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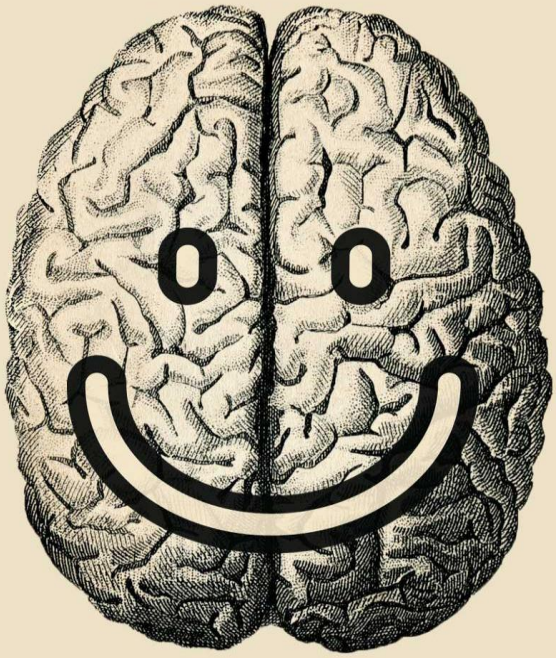

(*Pathirana, 2012*)

Talk to me nicely

A Research on the Unconscious Influences on Employees within an Organization

Tal pænt til mig

En undersøgelse af de underbevidste indvirkninger på medarbejdere i en organisation

Master Thesis

Cand. Merc. SOL (Strategy, Organization & Leadership)

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1 Abstract

The ability to control and regulate the behavior of employees is a key concept within organizations. New findings within Neuroscience have discovered that individuals and therefore employees are influenced by unconscious factors. If the employee is affected by unconscious factors does this distort the organization's ability to control and regulate their employees? In this thesis we examine how these unconscious factors affect the ability to control and regulate employees. This is done by researching the question: "*How can priming be used to unconsciously influence the productivity of individuals within the organization?"* We research how priming can be applied to facilitate a behavioral change by conducting two studies. The first study establishes the validity of priming by priming a positive/negative mood in participants. This was done through the use of a Scrambled Sentence Test and the priming effect was measured using a Mood Adjectives Test. The second study further elaborates on the findings from study 1 by examining the relationship between a positive mood and productivity within Nykredit's customer service department. This was done by priming employees through a Scrambled Sentence Test and observing the rise in referrals made by employees. The results revealed that priming *can* influence the mood of employees and that this change in mood affects the productivity of these employees. Furthermore, this thesis presents a number of implementation proposals on how priming can be used within the organization. This is done through 3 different proposals: *explicit priming*, *immersive priming* and *self-priming.* Explicit priming focuses on new practices, immersive on old practices and self-priming on the employees priming themselves. Each implementation method differs in how priming is utilized within the organization. In addition, this thesis tries to fill a gap between management and neuroscience by inserting priming into the paradigm of management. This is done to support the implementation proposals and help determine how priming adds value to the organization.

The conclusion of this thesis is that behavior *can* be controlled and regulated. That the unconscious factors that influence employees *can* be used through priming to change the behavior of employees. The use of these unconscious factors through priming *can* be implemented within an organization, and they *do* have the potential to raise the productivity of employees and thus add value to the organization.

2 Introduction

2.1 Background

One of the main resources of an organization is its human capital i.e. its employees (Barney et al., 2001). The motivation of the employees can be what determines the level of productivity and ultimately success of the organization. Motivation can be understood as an individual internal driven force, which thrusts employees towards reaching goals. More specifically it refers to the "*reasons underlying behavior, the attribute that moves us to do or not to do something*" (Guay et al., 2010). In this respect, motivation can be understood as the process that initiates, guides and maintains goal-directed behaviors. While early explanations of motivation have relied on instinct, psychologists in recent years have suggested that individuals are programmed to behave in certain ways depending on the behavioral cues to which they are exposed (Hull, 1943; Tolman, 1948).

While some theorists have suggested that behavior can be controlled and regulated (Locke & Latham, 2002; Skinner, 1953), advances from Decision Neuroscience seem to suggest that individuals are influenced by unconscious factors in a larger degree than previously believed (Bargh et al., 2000). If behavior is influenced by unconscious factors, is it even possible to control and regulate behavior? Will an attempt to control the behavior of individuals be distorted by these factors? And if it is possible to control behavior, how could such control be implemented into an organization? One possibility to unconsciously control behavior, could be through the use of priming. Priming is a psychological mechanism where an exposure to a stimulus affects the subsequent response to a later stimulus (Bargh et al., 2000). By exposing individuals to specific stimulus, is it possible to influence them unconsciously and control their behavior within the organization?

There has been an increased interest in happiness or a positive mood as a driver of success and productivity from the business community (Springs, 2013; Coffey, 2006) Most of these articles provides arguments as to why happiness and employee satisfaction is important but lack the required references and research to be scientifically valid. However, many scientific articles exist which support these claims. Articles such as: Wright & Staw (1999) discussed the correlation between happy employees and favorable supervisions, Honkanen et al. (2004) explained the interaction between life dissatisfaction and work disability, Rokade (2011) discussed the link between laughter and the release of endorphin and subsequent lowering of anxiety and finally Connolly & Viswesvaran (2000) explained the role of positivity in the creation of job satisfaction.

This thesis seeks to examine how priming can unconsciously influence the behavior of individuals and if this is possible how to utilize priming to influence the behavior of employees within an organization to perform better. By utilizing the notion that a positive mood is a resource and adds value to the organization, this thesis will research whether priming the mood of employees in an organization affects the productivity of these employees.

2.2 Research Objective and Research Question

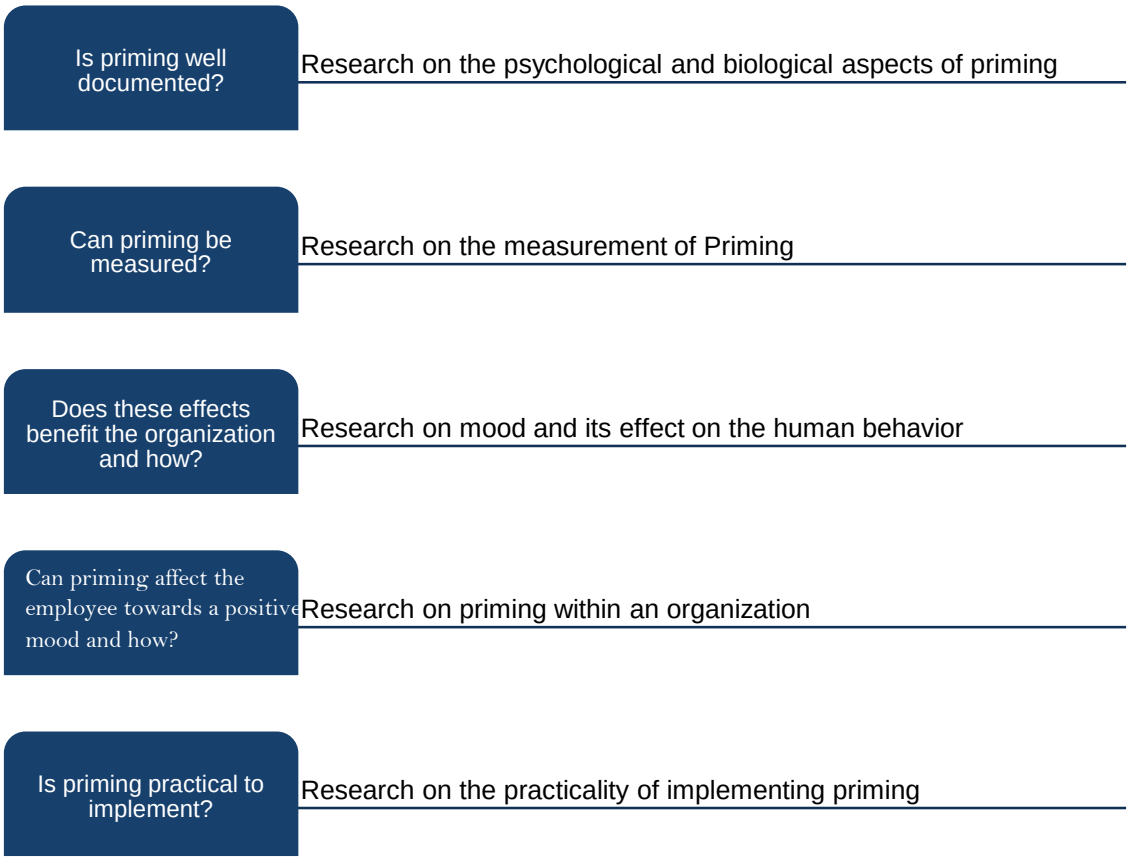
The research objective of this paper is to compensate for the lack of neuroscientific understanding in the field of management literature pertaining decision-making and motivation. The aim of the paper is to explore and identify how priming operates within the organization, in an attempt to provide a higher level of productivity and thus added value to the organization. As a result our thesis will help bridge the gap between management and neuroscience.

In order to examine how priming could be implemented into an organization and consistently influence the employees to perform at a higher level, we explore the following research question:

"How can priming be used to unconsciously influence the productivity of individuals within the organization?"

While Priming has been well documented within the field of Neuromarketing as a social concept it has never, to our knowledge, been placed within the context of management. Articles such as *Priming by Order (2007)* and *Priming the Customer* (2006) by Roger Dooley and *How to use Priming in Social Media (2014)* by Scott Scanlon, discuss the use of priming as a marketing tool. These claims support the notion that priming can indeed be used as a tool to influence the behavior of individuals.

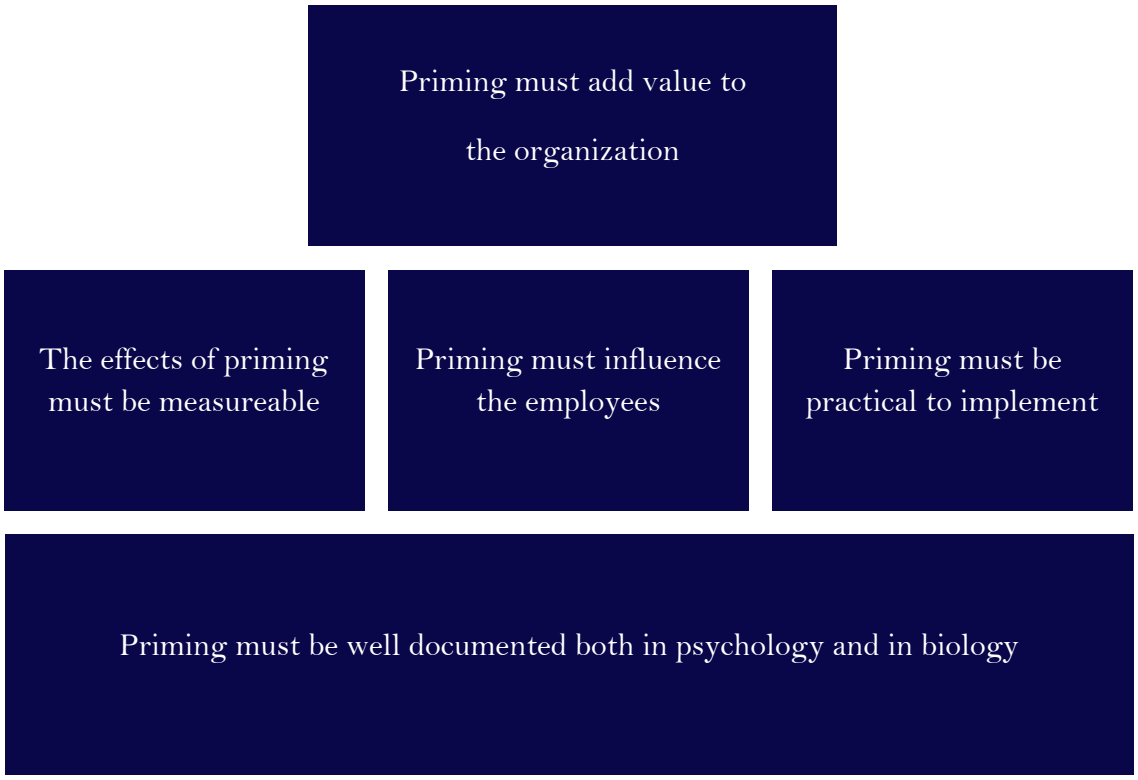
Below are the areas we chose to focus on while researching.



Our Hypothesis:

Priming has the capabilities to be used as a managerial tool, as it has a proven record of influencing individuals, and it has a lightweight framework that makes it ideal for implementing.

To help us answer our research question and determine whether our hypothesis is correct, we have stipulated 5 criteria that needs to be met. These criteria will act as a guideline for our thesis. They can be seen below:



2.3 Why have these Criteria been Chosen?

These criteria were chosen because they represent the essential framework for a successful hypothesis. The 5 criteria are all non-refutable statements, and many of the criteria are mutually inclusive meaning that if one of the criteria is not met, it will affect the other criteria as well.

When we have completed our research objectives and tested the 5 criteria stipulated above, we will be able to confirm or reject our hypothesis on whether priming can be used as a managerial tool. *"Is priming ethical"* was added as a sixth criterion. It is not actually a criterion for priming to be a managerial tool but more an examination into whether it is ethical justifiable to use priming as a managerial tool, provided it is successfully validated as such.

2.4 Delimitations

In order to maintain a central focus of the paper, certain delimitations with regard to theory, method and data are necessary to ensure that the objectives are ambitious yet realizable. The purpose of this delimitation is to specify the scope of the paper by limiting the subject field and concepts from factors that are considered to be beyond the scope of this paper or irrelevant.

Priming will be the main focus of this thesis, and as such the concept of priming will not be compared or discussed in relation to other methods of behavior alteration. The purpose is not to find the most effective way of altering behavior, but rather to explore whether priming can be used effectively as such a method to influence human behavior. Thus, as the focus is directed towards specific priming techniques, other priming techniques will not be explained in depth.

Productivity in this thesis, which conforms to a managerial paradigm, is a given output over a determined time frame, and therefore remains largely arbitrary. The term will be used as a measurement of elements that alters or affects the performance of the individual or organization, in a positive or negative way. It is used in the broadest definition of the term. Productivity and performance is interchangeable in this thesis, but productivity is the word chosen.

The concept of happiness is only used as a narrative concept and not as a scientific concept. Due to the nature of our priming studies it was necessary for us to apply the concept of happiness at a discursive level. In order to turn happiness into a more concrete, tangible and scientific concept, we use the term mood. Mood has some very clear psychological and biological processes attached to its terminology and therefore works better as a scientific concept in comparison to happiness. While the relationship between mood and behavior will be elaborated on in the theory section, we will not criticize or discuss the different psychological or biological aspects related to the brain as it is beyond the scope of this paper. In this regard we saw it most prudent to use the most generally accepted research in an effort to prove our hypothesis. The biological and psychological theories that will be used in this paper serve to establish documentation for the validity of priming as a potential managerial tool.

The concepts of Neuroscience and Neuroeconomics are vast and entail a broad field, thus the focus here is on decision-making and priming which is intrinsically connected to the research on memory systems. The theories on memory systems applied in our thesis will be explained in the theory section, but only to the extent that they serve a purpose for our thesis. Therefore, we will briefly explain the theory of declarative memory systems, but only as a reference point for non-declarative

memory systems. Thus our theoretical section on declarative memory system is fairly basic and short. Since our project's focus is priming effects, the bulk of our attention will also be here. The other subsystems will be described and explained shortly but not extensively. They will serve as a reference point and help give the reader a panoramic understanding of which memory systems exist and their function and characteristics in relation to priming.

Neuroscience and Neuroeconomics have great potential but it is important for us, as researchers, not to be blinded by the potential. We still do not have the level of technology and research needed to explain the human behavior by simply looking at the brain through neuroimaging. Neuroimaging is when machines are used to capture images of the brain in various ways. Since the brain is complicated, it makes it hard for researchers to pinpoint where processes are located in the brain. The science, at the time of writing this thesis, is nowhere near sophisticated enough to trace any emotion or brain processes to specific areas of the brain completely. Doing so would be a reverse inference (Poldrack, 2006). What we can establish is that certain areas are related or included in the feeling of emotions such as joy and anger, but to take the leap from maybe to definitely require better technology and more research.

Due to the scale of the research objective certain limitations will be explained when appropriate, rather than listing them all here. This is to increase the understanding of the sections in which the limitations appear.

In our collaboration with Nykredit, which will be further elaborated later in the thesis, we have consciously tried to keep the disturbance of the everyday operations of the organization to a minimum. This was done in an attempt to limit the potential variables that arise from us being present and conducting an experiment. This limitation in our interaction with the employees has affected the choice of methods used within the study. Any interaction could have influenced the behavior of the employees, which could potentially distort the priming effect and the subsequent results gained. For this reason, our interaction with the employees in Nykredit was kept at the lowest level possible.

Our initial desire was to prime the employees at Nykredit towards a positive and negative mood in an attempt to see whether a positive mood would raise productivity, and a negative mood would lower productivity. We were, however, not able to prime employees towards a negative mood due

to Nykredit, understandably, objecting to this. Because we were not able to prime employees towards a negative mood, our thesis cannot verify whether a negative priming will affect the productivity of employees for the worse. It is, however, very likely to believe this to be the case.

The management theories utilized in this thesis all focus on the implementation of priming. In this respect, the theory revolving around management will only be explained in relation to how it interacts with priming. There will be no examination of different management theories in relation to each other. The management models used in the thesis have been chosen for their descriptive nature and their ability to function with priming.

The model used to display the theory on memory systems within the thesis is from Squire's (2004) article; *Memory systems of the brain: A brief history of and current perspective.* This model was first proposed by Schacter & Tulving (1994) and is also the model used in *Fundamentals of Cognitive Neuroscience (Baars & Gage, 2013)* with only minor changes.

Since study 2 within this thesis was conducted in an organization, there were some real world problems that prevented some employees from participating. Some people called in sick or had sick children, some got stuck in traffic and others were too busy with their job to participate. Naturally we had anticipated this to a certain degree, and so our volume of employees to be primed was deliberately set higher than it needed to be, in order to ensure viable data.

While we tried our best to be invisible and not interfere with the work environment, in order to get a clearer picture of the priming effects, we did have to interrupt people and ask them to take the test required to conduct our study. This was a break from their normal workday, and while people were very helpful and understanding, it was an alteration of their workday. The alteration provided a variable that was hard to work around. In an effort to diminish this variable, we tried to only disturb employees that were not otherwise occupied. We were very polite and only used about 3-7 minutes of their time for the test. Minimizing the time they had to stop their normal work schedule helped cut down on the effect this variable had on our experiment.

While all employees were briefed through email by their manager, there was still some doubt regarding their roles in the experiment. It is impossible to deduce the exact reasons for this, however it may be the result of not reading the email carefully among other reasons. The employees were also unsure about how to fit the test into their workday. This confusion could provide an unnecessary variable since it was a disruptive element, and generally any disruptive element that

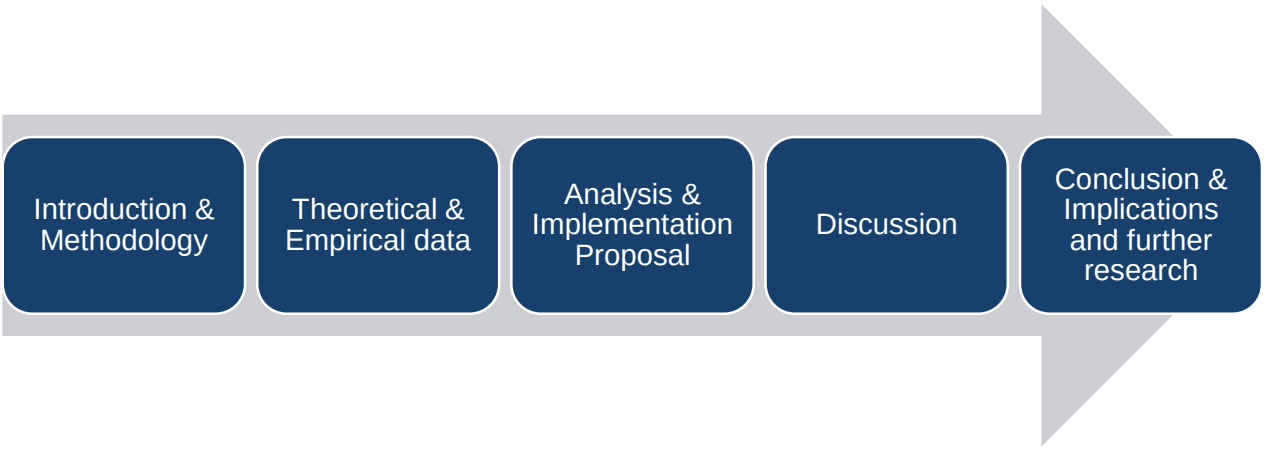
causes the employees annoyance or discomfort was counterintuitive to the purpose of heightening their mood. We did our best to guide them through the process and iterate what we had composed in the email.

The use of the VCI-model within the thesis is purely a way to display priming's ability to influence not only employees' productivity but also overall organization alignment. It is utilized as a model to broaden the view on priming and nothing more. The concept of organizational identity within the VCI-model is strictly used as an illustrative tool, to display the sum of vision, culture and image.

2.5 The Structure of the Thesis

This thesis is structured in a very standard fashion starting with an introduction, followed by a section on methodology and a section on the theories applied within the thesis. Afterwards the two empirical studies that have been conducted are presented followed by an analysis. The implementation proposal is then presented followed by a discussion and the conclusion and implications and further research of the thesis is extrapolated upon.

The structure applied within the thesis has been chosen to give the reader an easy and intuitive reading experience and to support the understanding of the material presented within the thesis in the best possible way.



3 Methodology

3.1 Philosophy of Science and Research Strategy

A major influence on any research design is the choice of a scientific paradigm. This section seeks to explain the paradigm chosen in the thesis. We take departure based on the following definition of what a scientific paradigm is:

"A basic set of beliefs that guide action, whether of the everyday garden variety or action taken in connection with a disciplined inquiry" (Guba, 1990).

This paper follows the objectivistic school of thought, where the ontological assumption on the nature of reality is that there exist one objective reality, which can be found through empirically testing questions and hypothesis (Jonassen, 2011). This approach is typically based on a quantitative research method. There exists a truth beyond the people who inhabit the world and it can be discovered.

The scientific paradigm used in this thesis is largely a positivistic view. A hypothesis has been proposed which needs to be empirically and theoretically tested. In such, it implicates that there is a *truth* to be found where our hypothesis is either true or false. By conducting two empirical studies and reviewing the prevailing theoretical literature, evidence for whether the hypothesis is true or false will be provided. This is a positivistic view of the world where the truth is an objective entity, which can be discovered through experimentation and research. This is in contrast to the constructivist paradigm where there does not exist one *truth* which can be found through empirical and theoretical testing (Jonassen, 2011). The truth is observed between individuals, and is such a constructed truth. It is grounded in perception and construction.

The thesis uses a qualitative research method where the focus is on two empirical studies in conjunction with research on the prevailing literature on the different subjects related to the purpose of this thesis. The empirical studies themselves use a quantitative research method in an effort to get a higher level of data validation. By examining the results of these studies and the prevailing theory it will be possible to answer our research question.

The nature of the relationship between theory and research i.e. inductive; whether theory is an outcome of research or deductive; whether theory guides research also provides support for the above choices.

This thesis overall uses a deductive research method, meaning that it seeks to determine whether priming can be used as a managerial tool or not. It does so by applying the characteristic of a managerial tool as we understand it, which is the criteria which have been set forth. If priming is embedded with these characteristics it can be deduced that priming is a managerial tool. When conducting our empirical studies, an inductive research method was applied where a number of individual observations came together to form strong evidence for a specific conclusion based on the data obtained.

3.2 Terminology

The understanding and meaning of words and concepts are not always the same from individual to individual. In this section, the key terminology will be stated, as to remove any potential misunderstanding.

Happiness is a very complex concept, with many variant uses. In this thesis the concept is used to illustrate and convey the overall mental state of an employee over time. It is the concept of which we derive mood and is therefore necessary in our thesis, as we understand happiness as the accumulation of positive and negative subjective experiences. If this accumulation has a higher ratio of positive experiences than negative, we will define the given individual to be happy. The level of this ratio will determine in which degree the person is happy. This way of understanding happiness is a very simplistic one, but it does provide an easy way to define happiness.

While happiness is a concept too broad and vague to be used in our paper, mood presents a number of advantages. One of them is the benefit of being a scientific term, as it is rooted in the biochemistry of the brain (Schinnerer, 2006). Mood is an internal emotional state that is usually either described as positive or negative. This is subjective to the individual. It is our assumption that individuals will have an easier time determining whether they are in a positive mood compared to being happy. Where happiness describes the overall mental state of a person over time, mood can be a more short term. Which means it is possible to be happy, while being in a negative mood and vice versa.

In the implementation proposal section, the term masking effect will be utilized both as a masking effect as related to subliminal priming but also as a general term to describe any element which obscures or misdirects attention away from another element.

