP.

The third MP product in this category was Jakobsens Dansk Honing, which contained 795 particles of MP per kilo (DR, 2015a). The amount of MP in honey is due to the presence of MP in flowers. Bees transport the MP particles from the flower to the beehive, where the honey is then harvested. A secondary study showed that from 25 examined flowers, 24 of them contained MP particles (Liebezeit 2015, p. 146), which indicates how MP are present in nature. Finally, honey is added as

an ingredient in other products in the chocolate industry and the bakery industry (FAO, 2017), whereby the MP in honey is spreading to other products.

Cosmetics

In the film, we showed four products from this category, namely Garnier PureActive facewash, Gillette Sensitive shaving foam, Clinique anti-aging moisturiser and a Nuxe lip balm (see below).

Picture 14. Cosmetic products appearing in the film

Unlike the previous category, this category consists of products where you often find primary MP that is purposely added. More and more manufacturers within the cosmetic industry are removing MP particles from their products. As director-general of the Cosmetic Toiletry and Perfumery Association, Chris Flower explains: *"the use of microbeads in cosmetics is but a minor contributor to the global problem of marine MP contamination, nevertheless our industry has acted responsibly to phase out the use of microbeads in wash-off products where the microbeads go down the drain and may end up in the seas."* (Eic, 2017).

The first MP product in this category that was exposed to the participants was the Gillette Series Sensitive in scene 2. A majority of the shaving creams from Gillette contain MP (Appendix E – Microplastics Products). When the user applies shaving cream and removes it while shaving, the product is washed out in the drain. As earlier mentioned in section 1.2 Microplastics, the water treatment plants cannot intercept MP and, unimpeded, it can end up in nature. This product was chosen as it contains several types of MP particles like polyethylene and polypropylene (Appendix E – Microplastics Products), a type of plastic resistant to water and almost all other solvents and other chemicals (Plast, 2017).

The second MP product within the cosmetic category was the Garnier face scrub in scene 2. Although Garnier has decided to phase out MP products in the future (Appendix E – Microplastics Products), some of their products still contain MP. Currently, this product contains the same types

of MP as the Gillette shaving cream because of their skin exfoliating properties. When the user applies the product to his/hers face and washes it off, tiny microbeads are washed out in the drain and end up in *"the ocean where they harm fish and other sea life."* (Aldred, 2016)

The third MP product within this category was Clinique anti-aging moisturiser in scene 2. Clinique has also decided to phase out MP from their products in the future (Appendix E – Microplastic Products), and they will also remove MP from their other products containing MP particles (Aldred, 2016). Currently, this product contains the same types of MP as the previously mentioned products.

The last MP product within the cosmetic category was Nuxe Reve de Miel moisturising stick in scene 5. This product contains the same MP particles as the earlier mentioned products, but Nuxe has no intentions to phase out MP particles from this product (Appendix E – Microplastics Products). This product is not meant to be washed off like some of the earlier products as it is applied on the lips. This could result in the user ingesting the product when licking his/hers lips, whereby MP particles could end up in the user's stomach.

Textiles

In the film, we showed three textile products, namely dishcloths, a cleaning sponge and a McKinley fleece pullover (see below). This category is one of the most problematic ones in terms of MP emission. Although these products do not contain primary MP (as opposed to cosmetics), they emit MP as a by-product, when they are washed.

Picture 15. Textile products from the film

The first MP product within the textile category that was exposed to the participants was a yellow dishcloth from Cleán in scene 3. This product is something most people have been in contact with, and often it has a permanent space close to the sink in the kitchen. However, this product is made of 20% plastic, and every time this product is used and washed it emits MP (DR, 2015b). Besides leading MP particles down the sink, there is also a risk that it can emit MP particles on, for instance, table surfaces when used.

The second product that the participants were exposed to within this category was a red scouring sponge from First Price in scene 3. This product is only made of polyester and polyurethane (Nemlig, 2017) and therefore consists of 100% plastic. It shares a lot of similarities with the dishcloth as it is a product most people have been acquainted with, and it emits MP when used.

The last product within this category was a black fleece sweater from McKinley in scene 4. Clothes made from fleece consist of a large amount of MP and these particles are released into the wastewater when the clothes are washed (Eic, 2017). Fleece products are *"one of the main sources of micro plastic in the environment. One wash can release up to 20 million synthetic plastic fibres."* (Plasticchange, 2017)

Non-problematic products

Besides the problematic products containing MP, the participants were also exposed to several products that do not contain MP during the film (see below).

Picture 16. Non-problematic products, some of which, appeared in the film.

We decided to include these products, as we wanted the film to look natural, whereby we thought it would be unrealistic if the person in the film strictly owned MP products. The non-MP products were also added in order to find out if the participants could recall which products contained MP in the final questions in the experiment. We tried to have an equitable distribution of non-MP products among the exposed products as there are eight non-MP products compared to ten MP products in the film.

5.2.5 PARTICIPANTS

A total sample of 29 participants was recruited through a direct recruitment procedure at Copenhagen Business School. When we recruited the participants, we asked if they were Danish, as it was crucial that the participant could both read and understand Danish, since the experiment was

conducted in Danish. As discussed in the theoretical framework, we only wanted to use women in the study; as a result, the gender distribution was 100% female.

Nine participants were excluded from the sample, as three participants were used as a test person, two participants were excluded due to missing pictures in the survey, and two participants were excluded due to software failure. The final two participants were excluded due to external influencing factors (e.g. a loud siren started during one of the experiments, and a student bursted into the laboratory and disrupted another experiment). The sample in the experiment ended up with consisting of 20 women aged 20-33 years old (A = 23.15, M = 23, SD = 2.87). They were all living in or close to the Copenhagen area. The sample was divided into two groups, Group A and Group B.

Group A - Experimental group

Of the ten participants who took part in the experiment, all participants were female, and their ages ranged from 20-33 (A = 24,3, M = 23,5, SD = 3,36). All participants passed the exclusion criteria described in section 5.2.1 The Design. The experiment was held on a Sunday.

Group B - Control group

Of the ten participants who took part in the experiment, all participants were female, and their ages ranged from 20-25 (A = 22, M 22, SD = 1,76). The experiment was held on a Monday.

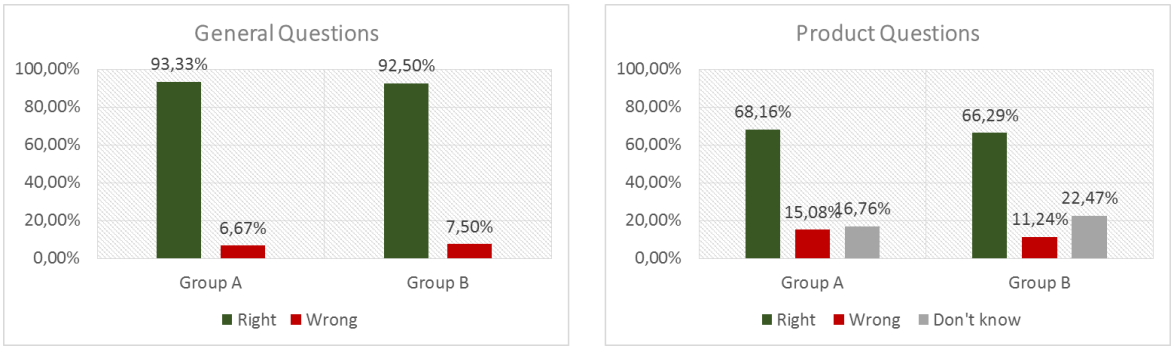
5.2.6 PART ONE: TESTING RECALL

As figure 2 also showed, our experimentincluded two different surveys, one survey about the general information about the film (including exclusion criteria for the experimental group), and a second survey about the different products in the film asking whether they contained MP or not. We will test hypothesis 1 by looking at the two groups ability to recall information from the film and to distinguish between MP and non-MP product the answers of each group will be analysed. The relevant data to hypothesis 1 will be presented in order to test hypothesis 1:

H1: Women exposed to a person with a negative stigma will have a higher recall for products containing MP and general information

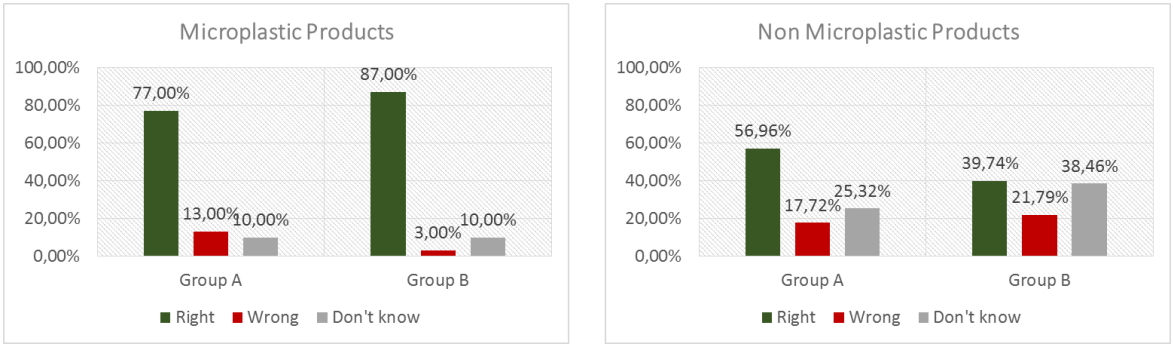
$H1_0$: Women exposed to a person with a negative stigma will not have a higher recall for products containing MP and general information

All the participants answered the general questions about the person in the film. In Group A, all answered correctly on the question about his sexual deviation (i.e. being a pedophile), and the question about his personality traits (being egoistic and unsympathetic) thus passing the excluding criteria. In Group B, however, all participants did not answer right on the questions we had substituted with the exclusion criteria in the control group. One person answered wrong on the question about his job, and two answered wrong on the question about the organisations he volunteered for. In total, Group A answered 112 out 120 questions correctly (93,2%), compared to 111 out 120 questions (92,5%), see graph below. The average exposure time for the survey was 46,12 secs in Group A and 59,97 secs in Group B (see Appendix F – Results from the Surveys in the Experiments).



Graph 1. Share of right/wrong/don't know answers in Group A and Group B

Of the total 180 questions about products in the film (18 per participant), Group A answered 179 questions. Of the 179 questions answered by Group A, 122 answers (68.16%) were right, 27 wrong (15.08%) and 30 Don't know (16.76%). Group B answered 178 questions out of the 180 questions. Of the 178 questions, 118 answers (66.29%) were right, 20 (11.24%) wrong and 40 Don't know (22.5%). The average reaction time per product questions was 4,32 secs in Group A and 5,12 secs in Group B (see Appendix F – Results from the Surveys in the Experiments).



Graph 2. Share of right/wrong/don't know answers in Group A and Group B

If we take a deeper look at the results from the product survey, looking at MP and non-MP products, it shows that Group B was better than Group A at answering the questions about MP products. There was a total of 100 questions about MP products (10 pr. participant), and both groups answered all MP questions. As the illustration above shows, Group A was right on a total of 77 (77%), wrong on 13 (13%) and 10 (10%) questions were answered with "Don't know". Group B was right on a total of 87 (87%), wrong on 3 (3%) and answered "Don't know" on 10 (10%) questions. The average reaction time per MP product questions in Group A was lowest (4.24 secs), compared to Group B (4.59 secs) (see Appendix F – Results from the Surveys in the Experiments).

There was a total of 80 questions about non-MP products, with 79 questions answered in Group A and 78 in Group B. Group A answered 45 right (56,96%), 14 wrong (17.72%), and 20 "Don't know" (25.32%). Group B answered 31 right (39,74%), 17 wrong (21.79%) and 30 "Don't know" (38.46%). Once again, the average reaction time in Group A was fastest (4.43 secs), compared to Group B (5.88 secs), a difference of 1.45 secs compared. For a detailed overview of the results see Appendix F – Results from the Surveys in the Experiments.

By looking at the specific products, it is possible to see that Group A was best able to recall the fleece sweater, as all participants answered right to this product, followed by the yellow dishcloth with 9 rights, 1 "Don't know" and then the Carlsberg sixpack with 9 right and 1 wrong. Group B was 100% right on three products, namely the dishcloth, the face wash and the cleaning sponge. Both groups were least able to answer correctly on the Egekilde water, followed by the Nuxe lip balm and Gillette shaving cream in Group A and the Gillette shaving cream and the Clinique moisturiser in Group B (see Appendix G – Right/Wrong Answers per MP Product).

Both groups were slower at answering the questions about non-MP products. Group A was not only faster at answering both questions about both types of products, but the exposure time for non-MP products was lower than the exposure time for MP products in Group B.

5.2.7 PART TWO: NEGATIVE EMOTIONS THROUGHOUT THE FILM

This part will present the relevant results we obtained from the experiment regarding the negative emotions the participants expressed in Group A and Group B throughout the film, which will be used to test the hypothesis in section 6.2.9. Testing the null-hypotheses. We will start by describing the aggregated amount of negative feelings (i.e. the sum of disgust, anger, fear and contempt) by scene (main and selected scenes) by comparing the two datasets. For the sake of clarification, the

data from the facial expression analysis provides evidence levels of the different emotions. The higher the score, the more evidence for that particular emotion is present (iMotion, 2016). When we compare the two datasets, we look at them in relation to each other. So, for instance, when the evidence level of an emotion is a negative value, the group with the highest evidence level will still be considered the one showing the most evidence for that particular emotion.

H2: Women will elicit negative emotions when exposed to a stigmatised person

$H2_0$: Women will not elicit negative emotions when exposed to a stigmatised person

Group A - Experimental Group								
Main scenes	**Timestamp (min:sec)**	**Negative aggregate**	**iMotions aggregate**	**Disgust**	**Anger**	**Contempt**	**Fear**	**Surprise**
Disclaimer	**0:000 - 0:369**	-0,097	0,168	-0,039	-0,069	-0,100	-0,151	-0,196
The Bedroom	**0:370 - 0:599**	-0,113	0,309	-0,118	0,049	-0,227	-0,127	-0,244
The Bathroom	**1:003 - 1:279**	-0,110	0,277	-0,090	0,190	-0,374	-0,135	-0,179
The Kitchen	**1:279 - 2:279**	-0,147	0,319	-0,158	0,278	-0,463	-0,214	-0,189
The Hallway	**2:280 - 2:399**	-0,183	0,319	-0,202	0,274	-0,518	-0,257	-0,136
The Car	**2:400 - 3:140**	-0,228	0,335	-0,220	0,253	-0,551	-0,364	-0,213
The Exit	**3:140 - 3:320**	-0,167	0,405	-0,225	0,320	-0,548	-0,183	-0,078
Total All Scenes	**0:000 - 3:320**	**-0,146**	**0,296**	**-0,142**	**0,180**	**-0,387**	**-0,207**	**-0,186**

Table 2. Average level of selected emotions per scene in Group A

Group B - Control Group								
Main scenes	**Timestamp (min:sec)**	**Negative aggregate**	**iMotions aggregate**	**Disgust**	**Anger**	**Contempt**	**Fear**	**Surprise**
Disclaimer	**0:000 - 0:369**	-0,058	0,117	-0,020	0,018	-0,013	-0,217	-0,121
The Bedroom	**0:370 - 0:599**	-0,116	0,067	-0,116	0,044	-0,105	-0,288	-0,099
The Bathroom	**1:003 - 1:279**	-0,073	0,262	-0,114	0,298	-0,270	-0,204	0,001
The Kitchen	**1:279 - 2:279**	-0,082	0,327	-0,107	0,333	-0,339	-0,214	0,063
The Hallway	**2:280 - 2:399**	-0,105	0,426	-0,073	0,314	-0,428	-0,235	0,095
The Car	**2:400 - 3:140**	-0,140	0,396	-0,130	0,301	-0,447	-0,283	0,000
The Exit	**3:140 - 3:320**	-0,140	0,379	-0,210	0,352	-0,472	-0,228	0,003
Total All Scenes	**0:000 - 3:320**	**-0,096**	**0,275**	**-0,104**	**0,238**	**-0,281**	**-0,235**	**-0,008**

Table 3. Average level of selected emotions per scene in Group B

The tables above show the average scores for the ten participants in the two groups. Overall, it is possible to see that, on our own aggregate for negative emotions expressed during the experiment, participants in Group B has expressed more negative emotions (-0.096) than participants in Group A (-0.146). When looking at the emotion "Disgust", Group A expressed less disgust (-0.142) compared to Group B (-0.104). The scene in which the participants expressed most disgust was during the "Disclaimer" scene in both groups, followed by the "Bathroom" scene in Group A (-0.090) and the "Hallway" scene in Group B (-0.073). The participants expressed the least disgust during the "Exit" scene in Group A (-0.225), which was the same case in Group B (-0.210).

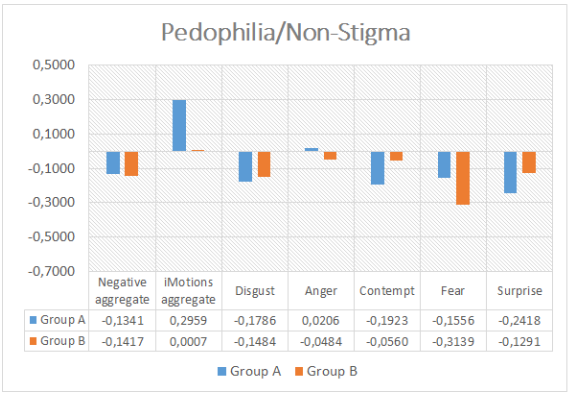
Anger was the only emotion, which has received an overall positive score in both Group A (0.180) and Group B (0.238) and was, therefore, the most dominant emotion in both groups based on these observations. The participants in Group A express most anger during the "Exit" scene (0.320)

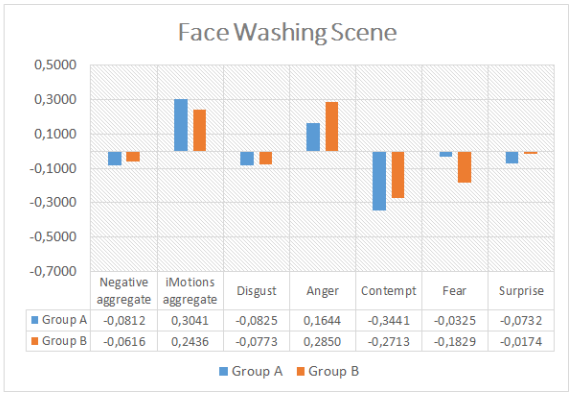
which was the same case in Group B (0.352), and this scene was followed by the "Kitchen" scene in Group A (0.278) and also in Group B (0.333). The participants was the least angry during the "Disclaimer" in Group A (-0.069), which was the same case in Group B (0.018).