The term organizational architecture is understood as the structure and processes in an organization. The physical objects in the organizational environment, communication processes and cultural interactions are all part of the organizational structure and process. Organizational architecture is then the combined effort to structure, organize and design the organization.

When top-down or bottom-up is used within this thesis, it refers to where a decision originates. A top-down decision is when management makes decisions for employees and a bottom-up decision is when employees make decisions for themselves or each other. Usually bottom-up decisions are made among peers.

Within the studies conducted in this thesis different methods are applied to assist in the priming individuals and collection of data. A Scrambled Sentence Test (henceforth SST) is utilized to prime participants. It is a way to deliver the priming stimuli to participants. A further explanation is included within the theory on priming. A Mood Adjectives Test (henceforth MAT) is utilized to measure the mood levels of participants within study 1. This will also be further explained later.

3.3 Data Collection

The primary data within the thesis consists of two empirical studies, which were conducted for the specific purpose of this thesis. The secondary data consists of research articles, articles and books, which have been researched for the purpose of supporting the two empirical studies and provide the knowledge needed to answer the hypothesis set forth.

3.3.1 Measuring Priming

Measuring is always a relation between what you are measuring and the method used for measuring. Therefore one has to consider what to measure and what to measure against. Herein lies the problem with measuring priming in an organization. Both priming and the nature of an organization give rise to a number of complications for the measurement of these entities.

Priming works by triggering associations in the individual's brain, which will reduce the energy needed to perform the same association again (Baars et al., 2013). This occurs since the associations facilitate *shortcuts* within the brain. These *shortcuts* reduces the energy required (Baars et al.,

2003). The consequences are that the action of triggering the same pathways in the brain becomes easier, since the energy needed to activate them are lower. One of the issues with measuring priming is the fact that it is impossible to accurately predict the precise pattern of associations. The color red will trigger a different set of associations for one person and a different set of associations for another person. One way to combat this subjectivity is to apply concepts that have generally accepted terminologies related to them. The color red is very vague in what associations an individual will have when observing the color. The association could be Coca Cola, Santa Claus or the devil, among others. Therefore it is more prudent to use concepts most people agree upon. One of these could be the one we have applied in this thesis, namely a positive mood. While an individual might associate the color red with the devil, Santa Claus or something third, a positive mood is very clear in what it relates to but at the same time sufficiently broad. Later on in the implementation proposal section, there will be an analysis of what constitutes a good priming word/concept. Therefore individuals' associations will tend to be similar or only slightly different. This provides a much better foundation when measuring the results. If it is possible, with a certain degree of safety, to know which association is made then it is possible to know what will come out at the other end. Using a concept is preferable since it provides for a more standardization of the associations to be expected. This in turn narrows the possible results variations since every individual will associate in, if not the same way, then almost the same way. The results of such associations when applied in a priming experiment will be more closely related to the expected result than if a good priming concept was not used. This is one of the benefits of conceptual priming as will be explained later.

One of the advantages of conducting a study in an organization is that the end result is a closer picture of the situation examined. Since this thesis tries to examine something which is located within an organization, it provides legitimization that the study to examine this also occurs within an organization. It also provides valuable information, which could not have been obtained through a laboratory experiment. Yet, one of the drawbacks in doing a study in an organization instead of a laboratory is that control over a large amount of variables is relinquished. A lower level of control over variables opens a study up to potential distortions.

This loss of control also affects the ability to track causalities within the study. A good comparison could be to compare doing factory work with knowledge work. In a factory it is fairly easy to measure who creates what. A person is responsible for one operation, and another is responsible for a second operation. Then when the final product comes out, it is easy to track the casualties that led to this result. When looking at knowledge work, the final product might be an idea or a concept.

The causalities that lead to the creation of this idea is harder to track. Many individuals might have been involved and provided an indeterminable piece of the idea. It is nearly impossible to track all the variables and casualties which lead to the final idea or concept.

This loss of casualties or the ability to track causalities provides a problem for researchers. If you want to measure the effect one element has on an end result, you will need to know what effect all elements have on the end result in order to tell what this specific element's effect is. But in a situation where the causality is obscured, you cannot be sure which element attributed to which effect. To work around this issue, you need to find a way to eliminate the effect a variable has.

3.3.2 Primary Data

The primary data was obtained through a qualitative method, where two studies were conducted; one pilot study and one primary study; these are referred to as Study 1 and Study 2 respectively throughout the thesis. These two studies represent the main bulk of our empirical data. The method will be explained in depth later on in the thesis. A short description of the two studies and the data collection process are elaborated on below.

3.3.2.1 Study 1

Study 1 served as a pilot study on the ability of priming to influence the mood of individuals in order to help us obtain valuable knowledge on conducting priming studies before progressing onto study 2.

The participant pool of study 1 was fairly homogenous, as we only handed out the SST at our university. As a consequence the age and level of education of the participants were similar. While we managed to get a good mix of gender, all of the participants were Western Europeans. Also, some of our participants were drinking alcohol at the time of taking our test, which could introduce impairment on their ability to do the test correctly. None of them were drunk, however.

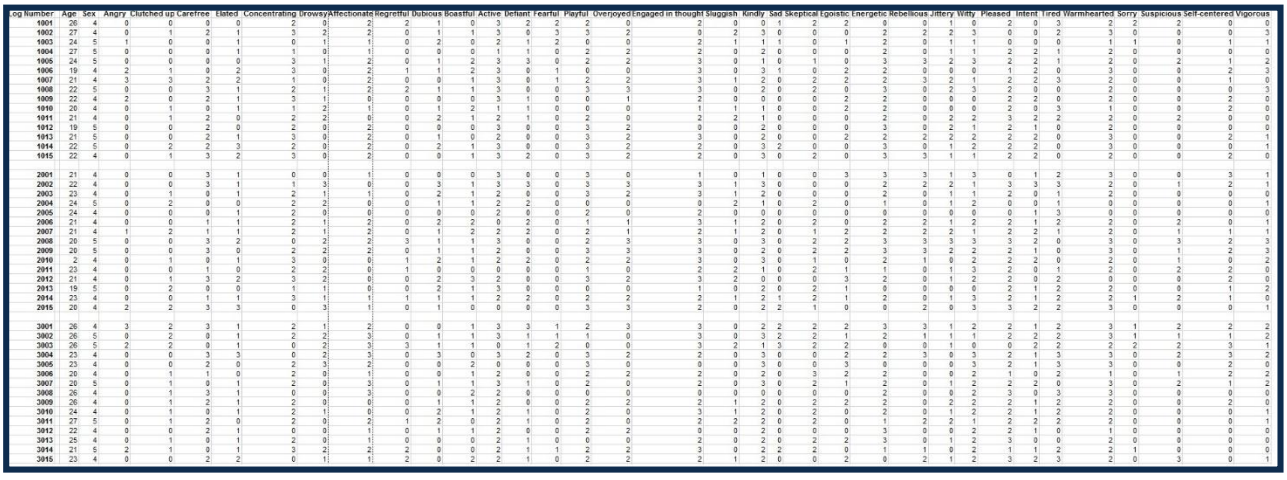
Also we performed our study in late May, which is often a very intense exam period. This could indicate that participants were in a state of elation or stress. Since we did not anticipate this, we have no real way of discerning whether or not this affected some of our participants.

In addition to this, there were some implications connected with the MAT participants were presented with after completing the SST. The MAT is composed of a list of adjectives that describes

certain feelings. These feelings are either positive or negative, however some of them lies within a gray zone, making it hard to define if the feelings described were predominately positive or negative. Also the questionnaire itself led to some warped data, as some of the feelings described were feelings such as; engaged in thought, active, intent etc. It would make sense if people where to score higher on these feelings, because actively completing the test itself led them to behave in a certain way.

Even though there are a lot of possible sources of errors, they were present throughout the entire study, which meant that they were equally present in each of the three groups. As a consequence, even if there were variables that could potentially have polluted our data, they would have affected all of the groups respectively and therefore not have affected the differences between each group. For example, if a variable could have changed something in G1, this would also be the case for G2 and G3. This would then affect the overall data, but not the relationship between the three groups' results. Since the focus of the study was the differences in mood between each group, variables that affected all groups became less important.

After finishing study 1 and obtaining the data, we started the process of analyzing it. First the data was organized into a format, which made it easy to analyze. To this purpose, Microsoft Excel was used to get an easy overview of the data. Each participants' log number was entered in rows while the mood adjectives were entered in columns including age and gender of the participant. Next, we plotted all the answers in the respective places and converted everything to numbers so that the data could be analyzed.



Log Number	Age	Sex	Angry	Clutched up	Carefree	Elated	Concentrating	Drowsy	Affectionate	Regretful	Dubious	Boastful	Active	Defiant	Fearful	Playful	Overjoyed	Engaged in thought	Sluggish	Kindly	Sad	Skeptical	Egoistic	Energetic	Rebellious	Jittery	Witty	Pleased	Intent	Tired	Warmhearted	Sorry	Suspicious	Self-centered	Vigorous
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1002	27	4	0	1	2	1	3	2	2	0	1	1	3	0	3	3	2	3	0	2	3	0	0	2	2	3	0	0	2	3	0	0	0	1
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1006	19	4	2	1	0	2	3	0	2	1	1	2	3	0	1	0	0	3	0	3	1	0	2	2	0	0	1	2	0	3	0	0	2	3
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1010	20	4	0	1	0	1	1	2	1	0	1	2	1	1	0	0	0	1	1	1	0	0	2	2	0	0	0	2	0	3	1	0	0	2
1011	21	4	0	1	2	0	2	2	0	0	0	2	1	0	2	0	0	2	2	1	0	0	0	2	0	2	2	3	2	2	2	0	2	0
1012	19	5	0	0	2	0	2	0	2	0	0	0	2	0	0	3	2	2	0	2	0	0	3	0	2	2	1	2	2	1	3	0	0	2
1013	21	5	0	0	2	1	3	0	2	0	1	0	2	0	0	3	2	3	0	2	0	0	2	2	2	2	2	2	2	0	3	0	0	2
1014	22	5	0	2	2	3	2	0	2	0	2	1	3	0	0	3	2	2	0	3	2	0	0	3	3	1	2	2	2	0	3	0	0	1
1015	22	4	0	1	3	2	3	0	2	0	0	1	3	2	0	3	2	2	0	3	0	2	0	3	3	1	1	2	2	0	2	0	0	2
2001	21	4	0	0	3	1	0	0	1	0	0	0	3	0	0	3	0	1	0	1	0	0	3	3	3	1	3	0	1	2	3	0	0	3
2002	24	4	0	0	3	1	1	1	3	0	0	3	1	3	3	0	3	3	3	1	3	0	0	2	2	2	1	1	3	3	3	2	0	1
2003	23	4	0	1	0	1	2	1	1	0	2	1	2	0	0	3	2	3	1	2	0	0	0	2	0	1	1	2	0	1	2	0	0	0
2004	24	5	0	2	0	0	2	2	0	0	0	1	1	2	2	0	0	0	2	1	0	2	0	1	0	1	2	0	0	1	0	0	0	1
2005	24	4	0	0	0	1	2	0	0	0	0	0	2	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	1	3	0	0	0	0
2006	21	4	0	0	1	1	2	1	2	0	2	2	0	2	0	1	1	3	1	2	0	2	0	2	2	1	2	2	1	2	2	0	2	0
2007	21	4	1	2	1	1	2	1	2	0	1	2	2	0	2	2	1	2	1	2	0	1	2	2	2	1	2	2	1	2	2	0	1	1
2008	26	5	0	0	3	2	0	2	2	0	1	1	3	0	0	2	3	3	0	3	0	1	2	2	3	3	3	3	2	0	3	0	3	2
2009	20	5	0	0	3	0	2	2	2	0	1	1	2	0	0	3	3	3	0	2	0	2	2	3	3	2	2	2	1	0	3	0	1	2
2010	2	4	0	1	0	1	3	0	0	1	2	1	2	2	0	2	2	2	0	3	0	1	0	2	1	0	2	2	1	0	2	0	1	0
2011	23	4	0	0	1	0	2	2	0	0	1	0	0	0	0	1	0	0	2	2	1	0	2	1	1	0	1	2	2	0	1	2	0	2
2012	21	4	0	1	3	2	3	2	0	0	2	3	2	0	0	3	2	3	2	0	0	0	3	2	0	1	2	2	0	2	0	0	0	2
2013	19	5	0	2	0	0	1	1	0	0	2	1	3	0	0	0	0	1	0	2	0	2	1	0	0	0	0	2	1	2	2	0	0	1
2014	23	4	0	0	1	1	3	1	1	0	1	1	2	0	0	2	2	2	2	1	1	2	2	1	2	0	3	3	2	1	2	2	1	2
2015	20	4	2	2	3	3	0	3	1	0	1	0	0	0	0	3	3	2	0	2	2	1	0	0	2	0	3	3	2	2	3	0	0	1
3001	26	4	3	2	3	1	2	1	2	0	0	1	3	3	1	2	3	3	0	2	2	2	2	3	3	1	2	2	1	2	2	3	1	2
3002	26	5	0	2	0	1	2	2	3	0	1	1	3	1	1	1	0	3	0	3	2	2	1	2	1	1	1	2	2	2	3	1	1	1
3003	26	5	2	2	0	1	0	2	3	3	1	1	0	1	2	0	0	3	2	1	3	2	2	0	0	1	0	0	2	2	2	2	2	3
3004	23	4	0	3	3	3	0	2	3	0	3	0	3	2	0	3	2	2	0	3	0	0	2	2	3	0	3	2	1	3	3	0	2	3
3005	23	4	0	0	2	0	2	3	2	0	0	2	0	0	0	3	0	0	0	3	0	0	3	2	0	0	3	2	1	3	3	0	0	2
3006	20	4	0	1	1	0	2	0	1	0	0	1	2	0	0	2	2	2	0	2	0	3	2	0	0	0	2	1	0	2	1	0	1	2
3007	26	5	0	1	0	1	2	0	3	0	0	1	3	1	0	2	0	2	0	3	0	2	1	2	0	0	2	2	2	0	3	0	2	1
3008	26	4	0	1	3	1	0	0	3	0	0	2	2	0	0	0	0	0	0	2	0	0	0	2	0	0	2	3	0	3	3	0	0	0
3009	26	4	0	1	2	1	2	0	0	0	1	1	2	0	0	2	2	2	1	2	0	2	2	2	0	2	2	2	1	2	2	0	0	2
3010	24	4	0	1	0	1	2	1	0	0	2	1	2	1	0	2	0	3	1	2	0	2	0	2	0	1	2	2	2	2	2	0	0	0
3011	27	5	0	1	2	0	2	0	2	1	2	0	2	1	0	2	0	2	2	2	0	2	0	1	2	2	1	2	2	2	2	0	0	1
3012	22	4	0	0	2	1	0	0	1	0	1	1	2	0	0	2	2	2	0	2	0	0	0	3	0	0	2	2	1	0	1	0	0	0
3013	25	4	0	1	0	1	2	0	1	0	0	0	2	1	0	0	0	2	0	2	0	2	2	3	0	1	2	3	0	0	2	0	0	0
3014	21	5	2	1	0	1	3	2	2	2	0	0	2	3	1	2	2	3	0	2	2	2	0	1	1	0	2	1	1	2	2	1	0	0
3015	23	4	0	0	2	2	0	1	1	2	0	2	2	1	0	2	2	2	1	2	0	0	2	0	2	1	2	3	2	3	2	0	3	0	1

(For larger image, see appendix 3)

The above shown excel sheet is all the data gathered from study 1 organized and converted to numbers. These numbers were the basis of the results obtained in study 1, which are shown in the empirical studies section.

3.3.2.2 Study 2

While researching the prevailing literature on priming and behavior, it became evident that there was a gap or lack of information about whether priming could be used as a managerial tool. In order to compensate for this lack of information within the literature, it was decided that a primary study revolving priming mechanisms within an organization should be conducted. This would uncover a number of answers to questions, which needed answering in order to validate or invalidate priming as a managerial tool.

Study 2 was conducted in collaboration with Nykredit's customer service department. Our contact person was Arne Sørensen. Arne is the Vice President and responsible for the costumer services department at Nykredit. We talked to him about our ideas and thoughts on the study and he responded with general enthusiasm, but wanted a more specific plan on how to execute the study so he could pitch the idea for the relevant people. We complied with his request and presented a more specific game plan. He connected us to Søren Jensen who is the department manager of the customer service department in Nykredit. Søren was to be our main liaison in Nykredit. He was helpful and enthusiastic about the study.

After the experiment was completed, it was time to obtain the data. Nykredit uses a statistical software program, which they created themselves. It is called SMIL, and it contains all the data collected on their employees. All the data is compiled into a number of data points. These data points include initials, referrals, login time and break time to name a few. All the data points are saved and retrievable through the SMIL program. It is possible to change which employee or employees to observe and what data points to observe. SMIL is the software used to provide all the data used in the study. By utilizing the different features described above, it was possible to obtain the information needed to analyze the experiment conducted in the study. Our main liaison to help us obtain the data was Jesper Kristensen who is responsible for the SMIL program at Nykredit and he provided valuable insight into the best way to handle and analyze on the data received.

After all the data was received, the process of analyzing began. As in study 1, Microsoft Excel was

used to put in all the data and create an easy overview of the data. The participants' initials were placed in rows, and the group and referrals each participant made in their respective week were plotted into columns. The referrals were our chosen measurement of productivity. This will be elaborated upon in the empirical studies section.

Navn:	Gruppe	Henv. Uge 40	Henv. Uge 43	Henv. Uge 44
LDPA	1	6	8	3
EKN	1	15	51	45
HHAN	1	1	3	6
PEVE	1	2	2	1
HOGH	1	16	20	16
JEEL	1	10	12	9
KLKJ	1	3	5	3
DORL	1	1	13	6
MBOS	1	5	9	11
GILA	1	10	9	7
PFJ	1	9	14	18
YAFA	1	6	11	20
LISE	1	1	5	6
DOBS	2	3	10	7
KELD	2	8	1	6
ANRS	2	6	7	2
MIJN	2	6	0	4
NAMI	2	4	1	5
DHA	2	3	1	5
TOFJ	2	3	4	3
LIVI	2	3	1	3
TARS	2	4	8	3
CHDJ	2	7	19	7
MAPA	2	4	3	2
ANJV	2	3	4	10
HABA	2	13	9	12
GSE	2	2	13	10
SAIM	2	3	8	13
JEHH	2	1	6	3
PJA	2	2	10	4
JHAU	2	6	7	6
SISB	2	1	61	17

Above is the excel sheet which were used to obtain the results of study 2. The results can be seen in the results section of study 2 in the empirical studies section.

One of the reasons for conducting study 2 in Nykredit's customer service department was that they gather a large amount of data on their employees. One of our criteria for priming to be a viable managerial tool was that it was possible to measure the results from the priming. This meant that we needed an organization that collected a lot of information on their employees so we could see a change in the data. Since Nykredit collects a large amount of information on their employees, we were faced with another issue; having too much data. This is an issue that many researchers are faced with at some point. The amount of data, which were available to us, was too large for us to use all of it. To narrow down the amount of data we screened the available data for its relevance to

the objective of the thesis. Afterwards all data points that were corrupt or contaminated in some way were removed. This left us with a much smaller selection of data that made the assignment of analyzing it easier. It is important to have some key data points to focus on, as not to get lost in the huge amount of data available. The key data points that were identified were the number of the referrals made by the individual employee. This will be shown in the Study 2 section.

3.3.3 Secondary Data

The secondary data was compiled through the use of research articles, articles and books. The secondary data used in the thesis was obtained by viewing the reference sections of other research papers and books to find relevant texts. The primary site to obtain these research papers was Google Scholar. Secondary knowledge was also obtained through suggestions from our supervisors and the use of databases such as Emerald. The method used to review the secondary data was a qualitative method where texts were read in depth for their potential and value for the thesis. Each text was scrutinized for its authenticity, data quality and overall credibility. All secondary texts can be found in the reference list at the end of the thesis in APA form and in alphabetic order.

3.3.4 Data Processing Program

In order to conduct a statistical analysis on the data, the computer program JMP was selected. It provides users with the ability to investigate their data and create a graphic visualization thereof. It functions best with exploratory data and in conjunction with experiments. JMP was used in both studies conducted. In study 1 it was used to calculate if there was a significant difference between the participants primed with a positive, negative or neutral mood. In the study 2, JMP was utilized as a way to sort out the data obtained through Nykredit's SMIL software and calculate if there was a correlation between primed participants and the number of referrals each employee completed.

Our supervisor Thomas Zoëga Ramsøy was instrumental in analyzing the data through JMP as he had previous experience with the program. As we ourselves had no knowledge of the program, his help has been invaluable.

3.4 Considerations

As study 2 took place in an organization, the need for informed consent and the choice of confidentiality had to be voiced. As organizations sometimes handle sensitive information, it was necessary to inquire about the confidentiality of the data obtained through our study. Nykredit had given us their consent to the study and made every data needed available for use. When asked if they required confidentiality of the information gathered in their organization, they answered that as long as we treated everything with respect, there was no need to exclude any information received for the public. For this reason a confidentiality agreement does not exist.

The identities of the participants in both studies are anonymous within the thesis. The participants in study 1 are identified by a log number and the participants in study 2 by their initials. The names of the participants in study 1 are not known. The names of the participants in study 2 are known by us.

3.5 Data Quality

To determine the quality of data, it is important to determine what the validity, reliability and generalizability of the studies conducted is. These will be covered below.

The validity is the extent to which a measurement or conclusion reflects the concept which it refers to (Bryman et al., 2011). The reliability of a study is concerned with the consistency of a measure of a concept. In short, reliability is concerned with the ability to replicate a study and data distortion by subjective intervention. (Bryman et al., 2011). Generalizability or external validity is concerned with whether the results gained from a specific study can be applied beyond the context of that study (Bryman et al., 2011).

Since our first study is a proximate replication of a previous experiment, it is fair to assume that the ability to replicate our study is high. The fact that the results obtained through our study are congruent with previous experiments provides further reliability and validity. The ability to replicate study 2 is low, in that it requires an organization that have an equal amount of data transparency such as Nykredit has. The study conducted within Nykredit was also original in its design, which makes the ability to replicate it an unknown quantity, yet all the data required to replicate the study are presented within the thesis. We tried to remain objective throughout study 2, but the nature of the study required us to interact and thus some amount of subjectivity is to be expected. As will be explained later, the nature of priming demands a certain amount of subjectivity. To combat this subjectivity, we discussed whether the data collections gathered were indeed objective, but we also discussed this with Jesper Kristensen who was not subjectively

invested in the thesis. This helped to get an objective perspective on the data collection and should provide for a more objective result in the end.

The validity in study 2 is fairly high, in the sense that the result was within the expected margin. The external validity of study 2 is also fairly high, in the sense that the result gained is generalizable in other organizations, yet the ability to measure the result gained requires a high level of data transparency.

The number of participants in study 1 was 45. We feel that this number is high enough to provide sufficient evidence to validate the results obtained through the study. We do acknowledge, that an even higher number of participants would raise the data quality even further, but due to the limitations in conducting the study this was not possible. The number of participants in study 2 was 32. The number of participants is directly linked to the number of employees that were available to help us in the study. The number is sufficiently high enough to provide empirical data of good quality.

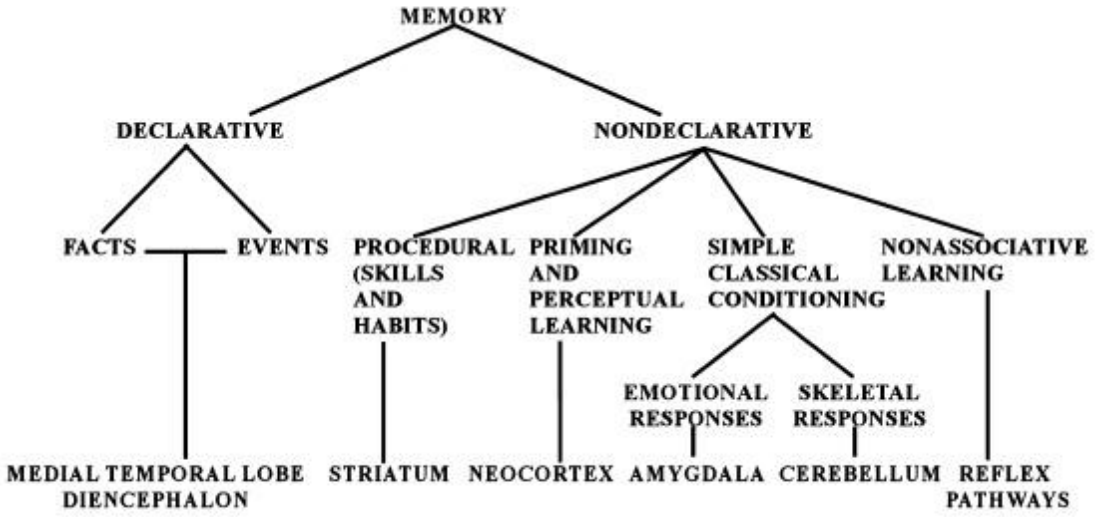
4 Theoretical Background

The purpose of this section is to present the theoretical framework that has been used in the thesis. The central theme is how priming functions and to provide the theoretical data on the subjects utilized within the thesis. It starts by describing the prevailing theory on memory to provide a context in which to place priming, as priming is a part of the memory system. The theory on dual processing is then explained, as it relates to how information is processed by the individual. This is followed by an examination of the biological mechanisms that affect memory and priming. Finally, an examination of how a positive mood could affect employees in an organization and an explanation of the management theories used in the thesis are presented.

4.1 Memory Systems

Until the 1960's, there had only been loose and disconnected ideas about how memory operated. A number of researchers throughout the 18th and first half of the 19th century had written about memory, however their research had been based primarily on ideas and not on concrete scientific evidence. It was not until 1962; with a hand-eye experiment by Milner that experimenting in the area of memory began in earnest, subsequently leading to a more uniform theory of memory (Squire, 2004). Towards the end of the 19th century, experiments conducted on animals and amnesic patients showed that there was a type of memory that was not impaired in amnesic patients despite

them not being able to retain conscious memories (Squire, 2004). This implicated that multiple memory systems were operating side by side. Finally research led to an integrated taxonomy, which applied many of the results and ideas of previous researchers into one uniform model. This model is shown below to illustrate where priming resides within the framework of memory systems and to show the complexity of memory systems (Schacter et al., 1994).



(Squire, 2004)

As shown in the uniform model above, memory is divided into different groups. These groups each have different characteristics and biological areas of the brain associated with them.

A memory system is defined as *"an interaction among acquisition, retention, and retrieval mechanisms that is characterized by certain rules of operation"* (Schacter et al. (1987:440). Based on this definition, each memory system is different from the other in its rules of operation.

Memory systems are divided into two major groups, declarative and non-declarative. The distinction lies in the way information is stored and retrieved from the brain. Declarative memory is retrieved consciously and refers to a single memory system, whereas non-declarative memory is retrieved unconsciously, and refers to multiple memory systems (Squire, 2004).

An important characteristic of declarative memory is that it not only has the ability to detect and encode the important aspects of a single event which occurs at a specific place and time but also to

detach this information gathered from multiple episodes into knowledge which has no conscious origin. (Squire, 2004).

This occurs through two different types of declarative memory; semantic and episodic. Semantic memory acquires and retains information about the environment, where the recollection is not associated with a specific event (Schacter et al., 1994). When the brain retrieves information from the semantic memory, only the information itself is remembered, not the episode leading up to how the information was obtained e.g. information that chocolate is poisonous to most breeds of dogs is common knowledge, but the exact event or episode where this information was obtained is unknown. An important characteristic of declarative memory is that it has the ability to detect and encode the important aspects of a single event that occurred at a specific place and time (Squire, 2004). Episodic memory also uses consciously retrieved information, but where semantic memory is related to information without a knowable origin, episodic memory is seated in specific events and episodes (Schacter et al., 1994). An individual may have the knowledge regarding the effect of putting a hand on a hot stove, but also a memory of a very specific episode where the individual burned their hand touching a hot stove. The consciously recalled memory of putting a hand on a hot stove has resulted in the knowledge that this action will get your hand burned. Unlike the semantic memory, this knowledge is seated in remembered experience.

The model, shown above divides the non-declarative group into; *procedural, priming and perceptual learning, simple classical conditioning and non-associative learning*.

Priming and to a lesser extent perceptual learning will be covered thoroughly later, as it forms a cornerstone in the thesis.

Procedural memory is involved in gradual, incremental learning (Schacter et al., 1994) and is the basis of our skills and habits (Milner et al., 1998). Procedural memory can be divided into a number of subgroups, which are still being debated, however this will not be elaborated on further. Procedural memory was discovered to be intact in amnesic patients (Milner et al., 1998). This is interesting, since it means that while amnesic patients are not able to obtain any new memories, they are able to acquire new skills and habits through procedural memory. This could mean that an amnesic person has the potential to be able to learn to juggle, without ever having the memory of practicing juggling at all.

The emotional responses and *skeletal musculature*, as seen in the taxonomy, reside within the region of simple classical conditioning. These include the conditioning of fear responses, phobias

and musculature conditioning. Pavlov (Malone, 2013) discovered that any stimulus can be connected to an original stimulus. This was displayed by connecting the serving of food to the sound of a bell when giving dogs food. Over time, the sound of the bell would make the dogs salivate in anticipation of food, even if no food was being served (Malone, 2013).

An emotional response is an internal or external event, which entails a number of different properties including: facial expression, bodily response, action tendencies and subjective experience (Glimcher et al., 2009). The subjective experience of emotions is called feelings, while the actual biological response is called emotion. In such an emotion is an internal or external event, but feelings are the perception and experience of these events. An example of an emotional response could be: accelerated heart rate, fight or flight response or facial expression you make when suddenly face to face with an assailant. The subjective experience of this situation could be the feeling of fear. The important part is that feelings are the individual's articulation of the emotional response.

Non-associative learning is responsible for habituation and sensitization (Milner et al., 1998). Being non-associative means that there is no association related to the learning process. Simply by being near something, a habituation or sensitization can occur.

4.2 The Collaboration of Systems

The declarative and non-declarative memory systems do not exclude each other. The brain utilizes both systems, but independently and for different purposes. Squire (2004;174) says that: "*an aversive childhood event involving being knocked down by a large dog can lead to a stable declarative memory of the event itself as well as a long-lasting non-declarative fear of dogs (phobia) that is experienced as a personality trait rather than a memory".* Thus the child in question will have a declarative/episodic memory where he/she was knocked down by a large dog, but also a non-declarative/emotional response to dogs in form of fear, accelerated heart rate, flight or fight response etc. This phobia can be unconsciously triggered when the child comes in contact with dogs, whereas the episodic memory will be consciously retrieved from memory. After time passes, the conscious recollection of the episodic memory may be lost, but the underlying phobia and subsequent fear of dogs may still exist. If this occurs, the child will be afraid of dogs, but not knowing why.

4.3 Background of Priming

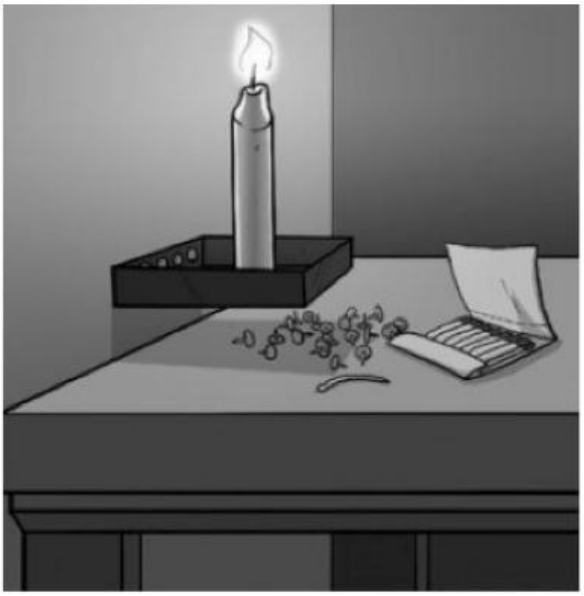
Priming has its roots in understanding how the individual perceives a stimulus. The Elementalist approach by Wundt and Titchener, stated that perception was only explainable in terms of sensory events (Bargh et al., 2000). A stimulus was the only factor in the creation of perception that an individual experienced. This was contested by the Gestalt movement, which argued that perception was not only a matter of the particular sensory stimulus, but perception was subjected to a number of precise and universal principles of relation and form which could not be reduced to stimuli alone (Bargh et al., 2000). Later, with The New Look movement, it was proposed for the first time, that there might be individual differences in perceptual processing (Bargh et al, 2000). This shift in the understanding of perception opened up for the area of experimental psychology and paved the way for the research of priming.

The term priming was first coined by Karl Lashley in 1951 in an attempt to understand why serial response sequences happened so fluent and effortless, such as in speech production. He hypothesized that there had to be a mediating state which influenced the speed by which associations occurred. Lashley (1951) noted, that when writing a sentence it was not uncommon to have part of, or even a whole word being written, before the word was supposed to appear in the given sentence. This would indicate that the brain is already priming the words to be used before they are written and sometimes a word gets written before it was supposed to (Lashley, 1951). It was one of the first evidence that a stimulus could affect a subsequent stimulus.

Storms (1958) and later Segal and Cofer (1960) demonstrated in their research that exposing participants to a list of words would increase the probability that these words would be used in a subsequent free association task, which the participants were presented with afterwards. The stimulus i.e. the list of words, worked as a primer for the subsequent stimulus i.e. the free association test, and affected which words were associated. This was considered interesting, since it happened without the participants being conscious about the effect. Still, priming was only thought to work on simple association such as similar words. This changed when Higgins, Rholes and Jones (1977) discovered that not only could simple words be primed, but also character traits such as courage and honor. By subjecting participants to synonyms related to a certain concept, such as courage or honor, the participants were more likely to act in a courageous or honorable way afterwards.

The perception that people have of situations is dependent on the priming that has occurred before a situation occurs. This means that there is a correlation between the priming effect, the individual experience and actions taken at a given event. Higgins and Chaires (1980) also showed this effect

by recreating Duncker's candle problem. The candle problem requires participants to fasten a candle to the wall using only a box of tacks and a candle. The solution, which can be seen below to the right, is to empty the box of tacks and use it as a shelf for the candle. By introducing the word "*or"* repeatedly in an earlier unrelated experiment, participants were quicker to solve the problem. The solution requires participants to view the box as separate from the tacks. The participants that had been exposed to the word "*or"* were faster to solve the puzzle than the participants not exposed to the word. It was hypothesized that this occurred since the word "*or"* primed participants to view the box with tacks as two separate things instead of connected.



(Case Study #1, 2013)

4.4 Priming Methods

The method utilized in priming simple words is different from the methods used to prime concepts. The different ways in which priming can occur primarily include; Conceptual priming, Mindset priming, Sequential priming (Bargh et al., 2000) and perceptual priming (Wiggs et al., 1998). Sequential priming relates more to automaticity than priming and is therefore not as relevant as the other three. Automaticity relates to the automatic response that is gained through learning, practice and repetition. Skills such as walking, talking and driving a car become automatic after a certain amount of time doing these tasks repeatedly (Bargh et al., 2000).

Perceptual priming is closely linked to conceptual priming. The difference is that while conceptual priming operates by linking the meaning of one object with another, perceptual priming is focused on the form and shape of an object in relation to another object (Wiggs et al., 1998). Since our thesis is focused on the priming of a concept, perceptual priming is not relevant.

The two ways of priming, conceptual priming and mindset priming, are explained below.

4.4.1 Conceptual Priming

Conceptual priming operates by activating mental representation of concepts and traits in an individual. This activation has an effect on subsequent activations (Bargh et al., 2000). The conceptual priming stimuli should incorporate many representations of the desired concept without alerting the participants of an underlying pattern. When applying conceptual priming there are two ways to do so. The first is supraliminal priming and the second is subliminal priming. These relate to the awareness level of the participants.

Supraliminal Conceptual Priming (henceforth SCP) or conscious priming exposes the participant to the priming stimuli directly. The participant is fully aware of the priming stimuli and is actively engaged with it (Bargh et al, 2000). While the participant is fully aware of the priming stimuli, he/she is not aware of the underlying pattern. The participant will be exposed to the desired priming stimuli, which will facilitate the priming effect, yet not be aware of its effects.

When applying SCP it is crucial to maintain the balance between conscious and unconscious awareness in the participant, thus a cover story is introduced. The cover story functions as a smokescreen to provide the participants with an explanation for them to complete the task. This is crucial since SCP functions by having the participants actively engaged with the priming stimuli, but unaware of the underlying pattern. Therefore the cover story will have to be a believable explanation. When Srull and Wyer (1979) did their study on trait construct priming research, they provided a cover story that obscured the true purpose behind conducting a SCP. The priming stimulus was presented within a SST (see appendix 1).

The SST was created by Frank Costin (1969) and later revised by Srull and Wyer (1979) and Chartrand and Bargh in (1996). The test functions as a way to prime participants through SCP. The participants are told that the test is designed to test their language abilities. The explanation functions as a cover story. The participants are given a set of grammatically incoherent sentences and asked to make them into grammatical coherent sentences. While participants are actively

engaged in the task, they are exposed to the priming stimuli. SCP requires a certain conscious participation from the individual being primed. This is not the case for subliminal priming.

4.4.2 Subliminal Priming

Subliminal conceptual priming or unconscious priming exposes the participant to the priming stimuli without any awareness from the participant. The priming stimuli are displayed so briefly or in a way which is below the awareness threshold of the participant (Bargh et al., 2000). An example could be the use of monitors to display images below the threshold of human awareness (Bargh et al., 2000). Not only is the display time relevant when discussing the awareness level of humans but other factors such as whether the images are shown in the foveal or parafoveal visual field is relevant. The foveal or parafoveal visual field refers to the center of the visual field and the periphery visual field (Bargh et al., 2000). Since the parafoveal visual field does not have the same ability as the foveal visual field to detect meaning and identity only movements and changes (Bargh et al., 2000) a longer presentation of the priming stimuli is available in the parafoveal visual field than in the foveal visual field without participants detecting the stimuli.

Another factor to be considered is the duration of the priming stimuli. This may be longer than what is displayed on the computer monitor, due to the participants' visual iconic memory retaining the image for some time after it has been displayed (Bargh et al., 2000). A way to overcome this factor is to overwrite or erase it by utilizing a masking effect. This can be done by displaying a picture in the same location for a longer duration than the original priming stimuli. The result should be that the visual iconic memory of the participant does not retain the image of the priming stimuli thereby reducing the exposure time to below the level of human awareness. The masking effect should incorporate some features of the priming stimuli as a way to utilize the same brain areas but should not contain any higher meaning as to not interfere with the desired priming effect (Bargh et al., 2000).

4.4.3 Level of Strength between Supraliminal and Subliminal Priming

Subliminal and supraliminal priming stimuli both provide a priming effect, however the strength of these effects varies between subliminal and supraliminal. The strength of a priming effect depends on the amount of exposure an individual has had to the priming stimuli (Bargh et al., 2000). This is supported by a study conducted by Srull and Wyer (1979), where they showed that by changing the amount of exposure to priming stimuli, they could consequently obtain a stronger or lower priming

effect. Hence, the strength of the priming effect affects the duration of how long the priming effect lasts (Bargh et al., 2000). However, there is a limit to the strength of a priming effect. The priming should be as strong as possible, without alerting the participants of the true purpose of the priming stimuli.

SCP stimuli tend to produce stronger priming effects than subliminal priming effects (Bargh et al., 2000). This is related to exposure time. Since subliminal priming requires a very short display of the stimuli, this also cuts down on the potential exposure time. SCP stimuli will have a greater exposure than subliminal priming stimuli, which in turn will create a stronger effect. SCP will also have a higher risk of the participants discovering the intention behind the priming stimuli if the desired priming effect is set to be too strong.

4.4.4 Mindset Priming

The focus here is on affecting the mindset of the participant. Having the participant engaged in a goal-directed situation will have a subsequent effect on the approach or mindset in another situation (Bargh et al., 2000). This variation of priming affects the way the participant thinks about information. The procedure or way of approaching a situation will be more likely to occur in a subsequent situation when previously encountered and primed. This variation requires the participant to actively and consciously participate, which opens up for the possibility that the participant will be aware of the desired priming effect. It is therefore crucial to create a situation, which does not use a priming effect that is too heavy.

The advantage of mindset priming is that it can be used to prime concepts which are too abstract to be primed using a single word. Mindset priming would still have a spillover effect from the first stimuli to the next stimuli. Wilson and Capitman (1982) conducted an experiment where male participants read a “boy meets girl” story before continuing with the alleged true part of the experiment. The male participants who had first read the story behaved and acted more friendly towards a female instructor than the male participants who had not read the story beforehand. The mindset or approach that the participants encountered first affected the approach or mindset in a later situation.

4.5 The Intuitive and Cognitive System

All humans rely on both the cognitive and the intuitive system to help us handle the complexity of the world around us.

The intuitive system unconsciously makes decisions when our cognitive abilities are occupied elsewhere. It is a system that can be very powerful when trained immensely or make too quick conclusions when not properly trained.

The intuitive system is characterized by being fast, automatic, effortless, emotional, slow to learn, parallel and associative (Kahneman, 2003). It is a cognitive process that automatically kicks into gear when facing a non-novel, familiar situation. It is effortless, because it feels instinctual. Many different operations of the intuitive system can be functioning at the same time, since it does not demand conscious attention. An example of the operations controlled by the intuitive system could be depth perception, face recognition, language ambiguity resolution and body language (West et al., 2011). The system is also sometimes called the autonomous mind (West et al., 2011).

It takes time to make things habitual, automatic and effortless, so the operations controlled by the intuitive system are slowly learned. As an example, when learning to drive a car, it will take a long time to move the conscious, effortful and deliberate management of the car to an unconscious, effortless and automatic one.

Having the ability to operate many actions parallel is effective and helps us handle the complexity of the world, such as the management of both the car and scanning the traffic for potential dangerous situations. Yet, when facing novel situations it is impossible to rely solely on the intuitive system, as when trying to overcome situations you are not familiar with. In these situations, the intuitive system is not going to be very effective.

However, there are operations that require a slower and deliberate system to handle the complexity. This is the cognitive system or the reasoning system. It is categorized by being slow, serial, controlled, effortful, rule-governed and flexible (Kahneman, 2003).

In the previous example of learning to drive a car, the action was processed by the cognitive system when first introduced to the use of a car, as the cognitive system is slow, effortful and controlled. It acquires a lot of attention and operates very sluggishly compared to the intuitive system. There is also evidence that operations of the cognitive system use more calories than the intuitive system (Ramsøy, 2012). Then, over time, the cognitive system becomes easier until it is assimilated into the intuitive system and becomes effortless. Thus the skill of driving the car moves from the cognitive system to the intuitive system.

4.6 Biology of Memory

When talking about the biology of memory, there are two essential things needed: a brain to store and retrieve information and senses to act as the pathways for stimuli to enter the brain. Without either one, there would be a brain without information to use or information without a brain to use it. This illustrates that the senses are the gateway in which information enters the brain (Baars et al., 2013). Therefore the beginning of any memory process starts with a stimulus, which enters through one or more of our senses and is then processed by the brain.

Our brain is complicated; the number of neurons in the brain amounts to 10^9 and the possibility that any two individuals were to have the same firing of neurons or brain state amounts to 10^700000000 (Santos, 2013). This is worth noting when discussing the brain, because the implication is that no two brains are the same. Knowing this, any framework or attempt to categorize the brain should be meet with caution. Yet, it is still important to have a framework to be able to discuss and analyze the mechanisms of the brain. It also worth noting the complexity of the brain in relation to stimuli. As it is, because of the enormous complexity of the brain, the priming response cannot be ultimately predicted.

When looking at a specific chair, there is an engagement of visual stimuli. The brain begins by decomposing the retinal input into its various characteristics. These include line orientation, local motion, color, size and textures and shapes (Baars et al., 2013). This means that the information gathered through the retinal input is believed to be bonded and transferred by the medial temporal lobe into memory and stored in the neocortex.

The information is believed to be encoded into our long-term memory during the next slow wave sleep period (Baars et al., 2013). These bound memory traces in the neocortex can be reactivated if a closely corresponding stimulus enters our attention, such as a similar chair. This will trigger a retrieval of the bound information and reconstruct the already bound memory traces by using the medial temporal lobe to connect the new stimuli with the old (Baars et al., 2013). Later on if somebody were to ask which chair was preferred, the medial temporal lobe would retrieve and organize the information used to reconstruct the memory in the visual cortex in order to create a plausible recreation of the previous memory traces. These can never be identical but will be a close representation to the original memory traces (Baars et al., 2013). It is interesting to note that when

recalling an event, the event is technically recreated by remembrance. This makes it impossible to remember the same event in the same way twice.

The medial temporal lobe is believed to be primarily connected with conscious actions. The medial temporal lobe will be activated by paying attention to an event. However, some experiments with amnesic patients, such as patients with damage to their medial temporal lobe, show that the medial temporal lobe might not be exclusively used for conscious processes, but also for some unconscious processes (Baars et al., 2013). This could potentially mean that the medial temporal lobe could be involved in unconscious processes, such as priming.

The conversion from episodic memory to semantic memory occurs when multiple related episodic memories separate and form a semantic memory (Baars et al., 2013). An example could be that an individual have many episodic experiences where he/she sits on chairs. The knowledge that chairs are for sitting on is known, but the specific episode or event where this information was obtained is unknown. Many related episodic memories of sitting on chairs have come together to create a semantic memory that chairs are for sitting on. There is however also evidence that semantic memories can occur without the need for episodic memories or the use of the medial temporal lobe (Baars et al., 2013), however the reason for this is not understood.

The most valuable information available regarding storing and retrieval of non-declarative or implicit memory comes from studying amnesic patients and patients with damage to the regions of the cortex mediating semantics (Baars et al., 2013). The reason for this is that amnesic patients do not have the ability to consolidate memory traces into long-term memory traces resulting in a failure to create new long-term memories (Baars et al., 2013). By studying amnesic patients it was shown that priming effects were intact in these individuals. This could implicate that the medial temporal lobe, which was damaged in amnesic patients, was not a big part of non-declarative learning. However, as discussed earlier there has also been evidence that the medial temporal lobe could have a role in unconscious memory processes. (Hamann et al., 1997; Levy et al., 2009)

Non-declarative memory or implicit memory is believed to use different areas of the brain depending on the specific task. Perceptual priming, as discussed earlier, is believed to be mediated by the sensory cortex (Baars et al, 2013) and conceptual priming is believed to involve both the prefrontal and temporal regions of the brain (Baars et al., 2013). Perceptual or conceptual priming will decrease the activity in previous mentioned areas. This could indicate that having previously encountered a stimulus will reduce the amount of energy or calories needed to perform the same action again. This is congruent with the previous mentioned argument, where a movement from the

cognitive system to the intuitive system reduces the calories needed to perform an action, thereby making it easier to process subsequent related stimuli. This also means that perceptual priming will be impaired by damages to the sensory cortex and conceptual priming by damages to the prefrontal and temporal regions. This is illustrated by the fact that patients with specific kinds of semantic dementia and Alzheimer's patients will have decreased or no effect of conceptual priming.

4.7 Weaknesses of Priming

One criticism of using priming is that it is hard to replicate (Yong, 2012). Since priming relies on the participants' subjective associations it can be extremely difficult to know the exact outcome of a priming effect in advance. The nature of Priming lends itself to a series of criticisms, as the neurobiology behind Priming is very complex, as it is essentially a series of stimuli affecting later stimuli. In other words, it is easy to prime people with something simple, however, it is practically impossible to predict how that will influence later choices. This makes it hard for researchers to recreate priming experiments and obtain the same results. If an experiment cannot be recreated and validated in this way it usually gives way for concerns of the validity of the experiment.

As will be shown later, we tried to overcome these weaknesses by essentially recreating our own priming studies twice, albeit in difference atmospheres. Conceptual priming was chosen, as it dodges some of these concerns, by utilizing concepts which are widely understood the same way. While red might create associations that are extremely difficult to predict, concepts such as honor or pride have a narrower set of associations related to them. It is still difficult to predict the associations but not as difficult as other concepts.

The effects provided by priming effects are subtle **(**Kahneman, 2012**)**. Because the nature of priming is a stimulus affecting a subsequent stimulus, the outcome can be very subtle. This means that the effects of priming can be difficult to measure. Because of this the robustness of priming have been placed into question (Kahneman, 2012). He argues that the effects provided by priming will vary each time it is used. This relates back to the uncertainty of which associations are made by the primed individual. As a result it is difficult to know the level of priming that will occur and the strength of set priming.

Naturally, this is a significant weakness and thus we took some severe steps to combat this. We conducted our second experiment in an environment with a high-level of data visibility, in order to be able to track the priming effects. This was done in an attempt to achieve a measurable result.

While it is true that the level of strength from a priming stimuli is hard to predict, a high exposure time of the priming stimuli will provide a stronger priming effect (Bargh et al., 2000).

Designing a successful priming experiment requires high-level expertise and knowledge (Kahneman, 2012). It is true that priming experiments can be hard to conduct. There are a lot of variables that have to be considered and the results are hard to predict. It takes a certain amount of knowledge and expertise to conduct successful priming experiments. Yet, this is no different from many other experiments. The difficulty only requires researchers to be diligent, but it does not disqualify priming.

After doing two successful priming studies, we can conclude that it is indeed possible. While there is a lot of knowledge and information to examine before conducting priming experiments, the actual experimentation is straight forward.

4.8 The Consequences of a Positive Mood

One of the criteria for priming to be a viable managerial tool was that the management and the organization could benefit from it. Thus the effects of priming people with a positive mood will have to have beneficial consequences for the organization.

It might seem obvious that a positive mood would benefit the organization, however it is still important to show concrete ways in which a positive mood can become a potential benefit for the organization. In this section some valid scientific claims about positive minded employees that could benefit the organization will be listed.