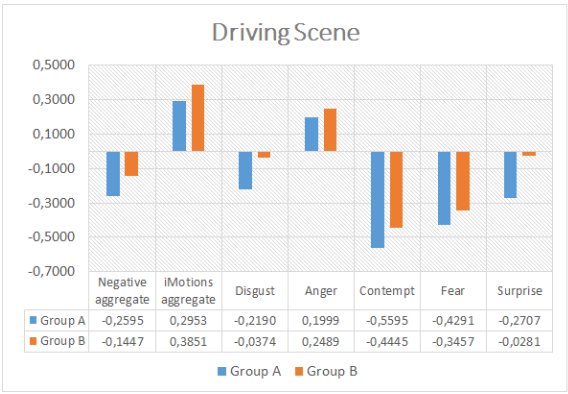
Contempt was the overall lowest expressed emotion in Group A (-0.387) and also in Group B (-0.281). The scene with the highest level of contempt in both groups was the "Disclaimer" with in -0.100 Group A and -0.013 in Group B, followed by the "Bedroom" scene with -0.227 in Group A -0.105 in Group B. The lowest levels of contempt were during the "Car" scene (Group A: -0.551, Group B: -0.447).

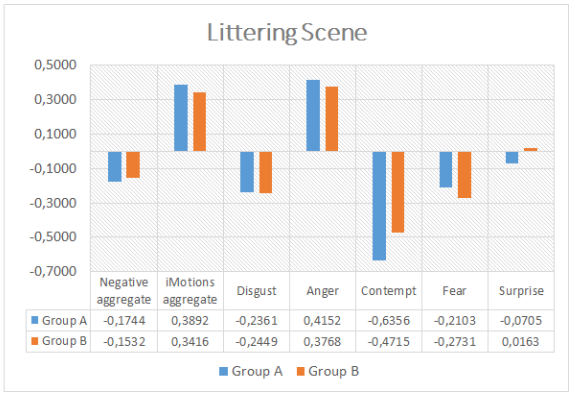
Fear was the second least expressed emotion in both Group A (-0.207) and Group B (-0.235). Group A expressed the largest amount of fear during the "Bedroom" scene (-0.127), while Group B expressed the largest amount of fear during the "Bathroom" scene (-0.214). Group A expressed the least fear during the "Car" scene (-0.364) and Group B during the "Bedroom" scene (-0.288).

Surprise was the second most expressed emotion in Group B (-0.008) and the third most expressed emotion in Group A (-0.186). The participants in Group A was most surprised during the "Exit" scene (-0.078) and in Group B during the "Hallway" scene (0.095). The lowest levels of surprise was in the "Bedroom" scene in Group A (-0.244) and during the "Disclaimer" in Group B (-0.121).









Graph 3. Level of emotions per selected scene in Group A and Group B (see data table for exact values)

The graphs above show the expressed emotions during the selected scenes (which we outlined earlier in section 5.2.4.2 Scenes). When looking at the aggregated emotions, it shows that, in general, the participants expressed more negative emotions in Group B. Only in one scene did the participants in Group A express more negative emotions, namely during the "Pedophilia stigma" scene.

Participants from Group A expressed most negative emotions during the "Face washing" scene (-0.081), which was the same case in Group B (-0.062). The scene where the participants from Group A expressed second most negative emotions was during the "Pedophilia stigma" scene (-0.134), which was the same scene in Group B (-0.142). The scene in which the participants expressed most disgust was the "Face washing" scene in Group A (-0.083) and during the "Driving" scene in Group B (-0.037). The lowest levels of disgust was during the "Littering" scene in Group A (-0.236) and in Group B (-0.245).

Anger was the most expressed emotion in the two groups and this emotion peaked in during the "Littering" scene in Group A (0.415) and in Group B (0.377), followed by the "Driving" scene in Group A (0.200) and the "Face washing" scene in Group B (0.285). The participants were least angry during the "Disclaimer" in Group A (0.021), which was the same case in Group B (-0.048).

Contempt peaked in Group A during the "Pedophilia stigma" scene (-0.192), which was the same scene in Group B (-0.056). The participants express the least contempt during the "Littering" scene in both Group A (-0.636) and Group B (-0.471). During the "Pedophilia stigma"/"Non-stigma" scene it is possible to see that the participants in Group A express the most fear (-0.032) and in Group B (-0.183). The lowest levels of fear was during the "Driving" scene in both Group A (-0.429) and in Group B (-0.346).

Finally, the participants expressed the most surprise during the "Littering" scene in Group A (-0.070) and in Group B (0.016). The lowest levels of surprise was during the "Driving" scene in Group A (-0.271) and during the "Non-stigma" scene in Group B (-0.242).

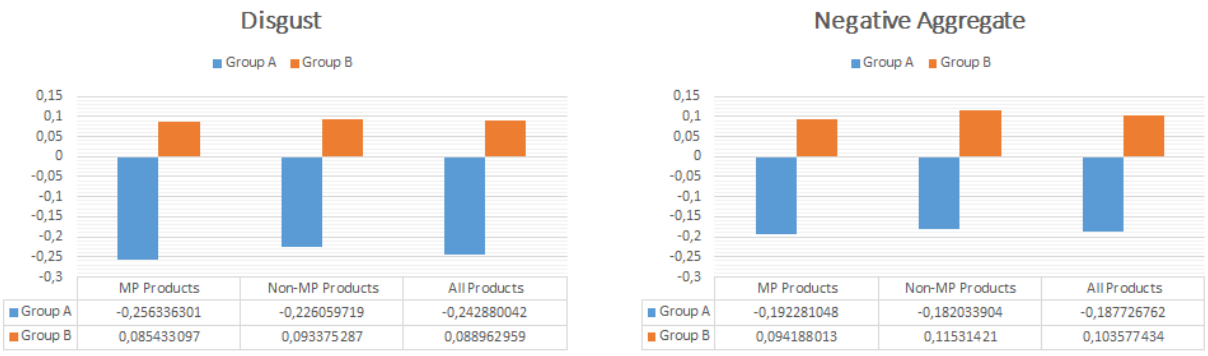
5.2.8 PART THREE: CONTAMINATION OF PRODUCTS

This part will present the relevant results we obtained from the experiment regarding the facial expression data. We collected this data while the participants answered questions regarding the MP products in the film, which will be used to test the hypothesis in the subsequent section. Since expressions can be brief, we set a threshold of 0.75 secs. This means that the average emotions for

each are calculated based on the expressions they show 0.75 sec from exposure. We will compare the emotions from the two groups, both in terms of MP products and non-MP products. Since disgust is the facilitating emotion behind the effects of consumer contamination (Argo et al., 2006), we will focus on this emotion. However, we will also take our aggregated negative emotions into account to assess whether, in general, there was a higher display of negative feelings in one of the groups. However, in this aggregate, contempt has been excluded because the emotion is irrelevant since contempt is something we show for individuals and not products (as mentioned earlier in section 3.3.2. Emotions).

H3: MP products touched by a stigmatised person will subsequently be seen as 'contaminated'

$H3_0$: MP products touched by a stigmatised person will not subsequently be seen as 'contaminated.'



	MP Products	Non-MP Products	All Products
Group A	-0,256336301	-0,226059719	-0,242880042
Group B	0,085433097	0,093375287	0,088962959

	MP Products	Non-MP Products	All Products
Group A	-0,192281048	-0,182033904	-0,187726762
Group B	0,094188013	0,11531421	0,103577434

Graph 4. Disgust and negative emotions (aggregate) for microplastics products and non-mp products for Group A and Group B (see data table for exact values)

The graphs above shows the differences between the two groups' average levels of disgust and negative emotions during the first 0.75 secs exposure to the products. In general, Group B showed more disgust and negative emotions for all types of products (MP, non-MP, and all products). Even though the differences between the two groups seem large, a t-test reveals that there is no significant difference between the two groups. To reject the null hypothesis, the difference between the disgust levels of MP products in the two groups should be significant, with a p-value < 0.05. However, the p-value for disgust is 0.2372 and we, therefore, cannot reject the null hypothesis. The p-value for the negative aggregate is 0.2453, also above the critical p-value of 0.05. For an overview see Appendix H – T-test for Product Emotions.

			Disgust			Negative Aggregate		
Nr.	Product	Microplastic?	Group A	Group B	P Value	Group A	Group B	P Value
2	Milk	No	-0,2610	-0,0381	0,4735	-0,2497	-0,0624	0,4204
4	Beauvais Ketchup	No	-0,2347	0,0197	0,4467	-0,2278	-0,0268	0,4562
5	Biotherm Deo	No	-0,1510	-0,0368	0,3538	-0,1508	-0,0330	0,3585
8	Colgate Toothpaste	No	-0,2843	0,0553	0,2061	-0,2014	0,0753	0,3479
12	Nescafé	No	-0,2802	0,2085	0,0799	-0,1945	0,0748	0,1484
13	Neutral Handsoap	No	-0,1921	0,2305	0,1267	-0,1530	0,1084	0,1534
16	Skyr	No	-0,2453	0,2152	0,1159	-0,1273	0,1531	0,1418
18	Philladelphia	No	-0,1491	0,0743	0,1968	-0,1467	0,0192	0,1728
1	Loreal Face Wash	Yes	-0,4763	0,1075	0,1445	-0,3349	-0,0041	0,1755
3	Fleece Sweater	Yes	-0,1939	0,0770	0,2999	-0,2232	0,0050	0,2766
6	Carlsberg Sixpack	Yes	-0,2749	-0,0466	0,2517	-0,1745	-0,0240	0,3739
7	Clinique Mouisturizer	Yes	-0,3360	-0,0677	0,1528	-0,2253	-0,0176	0,2217
9	Gillette Shaving Foam	Yes	-0,3270	0,1002	0,1337	-0,2059	-0,0859	0,2588
10	Jakobsen Honey	Yes	-0,2043	0,0903	0,1778	-0,1803	0,0870	0,1297
11	Dish Cloth	Yes	-0,1851	0,2083	0,1276	-0,1804	0,0906	0,1075
14	Nuxe Lipbalm	Yes	-0,1841	0,2040	0,1779	-0,1156	0,1525	0,1966
15	Cleaning Sponge	Yes	-0,2019	0,0650	0,1525	-0,1276	0,0500	0,1950
17	Egekilde Water	Yes	-0,1744	0,1191	0,2687	-0,1565	0,0150	0,2701

Table 4. Disgust/negative emotions (aggregate) and p-values for all 18 products (sorted by mp/non-mp products) for Group A and Group B. "nr" indicates when they appeared in the product survey.

To see if there was any significant differences for particular products we looked at the products individually. The table above shows that the difference in the levels of disgust and negative emotions for each products cannot be considered statistically significant, as none of the p-values are below the critical p-value of 0.05. There were also no significant differences in the other emotions (see Appendix I – P-Values for All Products and All Emotions.)

5.2.9 TESTING THE NULL-HYPOTHESES

In this part, we will look at the findings described above to see if we can reject our null hypotheses, thus supporting our various hypotheses, starting with the first hypotheses about recall ability.

$H1_0$: Women exposed to a person with a negative stigma will not have a higher recall for products containing MP and general information

In order to reject this null hypothesis, we looked at the two groups ability to answer questions about the products in the film (see Appendix F – Results from the Surveys in the Experiments). Throughout the film, we showed and highlighted different MP products, thereby informing the viewer that these particular products contained MP. We then showed different pictures of products (both MP and non-MP) and asked the participants which products contained MP. To reject the null hypothesis we would need to have a significant difference in the two groups' ability to distinguish between MP and non-MP products. Therefore, we looked at the right answers in the two groups and concluded

that there were only minor differences in their ability to recall information about the products from the film.

When looking at the two groups overall performance in the product survey, a t-test shows that the difference between the two groups cannot be considered significant. To reject the null hypothesis we should have a p-value > $\alpha = 0.05$ (Bryman, 2012), but our calculated p-value shows the p-value for "Right" answers is 0.7514 (see Appendix J – T-tests Product Answers).

Group B was right on 87% of the MP products, and only wrong on 3%, compared to Group A who were right on 77% and wrong on 13%. When we do a t-test on the results for MP products, it shows that Group A was significantly more wrong than Group B (p-value 0.0362 > 0.05). However, the difference between the right answers in Group A and B were not significant (with p-value 0.1129 > 0.05) (see Appendix K – T-tests MP-Product Answers).

Group A was faster at answering the questions about the products. As mentioned previously, there was a difference of 1.45 secs between the two groups when looking at both MP and non-MP products. Both groups were slower at answering the questions about non-MP products. Group A was not only faster at answering both questions about both types of products, the exposure time for non-MP products was lower than the exposure time for MP products in Group B. When looking at the difference between product answers in general, the difference is almost significant, with a p-value of 0.0563. On MP products only, the difference between the two groups cannot be considered significant (p-value 0.407 > 0.05). However, on non-MP products Group A was significantly faster at answering the questions with a p-value 0.0167. However, we did find evidence that when exposed to a stigmatised person, participants' reaction time was faster for non-MP products. For a detailed overview of the reaction time see Appendix L – T-tests Reaction Time.

Overall, we fail to reject the null hypothesis and, therefore, cannnot say with certainty that exposing persons to a stigmatised person will lead to enhanced recall for MP products.

$H2_0$: Women will not elicit negative emotions when exposed to a stigmatised person

To support the hypotheses that women will elicit more negative emotions when exposed to stigmatised person, we would have to reject the null hypothesis that women will not elicit more negative emotions when exposed to a stigmatised person. To do this, we had the two groups look at an almost identical film, but in the experimental group, we introduced the person in the film as a stigmatised person (i.e. a pedophile).

As we demonstrated with the results, a majority of the scenes in which the various emotions were highest or lowest was the same in both Group A and Group B, and the values were also rather close to each other. When comparing the two groups, it is possible to conclude that the values are rather similar and that the scenes with the highest and lowest degree of emotions repeat themselves in a pattern. We calculated the p-values to test if there was a significant difference between the two datasets (see Appendix M – P-values per Scene per emotion). The p-values show that there are no significant differences between the two datasets (with a critical p-value of 0.05).

When looking at the calculated p-values for both the main scenes and the selected scenes, there is no significant difference between Group A and Group B except for ”iMotions aggregate”. It is not completely transparent how iMotions have calculated their aggregate for negative emotions, so this value is not taken into consideration when testing hypothesis 2. Instead, we focus on the aggregate we calculated ourselves from disgust, contempt, fear and anger. Based on these findings, we fail to reject the null hypothesis and, therefore, cannot find any evidence to support hypothesis 2.

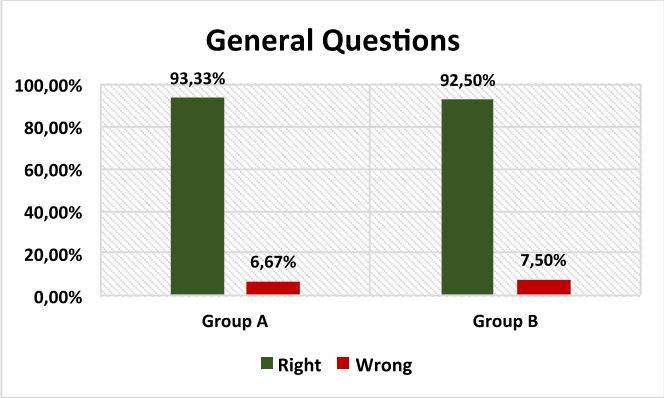
$H3_0$: MP products touched by a stigmatised person will not subsequently be seen as 'contaminated.'

To support the hypothesis that stigmatised persons can contaminate products simply by touching or being seen in their presence, we would need to reject the null hypothesis above. Since consumer contamination is facilitated by disgust, we were mainly concerned about the level of disgust the two groups expressed when exposed to products from the film. In order to reject the third hypothesis, we did a t-test which revealed that no p-values are lower than the critical p-value of 0.05, and the difference between the two groups should, therefore, be seen as insignificant. We looked further into the data to see if there were any significant difference in the emotions expressed towards the 18 products from the film. Despite showing larger levels of disgust for all products in Group B, a t-test reveals that none of the differences between the disgust expressed for each product have a p-value lower than the critical p-value of 0.05. So, once again, the differences between the groups cannot be seen as significant. Based on these findings, we fail to reject the null hypothesis and, therefore, did not find any evidence to support the hypothesis that a stigmatised person would contaminate the products he touched.

5.2.10 OTHER FINDINGS

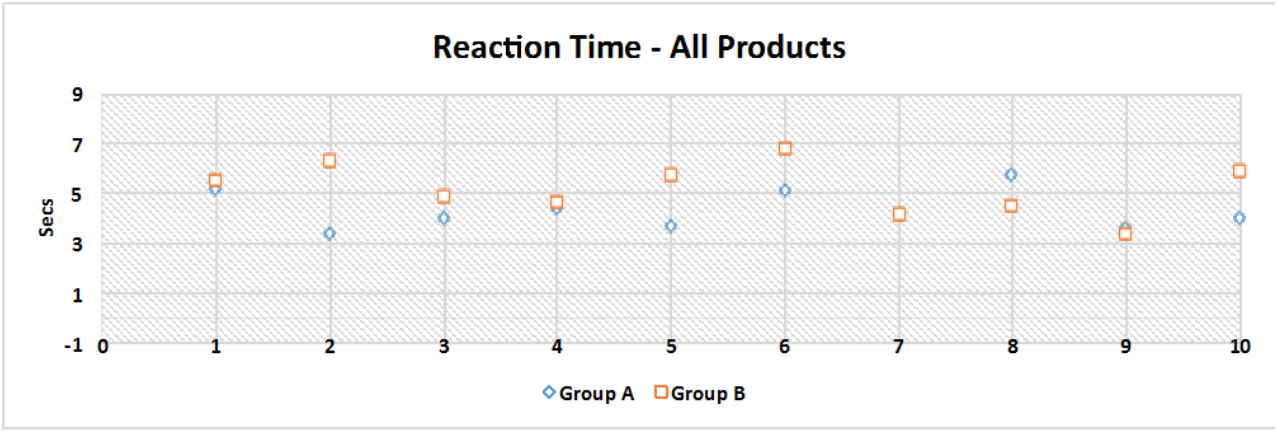
Despite not finding any significant evidence to support our hypotheses, the experiment provided us with other interesting findings. This part will outline the other interesting findings from the experiment.

In the survey about general information from the film, participants in Group A was better at recalling general information from the film (questions about him, what he did throughout the film, the color of specific products, etc.).



Graph 5. Right and wrong answers in the general questions survey for Group A and Group B

Although Group A only had one more answer correct, it is not this difference we found interesting. It is the fact that Group A remembered all the information about the person (i.e. his stigma and his personality traits), whereas Group B did not. The difference between right and wrong answers cannot be considered significant with a p-value for both right and wrong of 0.8448, well above the critical p-value of 0.05 (see Appendix N – T-tests General Questions Answered).

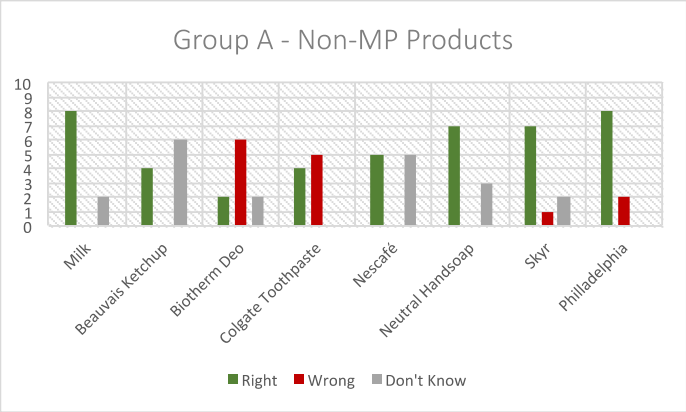


Graph 6. Scatter plot diagram for the average reaction time pr. Participants. X-axis = participants

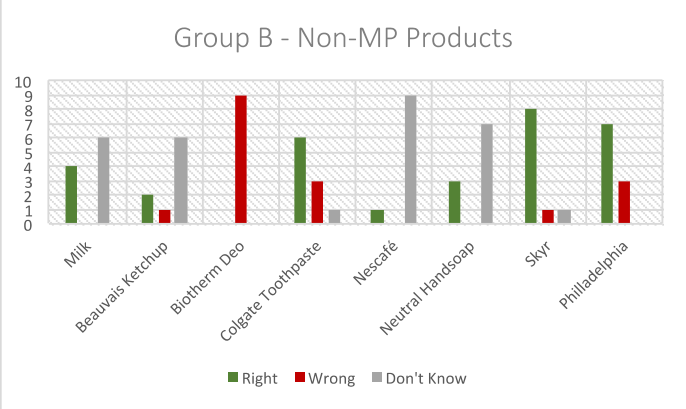
Group A was also faster at answering questions about general information compared to Group B. On average, Group A spent 46.12 secs answering the 12 questions about general information,

whereas Group B spent an average of 59.97 sec. When doing a t-test on these differences, it reveals that Group A was significantly faster at answering questions about the general question with a p-value of 0.0167 and thereby below the critical p-value of 0.05 (see Appendix L – T-tests Reaction Time).

A previous study by Lerner et al., (2001) demonstrated how different emotional states affect one's estimation of risk. In their study, they demonstrated how anger led people to more *"optimistic risk estimates and risk-seeking choices"* (Lerner, 2001, p. 146) compared to fear. In our data, we can find some support for this when looking at the two groups combined average anger expressed during "Yes/No" answers and the "Don't know" answers. In total, there was an anger level of 0.232 during "Yes/No" answers (the choice associated with certainty), and 0.150 during "Don't know" answers (see Appendix O – Anger During Answers).



Graph 7. Right/wrong/don't knows per non-mp product in Group A

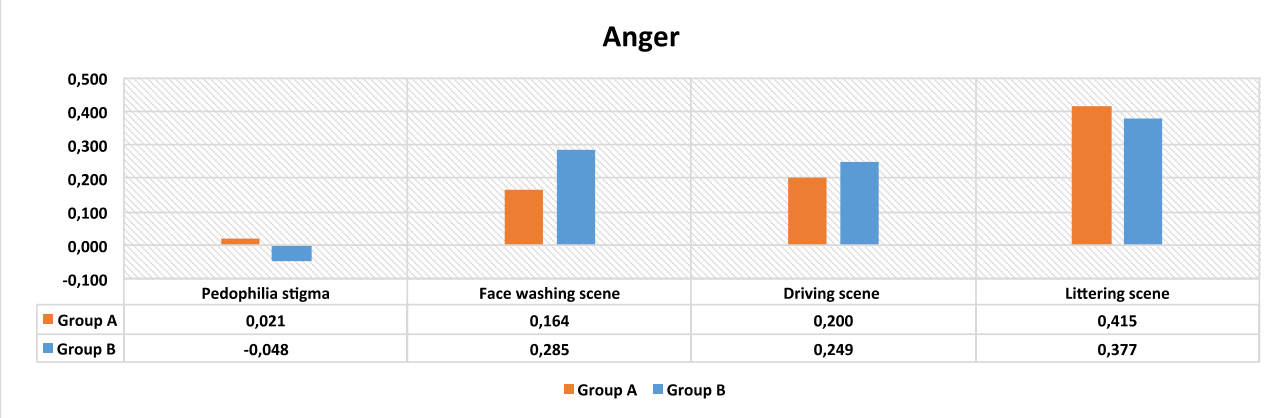


Graph 8. Right/wrong/don't knows per non-mp product in Group B

An interesting finding can also be seen in the distribution of right and wrong answers in regards to non-MP products, which can be seen above. Here it is possible to see that one specific product (the

Biotherm Deo) recurs in both groups, as six participants in Group A and nine participants in Group B answered this non-MP product contained MP (see graph above).

As mentioned in second part of the results, we did not take iMotions' calculated aggregate value for negative emotions into consideration when testing our hypothesis. However, if we do take a look at the value calculated by iMotions for the selected scene "Pedophilia stigma"/"Non-stigma", participants during this time interval expressed significantly more negative emotions in Group A (p-value 0.0231 < 0.05) (see Appendix M – P-Values per Scene per Emotion).



Graph 9. Anger levels per selected scene in Group A and Group B (see data table for exact values)

The illustration above shows the degree of anger the two groups expressed during the four selected scenes. When the participants in both groups saw the person in the film dropping a piece of trash without picking it up in the "Littering scene", we could see that the participants expressed large amounts of anger (relative to the three other selected scenes).

We discovered another interesting finding when we spoke to the participants after the experiment. One of the participants from Group A said she thought the person in the film was an actor, and another person told us that the ambient background music we used in the film was the same as in the DR's TV show "Nak og Æd" (DR, 2017).

6. DISCUSSION OF RESULTS

The aim of this thesis was to investigate the effects of stigmatisation on women's emotional states and aspects of their cognitive abilities (recall and reaction time). For this purpose:

- The effect of stigmatisation on different aspects of cognition was studied.
- The effect of stigmatisation on different emotions was measured.

- The effect of stigmatisation on the emotional reactions to products upon subsequent exposure was measured.

The findings from the experiment did not provide support for our three hypotheses, namely that a stigmatised person would lead to enhanced recall ability, negative emotions and disgust for the products he was in contact with (physically or through ownership).

This part will discuss the findings (and lack thereof) from our experiment in light of what we know from previous studies on similar research problems. Taking the results into consideration, we will explain the new understanding and insights we have acquired. Since we did not manage to find supporting evidence for our hypotheses, this part will mainly focus on why we did not manage to obtain the 'desired' results. We will start out with an explanation of different confounding variables, which could have had an impact on our study, thereby have had an influence on all three hypothesis.

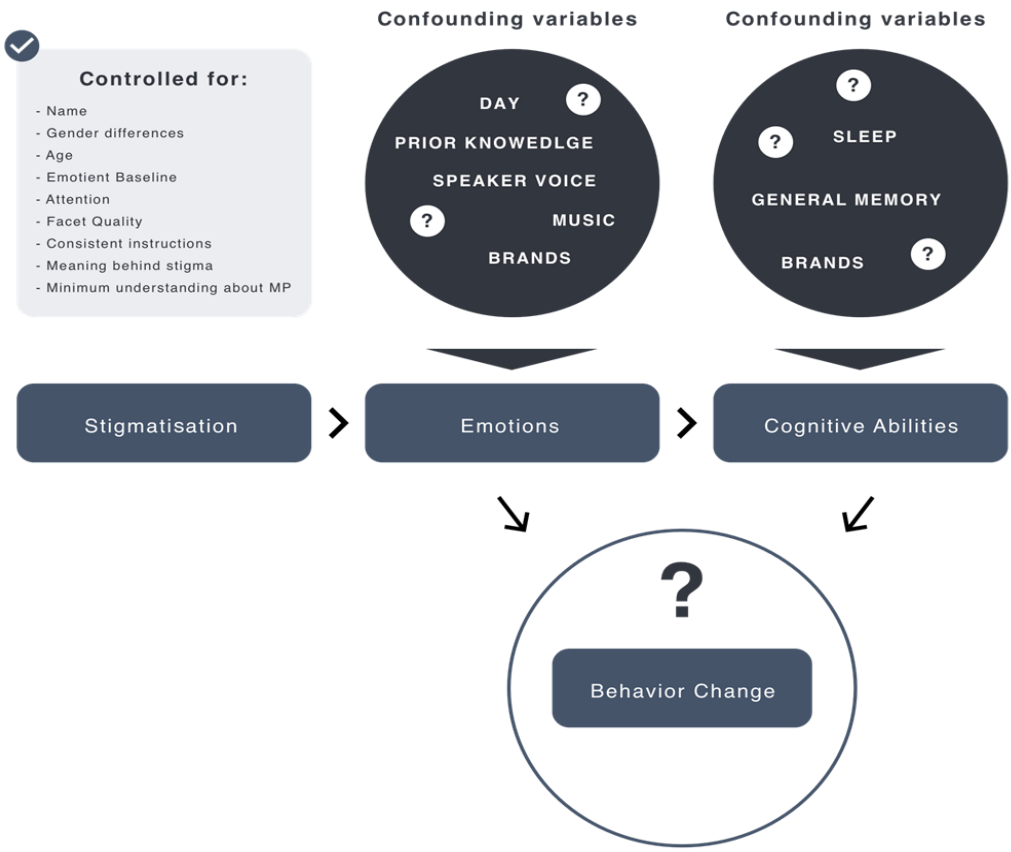


Figure 3. The intentions behind using stigmasation and other confounding variables that can have interfered.

As the illustration above shows, our intention was to use stigmatisation to influence participants' emotions and cognitive abilities (recall ability for MP products in particular). The inferred influence

could then - according to the literature we reviewed above in section 3. Theoretical Framework - have a potential influence on people's behavior. However, as we will elaborate on later and as we menitioned in section 1.5 Delimitations we cannot know whether our intervention leads to an actual change in future behavior. The illustration also shows how countless confounding variables can have influenced the participants' emotions and cognitive abilities. While we tried to limit the impacts from possible confounding variables, there are always confounding variables that cannot be controlled for (Bryman, 2012). One of the confounding variables we tried to control is, for instance, the person's name (Emilius), which was chosen as only 18 people in Denmark had this name in 2017 (Dst, 2017) to decrease the risk that any of the participants knew people with this name. By choosing a more used name, it could mean that some participants would have associations related to this specific name and thereby result in a biased attitude towards the person in the film. We had also made considerations regarding the background music in the film. However, the choice can have been a confounding variable, as it was later discovered that the same music was used in DR's TV show "Nak og Æd" (DR, 2017). This TV show was awarded as the best TV show in 2011 (DR, 2011), whereby there is a risk that some participants have seen this show and thereby have associations to the music. For instance, if the participants have positive associations with this music due to the TV show, there is a risk that the used music had an impact, since *"Music serves as a powerful connection into our emotions"* (Morrison 2002, p. 4). See the box "Controlled for" in the figure above for an overview of the other variables we controlled for.

Besides the choice of music, another confounding variable could be the days we conducted the experiments. Initially we wanted to randomly assign participants to either the control group or the experimental group, but as we will discuss in section 9.1 Validity and Reliability, a software bug forced us to conduct all experiments for one group on the same day. We therefore conducted the experiment on two different days, namely Group A on a Sunday and Group B on a Monday. It is *"a commonly held belief in our culture that Monday is the worst day of the week, representing the low point for affective states"* (Stone et al. 1985, p. 129). This could have had an impact on the participants' mood explaining why participants in Group B expressed more negative emotions during the experiment.

Besides the variation in regards to days, another factor can also have influenced the participants in the two groups. The sun was shining on Sunday the 2nd of April, and it was cloudy on Monday the 3rd of April (Accuweather, 2017), whereby there is a chance that the participants in Group A was affected by the sunny weather, as *"sunny weather is associated with upbeat mood"* (Hirshleifer et

al. 2003, p. 1028). Hirshleifer et al. (2003) conducted a study on how the stock exchange was influenced by sunny weather, where it was proven that the stock change was affected by good weather. Their findings showed that sunny weather could affect mood in a positive way and subsequently affect stock prices. However, as they also concluded: it is important to remember that *"Sunshine is just one of the many influencers on mood"* (Hirschleifer et al. 2003, p. 1029).

These different factors are, of course, only a few of the many confounding variables that could have had a potential impact on the results. Although all explanations are plausible and grounded in results from previous studies, we believe that the main reason why we did not find any support for our hypothesis is because people did not believe he was a pedophile. We also acknowledge that our experimental design had flaws, and that we, as researchers, could have done more to set up a more withstanding design. This will be elaborated on in section 10. Future studies.

We will now discuss the results in relation to the three hypotheses, starting with the enhanced recall ability hypothesis.

6.1 RECALL ABILITY HYPOTHESIS

In the experiment, there was no statistically significant evidence supporting the hypothesis that a stigmatised person will lead to an enhanced recall ability for MP products. In fact, the experimental group scored lower than the control group in the survey about MP and non-MP products, however not at a statistically significant level. There are several explanations for why we did not find any support for this hypothesis. Once again, the lack of evidence can be explained by the small sample size. However, other factors like difficulty of the questions and the number of questions might also have had an impact. Even with a small sample like the one we had, an increased number of questions would have lead to more observations and could have led to more significant differences (given that the distribution of answers was alike). Despite being unable to find significant evidence to support the hypothesis, the study did provide other interesting findings. In this part, the findings with relation to the recall ability hypothesis will be discussed.

More correct product answers but lower ability to recall MP products

As the outline of the results above show, we were not able to support our first hypothesis, namely that participants in the group exposed to a stigmatised person would have a higher recall for MP products. Group A was neither better (at a significant level) at answering right on questions about

MP products. In fact, Group A were actually significantly more wrong on the questions about MP products. The reason why Group A answered more questions right (in total) can likely be attributed to the fact that they were less prone to answer "Don't know". When choosing "Don't know" you give up on the chance to 'guess right', whereas when you answer yes or no, there is always a 50/50 chance to get the answer correct.

The reason why Group B was significantly less wrong on the questions about MP products can perhaps be explained by confounding variables such as prior knowledge about MP or better memory. In our study, we only made sure that every participant had a basic knowledge about MP products, we did not account for prior knowledge about MP, which might put some of the participants in a superior position when answering the questions. Due to the novelty of the case, we did not expect that many participants would have a prior knowledge about the topic. However, when looking at individual answers, it reveals that 4 out of 10 in Group B was able to answer all answers correct, while only one person in Group A had all answers correct (see Appendix J – T-tests MP Products Answers).

Another potentially distorting factor in relation to the questions about products could be attributed to a lack of understanding, as we cannot be sure that they know exactly what MP are. Since we wanted to keep the introduction speech as brief and concise as possible, there was a limit to what we could include in the speech without making it too long. We, therefore, did not inform about the specificities of MP, such as MP being blind to the naked eye.This is, therefore, a chance that some participants simply inferred that MP was just plastic that was really small, such as the plastic cap on the milk carton. Measuring whether the participants believed a product to contain MP or were non-MP, could thus have enhanced the construct validity of this particular measurement.

Answers about the actor

The findings from the experiment found some support for the negativity bias. In Group A, all of the participants answered the questions about the person's former imprisonment and his personality traits correctly. In contrast, in Group B, three persons answered the adjusted questions about his job and what organisations he volunteered for wrong. According to the negativity bias, we pay more attention to things of negative nature, such as negative personality traits or negative information in general (Rozin, 2001). Since being a pedophile is an extremely negative trait and also unusual, it is likely to make a larger impression on one, thus making that particular feat easier to recall. The word

pedophile is also a taboo word, whereas kindergarten teacher is more neutral. Previous studies have also shown how taboo words (and emotional words) are more easily recalled compared to neutral words (King et al., 2008). Together these findings provide plausible explanations for why people in Group A recalled all the information about his stigma and personality traits.

Ceiling effect

Another reason why there were not any significant differences can perhaps be explained the difficulty of questions. The general questions, in particular, might have been too easy given that both groups got more than 90% of the questions right. When the answers are too easy, what is commonly referred to as a ceiling effect can happen. The ceiling effect occurs when scores approach the maximum they can be (Cramer et al., 2004). When participants almost score the maximum, they can (even in the control group), introducing a new variable is unlikely to make a difference, since the scores *"are virtually as high as they can go"* (Cramer et. al, 2004 p. 21). The questions about general information may have been too easy, making it difficult to detect any significant differences between the two group. The same effect may also have been present in the questions about MP products. As mentioned above, four people scored a maximum in their survey, which could be due to too easy questions.

The same effect was not present in the questions about non-MP products. Despite not showing any significant differences between the right and wrong answers in the two groups, there was another interesting (but not surprising) finding. On a Group Basis, when you compare the correct MP product answers with the correct non-MP products, you find an almost significant difference in Group A (p-value 0.057), and a significant difference in Group B (p-value 0.00004). The explanation for this can almost certainly be attributed to the fact that we highlighted the MP product throughout the film. In terms of attention, some stimuli receive more attention than others making it *"more likely reach the threshold of awareness"* (Bodenhausen et al., 2009, p. 3). Highlighting the MP products likely guided the participants' attention to these products, thus making it too easy to answer the subsequent questions about MP products, which can explain the presumed ceiling effect.

Reaction time - a difference in optimism?

An interesting finding from the study is the differences in the two groups' reaction time. Our t-test revealed that for all product questions there was a difference almost below the critical p-value

(0.0564 > 0.05), and that for non-MP product questions only the difference was significant (0.0167 > 0.05) (see Appendix L – T-tests Reaction Time). So despite being only slightly better at answering right (in total), Group A spent considerably less time thinking about their answer. When looking at these findings in relation to one another, the results show at least some support for the hypothesis that our intervention had an impact on the cognitive abilities of our respondents.

The enhanced reaction in the participants in Group A, can be explained by various things, but if we see it in relation to the theories we reviewed, the difference can be attributed to the negativity bias or perhaps due to the emotional states of the participants. Perhaps the intervention did have an impact, but not on the participants' accuracy (i.e. their ability to answer correctly), but on their reaction time, which could be seen as them being more certain about their ability to answer correctly. Another support for Group A being more certain about their answers can be found in their higher propensity to use the Yes/No option, rather than answering "Don't know" (this will be further elaborated on later). To draw a parallel to emotions, previous studies can also provide some explanation as to why Group A was faster than Group B. A previous study by Lerner et al., (2001) demonstrated how different emotional states affect one's estimation of risk. In their study, they demonstrated how anger led people to more *"optimistic risk estimates and risk-seeking choices"* (Lerner 2001, p. 146) compared to fear. In our data, we can find some support for this when looking at the average anger expressed during "Yes/No" answers and the "Don't know" answers. In total, there was an anger level of 0.232 during "Yes/No" answers (the choice associated with certainty), and 0.150 during "Don't Know" answers (see Appendix O – Anger During Answers). While this finding, of course, should be taken with some precautions in terms of inferring a direct causality between these variables, it is interesting in light of the previous study by Lerner et al. (2001).