Individuals with a high level of positive mood laugh more than their lower level counterpart. Laughing triggers the release of endorphins in the brain, which reduces pain and lower the level of anxiety the individuals feel (Rokade, 2011). These individuals will experience less pain and anxiety than their counterparts. Less anxiety can lead to a higher self-esteem, which can develop a more wholesome employee. Laughing together can also provide a sense of camaraderie that could increase not only the general quality of life but also the employees' perception of the organization (Rokade, 2011).

There is also an argument for laughter having an influence on some of the other effects listed here. Because laughter releases endorphins, which is a main component of the feeling of happiness, it has the potential to act as a catalyst for the effects listed here.

Research show that people who have an overall higher level of positive mood will perform better than their counterparts with a lower level of positive mood (Diener et al, 2002). Their productivity will also be higher than their lower counterpart. They are also less prone to counterproductive work behavior and display a lower level of job burnout. Essentially they are more willing to conform to the work ethic present in the organization (Diener et al, 2002). This argument has some similarities with the hypothesis and is very much aligned with the purpose of this thesis. However, it differs in some aspects, as this thesis aims at proving that priming can be a managerial tool by utilizing unconscious methods to obtain a positive mood. Diener does not utilize priming to unconsciously facilitate a behavioral change. Yet, it is interesting that his findings support our hypothesis, and such add evidence to it being true. A key difference is that this thesis aims to utilize mood as a resource and tries to create a method for creating and sustaining a given priming concept.

People who are in a positive mood display a heightened level of creativity (Chartrand et al, 2006). A happy individual have less anxiety, which will affect the perception of their environment as being less threatening which in turn will make these individuals rely more on heuristics and creative processing. This has some similarities with arguments provided above, as a more positive individual is potentially better balanced and thus less likely to be prone to anxiety. Studies also show that there seems to be a correlation between a positive mood and a favorable evaluation from a supervisor (Wright et al., 1999). This indicates that a positive mood affects the perception of the employee, the actual productivity of the employee or both.

A positive mood provides a higher level of life satisfaction. In a study done on life dissatisfaction (Koivumaa et al, 2004) it was shown that life dissatisfaction predicts subsequent work disability among healthy individuals. This stipulates that there is a correlation between life dissatisfaction and work disability. People with a higher level of life satisfaction will then be less prone to work disability than their less positive counterpart. Studies also show that money provides individuals with a higher level of well-being if one lives under poor conditions (Diener et al., 2002). Yet, if you are part of the middle-class or upper-class, a higher level of income does not have any correlation with well-being. This study also showed that there is a correlation between having a high level of well-being and a high income. This would indicate that people with a higher level of positive mood is more likely to have a higher income than their counterparts.

The above-mentioned research on the effects of a positive mood indicates what our common knowledge already suggested; that people with a positive mood hold a number of benefits over their counterparts. These benefits are also benefits for the organization. Many of the behavioral changes that comes from a higher positive mood, stems from the increased confidence an individual obtains, which adjusts the attitude towards the external environment.

4.9 Goal Setting Theory

The research revolving the positive effects of goal setting on productivity provides some of the most robust findings in the psychological literature with 90% of 110 studies showing positive results (Locke et al, 1981). More than 88 tasks involving 40.0000 participants have shown goal setting effects (Locke & Latham, 2002). This robustness provides for a high level of legitimacy for goal setting as a valid theoretical framework.

"A goal is what an individual is trying to accomplish; it is the object or aim of an action" (Locke, 1981, 2). By having a goal, it implies that an individual is unsatisfied with the current status quo and desires a future outcome or objective that is preferable (Locke et al., 2002). The main hypothesis behind goal setting theory is that goals are regulators of human action (Locke et al., 1981). Goals are objects which actions are directed towards. A goal's difficulty and specificity determinates productivity. A high level of difficulty and specificity in a goal tends to increase productivity where a lower level tends to decrease productivity (Locke et al, 1981). The reason for this lies within the effort required to obtain self-satisfaction with performance. Difficult goals require a higher effort, contrary to easy goals. In an effort to obtain self-satisfaction, goal setting theory suggest that difficult goals motivate individuals better than easy goals (Locke et al., 2002).

There are four mediators that affect the individual's ability to perform by directing attention towards the goal. By directing attention towards goal-relevant actions, attention is also diverted from non-relevant actions. These four mediators are *direction, effort, persistence* & *task specific strategies.* These are mechanisms of the relationship between performance and goals. These four are the most noteworthy factors that affect the outcome of goals.

A goal directs attention towards goal related activities, which removes attention from perceived undesired activities (Locke et al, 1981). A goal perceived to be difficult produces a higher level of effort. They mobilize effort. (Locke et al, 1981). Individuals spend more time on goal relevant tasks

than goal irrelevant tasks, which indicates that goals increase persistence (Locke et al, 1981). Setting goals drives the creation and deployment of strategies. Individuals will seek out and utilize strategies when attempting to reach a goal, especially hard goals (Locke et al, 1981).

Shantz & Latham (2009) showed that primed goals have an effect on productivity by having individuals view a photo of a woman winning a race and then complete a task afterwards. Individuals with primed goals performed better than individuals in the control group. This would indicate that it is possible to affect the productivity of individuals by utilizing priming to prime goals.

There are a number of ways to utilize the goal-setting theory. One, and maybe the most utilized, is the S.M.A.R.T goals method. SMART stands for *specific, measurable, achievable, realistic* and *time-based* (Bogue, 2005). It's an approach to implement and manage goals.

1 **S**pecific: The result of a goal should be clearly defined. This entails defining specific criteria for the goal and what is not included within the goal.

2 **M**easurable: The goal has to be measurable. There has to be a measurable point when the goal can be defined as successfully achieved.

3 **A**chievable: The goal has to be achievable. The resources and capabilities of the individual have to be aligned with the desired result.

4 **R**ealistic: Goals have to be realistic, in that they should recognize that uncontrollable events occur.

5 **T**ime-based: Goals have to be temporally defined. There should be a clear time frame where the goal has to be achieved.

These goal objectives are used as a checklist when setting goals and provide the individual, group or manager with an approach towards achieving the goal that has been stipulated.

4.10 VCI-Model

According to Hatch and Schultz, organizational identity is a shared understanding negotiated between organizational members. The result of this negotiation is one of the key drivers of corporate brand value. Thereby it also becomes an essential enabler for companies to be and remain

competitive. In their VCI framework Hatch and Schultz explain how the successful corporate brands are those of companies which manage to align Vision, Culture and Image around an Organizational Identity - the smaller the gaps between the components, the stronger the brand. The key point of the VCI model is the ability to break down and discuss what makes up an organizational identity. The theory behind the VCI model is focused on identifying and bridging gaps between vision, culture and image in already established or newly founded companies. Vision, culture, image and identity therefore need to be carefully monitored and managed throughout such a transition to make sure that each dimension in its own is aligned before analyzing its inter dependencies.

The corporation's vision rests on two important questions, "*Who do we want to be*?" and "*How will we be known*?"(Hatch et al., 2008, x). The term "vision" in a business-related context can be defined as a long-term goal or objective for the corporation in question. Furthermore, "vision" can be seen as a euphemism for branding and strategy, a departure point for planning the future.

Culture is typically seen as the artefacts, values, beliefs and assumptions that surround the working life in a company. These can be difficult to specify because they are often tacit and not visible (Clegg et al., 2011). They determine how organizational members perceive, think, behave and act

(Clegg et al., 2011). Culture is a powerful concept as it can turn employees into living brands, therefore ensuring brand authenticity (Hatch et al., 2008). To ensure this authenticity, however, a company needs to make sure that core values are clear, fully internalized and aligned. Because of the link between culture and behavior, the organizational cultural aspect is an ideal place to focus priming, as a change in culture due to a "priming filter" will lead to sustainable behavioral changes. This argument will be expanded upon in a later section. Stakeholder image is how the people in contact with the organization perceive it. This includes customers, employees, investors and other organizations. It tries to answer the question "*what is their image of us*?"(Hatch et al., 2008).

4.11 Innovation Strategy

Innovation strategy at its core is about being different or doing different things (Clegg et al., 2011). This means finding a set of activities, services or products that will set the organizational apart (Clegg et al., 2011). Innovation strategy is usually divided into product innovation and process innovation. Product innovation is doing new things, such as introducing new products or adjusting how the product is consumed. Process innovation is doing existing things differently, such as implementing a new process (Clegg et al., 2011). Both product and process innovation may be either radical or incremental in their application. Radical innovation fundamentally changes the products offered or the used process, whereas incremental innovation makes small and continuous improvements to an existing product or process (Clegg et al., 2011).

5 The Empirical Studies

The following section contains the method, limitations and results of the two empirical studies conducted for the purpose of this thesis.

5.1 Study 1

The first experiment was essentially a pilot study, with the purpose of uncovering whether priming could be used to influence human behavior and if it could be used to affect mood in a positive or negative way. It also functioned as a way for us to get a feel for applying the SST, not to mention the conditions and circumstances surrounding the conduction of an experiment. It was prudent to observe whether the SST had the desired characteristics before applying it on a larger scale.

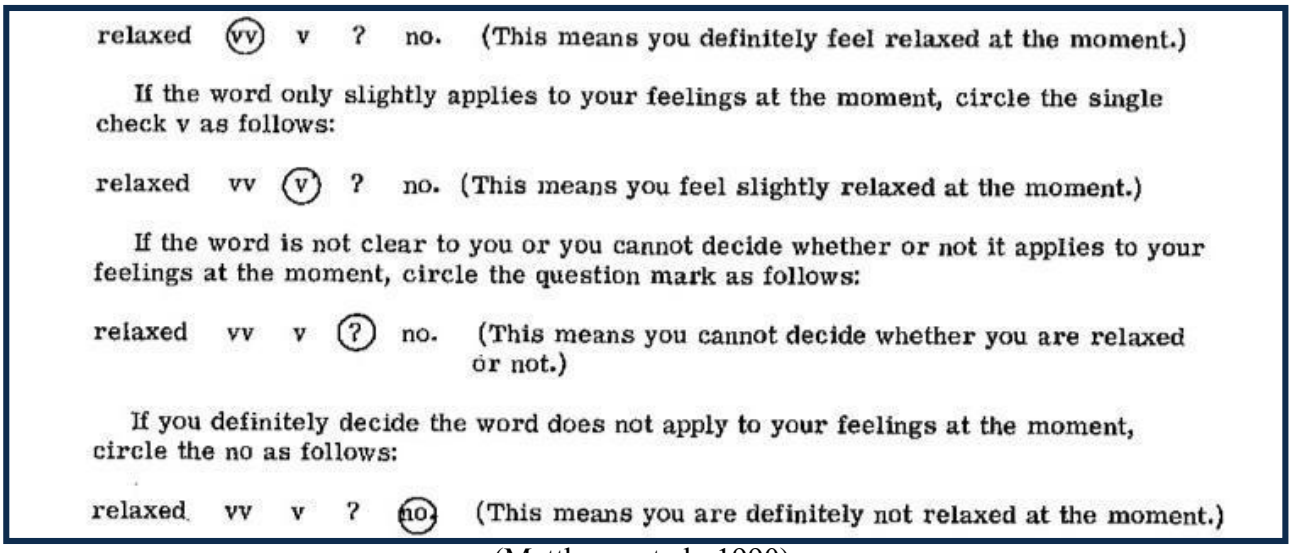
In study 1, healthy male and female volunteers (n= 45, age mean±SEM = 22.2, range 19-27) were enrolled and randomly assigned into one of three groups: two groups (G1 and G2) and a control group (G3).

The first experiment consisted of 45 participants that were equally divided into 3 groups i.e. 15 participants in each group. Each participant was assigned a log number, which would identify them and their respective group. A participant assigned to G1 would receive a log number between 1001 and 1015. A person in G2 would receive a log number between 2001 and 2015 and a person in G3 would receive a log number 3001 and 3015. This was a simple way to keep track of people and was also helpful when analyzing the data. Each person also had to write down his or her gender and age. This was done as a way of detecting whether our groups consisted of equal amounts of males and females.

After each person was assigned a log number and had completed the form, they were asked to complete a series of tasks. The tasks consisted of a SST and a MAT. While the tasks were the same, the content varied in relation to which group the participants were assigned. G1 and G2 all had to complete a SST with 15 sentences of 5 words. Each sentence had to be placed into a grammatical correct sentence using only 4 of the 5 words. G3 was the neutral group, and was only given a MAT. This was done to establish a control group. G1's SST consisted of positive words that related to positive mood in the 13 of 15 sentences, where the remainder included no positive or negative words. The positive words used for the SST were obtained through a standard thesaurus. G2's SST consisted of negative words in 13 of the 15 sentences, and 2 sentences with no positive or negative words included in them. It was explained that the purpose behind the SST was to test the participants' language skills. This was done as to not reveal the real purpose behind the study, which was to prime the participants.

After completing the SST each participant was asked to complete a MAT (Matthews et al., 1990). The MAT consisted of 33 different mood adjectives that the participants had to rate on a scale and is essentially a test used to measure the mood of the participant. This was crucial, as we needed a way to see if participants were indeed getting primed through the SST. The MAT would serve as a measuring tool. The scale consisted of "VV", "V", "?" and "No". "No" meant that they did not feel the mood in question. "?" meant that the participant did not understand the word or the meaning of the word. "V" meant that the participant slightly felt the mood in question and "VV" meant that they strongly felt the mood in question. The participants had to circle either "VV"," V", "?" or "No"

in accordance to what they felt was the most appropriate answer. They had to do so with all of the 33 different mood adjectives.



relaxed (vv) v ? no. (This means you definitely feel relaxed at the moment.)

If the word only slightly applies to your feelings at the moment, circle the single check v as follows:

relaxed vv (v) ? no. (This means you feel slightly relaxed at the moment.)

If the word is not clear to you or you cannot decide whether or not it applies to your feelings at the moment, circle the question mark as follows:

relaxed vv v (?) no. (This means you cannot decide whether you are relaxed or not.)

If you definitely decide the word does not apply to your feelings at the moment, circle the no as follows:

relaxed vv v ? (no) (This means you are definitely not relaxed at the moment.)

(Matthews et al., 1990)

After the participants completed the MAT, they were asked to fill out a questionnaire, which was followed by a funnel debriefing form (Bargh & Chartrand, 2000). The questionnaire functioned as a way to determine whether the participants uncovered the true purpose behind the SST. If participants gave the indication that they had found out the true purpose, their results were to be excluded in order to eliminate potential distortion of data. Lastly all participants were debriefed about the true purpose of the experiment, thanked for their participation and given their promised chocolate bar.

5.1.1 Limitations

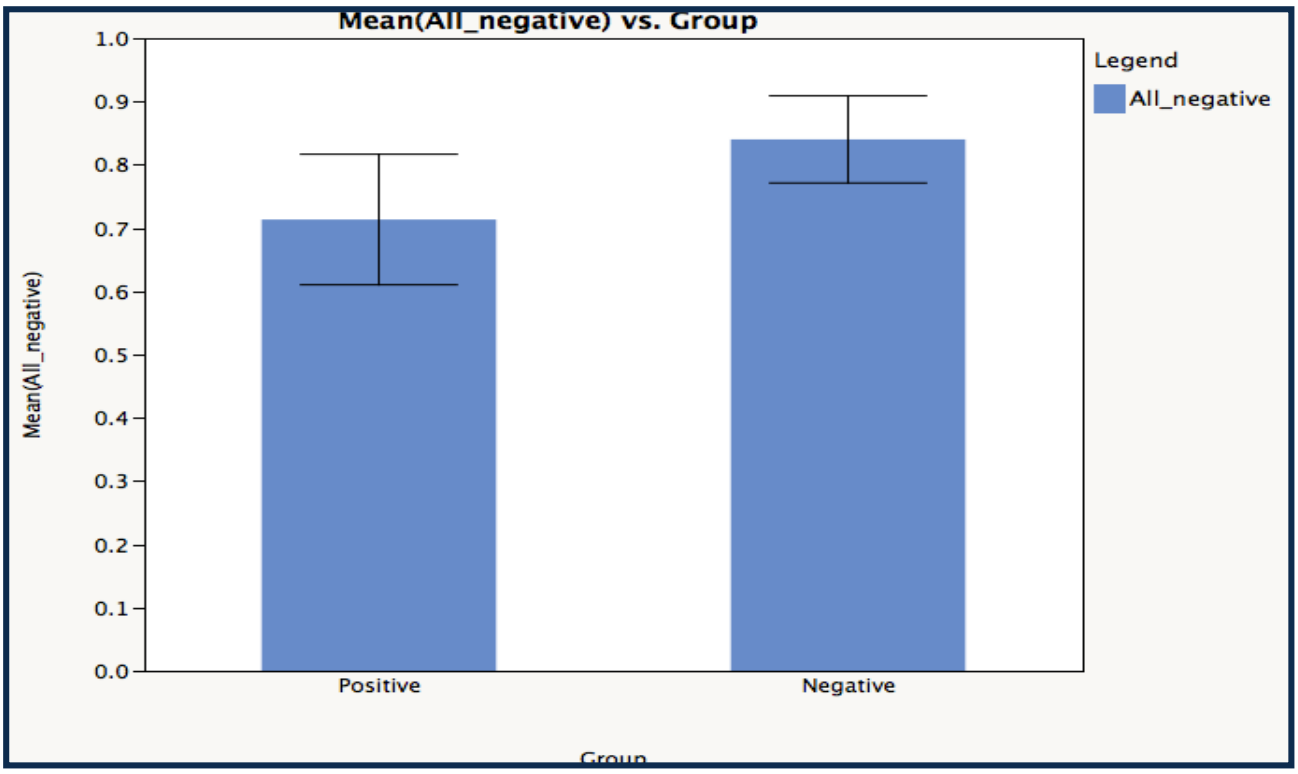
As this was our first time planning and executing an experiment we had to make a number of small corrections throughout the process. The first issue we faced was the fact that it proved more difficult than we thought to get 45 people to help us in our study. Since the test took anywhere between 10-20 minutes people were reluctant to aid our study. We solved this problem by offering one chocolate bar for their participation. This proved to be very effective as illustrated by one girl's outburst:" *If I get a chocolate bar, I'll do whatever test you have".* Peoples' willingness to barter their time for chocolate proved a valuable resource, but might also have introduced another variable into the equation.

Our participants were primarily students we located at our university. We would approach the

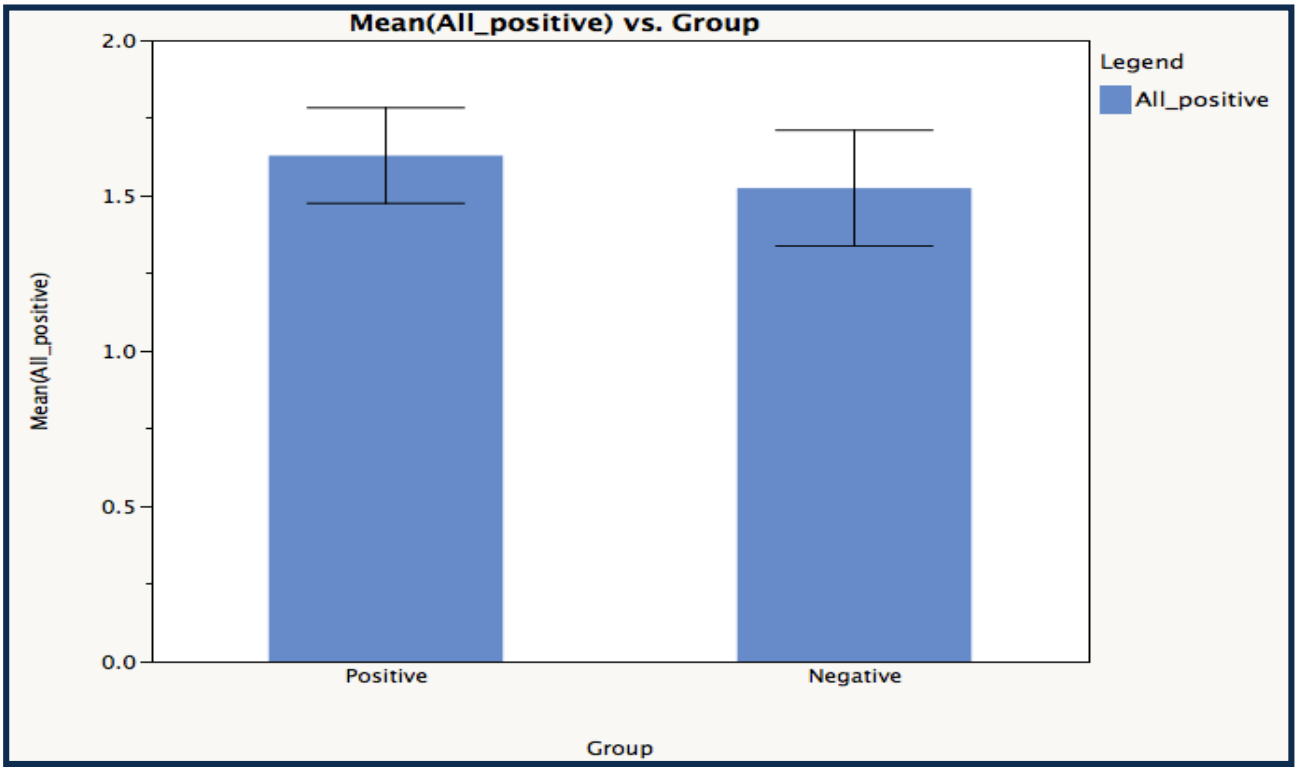
students to inquire whether they would like to participate in our experiment and hereafter explain the conditions. They were not allowed to talk to each other or ask questions. All instructions were explained in the test itself as to rule out our interference. We would approach multiple people at a time, usually groups, but never more people than we could maintain an overview of while they did the test. This was done to ensure that things would go according to our test parameters. After the test was completed we would collect the test and debrief people on the true purpose behind the test. Most people were quite interested in learning the true purpose behind the test, which could indicate that most people had not extrapolated the purpose by themselves. This was also confirmed by what people wrote in the questionnaires. Most people noticed the emphasis on positive or negative words but did not notice the connection between the SST and the fact that we were trying to prime them into a certain mood. This meant that there was no reason to exclude any participants' results from the final data.

5.1.2 The Results

The results show that G1 showed increased positive attitudes, as attested by higher scores on positive moods, such as Energetic (mean±std = 2.2±0.2) compared to G2 (1.7±0.2) and G3 (1.7±0.2), and active (G1 = 2.5±0.2; G2 = 1.9±0.2; G3 = 2.0±0.2). Furthermore, all participants that were primed towards a positive mood (G1) scored higher on the positive adjectives within the MAT than did the negative group (G2). The same was the case for the G2, which scored higher on the negative adjectives than did G1. The neutral group (G3) scored lower than G1 and higher than G2 on positive adjectives and higher than G1 and lower than G2 on negative adjectives. This suggests that a priming effect have occurred.



The positive group scores lower on the negative mood adjectives than the negative group did



The positive group scores higher on the positive mood adjectives than the negative group did

5.2 Study 2

In order to study the effects of priming within an organization, a second study was conducted. Study 2 followed the same procedure in a work environment (the financial bank Nykredit A/S) with healthy male and female employees (n=32) where G1 was positively primed and G2 was neutrally primed. Study 2 consisted of 32 participants that were primed a total of 90 times over a five-day period in. Each morning the participants were asked to complete the SST. They would fill out the test and return to their work. The tests would then be collected.

Day 1	Day 2	Day 3	Day 4	Day 5
20 completed	20 completed	20 completed	18 completed	12 completed

We would arrive at Nykredit every morning at 7:30 am. We would then have the employees complete the test as they arrived at work. This had to be done in accordance with the employees work schedules and their willingness to complete the test. The majority of employees were very helpful in taking the test when requested, whereas others wanted to postpone or not participate at all. This meant that we had to be ready and observe the right time to interrupt an employee, to ask if they had time to take the test. This was helped by Nykredit having a lighting system indicating whether an employee was currently in a call with a customer or doing another action. It was important for the test to be completed in the morning, as otherwise it would not be possible to measure the positive priming effects throughout the course of the day. After testing the employees each morning the tests were collected. Since priming is an immediate effect, the purpose of the tests was over once they had been completed, but the tests still provided us with information on which employees had been primed which day. This was critical in analyzing the data afterwards. At the end of the last day we treated the employees with chocolate as a way of thanking them for their participation.

5.2.1 Limitations

It is important to note, that doing studies in a real company is very different from doing experiments in a laboratory. The number of variables encountered and one's ability to control these variables are greatly diminished in the workplace. You are dealing with people who have a lot of work to do, and in such their attention will be on their work and not on our experiment.

The information provided to the employees concerning the experiment had to be different than the actual reasoning behind the experiment. The reason for this lies in the nature of conceptual priming. As explained in our chapter on conceptual priming, it functions by unconsciously subjecting individuals with words all revolving around a single concept. In our case the concept of a positive mood and well-being. It was necessary to come up with a cover story for conducting the experiment so that the employees did not suspect the real purpose. For this purpose we created a cover story, which stated:

"Is there a difference in the language capabilities of employees in customer service than in other service areas - if yes, how large?