When looking at the two groups' internal differences between reaction time for MP and non-MP products, it shows that both groups were faster at answering questions about MP products compared non-MP products. In Group A, the difference was insignificant, however in Group B the differences were significant with a p-value of 0.035 (see Appendix P – T-tests Reaction Time MP vs. Non-MP Products). Both groups' faster reaction time for MP products, suggests that they found these questions more easy to answer compared to the questions about non-MP products. These differences can likely be attributed to the 'aid' we gave both groups, by highlighting MP products and freezing the frame. In addition, many of the non-MP products were either products that only appeared briefly, or not at all. Thus, participants had no hints to help them answer these particular questions.

Lowest recall ability for Egekilde bottled water

Both groups were least able to recall that the Egekilde bottled water contained MP. This product was the first product that was introduced and highlighted in the film and also one of the last products in the product survey (17 out of 18). A possible explanation for the lack of recall can be due to the fact that the information about the product was less 'fresh in mind'. In terms of memory, researchers often refer to the short-term memory (primary or active memory) and long-term memory. *"Short-term memory covers situations in which information is retained for intervals ranging from a fraction of a second to a few minutes* (…) *Long-term memory covers situations in which information is retained over longer periods"* (Johnson, 2010, p. 79). In order to retain information for long periods, we must first make a conscious effort to do so. In our experiment, the participants were not aware that they would subsequently be asked questions about the information given in the film. Since both groups were least able to recall this product, it could mean they did not make an effort to retain the information, perhaps because they found it irrelevant to do so.

Another plausible explanation can also be found in the cognitive dissonance theory. More than 50 years ago, Leon Festinger made "*a very basic observation about the social lives of human beings: we do not like inconsistency"* (Cooper 2007, p. 2). Festinger stated that in order to deal with the cognitive dissonance experienced when observing an inconsistency between hopes, beliefs, aspirations, etc., we change our opinion about our observation, to be more precise we make up things that can explain why the inconsistency happened. To draw a parallel to our experiment, there is a likelihood that many of the participants frequently drink bottled water, perhaps because they believe it is good for them. When we present a film to them explaining the problematic things related to the consumption of MP, and afterwards tell them that a product they frequently use possesses the source of the problem, namely MP, it could lead to some discomfort. In order to deal with this, the participants might have answered the question in a way that is consistent with their beliefs, namely that water is good for you and thus does not contain MP.

6.2 THE IMPACT OF STIGMATISATION ON PARTICIPANTS

In the experiment, there was no statistically significant evidence supporting the hypothesis that a stigmatised person will lead to more negative feelings in the observers. In fact, the experimental group generally expressed lower levels of negative emotions compared to the control group, but not significantly higher levels. Despite being unable to find significant evidence to support this parti-

cular hypothesis, we did uncover other interesting findings regarding the differences or similarities in the two groups levels of negative emotions. In this part, we will discuss the findings and provide explanations for why we failed to find support for our hypothesis.

More negative emotions in the control group

It was unexpected that the participants in Group A did not express more negative emotions than Group B, which could suggest that something was wrong with the film. The film that was shown to Group A informed the participants that the person in the film was a pedophile. The lack of emotionnal responses could suggest that they did not believe in this statement. This could be due to *consumer scepticism (Koslow, 2000).* Consumer scepticism states that the consumer is sceptical towards aspects like advertising and other claims given by a second party, as they think that someone is trying to mislead them (Koslow, 2000, p. 245). When they think they are being given untrue facts or claims, they can go in a defence mode and *"believe that advertisers are trying to take advantage of them, so they should take countermoves in anticipation"* (Koslow, 2000, p. 247).

If the participants realised that we tried to seduce them into believing that the person in the film was a pedophile, it could mean they went into 'defence mode' and did not trust the statement and potentially all other information in the film. This could have a chain reaction, as the participants would also be sceptical towards all other aspects of the film *"questioning as many things about it as he or she can"* (Koslow 2000, p. 247). If this is the case, it could mean that the participants did not believe in the information about MP in the beginning, but also that the products highlighted during the film did not contain MP as well. This could also explain why the participants in Group A answered more incorrectly to the questions at the end of the experiment compared to Group B.

The actor

We chose not to use the stereotypical image of a pedophile in our film, namely an unkempt man wearing a trench. A report from 2011 conducted by Redbarnet (Save the Children) indicates that this stereotype is wrong (Redbarnet, 2011, p. 9), and that there is no particular type of pedophile. Instead, we used a 'normal' looking guy in the film, as we could read that the stereotypical image of a pedophile does not exist in the real world and that pedophiles, in reality, can be anybody. In addition, we sought to have as few independent variables in the film as possible and therefore chose not to frame the person as the typical stereotype of a pedophile. Doing this would have made it al-

most impossible to frame him as a positive person in a believable way in Group B, whereby we would need two different actors (leading to more variables).

Because we chose a normal looking guy in the film, we chose not to show the person's face in full profile as we wanted the participants to believe that the person could be a pedophile, even though he did not look like the 'stereotypical pedophile'. The film is, therefore, mainly filmed him from behind and the only time his face is facing the camera is during the "Bathroom scene". However, during this scene, his face is not completely visual, as his hands and the soap are covering his face while he is showering. We knew that there was a risk that the viewer would not believe that the person was a pedophile, which was supported by one of the participants from Group A who thought he was an actor. It is unknown if this was a shared perception among all the participants in both groups, but could provide a plausible reason for why the participants in Group A did not express the large amounts of disgust, as we expected. In hindsight, we should have put more effort into making sure that the participants in Group A would believe that the person in the film actually was a pedophile. Using the stereotypical type of a pedophile, namely an unkempt man wearing a trench coat, could have increased the chance that the participants would believe in our statement.

Heightened negative emotions when mentioning taboo word

Although, in general, we did not find any significant differences between the groups to support our hypotheses, there was one particular point during the film where the participants showed a significant difference (p-value = 0.0231), namely the scene where the speaker told that the person was either a pedophile in Group A or kindergarten teacher in Group B (see Appendix M – P-values per Scene per Emotion). The aggregated negative emotions (calculated by iMotions) showed that when participants heard the following part of the speech: *"is a pedophile. He has just served his three-year prison sentence for assaults on two children from the kindergarten he worked in.", they expressed higher levels of negative emotions.* This is quite peculiar because the scene is one of the only scenes where there is a speech involved (besides the disclaimer). Perhaps the word "pedophile", and the sentence "assaults on two children" is enough to evoke negative feelings. According to previous research on how words affect us, taboo words caused participants to display a higher frequency of skin conductance (King et al., 2008). So, simply mentioning something taboo, such as pedophilia or "being pedophile", could likely be causing the same effect as mentioning taboo words (such as "nigger" and "bitch"), like King et al. did in their study. Another interesting finding in the study by King et al. is that recall for taboo words was also higher than for neutral or emotional

words. This could also explain why more people were able to recall the fact that he was a pedophile compared to a kindergarten teacher. Keep in mind that no one failed the exclusion criteria, so the difference is not caused by excluding participants who did not recall this. Despite causing a significantly higher degree of negative emotions, it seems like it did not have a long-lasting effect on the participants' emotions, as there was no significant difference between Group A and Group B's emotions in the following scenes.

Littering scene

The results showed that participants from both groups expressed high levels of anger when they saw the person in the film dropping a piece of trash and proceed withoutpicking it up during the "Littering scene". This observation in regards to littering and anger fits well with a study from 2008 that examined Danes' attitudes towards people who litter (Holddanmarkrent, 2008). This study shows that the majority of Danes think it is wrong to litter. Moreover, women think it is more wrong than men to throw trash on the street (p. 15) because they care more about the environment than men (Æbelø, 2007). Since these studies show that women are more environmentally conscious and look down more on littering, it could be the reason why the participants in both groups expressed higher levels of anger in this particular scene.

When comparing the two groups, it is possible to see that participants in Group B expressed more anger than participants in Group A (see graph 9 in section 5.2.10 Other Findings). A possible reason why the participants' think there is an inconsistency between the person in the film (since he was framed as a 'good guy') and his actions. Previous studies have shown how others people's failure to live up to their expectations can lead to disappointment in observers (Yi et al., 2004). In some cases, disappointment can lead to anger (Dijk et al., 1998, p. 323), which could explain why participants in Group B expressed more anger when seeing their 'good guy' fall short of their expectations.

6.3 CONTAMINATION HYPOTHESIS

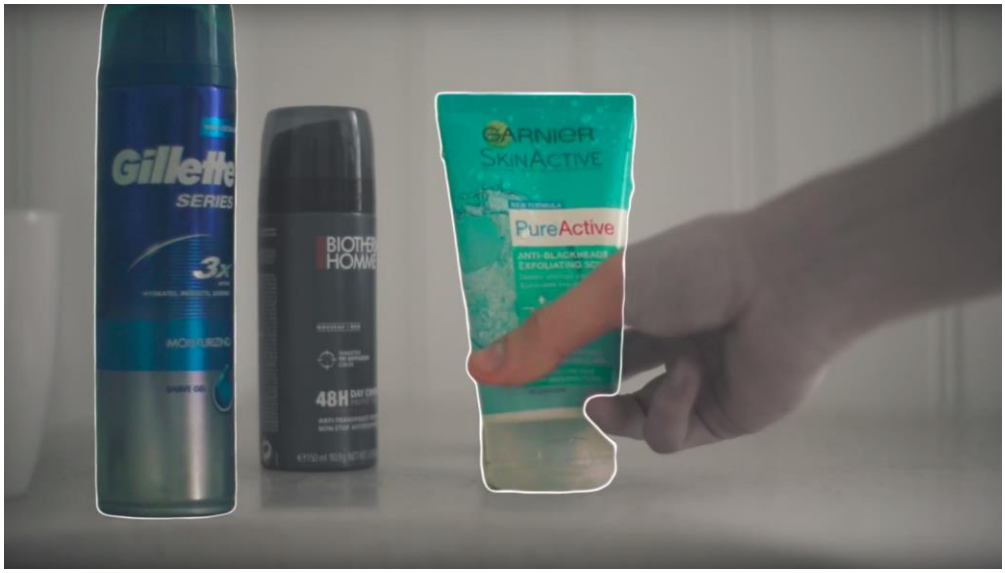
This hypothesis was to some extent dependent on hypothesis two. If we were unable to get the experimental group to express negative emotions towards the actor, he would also be unlikely to contaminate the products. In this part, we will take that into considerations, but also discuss other reasons why we were unable to find support for this hypothesis.

The product in situ and not related products

As outlined in the literature review of consumer contamination, previous research showed how products in situ were affected, and how a particular product that has been touched by another person can be "contaminated". In our study, we focused on how related products, and not the actual product would be affected by consumer contact. We sought to identify whether the concept of consumer contamination could be extrapolated and if the same effect would occur in a wider sense. For instance, would the person in our film be able to contaminate the perception of the products he touched (and thereby all other identical units). As we discussed already, there is a chance that participants were sceptical towards our description of the person and therefore did not believe that he was a pedophile. Our predictions about their subsequent emotions towards the products after having seen the actor engage with them were strictly dependent on the experimental Group Actually showing expressions associated with negative emotions. Based on the facial feedback loop hypothesis, we assumed that if the participants were showing significant levels of negative expressions, this could affect their affective responses toward the stimuli in the film; in particular, the different products from the film. Our brains *"automatically* [i.e. unconsciously] *assembles basic bits of information from the sensory systems and draws inferences from them"* (Kandel, 2013, p. 548), so we proposed that by feeding the participants sensory systems negative information (in the form of information about the actor and emotional responses), would lead them to draw inferences such as "I don't like that person" or "I don't like the products he's touching."

Contamination of non-MP products

As mentioned above, we questioned the depicted person's ability to contaminate the products in regards to Group A, as they did not express increased levels of disgust towards the MP and non-MP products. However, we could see from the results that both groups answered wrong regarding the question about one specific product, the Biotherm deo. Nine participants in Group B and six participants in Group A, answered that this non-MP product contained MP.



Picture 17. Screenshot from the film showing how Biotherm appeared in the same frame as two microplastics products

If we look at how this product was showed in the film, it shows that it was placed between two MP products in the "Bathroom scene". Since the majority of the participants from the two groups thought this product contained MP, it could be understood as these two MP products having 'contaminated' the Biotherm Deo. If this is the case, there is a chance that by showing non-MP products at the same time as MP products could lead to a spillover effect, making the non-MP product appear as if it was an MP product. If this spillover effect from third-party MP products in fact occurred, it can eventually affect this non-MP product in a negative way, which will further be elaborated on in section 7.2 Managerial Implications and Recommendations

7. GENERAL DISCUSSION

In our approach, we were mainly concerned with the impact that emotions have on us, and throughout the thesis, we looked at human behaviour and decision-making as a product of emotions. The aim of our study was to investigate whether stigmas would lead to an increase in recall rate among the participants, whether they would express negative emotions when exposed to a person with a negative stigma, and finally, if the stigmatised person could contaminate products around him. Granted that we found support for this (and thereby our hypothesis), it would bring about various academic and managerial implications. In this part, we will discuss what the findings could mean in terms of academic implications and managerial implications.

7.1 ACADEMIC IMPLICATIONS

Various attempts at explaining how human behaviour is driven by emotions have been made. Based on the substantial amount of evidence demonstrating how emotions guide our behaviour and decision-making (Lerner et. al, 2001; Izard et al., 2010), we examined how a concept we found to be underexplored, namely stigmatisation, could have an impact on our emotions. This part will describe the different academic implications of our study. Despite getting a null result for our hypotheses, there are still insights to be drawn from our study.

Consumer stigmatisation

The main topic in this thesis was stigmatisation. We turned to this topic because we believed that stigmatised persons could have a large impact on our emotions. According to the negativity bias, disliked people weigh heavy in our impression making, thus making them more likely to influence our emotions (in a negative way). Since stigmas often are attributed to disliked persons, we assumed that stigmatised persons would be an efficient way to affect our participants' emotions. Our findings showed support for the fact that negative personality traits are more easily remembered (i.e. pedophile versus kindergarten teacher). This could suggest that his stigma has had some influence on the participants. However, we did not find evidence that the stigma had an impact on their emotions, perhaps because our actor seemed too unlikely to be a pedophile. If another study can find support for our hypothesis, thereby showing that stigmatised persons can influence our emotions, it could be an effective way to get people to stop engaging in certain behaviour. This is elaborated in more detail in section 7.2 Managerial Implications and Recommendations.

We mainly tested the influence of stigmatisation on emotions, as emotions have been proven to play a large role in our lives (Ibid). However, another plausible explanation for why stigmatised persons could have an impact on us could be explained by the way we distance ourselves from other. Stigmatised persons are commonly stigmatised by society because they are different from the general public, for instance, by acting morally objectionable, having visibly outward differences, etc. If we suddenly observe a person, who we believe to be different from ourselves, behave in the same ways as we do, for instance, by buying the same products us, he will perhaps not appear as different to us as before. In order to distance oneself from the stigmatised person/group, it could lead to people wanting to avoid buying the same products or engaging in the same behaviour, in order to re-establish the order.

Another explanation that could explain why consumers might be reluctant to use products associated with a stigmatised and intensely disliked person, could be that they infer that the actions performed by the disliked person are associated with his negative personality traits. A common flaw in human reasoning is to assume something about someone simply because his/hers opinions or actions are associated with another person or a group, which is often referred to as an Ad Hominem argument (Brinton 1985, p. 50). This could mean that the participants inferred that "Pedophiles use MP", and as such they would be guilty by association if they use the same products. While this perhaps seems farfetched, this is a type of argumentation people often use despite how unreasonable it may seem.

Consumer contamination theory

When we chose consumer contamination as an element in our thesis, we wanted to study if it was possible to make an extension of the theory within consumer contamination. The overall mechanism behind consumer contamination is that people can 'contaminate' products in situ, as *"there is a strong consumer aversion to touched products"* (Argo et al., 2006, p. 81). This contamination of products was exemplified earlier in regards to the 'Adolf Hitler sweater' example, in which people would be upset if they wore one of Hitler's old sweaters and not have the same emotional state when holding one of his written books (Rozin et al., 1989). This is due to the fact that *"Perception is an active process that is constructed by the brain, not one passively recorded by our senses. In other words, we see with our brain, not just our eyes"* (Praet, 2012, p. 140). If our brain perceives something as disgusting or there are other negative associations connected with specific products, we can, therefore, see the specific product as 'contaminated'.

We wanted to study if it was possible to transfer these negative associations, like those expressed towards an Adolf Hitler sweater, to other things that have not directly been touched or used. This was studied in our experiment, where we showed our participants a pedophile using and interacting with various products. Thereafter, we examined if they expressed negative emotions towards the same products he had interacted with. Our findings showed that the participants did not express increased negative emotions towards the products the pedophile has interacted with. However, again, this can be due to the fact that the participants did not believe that the presented person in the film was a pedophile or because of other confounding variables.

If confounding variables are to blame for the lack of negative expressions/emotions towards the actor/products in the experimental Group And the hypotheses hold true, it could have many implications. If the hypotheses hold true, it would be possible to suggest that extremely frowned upon people (or groups) could contaminate products and make these products (both in situ and not in situ) less desirable to consumers. This could have a major influence for brand managers as we will discuss in section 7.2 Managerial Implications and Recommendations

Facial feedback loop

Some of our assumptions were built on the facial feedback loop hypothesis which states that not only are our facial expressions shaped by our emotional states, our facial expressions also influence our affective responses to stimuli (Strack 1988; see also Darwin 2009). In the study, we referred to by Strack et al., the methodological approach to testing the hypothesis included inhibiting or forcing participants to express certain expressions while exposing them to different stimuli. In our study, we proposed that more subtle and involuntary expressions expressed by the participants would have the same effect. Assuming that the participants would express more negative emotions such as disgust when exposed to a disgust eliciting person such as a pedophile, we proposed that this would subsequently affect their affective responses towards the presented stimuli in the experiment (more specifically the products touched by the person). To link it to the aforementioned theory of consumer contamination, this would make the products seem 'contaminated' and thereby be seen as disgusting.

Since the brain draws inferences from the information collected by our sensory systems, we therefore proposed that if a product subsequently elicited disgust, participants would draw the inference that it is the product that is the cause of the disgust, rather than the underlying association to the stigmatised person that is the cause of the disgust. Since our facial expression measurements showed that none of the groups expressed significantly more negative emotions, we were not able to find any support for the facial feedback hypothesis, which depended on actually producing the appropriate expressions. If our intervention could produce the appropriate expressions, we would have been able to find more support for the facial feedback loop, and also demonstrated a less intrusive way (than forcing participants to show a specific expression) to obtain the effect.

Modality principle

When we conducted the pilot tests, we started out by taking the modality principle into considerations in the experiment, as the original disclaimer in the experiment presented both visual and auditory information regarding MP (see section 6.2.1 The Design). According to the modality principle, a combination of visual and auditory elements will result in a *"more effective learning* (…) *than when the information is only presented visually"* (Jong 2010, p. 124). However, we could see from our pilot tests that the participants had difficulties in recalling what they had been presented, whereby we decided to not take the modality principle into consideration as we did not find it efficient. Other studies have also questioned the efficiency of the modality principle (Clarebout et al., 2007; Dunsworth et al., 2007; Opfermann et al. 2005), whereby our findings support their claims in regards to the lack of efficiency of the modality principle.

7.2 MANAGERIAL IMPLICATIONS AND RECOMMENDATIONS

This part of the thesis will explain how the theoretical and analytical findings can be implemented by brand and marketing managers, and will also come with our recommendations for implementing them. Our study mainly dealt with one way of changing people's emotional states, namely through exposure to a stigmatised person.

In our study, we focused on how stigmatised persons can have an impact on emotions, as a way to potentially change people's environmentally negligent consumption patterns. The insight obtained from this study is mostly applicable for managers in organisations who want to persuade people to act more sustainably through appeals to emotions, such as organisations who are dealing with environmental issues, societal issues, ethical issues etc. However, there are also insights that are more widely applicable.

We will start out with a 'general request' for brand and marketing managers to incorporate and pay attention to the insights that disciplines like cognitive neuroscience can provide in terms of explaining what goes on inside the brain aka the "black box".

Understanding > Knowledge

"The key to good decision making is not knowledge. It is understanding. We are swimming in the former. We are desperately lacking in the latter."

(Gladwell, 2005, p. 265)

For decades, marketers have *"spend a disproportionately large percentage of their primary research budgets evaluating and measuring brand, advertising, message, and product awareness."* (Praet 2012, p. 22), but as we discussed throughout this thesis, there are many underlying causes that evade consumers awareness. While traditional methods such as focus groups and questionnaires can provide valuable knowledge and insights, the results they bring seldom provide any explanations for why consumers act like they do. Even when they do, it is often in form of explicitly stated opinions and statements, which have little reliability.

As mentioned earlier, human behaviour is shaped by various aspects such as perception, feelings and thoughts, most of which are operating on an unconscious level of the human mind (Mladinow, 2011). When measuring different aspects of consumer behaviour through self-reporting surveys or through qualitative data collecting methods such as focus groups or interviews, one's measurements mainly reflect what is readily apparent in the conscious mind of the consumer. *"Self-reported data in market research surveys simply can't measure the implicit, nondeclarative memories that unconsciously prime our brains' receptivity to brands and messages."* (Praet 2012, p. 22). Nobel-winning social scientist, psychologist and economist, Herbert Simon, coined the frame *bounded rationality*, the notion that humans are not rational agents. Simon used the metaphor of a scissors to explain the human mind (Herbert, 1990). One blade represents the environment and the other the brain. Some claim that the environment plays the biggest role in determining behaviour, while others claim that the brain (cognitive processes, biases and attitudes) plays the main role. Simon suggested that it is the interaction between the two that should be understood, in order to explain why we act as we do (Lockton 2012). This is also what we urge brand managers and marketers to focus on.

If consumers cannot explain what goes on in their unconsciousness in terms of desires and intentions, we need to dig deeper in order to uncover what goes on inside their minds. In order to do so and acquire a better understanding of the human mind, disciplines such as neuroscience and cognitive psychology can provide valuable insights that can give us the much-needed understanding as to

why consumers act like they do. Obtaining these insights puts managers a superior position to make better decisions that adhere to the desires and needs of the consumers.

How emotions can drive product associations

Consumers and their decisions are often affected by emotions, which can have a significant influence on, for instance, brand decisions. A brand's emotional associations influence how consumers process different information about the brand (Percy et al., 2015, p. 38). It is, therefore, important for managers to know their consumers and which emotions are associated their brands and products, as this should be taken into consideration for marketing and communicative efforts (Percy et al., 2015, p. 37). Emotions are important, and having an understanding of how emotions influence us is great, but knowing why certain emotions are elicited is even better (Praet 2012). If consumers begin to have negative emotions towards a company's brands or products, it can result in the consumers switching to another brand or product that they have more positive emotions towards (Levy, 2009). Knowing why consumers suddenly express anger or disgust towards one's products can help managers, who can then try to identify a solution to the problem.

Our study has tried to examine how consumers' emotions can be affected in order to change people's environmentally negligent consumption patterns. Instead of using the traditional strategy, by endorsing 'correct' environmentally behaviour through positive role models, we tried to turn the strategy upside down. We decided to investigate whether it was possible to use a negative (and possibly stigmatised) person to educate and inform consumers that they should decrease their consumption of MP products. By coupling the use of products with a stigmatised person, we thought our participants would distance themselves from products containing MP. However, we found out that our participants in the experimental group were not affected and thus did not express heightened negative emotions towards products from the experiment. If the confounding variables are to blame for the lack of negative emotions towards the products, and the hypotheses holds true, it could have implications for managers. This would mean that consumers could be affected even more then already assumed (Percy et. al., 2015), and these findings could be implemented and considered when making new strategies.

Littering - an anger-provoking behaviour?

Our study indicated that, when participants observed someone who litters, they expressed anger. From the MP case perspective, this insight could be valuable for marketers who attempt to decrease the Danes' consumption of MP products. Assuming that most Danes know that one should pick up after oneself, and that obvious displays of littering are unacceptable, seeing someone drop trash without picking it up (well aware that one dropped it) is likely to elicit anger. To illustrate how this can be implemented, for instance, in a campaign, one could try to draw a parallel between littering (i.e. dropping plastic on the streets, in nature, etc.) and use of MP products. In a sense, using products that contain MP are a form of littering, since the MP particles in products run through the drains and potentially out into the oceans. We believe that one of the main reasons why MP are so difficult for consumers to acknowledge as a problem lies in the fact that MP are invisible to the naked eye. We believe that most Danish consumers would not purposely throw plastic in the oceans or in nature. Making a visual metaphor could be useful as metaphors resonate well with the unconscious mind (Praet 2012). For instance, showing how washing MP down the drain can be compared to other types of negligent behaviour. Furthermore, our results showed that it was not necessary for the person to be disliked in order for people to elicit anger when seeing him drop plastic. In fact, when the person was 'framed' as a good guy they expressed more anger when they saw him drop something, acknowledge it, and then ignore it. This could suggest that making observers expect that a person will do something, and then show his failure to live up to their expectations, can be a way to produce anger in the observers.

How Habits Restrain us from changing behaviour

Knowledge about brands works as *"unconscious automatic intelligence acquired through experience"* (Praet, 2012, p. 42). People are creatures of habit, hardwired to take the path of least resistance, using brands as guidance and are reluctant to relearn new things (Lindstrom: 2009). For these reasons, it can be particularly difficult to induce behaviour change with an already learned behaviour in place. Appealing to the rational side (i.e. the cognitive system), for instance, by informing people about the consequences of MP using scientific facts and statistics, might not be the most feasible approach. In terms of preference formation, the cognitive system tends to be more analytical, but also more sensitive to fluctuations. In contrast, the emotional system tends to be more holistic and consistent from time to time (Ariely et al., 2009,). We therefore propose that tap-

ping into consumers' emotional system can influence them and make their preferences more consistent, thus helping them to overcome 'bad' habits.

Since our behaviour to a large degree is based on how rewarding doing something feels (Praet, 2012), getting people to feel as if their behaviour comes with a punishment (i.e. bad feelings) could be an effective way to make people refrain from doing what they have always done (such as buying the traditional yellow cloths). Granted that consumer contamination can be extended to also include a 'contamination of perception', rendering product categories, other units, etc. less rewarding, this could be a valuable tool for behaviour change.

Avoiding product contamination

As mentioned in the academic implications in regards to consumer contamination theory, managers will have to invest time and resources in making sure their products/brands are not being contaminated when frowned upon people uses or interact with these. A good example of a company that could be seen as experiencing contamination of their products by a stigmatised group is Toyota Motors. One specific Toyota car model, the Toyota Hilux pickup, is apparently the vehicle that terrorists in the Middle East prefer. This model is repeatedly shown in propaganda videos where it is transporting ISIS members armed with machine guns. A spokesman from Toyota told the NY Times in 2001 that *"It is not our proudest product placement, but it shows that the Taliban are looking for the same qualities as any truck buyer: durability and reliability"* (Bloomberg 2015). This reply was rather brilliant, as he managed to state that Toyota regret that their car model is the prefered vehicle, but also highlights that the terrorists simply want quality. This finding could be used in a strategy from other car competitors, as they could explain that their car models are not used by terrorists (i.e. a stigmatised group). It is important to highlight that such a strategy would not be allowed in some countries (like Denmark), as this would be in conflict with §1 in the Danish Marketing Practices Act, since it is not allowed for companies to ridicule competitors.

Avoiding Associations to MP Products

A surprising finding from the experiment was that some of the products that were not highlighted during the film were perceived to contain MP despite being non-MP products. Whether this perception was due to a resemblance to the MP products that were highlighted, or because they appeared in the same frames as the MP products, is unknown. The fact that the participants

perceived these products to contain MP can be problematic for the associations of the non-MP product brand. Kasperson et al. (1996) illustrate about how modern society is getting more and more preoccupied with eliminating risks. In their paper, they discuss how *"negative imagery and emotional reactions can become closely associated with the mere thought of certain technologies, products, or places, which become tainted objects to be shunned and avoided"* (p. 99-100). If the public becomes increasingly aware of the extent to which MP flourishes in everyday products, as well as the associated consequences (both to one's own health and to the environment), MP products could ultimately become 'stigmatised'. Good examples of products that have undergone this process of becoming stigmatised are tobacco, GMO or processed products (Darwan, 2008). If MP products become stigmatised, it could become something that brand managers of non-MP products need to be aware of, especially if their products bear a resemblance to MP products. Finding a way to effectively shun the misperception could be a feasible way to avoid being hurt by the MP products' negative associations.

A call for action

This last part is a general request to brand managers who manage products that still contain MP (or any other potentially harmful products). Just because some things are still 'okay' in a legal sense, it does not mean that one should continue engaging in borderline immoral activities. While it is difficult to eliminate MP from some products, there are still companies out there who purposely add MP to their products. In light of the knowledge about the consequences of MP, that one can get from readily available sources (Plasticchange, 2017; Beatthemicrobead; 2017; Connor 2014), we urge companies to adopt a more proactive strategy and consider alternatives to MP, rather than using a reactive strategy. If the attention and focus that MP receives in the media gains momentum, and MP products become frowned upon (i.e. stigmatised), consumers will likely avoid MP products in future. Rather than removing MP because of coercion or when the bottom line 'hurts', taking action ahead of time can save brands a lot of trouble in terms of brand credibility and image.

Besides thinking about their own utility, this quote outlines how brands managers also bear a responsibility in terms of educating consumers. By making the consumers feel negative emotions towards products containing MP, the managers and companies can be part of the solution and not part of the problem. It is not the consumers who add MP to the products, and thus it is necessary to go back to the origin of the MP source: the company. If global companies remove MP from their products, or if MP products become stigmatised in a negative way, it would be possible to lay pressure on those companies who still purposely add MP to their products.

8. LIMITATIONS

In this part, we will critically reflect on the limitations of the results we obtained from the two studies. We will discuss this in terms of general limitations but also in terms of validity and reliability.

First and foremost, our study should not be seen as anything other than a pilot project. The findings from this study are only indicative and should be seen as inspiration for further research on the topic of stigmatisation and consumer contamination. We acknowledge that the samples used in both our studies comes with various limitation in terms of providing strong evidence for answering "Who do Danes find the most disgusting?" and also in terms of fully answering the overall research question *"What impacts will a stigmatised person in an informative film about MP have on individuals' emotions and cognitive abilities?"*

Our online survey should only be seen as an indicative study aimed at gaining a basic understanding of Danes perception of various extreme stigmas. The results of the survey were based on 55 (female) respondents, and should thus not be seen as conclusive or generalisable. However, the survey did provide valuable insights that we could use in our experiment.

In terms of our experiment, one should also be cautious about drawing any conclusions based on the results, as the study primarily should be seen as an exploratory one. With only ten participants in each group, the sample we used was small. When doing hypothesis testing on small samples, there is often the risk of errors, and substantial differences between the two groups would be necessary in order to obtain statistically significant evidence. Even when the differences seemed large, a t-test revealed (in most cases) that there were no significant differences between the two groups. The seemingly large variances in the groups were, therefore, a result of large deviations in the measurements of some of the participants

As our study was conducted using students recruited at CBS, it makes it difficult for us to make any generalisations about the findings from the study. Students represent one demographic in the Danish society, but drawing the conclusion that the impact our intervention had on them also applies to the entire Danish population would be wrong. In addition, we chose to only include women, which further limits the generalisation of the results to represent this gender only. The considerations behind only conducting experiments on women were two-fold, both grounded in practicality and theory. By confining ourselves to one gender, the sample was more representative for women. Previous studies have also demonstrated how gender differences often act as moderating

variables on how participants in studies are influenced by different stimuli. Men and women possess different traits, and women have, for instance, been shown to be more cautious and avoidance-focused, and more responsive to negative stimuli when compared to men (Gard 2007). Time constraints, lack of access to the lab, software bugs, etc., also made it cumbersome to achieve a large and representative sample.

Another factor that caused us to deem most of the differences between Group A and Group B insignificant was our level of statistical significance (i.e. $\alpha = 0.05$). If we had accepted a higher level of statistical significance (for instance $\alpha = 0.10$), much more of the findings would have been accepted as significant. However, in social science, a significance level of 0.05 is the maximum level of risk conventionally accepted (Bryman, 2012).

8.1 VALIDITY AND RELIABILITY

This part will account for the validity and reliability in our study, and what precautions we have made to enhance these two factors in the study. Validity covers whether the study actually investigates/shows the results it is supposed to, and reliability refers to *"issues of consistency of the measures"* (Bryman 2012, p. 168) and to what extent the study can be replicated and show the same results.

The online survey

Instead of relying on our own perception of what we perceived to be the most disgust-eliciting stigma, we conducted an online survey to find the most disgust-eliciting stigma among Danes. The validity in this method and thereby the sample representativeness can be somewhat questioned due to content validity, internal validity and external validity (Bryman 2012). This can, for instance, be seen in how we ask the questions in the survey, as the formulation can affect the way the participant perceives the question. However, the main purpose behind this method was to ensure an overall understanding of Danes' perception of stigmatisation types to avoid drawing to draw any hasty conclusions.

It is important to highlight that the quantitative data we have received from the survey was mainly used as a way to give an indication about which stigma is perceived as the most negative. We are aware that it is not possible to utterly avoid that the respondents will make their own perception of the presented issues and concepts in the survey. This can, for instance, be seen in the fact that we

are not sure that the respondents have the same understanding of the presented stigmas as we do. This could have been avoided if we had described each stigma, but we abstained from this, as we did not find it necessary to do so. We, therefore, deemed the validity of the survey sufficient enough for us to use the findings in our experiment.

The experiment

We conducted the experiment in a lab and thereby in a controlled environment. This type of experimental design is *"seen as providing a more powerful way than non-experimental designs to uncover causal relationships"* (Jupp 2006, p. 107). A major advantage of using a lab experiment is that it allowed us to control for external stimuli (such as those found outside a lab). The equipment in the lab allowed us to observe people's physiological reactions (i.e. unconscious state of minds) as opposed to using other methods such as surveys or focus groups where you have to rely on people's explicitly stated opinions or feeling. This approach ensured an internal validity of the experiment, but the use of lab experiments limits the external validity of the results. External stimuli (such as those found outside a lab) might prove to decrease/eliminate the influence of the cause as, *"the laboratory may not be the optimal context in which to elicit adaptive physiological response"* (Lewis 2008, p. 219). Lab experiments are great for measuring the effects of independent variables (i.e. the cause), because external stimuli are easier to control for in a controlled setting. However, the external validity of lab experiments is often considered low because, in the 'real world', we are not able to able to control for the external stimuli that could potentially decrease/eliminate the effects of the cause (Bryman, 2012). Levitt et al., (2007) pointed out how participants in lab experiments are *"keenly aware that their behaviour is monitored, recorded and subsequently scrutinised"* (p. 12). This will likely have had an impact on the participants' behaviour during the experiment. In section 10. Future Studies, we will discuss some of the ways that can be used to enhance the external validity of the study.

In our experiment, we measured a stigmatised person's effect on aspects of cognition and emotions. We only dealt with three types of measurements: actual answers, reaction time and measurements of facial expressions (signaling different emotions). The first two measurements, namely answers and reaction time, have a relative high validity, since answers were measured as right or wrong (or "Don't know"), and reaction time was measured based on the how long it actually took for participants to answer. As a result, both measurements in some sense reflect reality. However, as mentioned in the discussion, we cannot be entirely sure that when participants answered yes to a

non-MP-product, that it was because they thought it contained small pieces of plastic (such as the plastic cap on a milk carton), or actual MP. The construct validity of the product questions can, therefore, be questioned.

The validity of facial expressions, on the other hand, is a bit more complex, since the measurement of the different emotions is based on complex computations of other different measurements. The software (iMotions) we used compares the recorded expressions with its large embedded database. When establishing whether a certain expression is present or not, the facial recognition software looks for differences in 20 different facial action units (AUs) and computes evidence levels for different emotions based on the composition of different AUs (iMotions, 2016). Since all these computations are not completely transparent, we had to rely on the validity of these particular measurements. In another study, the validity of Emotient's measurements (i.e. the add-on used in iMotions) was reviewed, and the study concluded that the measurements, to a large degree, were accurate (Taggart et al., 2016). We took our precautions, accounting for differences in participants' neutral states by using a non-stimuli-dependent baseline, which assumes that participants show their neutral face when seeing a grey screen.

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A measure we took in order to enhance validity was not telling the participants that their facial expressions were being measured during the experiment. Even though the facial expressions associated with the different emotions we wanted to measure were *"preprogrammed and*

involuntary" (Ekman, 2011, p. 364), it is still possible for participants to control their facial expressions if an effort to do so is made. We distracted the participants and "disguised" our underlying motives by telling them that their skin conductance response (SCR) would be measured using a Shimmer (a device designed for measuring SCR), hopefully directing their attention to this rather than their facial expressions. This deception regarding *"incorrect information about research procedures, equipment, and measuring instruments"* (Kimmel, 2001, p. 140) is quite common in marketing studies (Kimmel, 2001), we thus concluded it was acceptable to mislead the participants in this way.