This cover story allowed us to conduct our experiment without alerting the employees of our true purpose. Throughout the experiment we used this cover story as the reason for us being present. The cover story states that we want to look into the language abilities of the employees in an effort to estimate their average language capabilities and then compare this to other service areas. This is of course not something we intended to do, but it provided us with a plausible reason for having them complete the SST each morning. The SST was also named "Sprog test" or "Language test" instead of SST.

The effectiveness of using this cover story proved very high, in that no employees questioned our purpose and no one realized that there were 13 different positive words in the SST they did each morning. We also timed the employees. This was done in an attempt to make our cover story more credible and to draw attention away from the participants noticing the positive words. Our reasoning was that if they were focused on us timing them while they completed the test, they would not notice the positive words. Including a timing element would further take the attention away from our true purpose. This seemed to have worked as intended. Essentially we made the test into a possible competition, as each employee was determined to improve his or her score, over the week of testing. Timing employees might add another variable, but since the final result is based on calculating differences between the groups, a variable affecting all groups equally is of lesser concern.

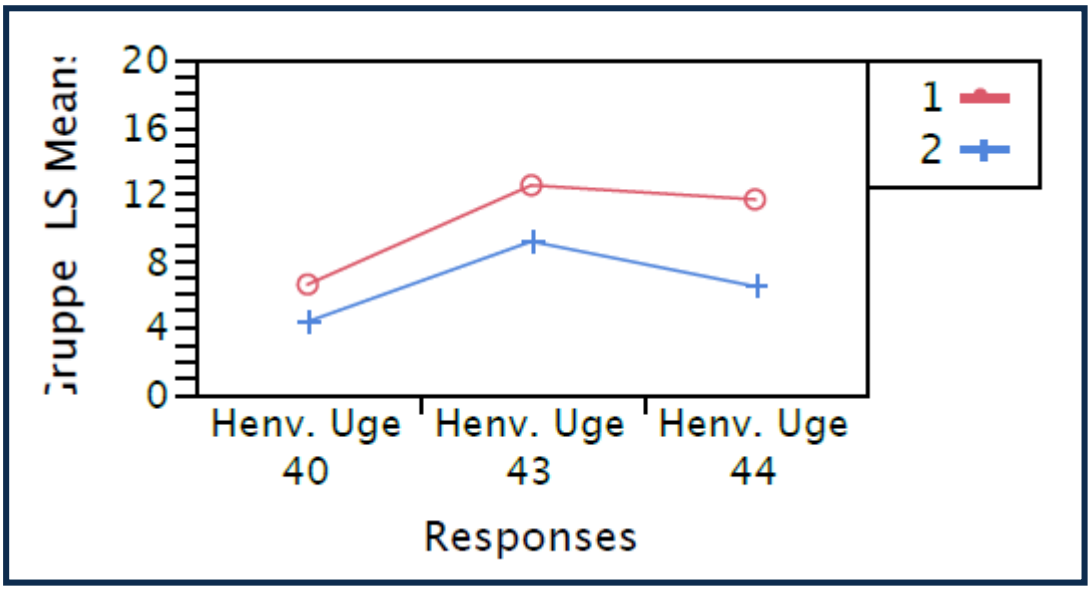
The key element to our experiment was to have the employees fill out the SST each morning. This proved more difficult than first anticipated. As we mentioned before, the employees had work to do and therefore not all of the employees were willing or had the time to fill out our test each morning. This combined with the fact that not every employee was working each day and that some might be on vacation or sick diminished our selection of employees to test.

After the experiment had been completed, we debriefed the employees regarding the real purpose of the experiment. It also seemed like the morally right thing to do after essentially manipulating the employees through the SST, and misleading them on the true purpose of the experiment. Luckily the employees took the news well and seemed interested in the results of the project. Søren sent out an email explaining our true purpose and in greater detail explaining the reasoning behind the trickery.

The employees will also have access to the thesis.

5.2.2 The Results

To test the effect of the manipulation, we ran repeated measures ANOVA. The dependent variable was the number of successful referrals a person had per day, and we used the group and day as independent variables. The results showed increased overall performance by G1 on objective performance scores ($F=42.0$, $p<0.0001$), and a significant repeated measures effect ($F=4.1$, $p=0.0263$), showing a lower drop in performance in G1 participants than in G2. Essentially, G1 displayed a higher level of referrals overall than G2. Furthermore, G1's level of referrals dropped slower from week 43-44 than did G2's level of referrals.



X axel: Number of referrals. Y axel: Weeks. 1 (Red) Highly primed group. 2(Blue) low primed group

6 The Analysis

The section below includes the analysis of our two empirical studies. By applying the theory presented in this thesis, the two studies conducted are analyzed in an effort to interpret the results.

6.1 Study 1

The theory on priming suggests that a SCP effect can be achieved through the use of an SST (Bargh & Chartrand, 2000). The SST works by having individuals complete a grammatical task where they will have to place words into a coherent grammatical sentence. Within these sentences are words that are synonymous with the desired priming concept. By subjecting individuals to these words, through the SST, a priming effect occurs. (Bargh & Chartrand, 2000). This happens because the individuals are actively engaged with the SST, while unaware of the synonyms which have been placed within the test. The individual's unconscious mind will detect these synonyms, which will trigger associations related to these synonyms, thereby lowering the energy needed to make the same association again. The strength of the priming effect is reliant on the exposure time of the priming stimuli (Bargh & Chartrand, 2000). This implies that the longer time an individual is shown a priming stimuli, or in the case of the SST, the number of synonyms the individual is exposed to and the extent to which these synonyms are shown, the stronger the level of priming will be.

The MAT measures individuals' current moods by having individuals state their level of affirmation with 33 mood adjectives. The strength of the priming effect is calculated by the difference in the MAT score between individuals or overall difference between groups.

In study 1, the results revealed that G1 showed increasingly positive attitudes, as attested by higher scores on positive moods, such as energetic (mean±std = 2.2±0.2) compared to G2 (1.7±0.2) and G3 (1.7±0.2), and active (G1 = 2.5±0.2; G2 = 1.9±0.2; G3 = 2.0±0.2).

When the participants of study 1 were first asked to participate, their moods would be at an undetermined level. Some participants would be in a very positive mood, some in between and some in a negative mood. By having participants complete the SST, their respective mood rose through an exposure to the synonyms, which had been placed in the test (Bargh & Chartrand, 2000). These synonyms had all been chosen for their relation to the concept of a positive mood or well-being. The consequence of being exposed to the priming stimuli was that some participants might still be in a negative mood, just slightly less negative than before. The same occurs for other

participants, so that participants who were in a positive mood would be in a slightly more positive mood. This would shift the overall mood of participants towards a slightly more positive mood than before taking the SST. Participants in G1, who were primed through the SST with positive synonyms relating to a positive mood and well-being, were overall more positive than participants in G2; who were negatively primed and participants in G3; who were in the control group. This suggests that a priming effect has occurred. If no priming effect had occurred, there would be no tendency for one group to score higher or lower than other groups. Indeed, the results show what the theory suggests; that this way of priming participants elicits a priming effect.

The results of study 1 show that there is a significant difference between groups. This difference is higher than random and suggests that the priming stimuli facilitated a priming effect. While this effect is significant, it is fairly low. The reason for this could be the exposure time of the priming stimuli to the participants. The participants in study 1 were only primed 1 time and were only exposed to 13 words that were synonyms with the desired priming concept. While this exposure should provide a priming effect, it is likely that the effect will be fairly low in strength, which explains the results from study 1.

The underlying pattern affected associations of the participants in the direction of the priming stimuli, and the energy/calories needed to perform the same associations were lowered by being presented with the association multiple times in the SST. This occurred since the neurons needed to perform the associations were narrowed and became more specific, as a result of the brain's repeating associations. Because the brain areas associated with conceptual priming are the prefrontal and temporal regions of the brain (Baars et al, 2013) it is likely to believe that participants would show decreased activity in these areas if they were measured before and after taking the test.

The results obtained through study 1 were obtained through the use of a MAT. The MAT operated as the measuring scale for which it was possible to determine if a change in mood had occurred or if the mood level of participants was unchanged by the SST. By having the participants answer the MAT immediately after completing the SST, it measured the current mood state of participants and thus measured the effect of the priming stimuli within the SST. By looking at each individual it would be hard to determine the change in mood within the study. This relates back to the undetermined initial mood state of participants. Looking at each participant would provide little evidence of a change in mood levels. This is where the control group comes in. By using the control

group as a baseline to measure up against the positive and negative primed groups, the overall difference in mood would indicate whether the priming stimuli within the SST had an effect on the participants. If the priming stimuli within the SST had no effect, the overall mood state of participants within the three groups would be the same. If the priming stimuli within the SST did have an effect, a difference in mood levels should be evident between the three groups. This is what the results from study 1 showed. The data revealed that each positively primed participant was more positive when taking the MAT compared to those who were negatively primed. This indicated that the positively primed group showed effects of being affected through the priming experiment. The same applied to the negatively primed participants. They were all more negative when taking the MAT compared to the positive primed participants. An interaction with the SST subjected participants to the priming stimuli within the SST. This priming stimulus consisted of 13 words that were synonyms with the desired priming concept. This influenced the associations of the participants and influenced participants to make more positive associations. This in return affected their answering of the MAT, which explains the difference between the three groups within study 1. The arguments presented above are congruent with the expected results when examining the theory on priming.

6.2 Study 2

Like study 1, the employees were primed using an SST. As study 2 is a further development of study 1, many of the same arguments listed above, are applied here. There are two main differences between the two studies. The first is the amount of exposure to the priming stimuli. Whereas the participants of study 1 were primed only once, the employees in study 2 were primed 5 times. This changes the strength of the priming effect due to the fact that priming increases in strength when replicated over time (Bargh et al., 2000). The second is how the priming effect was measured. In study 1 the purpose was to prove that mood could be altered through the use of priming, whereas in study 2 the goal was to analyze the relationship between mood and productivity.

The cover story used for study 2 differed from the one used in study 1. The reason for this was that study 1 only required participants to be primed one time, where participants in study 2 were primed up to five times. For the sake of being able to repeat subjecting the employees to the priming stimuli, the cover story had to legitimize this. A potential implementation of priming in an organization will have to require a cover story that legitimizes the priming stimuli being present over a long period of time. As will be shown later in the implementation proposal, an example could be that of a mental exercise for the brain. The literature on the efficiency on mental exercises

seems inconclusive and some research show that while individuals improve on a task when completing it multiple times, no evidence shows that there is a transfer of abilities from one task to another. (Owen et al, 2010). Luckily the cover story does not actually have to provide the alleged improvement of mental abilities, as long as it is plausible enough for the employees to not question it.

As mentioned above, the measurement of the effects of study 2 was a key difference. In order to link mood and productivity, Nykredit's own performance measurements were used to show the effects of priming. It was quickly established that the number of referrals was the easiest parameter to measure. Not only due to the fact that it was simpler to use than the rest of the parameters presented in Nykredit's performance measurement system, but also because referrals are essentially an upsell. Referrals represent a way to determine productivity and a way to measure the change in behavior attributed by the priming stimuli presented to the employees. Looking at the theory presented in the thesis, it has been established that people in a positive mood have a higher level of laughter (Rokade, 2011). This is important as smiling and laughter can effectively be communicated through a telephone conversation (Drahota et al., 2007). Before an employee can complete a referral, the employee will have to inquire into the customer's needs. This requires a larger engagement of social interaction, due to the nature of performing an upsell, which a positive mood would potentially enhance.

The results in study 2 revealed that the overall performance by G1 on objective performance scores ($F=42.0$, $p<0.0001$), and a significant repeated measures effect ($F=4.1$, $p=0.0263$), showed a lower drop in performance in G1 participants than in G2. The results showed that the highly primed group (G1) displayed a significant higher overall performance through a higher level of referrals. G1 also displayed a lower drop in referrals from week 43 to 44 than did the less primed group (G2). G1 was primed towards a positive mood, which would have given them the benefits of a higher level of positive mood, which include less anxiety and a subsequent higher level of confidence, a higher level of laughter and a higher level of creativity among others (Rokade, 2011; Chartrand et al., 2006). These benefits are the likely cause of the lower drop in referrals seen in G1 compared to G2. It is difficult to conclude if all of the benefits together, or only some of them, attributed to this result. A higher level of laughter, which can be conveyed through the phone (Drahota et al., 2007), certainly attributed to this result. This seems to suggest that a heightened level of positive mood influenced the employees to perform at a higher level over a longer period of time than their less primed counterpart. Priming effects have, as discussed earlier, been shown to be fairly long lasting, which could account for G1 maintaining a high level of referrals. The benefits of a positive mood

obtained by G1 affected them throughout the following week, which explains the lower drop in referrals. The employees in G1 also maintained a higher mood, which affected their associations throughout the following week.

There are some apprehensions about these results though. There seems to be a strong correlation between individuals primed and the number of referrals made, however the amount of time an employee worked during each week would affect the number of referrals simply by having a larger period of time in which to obtain these referrals. It was impossible to factor in the varying work schedule of the employees included in the study, and as a consequence we can only speculate about the correlation between employees being primed and having a high number of referrals. Further studies that take skill and work time into account are needed to verify whether the result is not a direct reflection of the skill of the highly primed employees versus the skill of the less primed employees.

Throughout study 2 a number of issues became apparent. Since this was the first time conducting a study within an organization, there were many variables that had to be taken into account. They ranged from internal distortions, provided by Nykredit and us, to external sources such as sickness and weather. One of the prime contributors of potential distortion of the data gathered was due to Nykredit launching a large internal competition to increase customer services during the period we were conducting the testing. This distortion in the data was assumed to have a large impact on the behavior of the employees participating in the experiment. The competition was aimed at increasing referrals from costumer services in order to increase sales. This was particularly problematic, as it directly corrupted most of the data associated with extra productivity. The competition at Nykredit ran in week 43 and 44. Our original intention had been to compare the primed week with a similar week. The purpose was to try and eliminate the normal day and end up with the effect provided by our priming. This proved problematic since the competition was completely original in its design and scope. There would be a large rise in referrals if a comparison was made only between a normal week and the priming week. It would be nice to think that these could be attributed to the priming, but it seems very likely that the competition had an effect. Therefore the game plan was changed, and another way to eliminate the competition from the end result had to be found.

In an attempt to work around the competition, we analyzed two different groups of employees based on the data collected from three different weeks. The two groups were; one group primed 3 days or more and a second group primed 2 days or less. The aim here was to compare the two groups; the highly primed vs. the less primed, in order to examine the difference in referrals and ultimately the

effects of priming. By viewing the difference in referrals over time between the two groups, the effects of the priming stimuli could be measured. This would eliminate the competition as a variable while still providing data on how the priming stimuli had affected the employees in the first group.

6.3 Summary

The two studies conducted show that priming can be utilized both outside and inside the organization to unconsciously influence the behavior of individuals. It can do so, since it operates on mechanisms existing in all individuals. The studies also show that these priming effects can be long lasting and that they can help the employees in an organization to perform at a higher level compared to those that remain not primed. These findings are supported by the theory on priming, both the psychological theory but also the biological theory on priming. The results reaffirmed these theories. The priming concept utilized in both studies was the concept of a positive mood or well-being. This concept could easily be exchanged for another concept to achieve a different priming effect if so desired.

7 Priming and Management Combined

The following section seeks to combine priming with the paradigm of management. The purpose is to show that priming and management theories are compatible. It will be done by showing how intangible assets and priming are compatible. Afterwards we will propose a new way of understanding priming within the organization. This will provide legitimization for our implementation proposal of priming, which will be revealed afterwards.

7.1 Priming as an Intangible Asset

Intangible assets can be understood as all the assets an organization have at their disposal that are not material, such as ideas, ways of doing things, culture etc. (Kaplan & Norton, 2004). Tangible assets include buildings, materials, machines and other physical and tangible items. Tangible and intangible assets are usually discussed by the value they provide in the organization.

Value creation in intangible assets is *indirect*, which means that it is not the intangible asset itself that creates value, but rather it is the process linked to the intangible asset that gets improved (Kaplan & Norton, 2004), thus adding value to the organization. In study 2 the relationship between SCP and the output of the customer service department was examined. Here all the added value

came from the change in the output of the customer service department, thus the SCP added indirect value by boosting the output of referrals made over the period of the study.

Value is *contextual*, as the intangible assets must be aligned with the overall organizational strategy (Kaplan & Norton, 2004). In study 2, the positive mood will only add value if it is aligned with Nykredit's overall strategy. This point can seem moot, as the benefits of a positive mood have been shown to be diverse and almost universally advantageous. But when priming other concepts instead of a positive mood, this distinction becomes important.

Value is *potential*, not only because of its natural relationship with processes and overall strategy, but also because the cost of investing in an intangible asset represents a poor estimate of its value to the organization (Kaplan & Norton, 2004). This means that it is almost impossible to calculate the precise added value from the priming experiment in study 2. Since the strength of priming is related to the exposure of the priming stimuli and the associations the individuals have, the precise value added from the priming effect is difficult to determine. Any implementation of a priming effect implemented correctly should add value, but the amount of value is difficult to determine. Priming, as is the case with an intangible asset, has a high potential for providing value but the exact level of value is usually unknown.

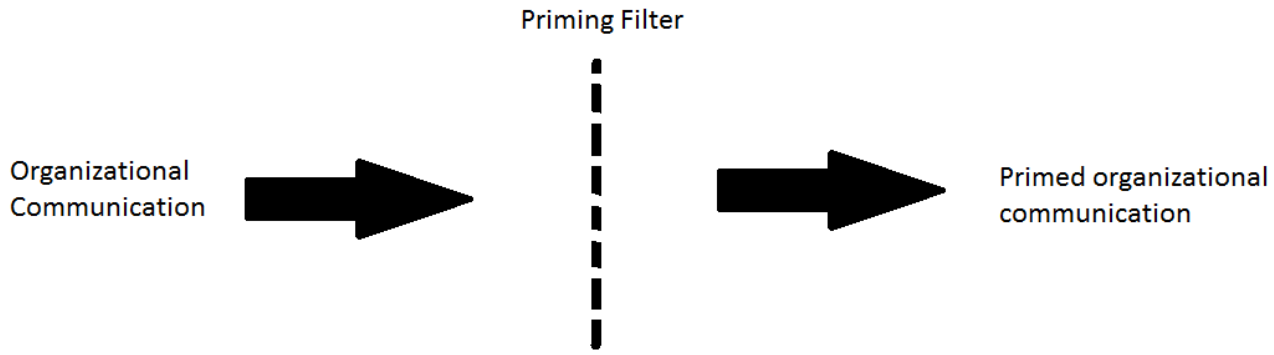
Value exists in *bundles*, as explained above, there is a link between intangible assets, physical processes and the overall strategy. However, this means that value from intangibles cannot be seen or measured unless it has synergy with another asset (Kaplan & Norton, 2004). The challenge is then to align the intangibles with the processes, the strategy and with other intangibles, as it is these bundles that create value. In study 2, the priming effect provided employees with a positive mood which in turn provided a bundle of other effects. The effects of a positive mood were examined earlier, and the results from study 2 show a significant higher productivity over time in the employees that were primed in comparison to those that received a much lower level of priming. The argument is that priming is able to provide a bundle of value that affects the organization and employees across many areas.

In study 2, it was shown that priming is well positioned to comply with all of the above listed criteria. Priming can be broad enough to align with the majority of the organizational strategies, it adds value to other processes and it can lead to increased potential. In study 2, the priming of a positive mood led to a value bundle**.** The argument behind this is that priming enhanced both the process of referrals, while simultaneously making the employees more susceptible to the internal

competition and providing a number of benefits from a raised positive mood. From this short examination, priming is very much an intangible asset.

7.2 Priming as a Filter

We propose to view priming within the organization as a filter. This filter is an intangible asset. A part of the organizational communication is inserted at one end, and primed organizational communications comes out at the other end. Organizational communication is understood as every communication process and action within the organization. The filter consists of a priming stimuli with a specific purpose. The priming filter may be an SCP stimulus, a subliminal conceptual priming stimulus, a mindset-priming stimulus or any priming stimuli that exist. The outputted organizational communication will be primed towards the specific purpose intended with the priming filter.



The advantage of viewing priming as a filter is that it inherits some of the characteristics of a filter. A filter allows an object to enter at one side and leave at the other. It can potentially filter some of the stimuli away or only allow certain stimuli to pass through. A filter does not create anything new itself, it only has an effect when something is filtered through it. In the same way, priming filters the organizational communication in such a way that a specific concept or approach becomes a more likely association in the individual primed. It changes the communication and subtly points it towards the desired area of focus. The more exposure to the priming stimuli within the filter, the stronger the effect or *filtering* of the communication is. This analogy provides an easy way to understand priming within the organization and is also a way to incorporate all priming methods within one concept.

As will be touched upon later in the discussion section, it is important not only to implement priming useful for the organization's objectives, but also to remove priming stimuli which is not. If

we subject this to our proposed notion of priming as filtering, then it is important to filter priming that is counterproductive to the organization's objective away and implement and support priming that supports the organization's objective. Filtering counterproductive priming stimuli will enhance the effect of the desired priming stimuli since it will eliminate priming effects operating against the desired effects.

The filter analogy is proposed to assist the understanding of priming within the organization. Priming is inherently a difficult concept to grasp, but by classifying priming as an intangible asset and a filter it is possible to implement priming into the organization. This is done by using terminology already employed in organizations while having an easy metaphor for understanding how priming operates. By doing this it can now be utilized to set forth the implementation proposal of utilizing priming within the organization.

8 The Implementation Proposal

The following section is centered on the proposed priming implementation into the organization. The proposal includes three different ways of implementing priming that differ in the way each priming stimuli is applied within the organization. Each proposal is based on both theory and the results of the two studies conducted. This serves solely as an initial suggestion of how priming can be implemented within the organization. Furthermore, the VCI model will be drawn upon to highlight some of the consequences of the implementation proposals.

It has been suggested that a good SCP concept is abstract, but definable (Bargh & Chartrand, 2000), thus if the concept is too specific the associations which an individual will associate the concept with are too broad. Such as exemplified earlier in the data collection section in the methodology with the color red. On the other hand, if the concept is so abstract that a single word is unable to describe it, one should consider another concept or use another priming method such as mindset priming.

What is primed is the individual's understanding of the concept, and therefore it must be a concept that is generally understood more or less uniformly. When priming a single individual, the understanding of the concept is limited to only that individual, and since the priming of many individuals is more cost effective, the understanding of the concept needs to be uniform across the subjects primed. Since priming is achieved by exposing the employee to synonyms of the desired primed concept, the more synonyms the concept is associated with, the better, since it allows for

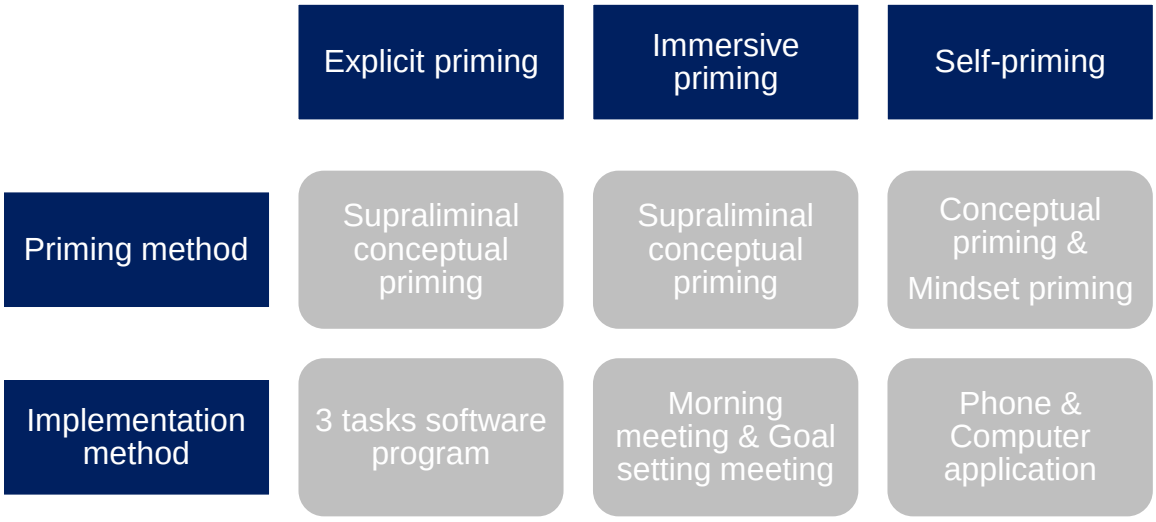
increased exposure to the primed concept through many different synonyms. This will allow for maximum exposure with minimum risk of alerting the participant of the priming stimuli.

An explicit priming is understood as a priming stimuli that is implemented into the organization through a new practice or initiative. The priming stimuli will seem disruptive when implemented, since it is accompanied by a change to the employee's workday.

This is in contrast to ***an immersive priming***, which is defined as a priming stimuli that has been integrated into an already established practice within an organization. By integrating the priming stimuli into an already existing practice, the priming stimuli will be almost unnoticeable for the employees.