Initially, we had planned to assign members to the control and experimental groups at random (by the roll of a dice), to eliminate potential threats to the internal validity, which should improve the internal validity (Cooper 2014, p. 202). This approach is commonly used in random assignments to ensure that *"changes cannot be attributed to differences in the composition of the two groups"* (Saunders et. al, 2012, p. 142). However, because iMotions required us to have at least 10 participants in each group, and because of a bug that deleted content from our study upon every computer restart, we were forced to finish one Group At a time. As we discussed earlier, external stimuli such as time of the day, day of the week, weather, and other confounding variables can affect the results. Ideally, we should have conducted the experiments on the same day, but conducting 20+ experiments in one day was simply not an option due to time constraints. In terms of facial expressions, this possible impact of the external stimuli was, to some extent, accounted for by the software. iMotions has a calibration slide which establishes a baseline for the participants' default appearances and thus accounts for biases such as natural frowns, etc. (iMotions, 2013).

In terms of reliability, we took various measures to ensure a somewhat high degree of reliability in the experiment. To ensure that we could measure the influence of stigmatisation, we had an experimental Group And a control group. To see whether there was a difference, we compared the two groups' results, which meant we did not focus *"on the absolute amount of change, but on differences in the levels of change between the experimental and control groups"* (Jupp 2006, p. 108). It was estimated that a sample size of 20+ participants in the experiment was sufficient, due to the scope of this project. We accepted this was a somewhat small sample size, but as positivists, we know that the sample size should have been increased, as a bigger sample size will increase the reliability (Bryman, 2012, p. 198).

9. CONCLUSION

MP are the result of relentless and negligent consumption. As MP has become part of the food chain it is considered a serious threat to both marine life and human health. The Ministry of Environment and Food of Denmark has identified MP as a time bomb, that needs to be defused before it is too late. Much of the behaviour associated with MP are rooted in habitual purchases such as textiles, cosmetics, beverages, food, etc., all of which we consume on a daily basis. Changing these habits can be difficult since humans have a tendency to follow the path of least resistance and continue engaging in behaviour that feels rewarding. Today, the habitual purchases involving MP feel rewarding because we do not need to spend much effort when deciding whether to buy them or not. A good first step is informing people about the harmful effects of consuming MP products, but doing so is seldom enough to create a withstanding behaviour change. What needs to be done is making the consumption of these products feel less pleasant, or even better, unpleasant. If this can be done, it will likely put an 'obstacle' on 'the path of least resistance', making people avoid the products that are causing the unpleasantness (i.e. negative emotions). Since emotions have the ability to guide subsequent behaviour and cognition, even when the cause of the emotion is no longer present, tapping into consumers' emotions can be an influential way to induce withstanding behaviour change, and thereby discourage people from buying MP products in the future.

Instead of using traditional methods, such as opinion leaders and celebrities, to discourage consumers from buying or using specific products, this thesis examined another possible method to do so, namely through stigmatisation. Some stigmatised groups are disliked by society, especially people who engage in morally objectionable behaviour, such as sexually repugnant activities. These individuals tend to ignite negative emotions, such as disgust, making us feel extremely unpleasant and uneasy. Humans have a propensity to pay more attention to negative entities (such as negative personality traits, etc.) compared to positive entities. Likewise, in terms of contagion, i.e. transferring associations from one object to another (such as from a person to a product), a negative dominance is present. When someone or something of a negative nature gets in contact with a product, that product can afterwards become contaminated in the eyes of the observer(s) and thus viewed with disgust. Using MP as a case, this thesis examined what impacts a stigmatised person would have on aspects of women's cognitive abilities and their emotional reactions towards products containing MP, and whether a stigmatised person could 'contaminate' MP products.

This thesis looked into the topic of stigmatisation in Denmark. Through an online survey, the researchers identified that pedophilia is an extremely disgust eliciting stigma among Danish women.

Based on this, an experiment was set up to test what impacts a person (stigmatised as a pedophile) would have on Danish women. In the experiment, participants watch an informative film about MP and answered questions. During the experiment, the participants' emotional reactions were measured by analysing their facial expressions when presented with the different stimuli. The collected data about their facial expressions, as well as their answers, were analysed to determine the impact that the stigmatised person had on their cognitive abilities, as well as their emotional states.

The findings from the experiment did not find support for our three hypotheses. However, the experiment did provide other interesting findings. In terms of cognitive abilities, the participants in the experimental group were significantly quicker at answering questions about non-MP products and general questions from the film. This could indicate that the women in this group felt more optimistic that they were able to answer the questions right. However, this increased reaction time came with downsides, as the participants in the experimental group were significantly more wrong about MP products.

The participants in the experimental group did not express higher levels of negative emotions when exposed to a stigmatised person; this only occurred when they heard that the person was a pedophile convicted of assaulting two children. The emotional reaction was brief and was not evident in the moments after. However, an interesting finding was that both the experimental and the control groups expressed the highest levels of anger when they saw the person in the film littering (i.e. dropping a piece of paper on the ground without picking it up). This indicates that littering is frowned upon (no matter who does it). Since MP are invisible to the naked eye, it can be extremely difficult to get a widespread acknowledgement of the problem. Drawing a parallel between MP and littering, which there in some sense is, could be an efficient way to open Danes' eyes and make them acknowledge the problems with MP.

In terms of consumer contamination, we also did not find heightened levels of disgust for the products touched by a stigmatised person. However, we did find indications that when a non-MP product appeared in close proximity to an MP product, participants subsequently 'believed' that the product contained MP. If this is the case, managers of non-MP products would be advised not to have their products near or associated with MP products, as this could lead to a 'contamination' of their products,in thesense, that their products could be seen as a MP product by consumers.

In contrast with much of the marketing and branding literature, this particular thesis dealt with ways to stop people from buying particular products. This type of objective is primarily seen in non-profit organisations who are dealing with environmental issues, societal issues, ethical issues etc. The

findings from this thesis are, therefore, mostly of interest to organisations who seek to change people's negligent consumption patterns. However, brand managers of non-MP products may also find the findings applicable, because if their consumers begin to view non-MP products in a negative way, this could be an opportunity for them to brand themselves as non-MP products.

In general, this study should be seen as an exploratory study in the sense that no previous researchers (to our knowledge) have conducted a similar experiment about stigmatisation as a way to discourage certain behaviours. Since we failed to reject our null hypotheses, we cannot say with certainty that stigmatisation is an efficient tool to discourage Danes from purchasing MP products. We therefore urge other researchers to conduct more research on this topic, in order to better understand how the relationship between products and stigmatisation can influence consumers' emotions and likely induce behaviour change.

10. FUTURE STUDIES

To make everyone act in pro-environmental ways by appeals to emotions is perhaps a utopian endeavour. However, since emotions can be a strong predictor of how people will behave in different situations, it can be a step in the right direction. This study was merely a pilot project exploring whether an untraditional method, such as stigmatisation, could be an efficient way to provoke specific negative emotions, and if it was possible to transfer these emotional reactions to other products. The findings from this study are only indicative and should only be seen as inspiration for further research on the topic of stigmatisation and consumer contamination. In hindsight, there are various things that could and should have been done differently. We will reflect back on the experiment we conducted and provide recommendations on what future research can focus. Further research could shed further light on how stigmatisation, emotions, and consumer contamination can provide new insights about how and why we behave in the ways we do.

Do stigmatised persons provoke negative emotions?

Since we did not find support for the hypothesis that stigmatised persons will make observers elicit negative feelings, the primary objective for future studies on stigmatisation should be focused on finding support for this particular hypothesis. Our considerations about the hypothesis were grounded in previous research that demonstrated how stigmatised groups, like the homeless and drug addicts, activated the observer's brain regions associated with disgust (Harris, 2006). In our experiment, the control Group Actually showed more negative emotions (on average) throughout the experiment. However, this was not at a significant level. One of the arguments for this was that the

participants did not believe that the actor was a pedophile due to the lack of resemblance to the stereotypical image one has of a pedophile (i.e. unkempt and creepy looking male). In addition, the participants never observed any actions confirming his stigma. In future studies, we recommend using the stereotypical image of the stigmatised person, or perhaps showing the person engage in the activities that the stigma is grounded in. Doing this should make the story more credible and hopefully make observer(s) elicit the 'desired' emotions.

If the participants did not believe in the story, the two groups' reactions to the stimuli should have been more or less identical. Since they were not, the differences between the two groups can likely be attributed to differences in expressivity. In our study, we accounted for this by using a non-stimuli dependent baseline, which assumes that observers will show neutral expression when watching a grey background (iMotions, 2016). What this method fails to account for is that some people's expressions are much more expressive; for instance, when some people frown, it looks more 'extreme' compared to others, even though the emotional reaction is the same. To account for this, we recommend using a stimuli-dependent baseline calibration, as this method is better at evening out differences in expressivity. A stimuli-dependent baseline calibration shows various pictures known to elicit and max out particular emotions, thus accounting for potential differences in expressivity among participants (iMotions, 2016).

In hindsight, it would also have been beneficial for our experiment if we had only used on-screen instructions and thereby kept our intervention to a minimum. We will, therefore, recommend that researchers make use of on-screen instructions whenever possible, as this should limit the potential influence we, as researchers, have on participants when we speak to them.

Can stigmatised people contaminate products not in situ?

Our findings from the experiment did not give us concrete evidence that it is possible for an extremely frowned upon person to transfer negative attributes and thereby make the products he touched or owned 'contaminated' (in the eyes of the observer(s)). If participants did not believe in his stigma, it would be unlikely for him to contaminate the products he touched, as he did not elicit the relevant emotions. Other studies indicate that it is possible to 'contaminate' products, which can be seen in "Gender contamination", where for instance masculine brands are used by women, which upsets loyal customers (Forbes, 2013). In addition, in a study by Paul Rozin et al. (1992), he found out that products touched by an AIDS-infected person were subsequently seen as 'contaminated' and that people would not own or use this product. As these studies indicate that genders and even sickness can contaminate products or brands, we urge researchers to examine

whether it is possible for a stigmatised person to contaminate the products he/she touches or owns, as these findings could perhaps be relevant for marketers and brand managers.

Moderating variables in cognitive abilities

Given that we had found significant differences in participants' cognitive abilities, i.e. their ability to recall MP products, moderating variables such as general ability to recall things in general or need for cognition (NFC) could have explained the differences, rather than the intervention itself. NFC is commonly incorporated as a moderating variable in consumer behaviour studies since it is widely acknowledged as havingan influence on consumers' information processing (Haugtvedt et al., 1992). The way stimuli influences the attitudes and motivations of high- and low-NFC individuals is different. High-NFC individuals are more easily motivated to think about the information they are exposed to compared to low-NFC individuals (Haugtvedt et al., 1992).

In our experiment, we did not account for potential differences in memory or NFC. With a sample size of 10 women in each group, there could be outliers. One group might have a disproportionately larger amount of participants with an overall poor memory, or a low NFC making them less prone to think about the presented information and less able recall the information we gave them. Future studies could include general memory test to establish the general differences in this aspect of cognition and also measure if NFC has an impact on the influence of the intervention.

Future behaviour was not measured

Even if we had managed to find evidence that supported our hypotheses, it does not necessarily translate into a direct change in behaviour. As we outlined earlier in section 1.5 Delimitations and discussed in section 9. Limitations, the external validity of lab experiments can be questioned. Therefore, in the future, we recommend researching the external validity of stigmatisation's impact on consumers. As we mentioned in the delimitations, we initially sought to have a more behavioural approach where we measured how eco-friendly participants' behaviour was (i.e. how many MP products they frequently purchase). This can be done by cooperating with a Supermarket chain, such as COOP who have an extensive database with information about their members' purchase history. Getting access to this valuable data, as well as to members who are willing to participate in an experiment, could be a feasible way to determine whether the intervention has an impact on behaviour or not. It would enable one to measure changes in behaviour prior to and after the intervention has occurred.

Changing the 'theoretical lens'

In social science, it is difficult to determine the causality between different variables. In this thesis, we looked at emotions as the manipulator of cognitive abilities and behaviour. Putting this 'theoretical lens' aside and looking at behaviour change from other perspectives can definitely be beneficial and provide alternative explanations. While we stand by the notion that emotions play a large role, other concepts/theories can provide equally viable answers as to why we act in environmentally negligent ways. We believe that there are also other reasons for why we fail to change our behaviour despite knowing we should, and despite having the intentions to do so. Some researchers suggest that we have a propensity to prefer immediate rewards over future rewards (McClure et al., 2007), others suggest that we are overly optimistic (Sharot et al., 2007), or that we simply procrastinate and put things off until the last minute (Andreou et al., 2010). Taking these insights into consideration can definitely help us acquire a more nuanced picture, and perhaps provide other recommendations for how we can induce withstanding behaviour change in consumers.

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APPENDICES

APPENDIX A – DETAILED DESCRIPTION OF MICROPLASTICS

This part will review some of the research done about microplastics in more detail.

The origin of microplastic

Due to its many different properties, the use of plastic is used extensively in everyday consumer goods, as well as in durable goods. There is almost no product category in which the use of plastic is not somewhat part of the product, be it packaging, plastic bags, components etc. Much of the plastic consumed, ends up in the oceans and *"literature on marine debris leaves no doubt that plastics make-up most of the marine litter worldwide"* (Derraik, 2002, p. 843)

While some manufacturers have started using biodegradable plastic, it is still the non-biodegradable plastic that remains the most commonly used. Degradable plastic simply means that the product is degradable and as such it disappears over time, but when something is biodegradable it not only "disappears" over time, it also *"means that it can be broken down by the metabolism by micro-organisms"* (Green Plastics, 2017). Non-biodegradable plastic on the other hand, is degradable because technically all plastic is degradable, because you can grind it, destroy it, etc. and thus break it down. But when you break down non-biodegradable plastic, what happens is that the plastic in effect is still plastic, just in smaller pieces. *"Over a matter of years, it is possible for the pieces to become small enough to be assimilated by microorganisms* (...)*. In the meantime, they are just very small pieces of plastic."* (Green Plastics, 2017). When plastics are broken down in small pieces or simply is produced in sizes no longer than 5 mm it is referred to as microplastics (NOAA Marine Debris Program, 2015).

Primary and Secondary Microplastics

Microplastics can be divided into two categories: primary and secondary microplastics. **Primary microplastics** consists of plastic pellets, scrubbers, capsules or microbeads and enters the ocean via runoff from land. In this category microplastics are purposely added, for instance as microbeads used as exfoliants in face scrubs (NOAA Marine Debris Program, 2015). **Secondary microplastic** is often a by-product of larger pieces of plastic. It appears when a plastic product is broken down into smaller pieces, either as a result of industrial breakdown processes or when plastic is *"exposed to sunlight and begins to weather and fragment"* (NOAA Marine Debris

Program, 2015). Even though both types of microplastics are a major problem, secondary plastic is perhaps the most difficult one to counter, as it is not intentionally “added” to products. Primary microplastics for instance in face scrubs can be substituted with more eco-friendly substitutes.

Major problems associated with Microplastics

While the focus on non-biodegradable plastic as a major pollutant has existed for years (Derraik, 2002), within the subdivision of plastic, MP has recently attracted a lot of attention. Microplastic is commonly referred to as a massive (tiny) threat to the sea life. (Steven Connor 2014). Even though microplastic is invisible to the naked eye, scientists warn that it poses a major threat and that large amounts of microplastic are turning up in all major oceans and on country shores. In the ocean or on the shores, fish, birds, turtles and other marine life consume the microplastics, mistaking it for plankton, which is one of major food sources for aquatic life (beatthemicrobead.org 2016). The aftermath is that it gets absorbed as a part of aquatic life organisms or winds up in their bellies. This, in itself, is bad enough because it jeopardises the lives of marine animals (Derraik 2002), but to make things even worse, it may end up in human organism when we eat fish, seafood and so on (Miljø og Fødevarestyrelsen, 2015). Other studies have also found a presence of microplastic in other food sources, such as honey or beer, but it remains unknown whether these food sources are contaminated during the manufacturing processes or due to a natural presence in the raw materials (DR, 2015a; Miljø og Fødevarestyrelsen, 2015). The impacts associated with consuming microplastic are still not well understood, but studies have confirmed how plastic is able to absorb contaminants, and how the additives from plastics can leak into the marine environment. (NOAA Marine Debris Program, 2016) (Miljø og Fødevarestyrelsen, 2015).

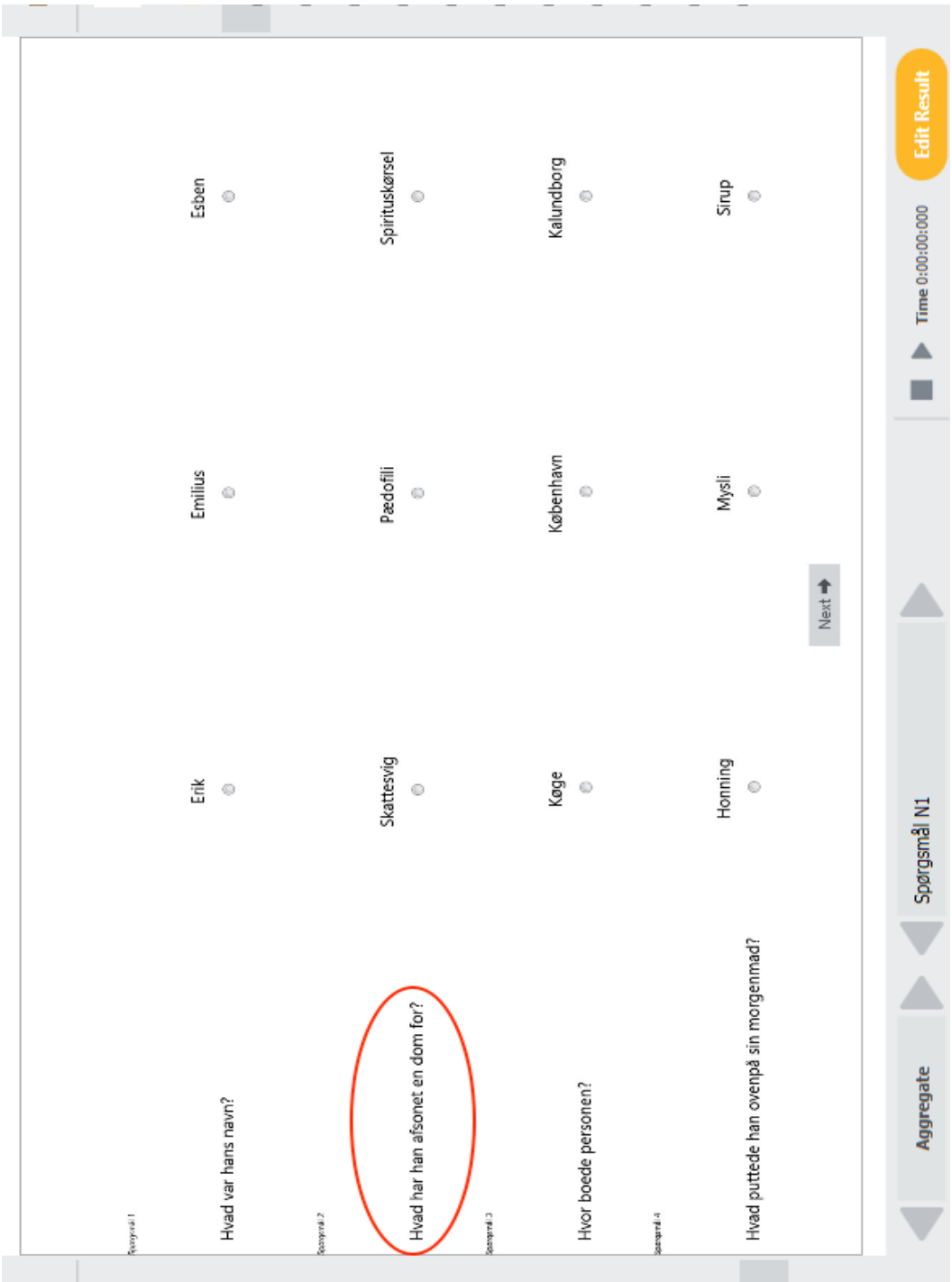
Microplastic in Denmark

In 2015, the Danish Ministry of Environment and Food published a report on microplastic, and the occurrence of microplastics in Denmark. (Miljø og Fødevarestyrelsen, 2015). The report reviews recent studies on microplastic, but also investigates the problem from a danish perspective. The report shows, emitters of microplastics in Denmark are tires, textiles,