Self-priming occurs when an individual primes himself/herself. The consequences of self-priming are yet unknown and we try to theoretically and logically discuss the issues and advantages in doing so later. Self-priming will not be included within the examination of priming as an intangible or process innovation.

Below is an overview of how explicit priming, immersive priming and self-priming relate to the priming method and implementation method utilized within this proposal. The model will initially not make much sense, but it will become clearer when reading on. We felt that by showing the overview model now, it could act as a reference point to hold on to.



8.1 Explicit Priming

When implementing an explicit priming effect, there are a number of obstacles that have to be taken into consideration. Within the implementation of priming, the main difficulties are centered on the following obstacles; the need for unconsciousness, the necessity of priming beforehand and the challenge of how to implement SCP into the organizational architecture. These obstacles will be elaborated and discussed in the following section, based on our own observations when conducting the study in Nykredit along with the literature on priming.

The first difficulty when implementing SCP is the subject of unconsciousness. As explained in the theory section, SCP demands a certain level of unconsciousness, due to the way in which it operates. This adds a number of requirements to the way SCP has to be implemented. The employees have to be exposed to the SCP stimuli, but have to be unaware that an SCP effect is occurring. This implies that some sort of cover story will have to be used as a way to hide the true purpose. The cover story will enable an SPC effect where the employee is actively engaged in the priming material yet unconscious of its purpose.

The topic of the cover story has to be linked to the SCP effect that is being used. If the cover story is not plausible, it will not be able to stand up to potential scrutiny. If there is not a link between the SCP effect and the cover story, the nature of the SCP quickly becomes apparent.

Priming essentially thrives to influence subsequent actions by introducing an early stimulus (Chatrand & Bargh, 1996). This means that priming is an investment in the present and future by the organization. An investment since priming someone affects his or her subsequent actions. Ideally the subsequent actions as a result of the priming should be beneficial for the organization. Therefore it makes sense for the organization to maximize its ability to control and influence employees when the employee is doing his/her job for the organization in question.

Consequently if an employee is exposed to a SCP stimuli at the end of the workday, the priming effect would be felt when the employee goes home. The consequences of this are not known, but it is plausible that it would still be beneficial. Yet, when priming a positive mood, there is also an argument that an improved mood when leaving work could potentially lead to the employee associating leaving work with an elevated mood, which again could lead the employee to question his/her work at that organization.

In study 2, the priming occurred beforehand, meaning that the priming would show its affects throughout the workday and thereby achieve the desired effect on the employees. This was done by a Scrambled Sentence Test that had to be filled out each morning by the employees. This worked excellent for the purpose of the study, but it is safe to assume that there has to be some integration of the priming stimuli into the organizational architecture of the organization for it to be viable in the long run. Having researchers be present each morning for the foreseeable future is not a viable option.

In order to implement priming into the organizational architecture, a medium was needed to be able to prime the employees, ideally in a non-intrusive way that would fit into already existing activities. If the feeling of annoyance surpasses the priming effect, it would nullify the priming effect in the sense that the associations related to the priming stimuli would be distorted by the employees' frustration.

After observing the organizational architecture of Nykredit, it became apparent that the best way to implement the priming effect was to utilize the computer that every employee in the customer service department worked at. The argument is that the computer is a central part of their work, as they use it to assist customers in their problems, answer emails and communicate externally and internally. By implementing the SCP effect into some part of their interaction with the computer, it would not disturb their everyday work but add another aspect to an already known process.

The SCP effect will have to be introduced just as the employees arrive at work to have the maximum effect, as explained above. A way to incorporate the SCP effect with the computer is to introduce the employees to a software program that is activated when the employees switch on their computer. The software program will be activated and a task will be introduced to the employee. This task will contain an SCP effect. The employee will have to complete the task before being able to use the computer for other tasks. This would ensure that the employees would interact with the task before engaging in their normal work. An alternative solution could be that employees would open the program themselves; this relies on the discipline of the employees.

8.1.1 Design Process

What follows is a step-by-step description of the process. When the employee arrives at work, he/she turns on the computer. Before the employee has access to his/her usual workspace on the computer, a software program will be activated, which requires the employee to interact with a task that revolves around an SCP stimulus. It is important to note that even though the participant will have to interact with a task to gain access to the computer, the task should be structured in such a way that it is easy to complete. If the participant becomes frustrated completing the task it would be counter-productive as the associations related to the priming stimuli would be distorted as a result of the frustration. The difficulty of the task is only required to support the cover story. The effect of the priming stimuli is the main purpose.

The cover story that will detract attention from the true purpose of completing the task. The cover story is that each employee must start the day with a mental exercise to activate the brain. The argument is that the employee will perform at a higher level if completing the small task each morning. Both the employee and the organization benefits from the employee being more mentally alert. This cover story functions as a believable excuse for having the employees complete the task each morning.

8.1.2 The Software Program

The software program is needed to provide a way to implement the SCP stimuli. It will function as the medium in which the stimulus is presented to the employees. The software program should be simple and intuitive. There are very few technical requirements, namely a Graphic User Interface (GUI) displaying and providing the needed interface options for completing the task. It should not be possible to close the program before interacting with the task as this would defeat the purpose.

We propose to incorporate three different tasks into the software program. These tasks are variations of the *Scrambled Sentence Test, Mirrored Words* and *Word-search puzzles* tasks. Each task will be integrated into the SCP software program. An employee will interact with only one of the tasks each day. The argument for toggling between tasks is that it functions as a masking effect, thereby making it more difficult for the employees to detect the true purpose of the tasks since there are different tasks daily. In addition to the toggling between tasks, there will be tasks containing no priming stimuli at all. This also works as a masking effect. If each task contained stimuli revolving

around the desired priming concept, the employees would detect the underlying pattern. By planting tasks that have no priming stimuli within them, the employees are less likely to detect the underlying pattern. As Bargh & Chartrand explains, "*A manipulation that is too heavy-handed – such as having every one of the 20 items in a Scrambled Sentence test contain a synonym of the trait construct being primed – is likely to tip off the participant as to the nature of the study"* (Bargh & Chartrand, 2000). By maintaining a balance between priming stimuli and neutral stimuli, it is possible to keep the employees unaware of the underlying pattern while still obtaining a priming effect. The employee will therefore have to complete one of the 3 tasks each day, but not all of the tasks will contain the SCP effect. Also great care must be given to the neutral words, as to not accidentally prime the employees towards an undesired concept.

This sets the implementation up for long term SCP effects, not only because of how difficult it will be for the employees to discern the SCP effect within the 3 tasks, but also because they will not find an SCP effect within each task. This is essentially a double masking effect. In study 2, the results were produced by a group who had an SCP effect for 3/5 days. This could indicate that being primed with an SCP effect on a daily basis is not necessary in order to achieve noticeable effects.

8.1.2.1 Scrambled Sentence Test

The solution to the pen and paper problem is to make the SST digital. By altering it from a pen and paper task to a digital one it is aligned with the use of a computer. The consequences when altering the SST from pen and paper to digital is not yet fully understood, and some sort of change in the level of strength which is obtained from the priming effect might be affected due to how memory is obtained. The change from writing with a pen on paper to typing on a keyboard might have unforeseen consequences.

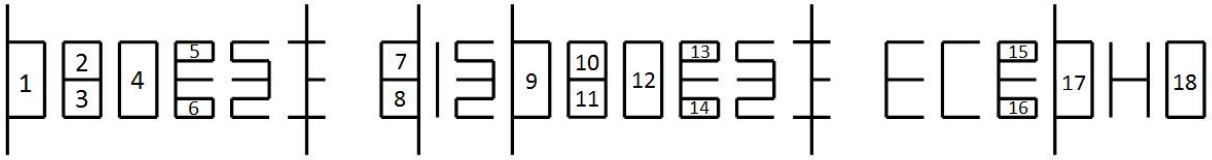
8.1.2.2 Mirrored Words

Mirrored words i.e. words that are mirrored vertically on the baseline (Schorn & Maurhart, 2009), become almost impossible to recognize as words if the participants are not explained that they are in fact mirrored. By having participants look at the mirrored words they are actively and consciously engaging in the priming stimuli, yet they are unaware of the underlying pattern. This setup is congruent with that of a supraliminal priming stimuli.

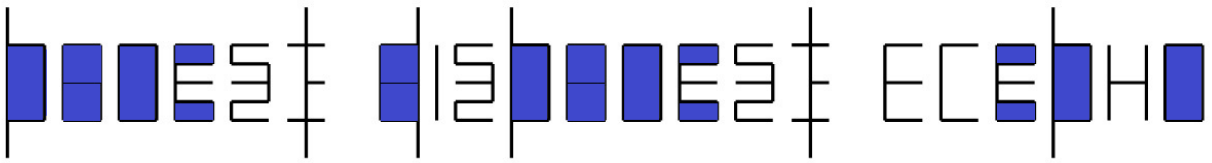
(Schorn et al., 2009)

Schorn & Mauerhart showcased the method during a study of people introduced to an SCP stimulus of the concept of *honesty*. They were significantly more likely to pay for using a motorway service area toilet than people not primed towards *honesty* (Schorn & Maurhart, 2009).

In order for mirrored words to function in our scenario, an interactive version has to be created that is aligned with our cover story. This is achieved by having the employees count the number of in-closed spaces in the mirrored words. By counting the in-closed spaces they are completing a mental exercise, which is congruent with the cover story presented.



The desired primed concept will have to be mirrored and placed instead of the above shown concept of *honesty*, *dishonesty* and *control word*. Also, only the desired concept and not the opposite or control word will be used in our scenario. The software program will have to have an interface where the employees can push the in-closed space. The in-closed space would then provide some indication that it has been clicked on e.g. a change in colour. The idea is that after having clicked all the in-closed spaces, another mirrored word will appear on the screen, repeating the process.



The number of different mirrored priming stimuli shown should be altered in relation to the strength of the priming effect desired. A higher exposure equals higher priming. Yet, it is important to note that the time it takes for the employee to complete the task should be kept relatively low.

8.1.2.3 Word-Search Puzzles

Word-search puzzles have the objective to find a number of concealed words e.g. *chair* and *eagle* from words that are placed into rows and columns. These can be read vertically, horizontally or diagonally from left to right, right to left, top to bottom and bottom to top. The participants will have to search for the words. The word-search puzzle is very similar to the SST, in that it relies on the ability of the subjects to recognize patterns, while simultaneously completing an unrelated task. (Bargh & Chartrand, 2000)

When integrating a word-search puzzle to our scenario, the objective is still to find a number of words. The difference between the normal version of a word-search puzzle and the word-search puzzle suggested here, is that a number of words related to the desired priming concept have been concealed within the rows and columns of letters. By having the participants actively engaged with finding the neutral words while unaware of the underlying pattern the requirements of an SCP have been met (Bargh & Chartrand, 2000).

SCP Word-search puzzle

S	F	Y	O	J	R	W	X	F
U	A	K	R	T	E	Q	K	E
O	N	C	O	N	V	D	R	A
R	T	A	O	E	I	A	Y	E
E	A	C	L	T	T	L	E	C
N	S	H	F	N	I	G	A	A
E	T	A	B	O	S	G	G	E
G	I	I	V	C	O	P	L	P
L	C	R	Y	G	P	Y	E	P

GLAD
CHAIR
EAGLE
GENEROUS
CONTENT
FANTASTIC
JOY
POSITIVE
FLOOR

The goal is to find the words *chair, eagle* and *floor*. But the words *glad, generous, content, fantastic, joy* and *positive* are also hidden within the word-search puzzle.

The employees will locate the neutral words and mark them with a color. This function will be integrated as an interface option within the software program as shown below.

SCP Word-search puzzle

S	F	Y	O	J	R	W	X	F
U	A	K	R	T	E	Q	K	E
O	N	C	O	N	V	D	R	A
R	T	A	O	E	I	A	Y	E
E	A	C	L	T	T	L	E	C
N	S	H	F	N	I	G	A	A
E	T	A	B	O	S	G	G	E
G	I	I	V	C	O	P	L	P
L	C	R	Y	G	P	Y	E	P

GLAD
CHAIR
EAGLE
GENEROUS
CONTENT
FANTASTIC
JOY
POSITIVE
FLOOR

The words *chair*, *eagle* and *floor* are marked.

The size of the word-search puzzle will have to be large enough to hide the priming stimuli within it, but not so large that the employees become irritated completing it. It should take only a few minutes to complete the task itself.

8.1.3 Summary of Explicit Priming Proposal

Study 2 showed that an SST was effective in priming the employees at Nykredit. But an integration of the experimental design into a long-term solution is needed for it to be effective in the long run. The above proposal seeks to utilize the knowledge gained in study 2 in order to create a solution that allows for a long term SCP effect. With rotating tasks alongside pauses in the SCP effects, this implementation could have a very long run time. This run time could be further enhanced by switching to new tasks that are not proposed within this thesis. The task will just be required to provide an SCP effect.

Another way of understanding the explicit priming proposal is to utilize the proposed analogy of priming as a filter. The software program functions as a priming filter. By having employees interact with the software program each morning, the communication which comes after the interaction with the software program is filtered towards the desired concept, which will influence the behavior of the employees toward the desired concept.

8.1.3.1 Why Subliminal Priming falls Short

One of the issues with SCP is that employees need to be actively engaged with the priming stimuli. This requires an effort and time commitment from the employees' part. Subliminal priming does not have the same requirement for conscious engagement from the employees' side. It could be possible to hang a set of monitors showing images that would subliminal prime the employees toward the desired concept without them having to actively contribute their conscious attention. The problem with this sort of priming, besides the possible ethical issues, is that subliminal priming provides for a weaker effect than supraliminal priming. This occurs because the strength of a priming stimulus relies on the exposure time in which the priming stimulus is presented to the employee. A subliminal priming stimulus is only exposed for a very short amount a time, and employees are not consciously engaged with the priming stimuli. In supraliminal priming the employee is actively engaged with the priming stimulus and is also exposed for longer periods than subliminal priming. This provides for a stronger priming effect.

8.2 Immersive Priming

While the previous proposal of implementing priming used a software program that primed employees through the completion of three tasks, one to be completed each morning, the next proposed implementation of priming focuses on using already existing practices within the organization. Introducing a new software program, which has to be completed each morning, may be seen as a somewhat intrusive form of using priming in an organization. Below is an example of how to integrate priming into *a morning meeting* and a *goal setting meeting.*

An organization consists of many established practices i.e. *"the customary, habitual, or expected procedure or way of doing of something"* (Oxford dictionary) that are integrated into the organization towards a specific purpose. The term encompasses every habit and institutionalized

process in the organization. When examining a practice with the purpose of integrating a priming stimulus, it is important to first understand organizational practice.

8.2.1 Morning Meeting

In the case of a morning meeting, managers can communicate changes, new objectives and other important information to employees each morning. It provides a place for the management to communicate to a large group of employees instead of individuals. There lies an inherent potential to facilitate a priming stimuli and subsequent effect. No cover story is required, since it is already an established practice. A manager can incorporate a priming stimuli into his/her presentation each morning and therein prime the employees towards the desired priming effect.

A manager will create a presentation filled with words associated with the desired priming concept. Considering the concept of a positive mood, the presentation should contain words found in the SST applied in study 2. These words will be incorporated into the presentation. The manager will hold the morning meeting and put emphasis on these words. The employees will be engaged with listening and understanding the information given to them by the manager while their subconscious recognizes the underlying pattern in the priming stimuli. By repeating the process on subsequent morning meetings, the exposure time to the priming stimuli increases, which in turn strengthens the priming effect.

8.2.2 Goal Setting Meeting

Through the use of goal setting, a manager can enhance the productivity of an employee. This is done through setting goals and making sure these goals are *specific, measurable, achievable, realistic* and *time-based e.g.* SMART. By integrating the priming stimuli into the goal setting meeting, the manager can prime the desired concept, which in turn will enhance the effect of the goal setting process. By integrating the priming stimuli into a one-on-one conversation it is possible to specifically prime one individual instead of a whole group.

The process design is similar to that used in the morning meeting, but on a one-on-one basis whereas the morning meeting would be in groups. Another difference is that while a morning meeting in itself is not very specific in its purpose, a goal setting meeting will be focused on

specific goals and the defining of these goals. Priming can be used to enhance these goals by priming one or more aspects of the SMART goal method. These could include priming concepts found in the SMART goal method or concepts related to them. If the employee is known to have certain weaknesses within the SMART goal method, such as not being very specific or unusually vague, the manager can prime the concept of specificity to try to enhance the employee's attention towards being specific. This would be done by integrating words such as *precise, narrow, focused, defined, exact, specific, detail, concrete, meticulous, particular, correct* and *outlined* into the meeting. This can be done through using these vocally or written for the employee to see. The more synonyms related to the concept of specificity the more exposure there is and the more primed the employee will become.

If an employee was known to have unrealistic expectations towards their goals, an employee could be primed towards being realistic through synonyms revolving around the concept. These could include *rational, sensible, practical, sound, reasonable, sane, commonsense and levelheaded*. The priming stimuli would affect the employee towards a more realistic perspective.

Below is a list of synonyms related to each concept in the SMART goal method. These can be used as a way of priming the desired concept.

Concept	Synonyms
Specific	*Precise, narrow, focused, defined, exact, specific, detailed, concrete, meticulous, particular, correct, outlined*
Measurable	*Height, magnitude, ratio, share, size, volume, weight, amount, quota, amplitude, depth, dimension*
Achievable	*Accomplish, attain, manage, obtain, complete, conclude, do, reach, realize, resolve, settle, acquire, consummate*
Realistic	*Rational, sensible, practical, sound, reasonable, sane, commonsense, natural, true, levelheaded, reality*
Time-based	*Duration, interval, period, space, span, term, border, maximum, deadline, restriction, bound, confinement*

(Created by consulting a standard thesaurus)

8.2.3 Summary of Immersive Priming Proposal

By using already existing practices within the organization, the proposal seeks to use SCP to influence the behavior of employees through morning meetings and goal setting meetings.

As mentioned in the explicit priming proposal, immersive priming can be understood through the proposed filter analogy. The argument is that once a controlled framework for communications is established, all communication used within a morning meeting or goal setting meeting is filtered towards the desired concept. Certain words associated with the desired concept are allowed through the filter and certain words that are counterproductive for the desired concept are filtered away. By doing this some of the communication will become primed towards the desired concept. This

method is obviously very top-down since an executive decision on what concept to prime must be made. However, there is nothing stopping a group of employees from adapting a shared priming filter. This group of peers makes a decision to "talk like this" in order to steer associations towards the desired concept. An example would be to deliberate articulate concepts in a specific context or to ban the use of other words. This would make the executive decision become bottom-up. As a consequence, the priming stimuli would be conscious for all of the involved employees, and this shift forms the base argument of self-priming; a concept that will be introduced and explained later in the implementation proposal section. Employees could potentially customize their environment to facilitate the correct priming stimuli and subsequent priming effect.

8.3 Differences between Explicit and Immersive Priming

The main difference is one of intervention. An explicit priming stimuli, as defined by us, is much more transparent and intervening than an immersive priming stimuli. Intervening in that it is a new practice that will have to be implemented in order to drive the priming stimuli forward. The employees will be aware of the implementation and managers will have to deal with their reactions towards such new initiatives. In contrast, immersive priming, as defined by us, is less intervening in relation to the awareness of the employees. Since no new practices will have to be implemented, the disruption towards the employees is kept at a minimum.

Another difference apart from intervention is one of exposure time. When applying immersive priming, the exposure time will be subjected to the restraints of the practice it is integrated within. Be it a morning meeting or a manager/employee conversation, there are certain restraints that limit the use of a priming stimuli, for example a time frame or limited control over variables. A morning meeting can be a reoccurring practice, but a goal setting meeting is usually not. This affects the exposure time between a morning meeting and a goal setting meeting over time. In contrast, an explicit priming provides a much more controllable situation, since the manager has control over the new practice which will have to be implemented.

The knowledge gained from study 2 provides evidence that any form of communication serves as a potential priming opportunity. Essentially, this means that it requires a high level of skill from the managers' side to use the correct words to prime employees towards the desired concept. It is possible, but the managers' would have to gain the knowledge on priming and its mechanisms.

In relation to priming as an innovation strategy, immersive priming is inherently less disruptive than explicit priming since it utilizes already existing practices to introduce the priming stimuli, where explicit priming introduces the priming stimuli through a new initiative.

When talking about disruption in the organization it is important to note that the disruption is in relation to the elements disruptive for employees within the organization. The employees will feel an explicit priming initiative as more disruptive than an immersive priming integration. This is important to know, since it has consequences whether explicit or immersive priming should be chosen and to which degree. The software program implementation in the explicit priming proposal is a radical innovation strategy, as it greatly changes the process of the employee. Even though a two-minute extra task in the workday seems trivial, it rarely is. It could potentially change the employee's basic layout of the day, thus its presence will be felt for months. The coaching of the managers to use priming within their day-to-day communication, as examined in immersive priming, is an incremental innovation strategy. For example it would only add a small change to the basic layout of the customer service employees at Nykredit. There would be a radical change in managers' internal processes, however the focus lies on the employees. The reason for this is that it is the employees that uphold the company's core competence (Johnson et al., 2011). Also it is the employees that encompass and carry out the company's core business.

8.4 Self-Priming

Until now, the emphasis has been on understanding how priming can be used as a tool used by management in order to prime their employees. While the thesis has mainly focused on a top-down approach towards priming, the question arises whether individuals can prime themselves? If it is indeed possible for an individual to prime themselves, it would remove the need for management to initiate the priming stimuli, allowing the process to be more resource and energy efficient. Diving in theoretically, we will explore whether it is possible to self-prime and subsequently propose how such a concept can be integrated into an organizational setting. The ethical effects of going from priming others to self-priming is immense and will be touched upon in the section of ethical priming.

The point of most priming experiments is to establish that priming works by influencing the non-declarative memory, which is why great care has to be taken to ensure the participants are unaware of the predetermined priming effect. If the participants are aware of the predetermined priming

effect, the point of the experiment becomes disrupted, as a large amount of distortion is introduced by the participants' awareness, which would make it impossible to conclude that the behavioral change was a result of the priming. The consequence is that there are not a lot of experiments on priming where the initiator and the target of the priming effect is the same individual. However, in adopting this to a management model the previous constraints are lifted, seeing as the point is not to research the mechanisms of how priming works, but rather how to implement its effects. While this opens the process up to distortion it does not necessarily invalidate priming.

There is nothing in priming theory itself that indicates that it is not possible for individuals to prime themselves. There might be implications for certain methods of priming such as SCP. In the case of SCP, it would then follow that individuals priming themselves would be aware of the underlying pattern which would result in the priming no longer being supraliminal but completely conscious.

Another consequence of self-priming is that the employees themselves, not only the manager, will have to be aware of the stimuli affecting them. They will have to support priming stimuli that support themselves and the organization and filter away priming stimuli that are counterproductive to their own and the organization's objectives. By examining the interactions with colleagues and the employee's immediate environmental architecture they can gain a deeper understanding of the priming stimuli that affect them and potentially change them.

8.4.1 Nudging

Nudging describes the choice architecture that alters people's behavior in a predictable way without forbidding any options of choice or significantly changing their incentives. (Marteau, 2011). It is a form of behavioral change tool. It is usually displayed as a way to affect people towards a more positive behavior. Whether nudging students towards healthier lunch choices (Hanks et al, 2012), to exercise more or stop smoking and drinking (Marteau, 2011), nudging has become a buzzword.

In its basic form, nudging consists of one group who wishes to change the behavior of another group and therefore changes the architecture of a certain place to suit their desires. People with the power to change such architecture are called choice architects (Thaler & Sunstein, 2008). The architecture promotes a certain behavior through the use of a *nudge,* yet it does not take away the choice from the affected group but gently pushes them in a specific direction. The nudge operates

by activating the intuitive system without conscious knowledge and without activating the cognitive system to bypass the intuitive system (Jespersen & Hansen, 2012).

8.4.1.1 Interaction between the Intuitive and Cognitive System in Nudging

A nudge that has received a large visual attention in Denmark, is the painted footprints towards a trashcan. The reason for the footprints is fairly obvious, in the sense that they signal a certain behavior. The footprints are signaling the behavior of walking towards the trashcan. The question is why nudging still works, even when people know that they are being manipulated. Shouldn't people want to refrain from being manipulated, when they have the knowledge of such an influence being put upon them? The answer might lie in the interaction between the intuitive system and the cognitive system. The intuitive system is very fast and is the system that operates most of our everyday actions. The cognitive system is slow and has a limited ability to handle several actions at the same time, which is why many operations will be converted to the intuitive system after they have been made automatic through practice. The cognitive system is slow and effortful, but it also has an executive function. The executive function *"is the capability of interrupting Type 1 (the intuitive system) processing and suppressing its response tendencies. Type 2 (the cognitive system) processing thus involves inhibitory mechanisms of the type that have been the focus of recent work on executive functioning"* (West & Toplak, 2011). The executive function is a sort of veto right of the cognitive system to overwrite the intuitive system if needed. This is practical since situations might arise where the intuitive action is not the correct action. In cases where this is true, the cognitive system can overwrite the intuitive system and choose another course of action.