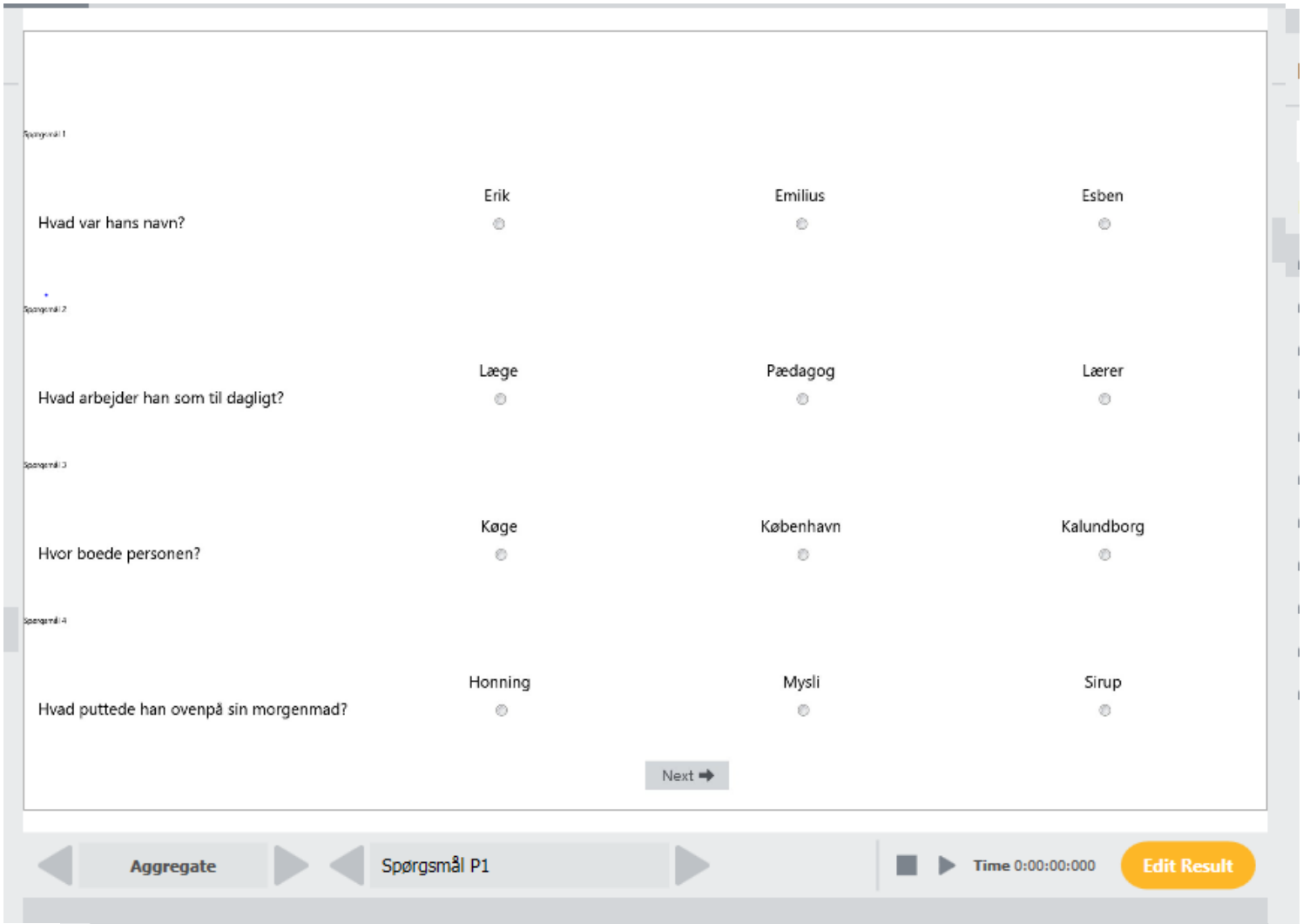
Due to its extensive and significant impact on the environment, we found the case about microplastic interesting and relevant to include as part of the study. Also, because the problem is gaining a lot of attraction recently. Because the problem has not reached a widespread awareness, we also mitigated the chances that participants in our experiments had a preconception about the problem, which could bias the results of the study. As mentioned earlier, we focus on consumer behaviour and will, therefore, only look into consumer goods containing MP. The categories we will look into are: food and beverages, textiles and cosmetics.

APPENDIX B – GENERAL QUESTIONS FROM THE SURVEY

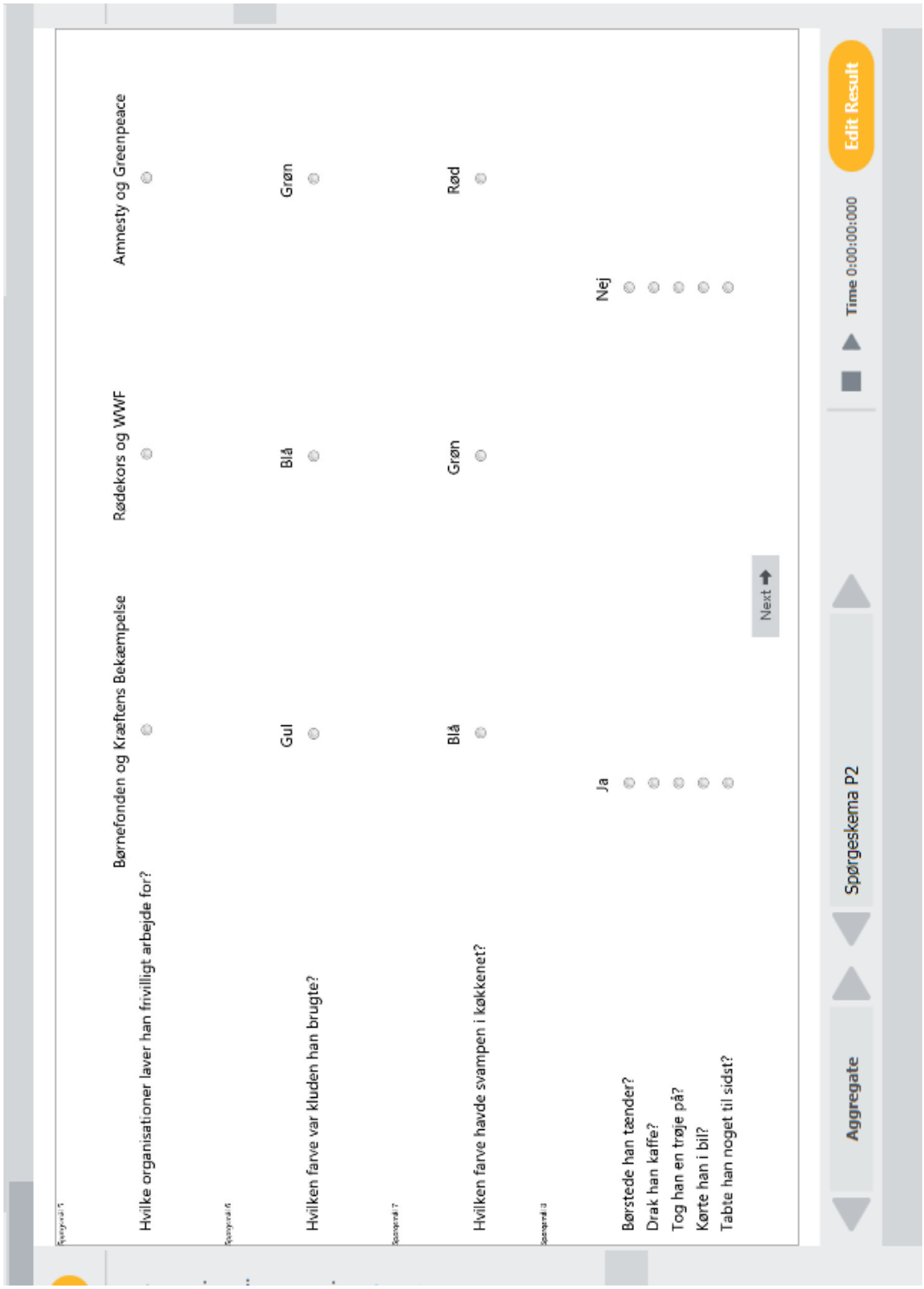
Group A

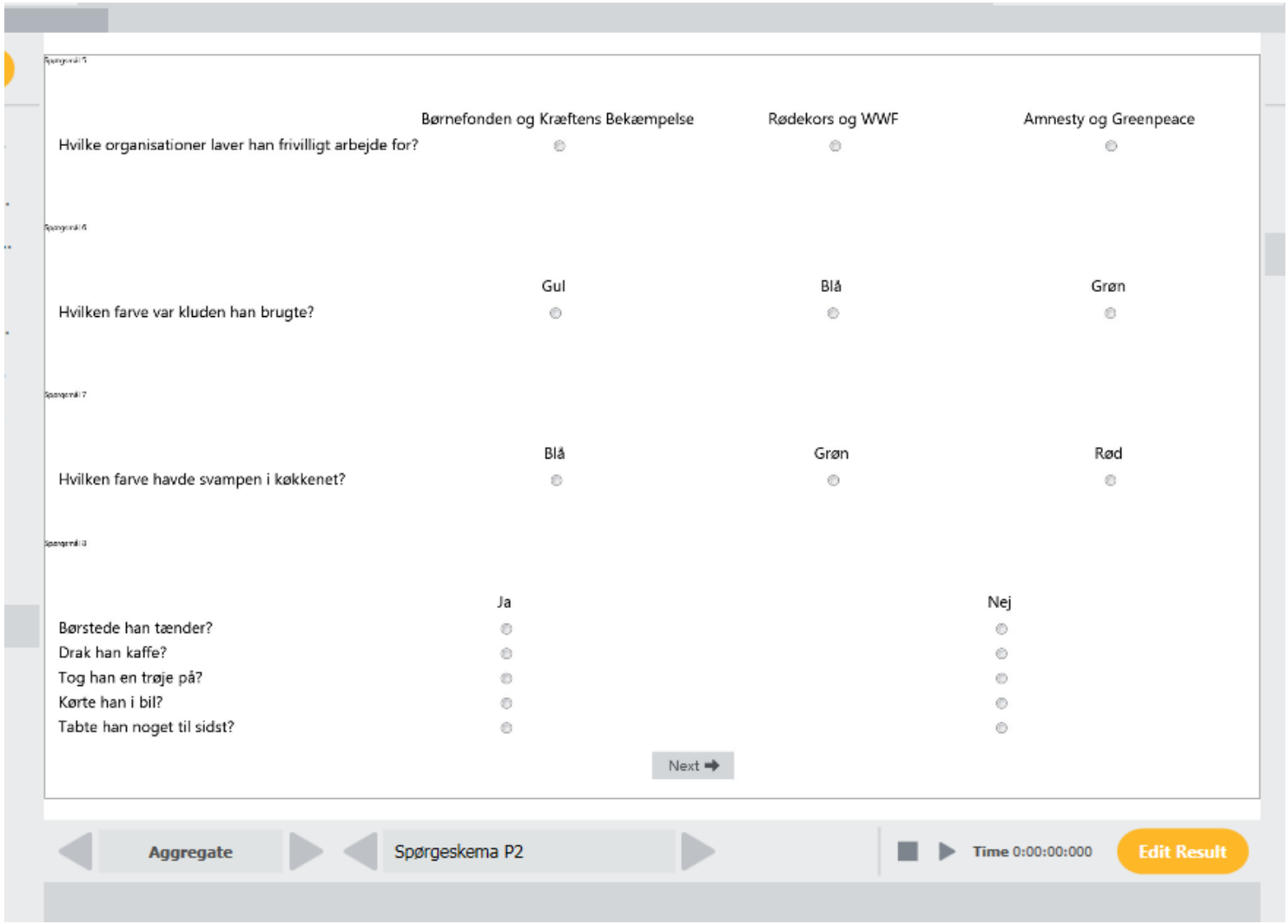


NB! The questions with the red circle around it was the excluding criteria


Erik
Emilius
Esben
Hvad var hans navn?
Læge
Pædagog
Lærer
Hvad arbejder han som til dagligt?
Køge
København
Kalundborg
Hvor boede personen?
Honning
Mysli
Sirup
Hvad puttede han ovenpå sin morgenmad?
Next
Aggregate
Spørgsmål P1
Time 0:00:00:000
Edit Result

Group B


Hvilke organisationer laver han frivilligt arbejde for?
Børnefonden og Kræftens Bekæmpelse
Rødekors og WWF
Amnesty og Greenpeace
Hvilken farve var kluden han brugte?
Gul
Blå
Grøn
Hvilken farve havde svampen i køkkenet?
Blå
Grøn
Rød
Ja
Nej
Børstede han tænder?
Drak han kaffe?
Tog han en trøje på?
Kørte han i bil?
Tabte han noget til sidst?
Next
Aggregate
Spørgeskema P2
Time 0:00:00:000
Edit Result


Børnefonden og Kræftens Bekæmpelse
Rødekors og WWF
Amnesty og Greenpeace
Hvilke organisationer laver han frivilligt arbejde for?
Gul
Blå
Grøn
Hvilken farve var kluden han brugte?
Blå
Grøn
Rød
Hvilken farve havde svampen i køkkenet?
Ja
Nej
Børstede han tænder?
Drak han kaffe?
Tog han en trøje på?
Kørte han i bil?
Tabte han noget til sidst?
Next
Aggregate
Spørgeskema P2
Time 0:00:00:000
Edit Result

APPENDIX C – EXAMPLES FROM PRODUCT SURVEY

Er der mikroplastik i dette produkt?

Ja Nej Ved ikke

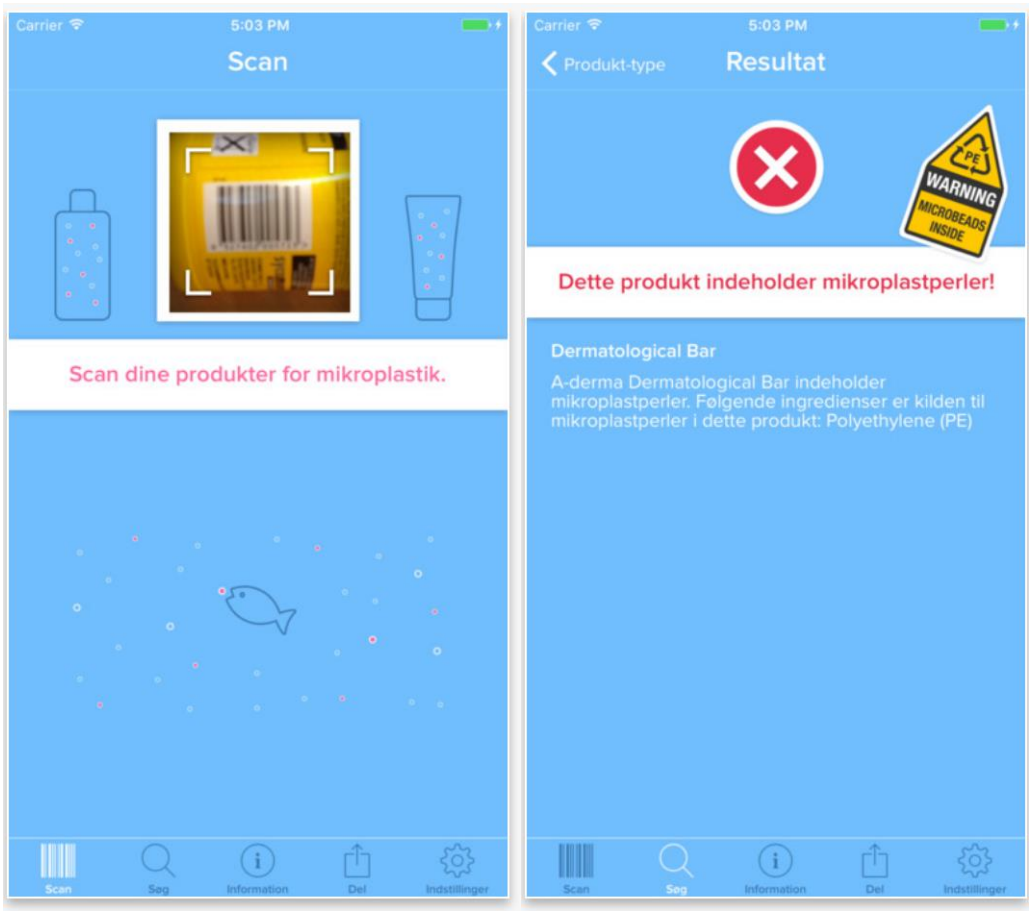
Next ➡

Er der mikroplastik i dette produkt?

Ja Nej Ved ikke

Next ➡

APPENDIX D – BEAT THE MICROBEAD APP



APPENDIX E – MICROPLASTICS PRODUCTS

List of products containing Microplastics

Gillette Shaving Foam

Loreal Active Facewash

Clinique Anti-age Moisturizer

NUXE Reve de Miel Baume Levres

Appendix F – Results from the Surveys in the Experiments

	Group A	Group B	Diff (A-B)
General Questions	**120**	**120**	**0**
- Average Exposure time (sec)	46,12	59,97	-13,85
- Not answered	0	0	0
- Not answered %	0%	0%	0%
- Right	112	111	1
- Right %	93,3%	92,5%	0,8%
- Wrong	8	9	-1
- Wrong %	6,67%	7,50%	-0,83%

	Group A	Group B	Diff (A-B)
All products	**180**	**180**	**0**
- Average Exposure time (sec)	4,32	5,17	-0,85
- Not answered	1	2	-1
- Not answered %	0,56%	1,11%	-0,56%
Total answers	**179**	**178**	**1**
- Right	122	118	4
- Right %	68,16%	66,29%	1,86%
- Wrong	27	20	7
- Wrong %	15,08%	11,24%	3,85%
- Don't know	30	40	-10
- Don't know %	16,76%	22,5%	-5,7%

	Group A	Group B	Diff (A-B)
MP Products	**100**	**100**	**0**
- Average Exposure time (sec)	4,24	4,59	-0,35
- Not answered	0	0	0
- Not answered %	0,00%	0,00%	0,00%
Total answers (MP)	**100**	**100**	**0**
- Right	77	87	-10
- Right %	77,00%	87,00%	-10,00%
- Wrong	13	3	10
- Wrong %	13,00%	3,00%	10,00%
- Don't know	10	10	0
- Don't know %	10,00%	10,00%	0,00%
			0
Non-MP Products	**80**	**80**	**0**
- Average Exposure time (sec)	4,43	5,88	-1,45
- Not answered	1	2	-1
- Not answered %	1,25%	2,50%	-1,25%
Total answers (Non-MP)	**79**	**78**	**1**
- Right	45	31	14
- Right %	56,96%	39,74%	17,22%
- Wrong	14	17	-3
- Wrong %	17,72%	21,79%	-4,07%
- Don't know	20	30	-10
- Don't know %	25,32%	38,46%	-13,15%

APPENDIX G – RIGHT/WRONG ANSWERS PER MP PRODUCTS

(sorted by right answers)

Group A - Answers (by product name)			
Product Name	Right	Wrong	Don't Know
Fleece Sweater	10	0	0
Dish Cloth	9	0	1
Carlsberg Sixpack	9	1	0
Clinique Mouisturizer	8	0	2
Jakobsen Honey	8	1	1
Loreal Face Wash	8	2	0
Cleaning Sponge	8	2	0
Gillette Shaving Foam	6	2	2
Nuxe Lipbalm	6	2	2
Egekilde Water	5	3	2
Total	**77**	**13**	**10**

Group B - Answers (by product name)			
Product Name	Right	Wrong	Don't Know
Dish Cloth	10	0	0
Loreal Face Wash	10	0	0
Cleaning Sponge	10	0	0
Fleece Sweater	9	0	1
Carlsberg Sixpack	9	0	1
Jakobsen Honey	9	0	1
Nuxe Lipbalm	8	0	2
Clinique Mouisturizer	8	1	1
Gillette Shaving Foam	8	1	1
Egekilde Water	6	1	3
Total	**87**	**3**	**10**

APPENDIX H – T-TEST FOR PRODUCT EMOTIONS

	Disgust			Negative Aggregate		
Product	**Group A**	**Group B**	**P Value**	**Group A**	**Group B**	**P Value**
Total	-0,2420	0,0854	0,2460	-0,1875	0,0267	0,2447
MP Products	-0,2249	0,0881	0,2372	-0,1815	0,0320	0,2453
Non MP Products	-0,2556	0,0914	0,2610	-0,1924	0,0387	0,2458

Disgust - All Products							
	n	Mean	SD	t-stat	t-crit	df	p
Group A	10	-0,2427	0,6231	-1,2015	2,1098	17	0,2460
Group B	10	0,0882					

Disgust - MP Products							
	n	Mean	SD	t-stat	t-crit	df	p
Group A	10	-0,2560	0,6294	-1,2253	2,1098	17	0,2372
Group B	10	0,0844					

Disgust - Non-MP Products							
	n	Mean	SD	t-stat	t-crit	df	p
Group A	10	-0,2261	0,6194	-1,1627	2,1098	17	0,2610
Group B	10	0,0930					

Negative Aggregate - All Products							
	n	Mean	SD	t-stat	t-crit	df	p
Group A	10	-0,1353	0,4464	-1,2077	2,1199	16	0,2447
Group B	10	0,1029					

Negative Aggregate - MP Products							
	n	Mean	SD	t-stat	t-crit	df	p
Group A	10	-0,1446	0,4461	-1,2061	2,1199	16	0,2453
Group B	10	0,0932					

Negative Aggregate - Non-MP Products							
	n	Mean	SD	t-stat	t-crit	df	p
Group A	10	-0,1236	0,4484	-1,2048	2,1199	16	0,2458
Group B	10	0,1152					

APPENDIX I – P-VALUES FOR ALL PRODUCTS AND ALL EMOTIONS

P values									
Nr.	Product	Microplastic?	Negative aggregate	iMotions aggregate	Anger	Surprise	Fear	Contempt	Disgust
1	Loreal Face Wash	Yes	0,1755	0,5975	0,3441	0,2040	0,1466	0,1807	0,1445
2	Milk	No	0,4204	0,3725	0,6190	0,9061	0,3412	0,2885	0,4735
3	Fleece Sweater	Yes	0,2766	0,3832	0,4320	0,4704	0,2008	0,1081	0,2999
4	Beauvais Ketchup	No	0,4562	0,5176	0,5347	0,9323	0,4159	0,2773	0,4467
5	Biotherm Deo	No	0,3585	0,2966	0,7778	0,4879	0,6957	0,2143	0,3538
6	Carlsberg Sixpack	Yes	0,3739	0,8466	0,4794	0,4613	0,1598	0,6263	0,2517
7	Clinique Mouisturizer	Yes	0,2217	0,2460	0,5603	0,8728	0,3296	0,1297	0,1528
8	Colgate Toothpaste	No	0,3479	0,2889	0,5650	0,9669	0,5359	0,3146	0,2061
9	Gillette Shaving Foam	Yes	0,2588	0,0843	0,8807	0,6034	0,7078	0,5047	0,1337
10	Jakobsen Honey	Yes	0,1297	0,0750	0,4356	0,9543	0,5360	0,3661	0,1778
11	Dish Cloth	Yes	0,1075	0,0742	0,5842	0,6943	0,4111	0,3036	0,1276
12	Nescafé	No	0,1484	0,1441	0,7381	0,7485	0,4465	0,2971	0,0799
13	Neutral Handsoap	No	0,1534	0,0945	0,6100	0,6856	0,5444	0,4768	0,1267
14	Nuxe Lipbalm	Yes	0,1966	0,1316	0,7089	0,6263	0,4205	0,4463	0,1779
15	Cleaning Sponge	Yes	0,1950	0,2819	0,9767	0,3729	0,4346	0,1774	0,1525
16	Skyr	No	0,1418	0,2360	0,7000	0,3813	0,2525	0,6852	0,1159
17	Egekilde Water	Yes	0,2701	0,6797	0,6882	0,4483	0,1029	0,4889	0,2687
18	Philladelphia	No	0,1728	0,1256	0,8149	0,9918	0,2583	0,7422	0,1968

APPENDIX J – T-TESTS PRODUCT ANSWERS

Group A			
Respondent	**Right**	**Wrong**	**Don't Know**
4 Regine	17	1	0
3 Henriette	15	2	1
2 Victoria	14	1	2
9 Rikke	14	2	2
8 Michelle	12	4	2
10 Marie	11	4	3
7 Natasja	11	5	2
1 Sarah	10	2	6
5 Stine	9	1	8
6 Mette	9	5	4

Group B			
Respondent	**Right**	**Wrong**	**Don't Know**
15 Anna	17	1	0
20 Rachel	13	0	4
19 Elisabeth	13	1	4
17 Sarah	13	2	3
21 Josefine	12	3	3
16 Anna	12	2	4
14 Maja	12	3	3
18 Malene	11	1	6
13 Anna	9	3	5
12 Nadja	6	4	8

Right							
	n	Mean	SD	t-stat	t-crit	df	p
Group A	10	12,20	2,7145	0,3216	2,1009	18	0,7514
Group B	10	11,80					

Wrong							
	n	Mean	SD	t-stat	t-crit	df	p
Group A	10	2,70	1,4609	1,0759	2,1098	13	0,2970
Group B	10	2,00					

Don't Know							
	n	Mean	SD	t-stat	t-crit	df	p
Group A	10	3,00	2,2595	5,7778	2,1009	18	0,3357
Group B	10	4,00					

APPENDIX K – T-TESTS MP-PRODUCT ANSWERS

Group A			
Respondent	**Right**	**Wrong**	**Don't Know**
4 Regine	10	0	0
1 Sarah	9	0	1
10 Marie	8	2	0
2 Victoria	8	1	1
3 Henriette	8	2	0
5 Stine	7	0	3
6 Mette	7	1	2
8 Michelle	7	2	1
9 Rikke	7	1	2
7 Natasja	6	4	0

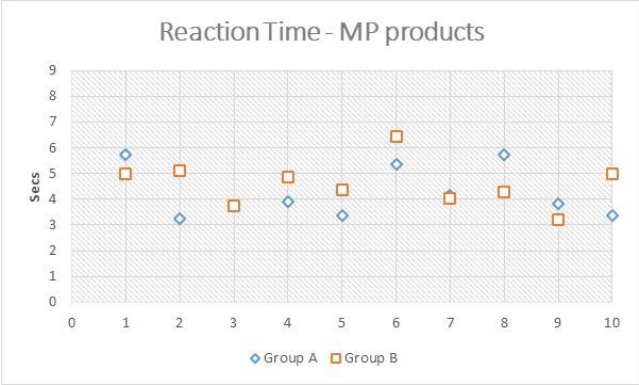
Group B			
Respondent	**Right**	**Wrong**	**Don't Know**
20 Rachel	10	0	0
19 Elisabeth	10	0	0
15 Anna	10	0	0
14 Maja	10	0	0
21 Josefine	9	1	0
17 Sarah	9	1	0
16 Anna	9	1	0
18 Malene	7	0	3
13 Anna	7	0	3
12 Nadja	6	0	4

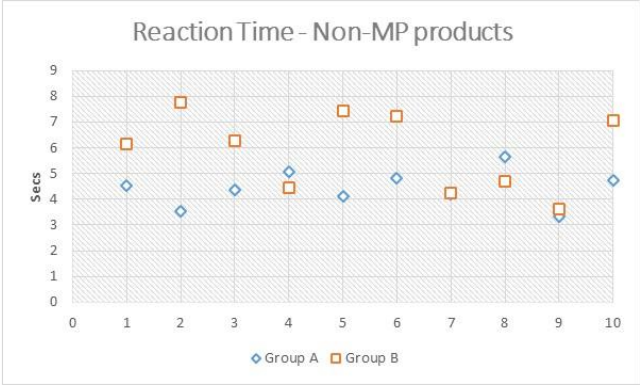
Right							
	n	Mean	SD	t-stat	t-crit	df	p
Group A	10	7,7	1,3992	-1,672	2,1009	17	0,1129
Group B	10	8,7					

Wrong							
	n	Mean	SD	t-stat	t-crit	df	p
Group A	10	1,3	1,0563	2,3570	2,1788	12	0,0362
Group B	10	0,3					

Don't Know							
	n	Mean	SD	t-stat	t-crit	df	p
Group A	10	1,0	1,3377	0,0000	2,1314	15	1,0000
Group B	10	1,0					

APPENDIX L – T-TESTS REACTION TIME





General Questions						
	n	Mean	SD	t-stat	t-crit	df	p
Group A	10	46,12	13,45	-2,6374	2,1009	18	0,01673
Group B	10	59,97					

All Products						
	n	Mean	SD	t-stat	t-crit	df	p
Group A	10	4,32	0,99	-2,0477	2,1098	17	0,05636
Group B	10	5,17					

MP products						
	n	Mean	SD	t-stat	t-crit	df	p
Group A	10	4,24	0,94	-0,8478	2,1009	18	0,40767
Group B	10	4,59					

Non-MP Products						
	n	Mean	SD	t-stat	t-crit	df	p
Group A	10	4,43	1,37	-2,7566	2,1604	13	0,01633
Group B	10	5,88					

APPENDIX M – P-VALUE PER SCENE PER EMOTION

P values								
Scene	**Timestamp (min:sec)**	**Negative aggregate**	**iMotions aggregate**	**Anger**	**Surprise**	**Fear**	**Contempt**	**Disgust**
Disclaimer	**0:000 - 0:369**	0,5955	0,4491	0,5455	0,5742	0,6676	0,5045	0,8629
The Bedroom	**0:370 - 0:599**	0,9019	0,0507	0,9794	0,4465	0,4803	0,4905	0,9847
The Bathroom	**1:003 - 1:279**	0,7304	0,9137	0,6139	0,3328	0,7027	0,5796	0,8363
The Kitchen	**1:279 - 2:279**	0,4794	0,9625	0,8113	0,1236	0,9942	0,4920	0,7020
The Hallway	**2:280 - 2:399**	0,4322	0,5888	0,8797	0,2238	0,9052	0,6508	0,4368
The Car	**2:400 - 3:140**	0,3878	0,7220	0,8565	0,2085	0,6359	0,6081	0,5897
The Exit	**3:140 - 3:320**	0,8042	0,9013	0,8985	0,6025	0,8042	0,7135	0,9097
Total All Scenes	**0:000 - 3:320**	0,5366	0,8678	0,7791	0,2159	0,8630	0,5346	0,7273

P values								
Scene	**Timestamp (min:sec)**	**Negative aggregate**	**iMotions aggregate**	**Anger**	**Surprise**	**Fear**	**Contempt**	**Disgust**
Pedophilia stigma	**0:401 - 0:470**	0,8469	**0,0231**	0,7074	0,5603	0,4656	0,4676	0,8357
Littering Scene	**1:070 - 1:130**	0,8814	0,8146	0,8909	0,6496	0,7407	0,4387	0,9622
Driving Scene	**2:437 - 2:525**	0,3268	0,6096	0,8530	0,2294	0,6751	0,5809	0,3159
Face Washing Scene	**3:146 - 3:205**	0,8831	0,6777	0,6102	0,7955	0,4509	0,6750	0,9660

NB! The red number indicates that the p-value is below the critical p-value ($\alpha < 0.05$)

APPENDIX N – T-TESTS GENERAL QUESTION ANSWERS

Group A		
Respondent	**Right**	**Wrong**
8 Michelle	12	0
7 Natasja	12	0
5 Stine	12	0
4 Regine	11	1
3 Henriette	11	1
2 Victoria	11	1
9 Rikke	11	1
10 Marie	11	1
1 Sarah	11	1
6 Mette	10	2

Group B		
Respondent	**Right**	**Wrong**
19 Elisabeth	12	0
17 Sarah	12	0
15 Anna	12	0
14 Maja	12	0
13 Anna	12	0
12 Nadja	12	0
20 Rachel	11	1
16 Anna	11	1
21 Josefine	9	3
18 Malene	8	4

Right							
	n	Mean	SD	t-stat	t-crit	df	p
Group A	10	11,20	1,0894	0,2000	2,1788	12	0,8448
Group B	10	11,10					

Wrong							
	n	Mean	SD	t-stat	t-crit	df	p
Group A	10	0,80	1,0894	-0,2000	2,1788	12	0,8448
Group B	10	0,90					

APPENDIX O – ANGER DURING ANSWERS

	Anger per participant		
	Name	Yes/No	Don't Know
Group A	1 Sarah	0,237370874	0,314749306
	2 Victoria	-0,73262181	-1,02976293
	3 Henriette	1,459906924	1,409011513
	4 Regine	-0,0833826	N/A
	5 Stine	0,584110531	0,622158886
	6 Mette	-0,66917787	-0,569701743
	7 Natasja	0,641301678	0,921045792
	8 Michelle	0,281874348	0,05813314
	9 Rikke	0,047823825	0,20937685
	10 Marie	0,10262763	0,095824034
Group B	12 Nadja	-0,51116942	-0,602076215
	13 Anna	-0,76080387	-0,517897999
	14 Maja	0,189570511	0,709431448
	15 Anna	1,461044673	N/A
	16 Anna	0,126574528	-0,072943464
	17 Sarah	-0,14571144	-0,240787145
	18 Malene	0,91064662	1,328398185
	19 Elisabeth	-0,30224472	-0,152339757
	20 Rachel	0,689370821	0,064324977
	21 Josefine	0,614257486	0,87916383

The table below shows the average level of anger for both groups, when answering “Yes/No “ or “Don’t Know”.

Anger (Both groups)	
Yes/No	0,2320
Don't Know	0,1509

(total of 360 answers)

APPENDIX P – T-TESTS REACTION TIME MP VS. NON-MP PRODUCTS

(sec; ms)

Group A - Average reaction time per participant		
Name	**MP products**	**Non-MP Products**
1 Sarah	5,74	4,52
2 Victoria	3,25	3,53
3 Henriette	3,73	4,36
4 Regine	3,89	5,05
5 Stine	3,35	4,10
6 Mette	5,37	4,83
7 Natasja	4,14	4,20
8 Michelle	5,73	5,66
9 Rikke	3,82	3,33
10 Marie	3,36	4,73

Group B - Average reaction time per participant		
Name	**MP products**	**Non-MP Products**
12 Nadja	5,00	6,16
13 Anna	5,11	7,75
14 Maja	3,72	6,26
15 Anna	4,84	4,43
16 Anna	4,35	7,42
17 Sarah	6,42	7,21
18 Malene	4,05	4,23
19 Elisabeth	4,26	4,68
20 Rachel	3,22	3,63
21 Josefine	4,97	7,04

Group A - Reaction time MP vs Non-MP products						
	n	Mean	SD	t-stat	t-crit	df	p
MP Products	10	4,24	0,84	-0,5054	2,1199	16	0,62016
Non-MP Products	10	4,43					

Group B - Reaction time MP vs Non-MP products						
	n	Mean	SD	t-stat	t-crit	df	p
MP Products	10	4,59	1,38	-2,3213	2,1314	15	0,03476
Non-MP Products	10	5,88					

APPENDIX Q – CONSENT FORM

Deltager nr: _____ dato: _____

Copenhagen
Business School
HANDELSHØJSKOLEN

Department of
Marketing

Solbjerg Plads 3
DK-2000 Frederiksberg

Tel.: +45 · 3815 2100
Fax: +45 · 3815 2101
www.cbs.dk

Erklæring vedrørende forsøg med eye-track i DNRC Lab på CBS

1. Du ret til at afbryde og trække dig ud af eksperimentet på et hvilket som helts tidspunkt. Dette vil ikke have nogle konsekvenser for dig som deltager
2. Din deltagelse vil blive anonymiseret og dit navn vil på intet tidspunkt blive relateret til projektet
3. Data fra dette eksperiment vil kun blive anvendt til videnskabelige formål
4. Du vil blive informeret om udstyret og hvordan det fungerer, og der er ingen risiko ved at deltage
5. Du er altid velkommen til at efterspørge mere information

Jeg har læst og forstået erklæringen,
og jeg er indforstået med eksperimentets betingelser

_____
navn i blokbogstaver

_____
underskrift

I forbindelse med eksperimentet, kan det blive nødvendigt at indsamle yderligere information fra deltagerne. For at kunne dette, har vi brug for dit samtykke og din adresse.

☐ Ja, jeg er indforstået med at DNRC må kontakte mig for at få yderligere information til brug ved dette eksperiment.

_____
adresse

_____
post nr. + by

_____
eventuel e-mail