The intuitive system is so fast, and the cognitive system so slow, that even with the executive function is being utilized, the cognitive system will always be initiated after the intuitive system has started. Going back to the trashcan example, the argument is that the intuitive system will already have decided to walk towards the trashcan, before the cognitive system can utilize the executive function and stop the intuitive system. Since throwing trash in a trash can is not an undesirable action, and no better option is available, the executive function does not intervene.

The result is that the cognitive system is too slow to stop the intuitive system before it has already been activated, and even if the cognitive system has the ability to utilize the executive function, it will most likely not occur since throwing trash in a trashcan is not an undesirable action.

Since the intuitive and cognitive system functions in the same manner regarding priming, it is plausible to assume that the intuitive system will already have been affected by the priming stimuli before the cognitive system can intervene. Since the individual primes oneself, the cognitive system

should not use the executive function to intervene. The end result is that one should be able to prime oneself as it is both a desirable outcome and the intuitive system will be affected by the priming stimuli before the cognitive system can intervene.

The other way to examine the trashcan example is to view nudging as a way of engaging the cognitive system, the footprints could then be seen as a way of signaling to the cognitive system to engage and overwrite the intuitive system. If normal behavior is to throw trash on the ground, the footprints function as a nudge to engage the cognitive system and thereby think about where to throw trash. In this sense, the nudge is not only an activation of the intuitive system to operate in a certain way, but also to engage the cognitive system to think about where to throw trash.

The final effect is identical because people will either unconsciously throw trash in the trashcan or they will think about where to throw the trash and probably throw it in the trashcan anyway. This also supports the idea of self-priming, since engaging the cognitive system does not prevent the effect, since the effect is desirable. This furthers the argument that the individual realizing the priming effect does not stop the priming effect from occurring since it has a desirable outcome. Desirable, because the priming is of the individual's own making.

This indicates that it is indeed possible to prime/nudge yourself, but the actual effect is not completely understood yet. Further studies into the consequences of self-priming are needed to determine whether the strength of the priming effect is altered by priming yourself compared to being primed by others.

The line between what is considered nudging and what is considered priming then becomes very blurred. Blurred in the sense that they both have the ability to affect the behavior of individuals to some extent. One could argue that when priming becomes conscious and the underlying pattern of the priming stimuli becomes visible, it enters the area of nudging. To our knowledge there has yet to be made a clear divide between the two and further experiments are needed to determine whether they are part of the same memory system or different from each other. Since it is the implementation and not terminology of priming and nudging that is being focused upon, the question concerning the delimitation of priming from nudging becomes less important. If the effect of nudging and priming is documented, then it is usable by management standards.

8.4.2 How can the Employees Prime/Nudge Themselves?

Now that it is determined that it is plausible to prime/nudge oneself, the question then becomes how to implement such an effect in practice. We propose two suggestions of how self-priming can be implemented by using a smart phone as the media in which the priming stimulus is delivered to the individual.

Most individuals have locks on their phones that have to be unlocked before it is possible to access the phone. A program could be created that works as a lock/unlocking mechanism of the phone. In the proposed app, the standard locking feature of the phone is switched with a mirrored word task. The app would present one mirrored word each time an attempt to unlock the phone was initiated. The mirrored word task would be different each time an attempt to unlock the phone was made. The mirrored word is related to a concept the individual has decided he or she wants to prime. A database with synonyms related to the desired concept would be created within the app and utilized in the mirrored word task. By marking all the squares in the mirrored word task, the phone is unlocked. Since the original purpose of having a code on the phone is to protect it from others accessing it, the normal unlocking/locking mechanism should still be intact and be initiated after completing the mirrored word task. By unlocking the phone, a priming effect occurs. Each time an attempt to unlock the phone is initiated, the priming effect will become stronger through a higher level of exposure.

"App concept"

The implementation proposal above focuses on an application for a smart phone, but the main idea behind the application could potentially be extrapolated to other situations. An employee could implement a program on his or her computer that required them to complete a mirrored word task every time they tried to access their email or open the Internet browser. The number of ways in which to implement such a mechanism are great.

Another way to conduct self-priming could be through the use of mindset priming, which primes approaches rather than concepts. The advantages of utilizing mindset priming are that concepts that are too abstract for conceptual priming to prime can be primed through mindset priming.

8.4.2.1 Mindset Priming

Mindset priming works by priming the approach to a subject rather than concepts or traits as in conceptual priming. This can be done by reading or watching stories where an individual is approaching a problem in a certain way. By reading multiple stories related to the same approach the exposure to the priming stimuli is higher, which in turn increases the strength of the priming effect. This would prime the employee's approach when faced with a similar situation.

An employee could read stories about a clock builder building clocks. The clock builder in the story is very meticulous in building the clocks and he does so with great care and precision. The clock builder's approach to building clocks would prime the employee towards a more meticulous approach in his own work. By reading more stories of the same kind, the exposure time would go up and the approach will become more primed. This could potentially also be incorporated into an app, where the employee could put in an approach they desired to prime. A database with a number of very short stories would be attached to each approach available, whereby the employee would read a new short story daily revolving around the desired approach, priming the employee towards using such an approach in his or her own work. The number of stories read would mean a higher exposure, which would give a stronger priming effect.

8.5 Priming Organisations towards Synergy

Previous proposals have all been focused on priming employees to obtain a higher level of productivity. As such, many of the ideas presented earlier in the thesis aim to connect priming with management theory in relation to processes. The following section will take a step back to examine priming on a wider organizational scale and show that priming not only can facilitate a higher level of productivity but an overall organizational alignment. The VCI model allows us to examine priming effects in the organizational framework.

As exemplified by the model explained in the theory section, all three parts constitute the organizational identity. All of them are closely linked and exercise great influence on each other. This means that an investment in one area can have a large amount of spill-over into adjacent areas (Hatch & Schultz, 2008). This is beneficial when using priming to adjust misalignment between the three areas. The model itself is of little help to actually solve any of the misalignments, as the framework builds on the decisions the organization has made in the past and how these reflect on the future. This is where priming comes in. Where the original model comes with little help to solve any identified problem, priming can facilitate an alignment between vision, culture and image.

All three areas within the model interact with each other via respective agents within the organizations. It is often lapses in information between agents that causes misalignments (Hatch & Schultz, 2008), such as the internal marketing team failing to frame a new process in a way that aligns with the current vision. Or a marketing team promoting an internal process fails to express a delicate part of the culture within the organization, which leads to a stakeholder image misalignment. Such misalignments can be addressed by utilizing priming to close gaps.

The previous implementation proposals have been mostly top-down focused, in that it focuses on management controlling employees through behavioral changes, however when self-priming /

nudging is introduced this changes. It is known from conventional management theory that top-down management is not always ideal, and in some areas of business bottom-up is preferred (Steiber & Alänge, 2013). Culture is a big indicator of whether information can travel both top-down and bottom-up, as communication is a large part of culture (Hall & Hall, 1990). Because priming can change associations, it is possible that a priming stimuli can facilitate change within the culture. This means that by utilizing priming, top-down communication could potentially be primed as concepts or mindsets, to try to make them more bottom-up. In essence the organizational culture is continuously exposed to a priming stimuli in order to change behavior so that the primed concepts will appear bottom-up. As an example; if the organization desires to be more reactive in the sense that they want their employees to take action rather than being assigned tasks. A priming stimuli built around the concept of reactiveness could then actively change the behavior of the employee towards a more reactive state. Due to the behavioral changes coming from a tweak in associations, the behavioral change would be felt by the individual as being personal / coming from themselves, thus making the reactiveness seem bottom-up. However, as exposure over time increases there is an argument for a cultural shift so that the concepts and values being primed become intrinsic to the culture. When this happens a true bottom-up demand exists, as employees conforming to the concepts and mindsets primed will behave in line with the organizational vision and project these concepts and mindsets throughout the organizational culture.

As mentioned briefly above, there is a link between culture and communication, and due to this priming can be used as a form of organizational upkeep. What is meant by upkeep is the inherent regulatory behavioral effects in priming, as explained earlier and documented in study 2. The previous sections have argued that priming can be an active agent of chance, and examines how it can be used to change behavior. However priming is more diverse and its applications do not end there. As illustrated by the VCI model, organizational culture is a large contributor to a homogenous organizational identity. As touched upon earlier, priming can be used to solve misalignment between vision and culture by priming the vision of the employees, who are the main perpetrators of organizational culture. However, priming does not need to be used only to solve misalignments, it can readily be used to steady alignments. The sole application of priming within the organization is not that of a disrupting change agent, it is useful as an upkeep agent too.

By aligning culture and vision, the stakeholder image will automatically also become more aligned with culture and vision. By projecting a culture that is aligned with the vision the company gains credibility, which will affect the stakeholder image. If the vision the company desires is internalized into the organizational culture and projected into the stakeholder image, there should occur an

alignment between the three, which will strengthen the organizational identity. Priming can certainly help facilitate such a strengthening.

There is great potential for organizations to prime concepts and traits that align with their company vision and values. An organization that values honesty could prime the concept of honesty in their employees, which would ensure an alignment between the organizational values and those of their employees. The proposed implementation above could easily incorporate different concepts to suit the particular organizational needs and desires.

In Nykredit, they have four core values: *Insight, New thinking, Commitment* and *Empathy (*Nykredit.dk***).*** If Nykredit felt that their employees were not aligned with one or more of these values, priming could be used to align Nykredit's employees with the desired value and gain a higher level of synergy between core values and employees, or vision and culture as explained within the VCI-model. Employees can be primed towards the organizational vision, but they can potentially do so themselves by self-priming through one of the implementations mentioned earlier. This would help resolve alignment issues within the organization while minimizing the resources management would have to use on priming their employees.

8.6 Ending Remarks on Implementations Proposals

The implementation proposal that has been laid out above is to provide management with potential ideas on how to implement priming within the organization. The ideas can be further developed and enhanced. Each idea can also be combined to support each other and the needs of the specific organization; an organization that desires to affect their employees bottom-up would prefer a priming filter with a high focus on self-priming rather than a focus on top-down priming. Another organization that works with computers could implement an explicit priming method through a software program. A third organization could utilize immersive priming and integrate the priming filter into one or more of their already established practices. By utilizing more than one priming method the exposure will be higher and the effect stronger. Priming can also be used to create alignment within the organization by aligning vision, culture and image. There might come a time when every organization will have a specific priming profile tailored to suit their specific needs.

9 Discussion

The central basis of theories pertaining the ability to influence employees are that they are based on the ability to consciously control and regulate employee behavior, yet findings from neuroscience suggest that the individuals are influenced by many unconscious factors. This raises questions revolving the ability to control and regulate behavior. If indeed behavior can be influenced by unconscious factors, would an attempt to consciously control the behavior of individuals not be distorted by the same unconscious factors? Furthermore, if it is possible to influence the behavior of individuals, how can these unconscious factors be used to influence individuals within the organization?

The findings generated from this paper seem to show that not only is behavior able to be controlled and regulated through unconscious means, but that such unconscious factors to control and regulate behavior consistently are able to be implemented within the organization, without conscious awareness from employees.

The findings of our two studies show that priming is able to be used to unconsciously influence employee productivity within the organization. This is done by controlling and regulating the unconscious factors that affect the behavior of the employee. However, as presented in study 1 it is possible to prime employees towards both a negative mood and a positive mood. The control and regulation of the unconscious factors is two-fold; support and encourage beneficial factors and control and diminish factors that are not beneficial. This basically means that it is important to influence employee behavior with positive priming and away from negative priming. Since each stimulus presented to an employee has the potential to influence their associations, each stimulus becomes a potential priming effect. Naturally, it is impossible to control and regulate each stimulus an employee is faced with. However, by being aware of the fact that employees are constantly influenced unconsciously provides management with valuable knowledge and an opportunity to influence the behavior of their employees, such as seen with the use of goal setting theory within our implementation proposal. By encouraging concepts that exist within the SMART method, priming that is beneficial for the achieving of a goal is encouraged. Also, by encouraging beneficial priming stimulus negative priming stimuli will automatically diminish. This can be further facilitated by actively analyzing and finding counterproductive priming stimulus and removing these. As seen in the implementation proposal on goal setting meeting, using synonyms with the word *achievable* such as accomplish, attain, and manage and so on, will provide a beneficial priming effect where the employee becomes more focused on something being achievable.

Removing counterproductive priming stimulus would be to remove synonyms relating to the opposite, which would be synonyms related to unachievable. By doing so, beneficial priming is encouraged and counterproductive priming stimulus that are not are found and removed.

Managers must be aware of the way they communicate and interact with their employees and what message the environmental architecture of the organization unconsciously conveys to the employees. Talking nicely to the employees or using positive words does have an impact on their behavior. It will prime the employees towards a positive mood, which will boost their productivity. The same occurs if negative words are used to communicate with employees, whereby negative moods will become primed, which may lead to lowered productivity.

It is difficult to determine what the correct environmental architecture is, since it relates to the priming effect desired. Yet it makes sense that one should not have employees sit in a small, dark and windowless place if the organization's key focus lies in transparency, openness and honesty. While most of the priming stimuli within this thesis are focused on finding word synonyms with the desired priming concept, it seems plausible that visual synonyms could also work as priming stimuli. In such, an organization that focuses on transparency and openness should create an environment that enhances this view. While conducting study 2 in Nykredit we observed that they had depicted a marathon runner finishing a race on a wall in their environment. We do not know the reason for the depiction, but it is plausible to believe that it was intended to motivate employees. Yet such obvious motivational stimuli may be too heavy-handed. If employees are aware of the purpose behind the motivational stimuli, it may be counterproductive, as the employees could potentially feel manipulated with. It is important to create an environment that includes beneficial priming stimuli, yet as we know from the theory on priming, these stimuli have to be below the awareness threshold to be effective.

Not only visual stimuli but also sound, smell, touch and taste could potentially be applied within the choice architecture of an organization. In theory all of the human senses could be used to foster beneficial priming stimuli and diminish counterproductive stimuli. This is already seen within marketing where organizations not only have a brand, but also an audio brand (Minsky & Fahey, 2014) and a scent brand (Hultén, 2011). Such methods could potentially be utilized within the area of controlling and influencing employees, as it is already employed within controlling and influencing customers.

By analyzing these different behavioral and architectural sources of influence, the manager can achieve a deeper understanding of the priming stimuli that influence his or her employees and potentially the ability to alter them. As seen in the implementation proposal within this thesis it is possible to implement or integrate priming stimuli within the communication, as explicit and immersive priming. This would require a potential manager to have a deep understanding of the unconscious factors that affect employees and the knowledge to effectively alter these to suit the needs of the organization.

Measuring is always a relation between what you are measuring and the method by which you are measuring. Therefore one has to consider what to measure and what to measure against. Herein lies the problem with measuring priming in an organization. Both priming and the nature of an organization give rise to a number of complications for the measurement of these entities.

As explained in the section on the theory of priming, priming works by triggering associations in the individual's brain, which will reduce the energy needed to perform the same association again (Ramsøy, 2013). The consequences are that the action of triggering the same pathways in the brain becomes easier, since the energy needed to activate them is lower. One of the issues with measuring priming is the fact that it is impossible to accurately predict the precise pattern of association. As explained earlier, the color red will trigger a different set of associations for one person and a different set of associations for another. One way to combat this subjectivity is to apply concepts that have generally accepted terminologies related to them. As explained earlier, the color red is very vague in what it relates to. It could be Coca Cola, Santa Claus or the devil. Therefore it is more prudent to use concepts most people agree upon. One of these could be the one which we have applied in the thesis, namely positive mood. While an individual might associate the color red with the devil, Santa Claus or something third, a positive mood is very clear in what it relates to but at the same time sufficiently broad. Therefore individuals' associations will tend to be similar or only slightly different. This provides a much better foundation when you need to measure the results at the other end. If you can, with a certain degree of safety, know which association is made then you can also know what will come out at the other end. Using a concept is preferable since it provides for a more standardization of the associations to be expected. This in turn narrows the possible results variations since every individual will associate in, if not the same, almost the same way. The results of such associations when applied in a priming experiment will be more closely related to the expected result than if a concept was not used. This is one of the benefits of conceptual priming.

9.1 Is Priming Ethical?

To manipulate something is to control or influence (a person or situation) cleverly or unscrupulously (Definition, 2014). To cleverly manage does not necessarily imply a malignant intent. Therefore this definition of manipulation is not dependent on the intention of the manipulator. The consequence is that every action where an individual controls or influences another individual with any purpose is considered to be manipulation. *"Priming to influence behavior will by its very nature likely be an instance of manipulation, given that the use of subconscious cues to motivate behavior inherently involves a side-stepping of a person's reasoning capabilities" (Barby & Burroughs, 2012).*

Barby & Burroughs also writes that *"The manipulation can be justified if a careful consideration shows that the benefits outweigh the risks, and if an explanation can be offered for why priming is being used instead of rational argument can be offered"* (Barby & Burroughs, 2012). Barby & Burroughs formulated these ideas into 3 ethical relevant considerations. These considerations work as a guide when scrutinizing the ethical stability of a priming tool. They are:

- Whether priming is done for good and evidence-based ends; Whether it is fairly easy for people to go in a direction other than the one in which they are primed and; Whether there is justification for using subconscious priming instead of rational argument

(Barby & Burroughs, 2012)

The priming effect applied in study 2 shows that employees performed better over longer periods of time and displayed signs of increased happiness resulting in less stressed, anxious and more creative employees. These attributes seem to suggest that positive priming leads to signs of increased productivity. This provides evidence that priming can improve employee well-being while simultaneously increase productivity, which benefits the organization. In this sense, priming is done for good and evidence-based ends.

It lies in the nature of priming, as with nudging, that primed individuals always have a choice. Priming is not brainwashing in the sense that it takes away free will, but it does affect the decision making process of an individual, making the individual more likely to behave and take action in a certain way. When primed with a positive mood, the statistical chance that an individual will act in

a positive manner goes up, but this does not implicate a removal of free will. The individual always has the option to do as they wish and act according to their own desire.

If employees were told to become happier or be in a more positive mood, they would very likely resist such obvious manipulation. The strength of priming is that it bypasses the resistance of the conscious mind by engaging the conscious mind with seemingly trivial matters while it affects the unconscious mind. Yet these trivial matters still revolve around the desired priming concept. Our argument is that telling employees to become happier will lead to a poorer result than priming the concept of a positive mood.

There is a large number of benefits for both the employees and the organization. These benefits outweigh the risks of utilizing conceptual priming to influence people, at least when priming positive concepts. Priming does not remove free will in primed subjects and they always have the option to choose as they desire. A rational argument would not provide the same effectiveness as a priming effect could potentially have.

Through the definition set forth by Barby & Burroughs, priming is justifiable as a way to influence behavior, even though priming is considered a form of manipulation.

9.1.1 Self-Priming

In the previous section, the discussion revolving the ethical dilemmas of priming has focused on situations where one group influences another group through priming. When discussing self-priming the ethical dilemmas change drastically. The whole ethical dilemma revolving priming is situated in the notion of one individual affecting another individual against their will or at least without their consent. Self-priming removes this relationship since it is now the individuals influencing themselves through priming, effectively removing any ethical issues. This gives self-priming a huge advantage over other forms of priming, since it fosters an openness and transparency that priming lacks due to its nature.

10 Conclusion

In the beginning of the thesis 5 criteria for priming's viability as a managerial tool were stipulated. The conclusion will begin by examining these criteria to see if they have been met, in order to establish an answer to our research question and find out whether the hypothesis is valid. Afterwards an overall conclusion will conclude on the thesis as a whole.

Priming is Well Documented

As the theory section provides an ample amount of documentation for priming, we consider this to be a valid documentation for priming's use as a managerial tool. This documentation provides both psychological and biological validation for priming as a managerial tool. We have carefully laid out both the strength and weaknesses associated with the nature of priming and tried to rectify the critique leveled against priming.

It is important to note that this validation is in a strictly scientific perspective. The scientific research and documentation for priming is deemed to be sound enough to provide legitimacy for priming as a managerial tool. This is not an argument that priming can or should be used as a managerial tool in an organization or that it is practical to do so. Only that the scientific documentation of priming is valid enough to support its use.

Priming Effects are Measurable

The fact that the priming effects within study 2 was measured adequately provides documentation for the ability to measure priming effects. In addition, the theory on priming suggests that there is nothing intrinsic to priming that makes priming effects unmeasurable. The effects of priming often have varying degrees of strength, which makes the measurement tricky, but not impossible. Priming does need a highly data transparent company for it to be measurable and employees willing to maintain data discipline.

Priming is able to Influence Employees

The two studies conducted within this thesis provide enough data for the validation of priming's ability to influence individuals and employees. The results in study 1 & 2 show that individuals and employees were influenced by the priming stimuli. Both studies concur with a large body of previous research that priming can effectively influence behavior unconsciously.

Priming influences employees by slightly altering the associations that an employee has by subjecting them to a priming stimulus. This priming stimulus revolves around a desired concept that will direct the employee by reducing the energy needed to perform and raise the likelihood that the employee will make the same association again. This happens unconsciously.

Priming is Practical to Implement within the Organization

As shown in study 2, priming *can* influence employees within the organization. In addition it was done with fairly limited resources. Study 1 adds to the argument that priming can be done low tech, low cost and with limited supply of time.

The implementation proposal within the thesis provides evidence that it is easy to implement priming within the organization. Even though the implementation proposals are not fully fledged ideas and are only suggestions of implementation, they still show that utilizing priming within the organization is a viable option for influencing the behavior of employees unconsciously. The proposals provide different ways of implementation that all require limited resources in their approach and are built on few assumptions, as they use priming as an intangible asset.

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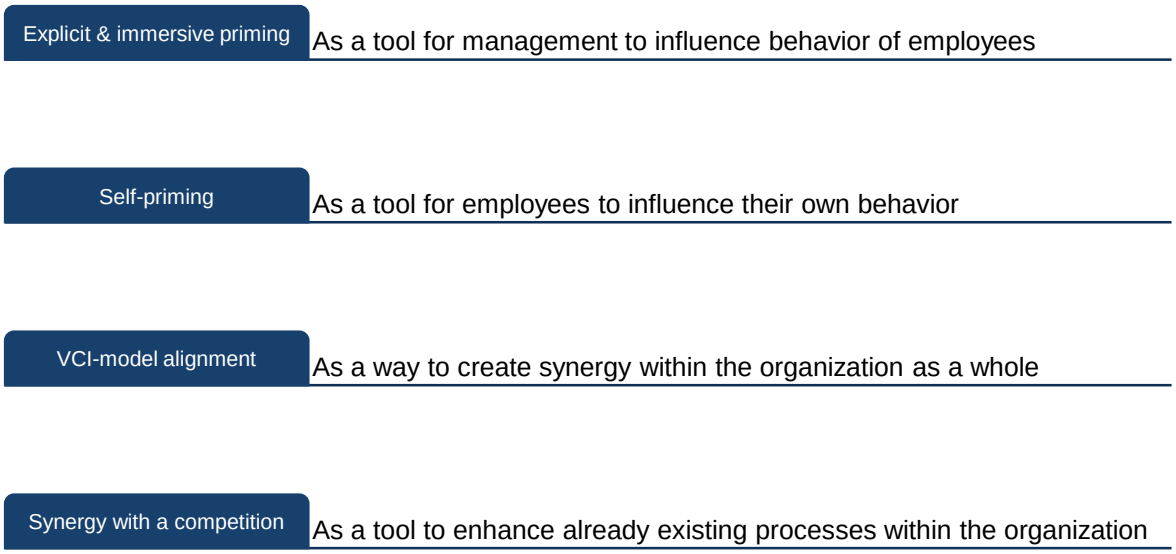
Priming adds Value to the Organization

In study 2 it was shown that priming effects does have the ability to influence the behavior of employees. This influence was shown to affect the productivity of the employees through a higher positive mood, which will benefit the organization and add value to it.

Through these findings in conjunction with the literature on priming, we discovered four ways in which priming can benefit the organization. These are:



Management's ability to influence their employees through priming provides them with a method of directing their employees towards specific focus areas. By priming employees the management can direct, boost and focus employees' effort and productivity. This can be done with fairly limited resources but requires the management to tackle the obstacle of unconsciousness, priming beforehand and integrating the priming into the architecture of the organization.

By utilizing self-priming employees can enhance their own productivity by priming areas of their choosing. An employee can do so without any top-down control of management, which frees up time for management to focus their efforts on other areas. By self-priming the obstacle of unconsciousness is removed. The priming still has to occur beforehand and be integrated into the employees' day.

Priming has a large amount of potential to create synergy effects across the organization. This was shown through our analysis of the VCI-model. Alignment between employees and the organizational values can be created by priming employees towards these. Not to mention its use as an "organization upkeep" as priming can help maintain alignments within different parameters of the organization.

Priming can also be utilized in conjunction with other initiatives within the organization, such as competitions, to boost the potential value gained from these. In this sense priming functions as a catalyst, an enhancer of other initiatives, which is also in line with the idea of priming as an intangible asset.

Priming is Viable as a Managerial Tool

Through the studies conducted within this thesis in conjunction with the literature on priming, the 5 criteria have been analyzed and discussed. Each criterion has been found to be valid enough to be applied within an organization. This conforms to the hypothesis that was set forth in the beginning of the thesis. Priming is viable as a managerial tool and has the characteristics needed to function as such.

10.1 Overall Conclusion

The purpose of the thesis was to examine how priming can unconsciously influence the behavior of employees and how these mechanisms can be implemented into the organization to achieve a higher level of productivity. This was stated within our research question:

"*How can priming be used to unconsciously influence the productivity of individuals within the organization?"*

Priming can be used to unconsciously influence the productivity of individuals within the organization by utilizing priming as a managerial tool. This is done by utilizing either an explicit priming strategy where the priming stimuli is inserted into the organization through a new practice, or an immersive priming strategy where the priming stimuli is inserted into the organization through already established practices. Whether to choose an explicit or immersive priming strategy depends on the requirements and characteristics of the organization in question. Employees can also influence their own behavior through self-priming but the consequences of this have yet to be fully understood.

It was further shown that priming can facilitate synergy within the organization by closing gaps between vision, culture and image. A better alignment within the organization would certainly provide consequences that benefit all of the organization, including productivity.

Overall our hypothesis has been proven to be true. Priming *can* function as a managerial tool. The research question has been answered and concluded upon. This thesis concludes that priming has potential to be of use for an organization. Further research is needed in the area of priming to discover all the ways in which priming can benefit the organization, but this thesis has tried to lay out the possibilities and show that priming is a valuable and inexpensive tool that can add value to the organization.

11 Implications and Further Research

Our thesis proposes a radical new way of understanding and utilizing neuroscience within the organization. In this thesis we have shown the capabilities of priming to unconsciously influence people. We have shown that it is possible to utilize priming to influence the mood of employees and provided some concrete suggestions of how this can be implemented within the organization.

The biggest implication for management following the introduction of priming is that management will have to become aware of the unregulated priming effects that occur throughout the organization. As discussed earlier, every word spoken, every action taken, every process carried out and every other form of communication is a potential priming stimulus that influences employees and their response to later situations. Simply being aware of this fact will provide managers with insight and opportunities to influence their employees, which was previously obscured from them. Individuals are affected by their surroundings, but priming provides management with a sound scientific reason for why the stimulus presented in the environment of the employee is important. With this knowledge management can better analyze and understand what motivates and influences the behavior of their employees. Similarly, the introduction of priming can be used as a stepping stone in further research to examine how other concepts different from a positive mood influences behavior and productivity.

Our thesis strengthens the ties between management and neuroscience and sets up the foundation for further research on neuromanagement. It shows that there is still much to learn by researching neuromanagement and that it is a field worthy of attention by researchers. The unconscious influences that affect the decision-making of employees and the mechanisms that guide these will be of great importance in taking the next step in understanding and utilizing neuroscience within management. This thesis is also a small step towards thinking of the unconscious as a resource.

This thesis functions as an initial research into how to utilize priming within the organization. Our proposed implementation suggestions should function as templates for how priming could potentially be implemented within an organization. This is by no means a complete guide to the implementation of priming into an organization. Further research is required on how priming interacts with other departments within an organization. There is also a need for further research on other methods of priming and the consequences of using these within an organization. The consequences of using pen and paper within the SST compared to a digital version is also something that will have to be examined before implementing it within an organization. The research on how priming can be utilized by employees themselves, in what we have described as self-priming, still needs to be thoroughly researched and studied. This thesis has tried to utilize the prevailing theory to logically suggest how self-priming potentially works, but it needs supporting research and testing before anything can be concluded upon. The connection between what defines a nudging effect and a priming effect will also have to be further researched upon.

12 References

Baars, B. J., Franklin, S., & Ramsøy, T. Z. (2013). Global Workspace Dynamics: Cortical "Binding and Propagation" Enables Conscious Contents. *Frontiers in Psychology*, *4*.

Baars, B. J., & Gage, N. M. (2013). *Fundamentals of cognitive neuroscience: a beginner's guide.* Amsterdam: Academic Press.

Baars, B. J., Ramsøy, T. Z., & Laureys, S. (2003). Brain, conscious experience and the observing self. *Trends in Neurosciences*, *26*(12), 671-675.

Bargh, J. A., & Chartrand, T. L. (2000). *Studying the Mind in the Middle: A Practical Guide to Priming and Automaticity Research.* Handbook of Research Methods in Social Psychology.

Barney, J. B., Wright, M., & Ketchen, D. J. (2001). *The resource-based view of the firm: ten years after 1991.* New York, NY: Pergamon.

Bogue, R. L. (2005, April 25). *Use S.M.A.R.T. goals to launch management by objectives plan.* TechRepublic. Retrieved February 23, 2014, from http://www.techrepublic.com/article/use-smart-goals-to-launch-management-by-objectives-plan/

Bryman, A., & Bell, E. (2011). *Business research methods* (3rd ed.). Cambridge. Oxford University Press.

Case Study #1: *Innovation - The Candle Problem.* (n.d.). Asset. Retrieved March 1, 2014, from http://2012e.igem.org/Team:Arizona_State_E/Candle

Chartrand, T. L., & Bargh, J. A. (1996). *Automatic activation of impression formation and memorization goals: Nonconscious goal priming reproduces effects of explicit task instructions.* Journal of Personality and Social Psychology.

Chartrand, T. L., van Baaren, R. B., & Bargh, J. A. (2006). *Linking Automatic Evaluation to Mood and Information Processing Style: Consequences for Experienced Affect, Impression Formation,*

and Stereotyping. Journal of Experimental Psychology.

Clegg, S. (2011). *Strategy: theory & practice* (1. publ. ed.). Los Angeles, California. Sage.

Coffey, J. O. (2009, July 1). Why Happy Employees Determine Your Success. *Executive Travel.* Retrieved February 21, 2014, from http://www.executivetravelmagazine.com/articles/why-happy-employees-determine-your-success

Connolly, J., & Viswesvaran, C. (2000). *The role of activity in job satisfaction: a meta-analysis*. Psychology Department, Florida International University, Miami.

Costin, F. (1969). *The Scrambled Sentence Test: a Group Measure of Hostility*. Educational and Psychological Measurement.

Definition of practice in English. (2014). *Practice: definition of practice in Oxford dictionary (British & World English)*. Retrieved February 23, 2014, from http://www.oxforddictionaries.com/definition/english/practice

Diener, E., & Biswar-Diener, R. (2002). Will Money Increase Subjective Well-being? Published by Springer.

Dooley, R. (2006). *Priming the Customer*. Neuromarketing RSS. Retrieved March 1, 2014, from http://www.neurosciencemarketing.com/blog/articles/priming-the-customer.htm

Dooley, R. (2007, March 1). *Priming by Order*. Neuromarketing RSS. Retrieved February 23, 2014, from http://www.neurosciencemarketing.com/blog/articles/priming-by-order.htm

Drahota, A., Costall, A., & Reddy, V. (2008). *The vocal communication of different kinds of smile*. Speech Communication.

Guay, F., Chanal, J., Ratelle, C. F., Marsh, H. W., Larose, S., & Boivin, M. (2010). *Intrinsic, identified, and controlled types of motivation for school subjects in young elementary school children.* British Journal of Educational Psychology.

GUI. (n.d.). *Dictionary.com*. Retrieved February 23, 2014, from http://dictionary.reference.com/browse/GUI

Glimcher, P., Camerer, C., Fehr, E., & Poldrack, R. (2009). *The Study of Emotion in Neuroeconomics: Decision Making and the Brain* (p. 233). London. Elsevier.

Guba, E. G. (1990). *The Paradigm dialog*. Newbury Park, California. Sage Publications.

Hall, E. T., & Hall, M. R. (1990). Key concepts: *Underlying structures of culture. Understanding cultural differences* (p. 199). Yarmouth, Me.: Intercultural Press.

Hamann, S. B., & Squire, L. R. (1997). *Intact perceptual memory in the absence of conscious memory*. Behavioral Neuroscience.

Hanks, A. S., Just, D. R., Smith, L. E., & Wansink, B. (2012). *Healthy convenience: nudging students toward healthier choices in the lunchroom*. Journal of Public Health.

Hatch, M. J., & Schultz, M. (2008). *Taking brand initiative how companies can align strategy, culture, and identity through corporate branding*. San Francisco. Jossey-Bass.

Higgins, E., & Chaires, W. M. (1980). *Accessibility of interrelational constructs: Implications for stimulus encoding and creativity*. Journal of Experimental Social Psychology.

Higgins, E. T., Rholes, W. S., & Jones, C. R. (1977). *Category Accessibility and Impression Formation*. Journal of Experimental Social Psychology.

Hull, C. L. (1943). *Principles of behavior, an introduction to behavior theory*. New York, London: D. Appleton-Century Company, incorporated.

Hultén, B. (2011). *Sensory marketing: the multi-sensory brand-experience concept. European Business Review,23(3).*

Jespersen, A., & Hansen, P. (n.d.). *Nudge theory: The mechanics of the brain. iNudgeYou RSS*. Retrieved March 13, 2014, from http://www.inudgeyou.com/nudge-theory-the-mechanics-of-the-brain/

Johnson, G., Scholes, K., & Whittington, R. (2011). *Exploring Corporate Strategy.* (9th ed.). Harlow: Financial Times Prentice Hall.

Jonassen, D. H. (1991). *Objectivism versus constructivism: Do we need a new philosophical paradigm?* Educational Technology Research and Development.

Kahneman, D. (2012, September 26). *A proposal to deal with questions about priming effects.* Retrieved March 1, 2014, from http://www.nature.com/polopoly_fs/7.6716.1349271308!/suppinfoFile/Kahneman%20Letter.pdf

Kahneman, D. (2003). *A Perspective on Judgment and Choice: Mapping Bounded Rationality.* American Psychologist.

Kaplan, R. S., & Norton, D. P. (2004). *Strategy maps: converting intangible assets into tangible outcomes.* Boston. Harvard Business School Press.

Koivumaa-Honkanen, H., Koskenvuo, M., Honkanen, R. J., Viinamki, H., Heikkil, K., & Kaprio, J. (1999). *Life dissatisfaction and subsequent work disability in an 11-year follow-up.* Psychological Medicine,34(2), 221-228.

Lashley, K. S., & Jeffress, L. A. (1951). *The problem of serial order in behavior.* Pasadena. California Institute of Technology.

Levy, D., Stark, C., & Squire, L. (2004). *Intact Conceptual Priming in the Absence of Declarative Memory.* Psychological Science, *15*(10), 680-686.

Locke, E. A., & Latham, G. P. (2002). New Directions in Goal-Setting Theory. *Current Directions in Psychological Science.*

Locke, E. A., Shaw, K. N., Saari, L. M., & Latham, G. P. (1981). *Goal Setting and Task Performance: 1969-1980.* Ft. Belvoir. Defense Technical Information Center.

Malone, J. C. (1990). *Theories of Learning - A historical approach.* Belmont, California. Wadsworth

Publishing Company.

Marteau, T. (2011). *Judging nudging: can nudging improve population health?* BMJ, 342, 263-265.

Matthews, G., Jones, D. M., & Chamberlain, A. G. (1990). Refining the measurement of mood: The UWIST Mood Adjective Checklist. *British Journal of Psychology, 81*(1), 17-42.

Milner, B., Squire, L. R., & Kandel, E. R. (1998). *Cognitive Neuroscience and the Study of Memory.* Neuron, 20(3), 445-468.

Minsky, L., & Fahey, C. (2014, February 7). *What does your brand sound like?* HBR Blog Network. *Harvard Business Review.* Retrieved March 13, 2014, from http://blogs.hbr.org/2014/02/what-does-your-brand-sound-like/

Owen, A. M., Hampshire, A., Grahn, J. A., Stenton, R., Dajani, S., Burns, A. S., et al. (2010). *Putting Brain Training to the Test.* Nature.

Pathirana, S. (2012, October 2). *Laugh Track. Qi Creative.* Retrieved March 19, 2014, from http://www.qicreative.com/laugh-track/

Poldrack, R. (2006). *Can Cognitive Processes Be Inferred From Neuroimaging Data?* Trends in Cognitive Sciences, 10(2), 59-63.

Rokade, D. P. (2011). *Release of Endomorphin Hormone and Its Effects on Our Body and Moods: A Review.* International Conference on Chemical, Biological and Environment Sciences.

Santos, M. (n.d.). *Simple Maths in a Complex Brain: the probability of two equal states of mind.* Retrieved February 23, 2014, from http://jcienciascognitivas.home.sapo.pt/06-01_vieira.html

Scanlon, S. (2014). How to Use Priming in Social Media. You Brand Inc. Retrieved March 1, 2014, from http://www.youbrandinc.com/social-media/how-to-use-priming-in-social-media/

Schacter, D. L., & Tulving, E. (1994).*Memory systems 1994.* Cambridge, Mass.: MIT Press.

Schinnerer, J. L. (2006). *Guide to self: the beginner's guide to managing emotion and thought.*

Bloomington, Ind.: AuthorHouse.

Schorn, R., & Maurhart, B. (2009). *Influencing willingness to pay by supraliminally priming the concept of honesty*. Association for Consumer Research.

Segal, S. J., & Cofer, C. N. (1960). *The effect of recency and recall on word association.* American Psychologist, page 451.

Shantz, A., & Latham, G. P. (2009). *An exploratory fi eld experiment of the effect of subconscious and conscious goals on employee performance*. Elsevier.

Skinner, B. F. (1953). *Science and human behavior*. New York: Macmillan.

Springs, M. (2013, November 14). Why Happy Employees Are Your Key to Successful Branding. *Entrepreneur*. Retrieved February 23, 2014, from http://www.entrepreneur.com/article/229924

Squire, L. (2004). *Memory Systems of the Brain: A Brief History and Current Perspective.* Neurobiology of Learning and Memory, 82(3), 171-177.

Srull, T. K., & Wyer, R. S. (1979). *The Role of Category Accessibility in the Interpretation of Information about Persons: Some Determinants and Implications.* Journal of Personality and Social Psychology.

Steiber, A., & Alänge, S. (2013). A corporate system for continuous innovation: the case of Google Inc. *European Journal of Innovation Management, 16*(2), 243-264.

Storms, L. H. (1958). *Apparent backward association: A situational effect.* Journal of Experimental Psychology.

Thaler, R. H., & Sunstein, C. R. (2008). *Nudge: improving decisions about health, wealth, and happiness.* New Haven, Conn.: Yale University Press.

Tolman, E. C. (1948). *Cognitive Maps in Rats and Men.* Psychological Review.

West, R. F., & Toplak, M. E. (2011). *Individual differences as essential components of heuristics and*

biases research. Psychology Press.

Wiggs, C. L., & Martin, A. (1998). *Properties and mechanisms of perceptual priming*. Current Opinion in Neurobiology.

Wilson, T. D., & Capitman, J. A. (1982). *Effects of Script Availability on Social Behavior*. Personality and Social Psychology Bulletin, 8(1), 11-19.

Wright, T. A., & Staw, B. M. (1999). Affect and favorable work outcomes: two longitudinal tests of the happy-productive worker thesis. Journal of Organizational Behavior, 20(1), 1-23.

Yong, E. (2012). *Replication studies: Bad copy*. Retrieved February 23, 2014, from http://www.nature.com/news/replication-studies-bad-copy-1.10634

13 Appendix

13.1 Appendix 1

Language experiment (positive priming)

The experiment is divided into two parts.

Firstly you will solve a Scrambled Sentence Test.

Next you will fill out a second test.

There is written instructions at each part of the experiment.

At the end of the experiment is a questionnaire which we want you to fill out.

Throughout the experiment, it is not permitted to ask questions. So if you have any doubt about any element of the test or meaning of a word, just try to solve it to the best of your abilities.

Thank you for participating.

Sex:

Age:

Date:

Log number:

Part 1

Scrambled Sentence Test

Instructions: For each set of words below, make a grammatical four word sentence and write it down in the space provided.

Example:

big have jump paws tigers _____Tigers have big paws_____

1 satisfaction work him up gave _____

2 very there smiling contagious is _____

3 great turn felt he pleasure _____

4 box move the will please _____

5 felt ease money they at _____

6 there instant do was relief _____

7 to above happiness travel is _____

8 my relaxed upon muscles are _____

9 important very jump health is _____

10 fall apple the more fast _____

11 her content he always was _____

12 made it good was fortune _____

13 very handle woke rested she _____

14 is important made warmth very _____

15 flow demand good was the _____

Part 2

Instructions:

Below is a group of words. Each word have 4 options, VV, V, ? and no. The options are explained below. Complete to the best of your abilities.

relaxed (VV) V ? no. (This means you definitely feel relaxed at the moment.)

If the word only slightly applies to your feelings at the moment, circle the single check v as follows:

relaxed VV (V) ? no. (This means you feel slightly relaxed at the moment.)

If the word is not clear to you or you cannot decide whether or not it applies to your feelings at the moment, circle the question mark as follows:

relaxed VV V (?) no. (This means you cannot decide whether you are relaxed or not.)

If you definitely decide the word does not apply to your feelings at the moment, circle the no as follows:

relaxed VV V ? (no) (This means you are definitely not relaxed at the moment.)

Angry	**VV**	**V**	**?**	**no**
Clutched up	**VV**	**V**	**?**	**no**
Carefree	**VV**	**V**	**?**	**no**
Elated	**VV**	**V**	**?**	**no**
Concentrating	**VV**	**V**	**?**	**no**
Drowsy	**VV**	**V**	**?**	**no**
Affectionate	**VV**	**V**	**?**	**no**
Regretful	**VV**	**V**	**?**	**no**
Dubious	**VV**	**V**	**?**	**no**
Boastful	**VV**	**V**	**?**	**no**
Active	**VV**	**V**	**?**	**no**
Defiant	**VV**	**V**	**?**	**no**
Fearful	**VV**	**V**	**?**	**no**

Playful	**VV**	**V**	**?**	**no**
Overjoyed	**VV**	**V**	**?**	**no**
Engaged in thought	**VV**	**V**	**?**	**no**
Sluggish	**VV**	**V**	**?**	**no**
Kindly	**VV**	**V**	**?**	**no**
Sad	**VV**	**V**	**?**	**no**
Skeptical	**VV**	**V**	**?**	**no**
Egoistic	**VV**	**V**	**?**	**no**
Energetic	**VV**	**V**	**?**	**no**
Rebellious	**VV**	**V**	**?**	**no**
Jittery	**VV**	**V**	**?**	**n**
Witty	**VV**	**V**	**?**	**no**
Pleased	**VV**	**V**	**?**	**no**
Intent	**VV**	**V**	**?**	**no**
Tired	**VV**	**V**	**?**	**no**
Warmhearted	**VV**	**V**	**?**	**no**
Sorry	**VV**	**V**	**?**	**no**
Suspicious	**VV**	**V**	**?**	**no**
Self-centered	**VV**	**V**	**?**	**no**
Vigorous	**VV**	**V**	**?**	**no**

Questionnaire

Instructions: Answer the questions to the best of your abilities.

6 What do you think the purpose of this experiment was?

7 What do you think this experiment was trying to study?

8 Did you think that any of the tasks you did were related in any way?
8.1 (If "yes") In what way were they related?

9 Did anything you did on one task affect what you did on any other task?
9.1 (If "yes") How exactly did it affect you?

10 When you were completing the scrambled sentence test, did you notice anything unusual about the words?

11 Did you notice any particular pattern or theme to the words that were included in the scrambled sentence test?

Language experiment (Negative priming)

The experiment is divided into two parts.

Firstly you will solve a Scrambled Sentence Test.

Next you will fill out a second test.

There is written instructions at each part of the experiment.

At the end of the experiment is a questionnaire which we want you to fill out.

Throughout the experiment, it is not permitted to ask questions. So if you have any doubt about any element of the test or meaning of a word, just try to solve it to the best of your abilities.

Thank you for participating.

Sex:

Age:

Date:

Log number:

Part 1

Scrambled Sentence Test

Instructions: For each set of words below, make a grammatical four word sentence and write it down in the space provided.

Example:

big have jump paws tigers _____Tigers have big paws_____

****

1. wind against felt cold the _____
2. felt he very big weak _____
3. sad time moment was the _____
4. candle wall the lit was _____
5. is hardship real ball very _____
6. spilled tomato depressing is milk _____
7. application the rejected tall was _____
8. experience can up muscles fatigue _____
9. table the water straight is _____
10. challenge adversity high a is _____
11. hurt fall foot his Michael _____
12. situation was high misfortunate the _____
13. sun high hurt can the _____
14. bad be many failure can _____
15. was table she trouble in _____

Part 2

Instructions:

Below is a group of words. Each word have 4 options, VV, V, ? and no. The options are explained below. Complete to the best of your abilities.

relaxed (vv) v ? no. (This means you definitely feel relaxed at the moment.)

If the word only slightly applies to your feelings at the moment, circle the single check v as follows:

relaxed vv (v) ? no. (This means you feel slightly relaxed at the moment.)

If the word is not clear to you or you cannot decide whether or not it applies to your feelings at the moment, circle the question mark as follows:

relaxed vv v (?) no. (This means you cannot decide whether you are relaxed or not.)

If you definitely decide the word does not apply to your feelings at the moment, circle the no as follows:

relaxed vv v ? (no) (This means you are definitely not relaxed at the moment.)

****

****

Angry	**VV**	**V**	**?**	**no**
Clutched up	**VV**	**V**	**?**	**no**
Carefree	**VV**	**V**	**?**	**no**
Elated	**VV**	**V**	**?**	**no**
Concentrating	**VV**	**V**	**?**	**no**
Drowsy	**VV**	**V**	**?**	**no**
Affectionate	**VV**	**V**	**?**	**no**
Regretful	**VV**	**V**	**?**	**no**
Dubious	**VV**	**V**	**?**	**no**

Boastful	**VV**	**V**	**?**	**no**
Active	**VV**	**V**	**?**	**no**
Defiant	**VV**	**V**	**?**	**no**
Fearful	**VV**	**V**	**?**	**no**
Playful	**VV**	**V**	**?**	**no**
Overjoyed	**VV**	**V**	**?**	**no**
Engaged in thought	**VV**	**V**	**?**	**no**
Sluggish	**VV**	**V**	**?**	**no**
Kindly	**VV**	**V**	**?**	**no**
Sad	**VV**	**V**	**?**	**no**
Skeptical	**VV**	**V**	**?**	**no**
Egoistic	**VV**	**V**	**?**	**no**
Energetic	**VV**	**V**	**?**	**no**
Rebellious	**VV**	**V**	**?**	**no**
Jittery	**VV**	**V**	**?**	**no**
Witty	**VV**	**V**	**?**	**no**
Pleased	**VV**	**V**	**?**	**no**
Intent	**VV**	**V**	**?**	**no**
Tired	**VV**	**V**	**?**	**no**
Warmhearted	**VV**	**V**	**?**	**no**
Sorry	**VV**	**V**	**?**	**no**
Suspicious	**VV**	**V**	**?**	**no**
Self-centered	**VV**	**V**	**?**	**no**
Vigorous	**VV**	**V**	**?**	**no**

Questionnaire

Instructions: Answer the questions to the best of your abilities.

12 What do you think the purpose of this experiment was?

13 What do you think this experiment was trying to study?

14 Did you think that any of the tasks you did were related in any way?

14.1 (If "yes") In what way were they related?

15 Did anything you did on one task affect what you did on any other task?

15.1 (If "yes") How exactly did it affect you?

16 When you were completing the scrambled sentence test, did you notice anything unusual about the words?

17 Did you notice any particular pattern or theme to the words that were included in the scrambled sentence test?

Baseline test (control group)

The purpose of the test is to obtain a baseline of people's moods.

There is written instructions at the beginning of the test

Throughout the experiment, it is not permitted to ask questions. So if you have any doubt about any element of the test or meaning of a word, just try to solve it to the best of your abilities.

Sex:

Age:

Date:

Log number:

Instructions:

Below is a group of words. Each word have 4 options, VV, V, ? and no. The options are explained below. Complete to the best of your abilities.

relaxed (VV) v ? no. (This means you definitely feel relaxed at the moment.)

If the word only slightly applies to your feelings at the moment, circle the single check v as follows:

relaxed vv (V) ? no. (This means you feel slightly relaxed at the moment.)

If the word is not clear to you or you cannot decide whether or not it applies to your feelings at the moment, circle the question mark as follows:

relaxed vv v (?) no. (This means you cannot decide whether you are relaxed or not.)

If you definitely decide the word does not apply to your feelings at the moment, circle the no as follows:

relaxed vv v ? (no) (This means you are definitely not relaxed at the moment.)

****

****

Angry	**VV**	**V**	**?**	**no**
Clutched up	**VV**	**V**	**?**	**no**
Carefree	**VV**	**V**	**?**	**no**
Elated	**VV**	**V**	**?**	**no**
Concentrating	**VV**	**V**	**?**	**no**
Drowsy	**VV**	**V**	**?**	**no**
Affectionate	**VV**	**V**	**?**	**no**
Regretful	**VV**	**V**	**?**	**no**
Dubious	**VV**	**V**	**?**	**no**
Boastful	**VV**	**V**	**?**	**no**

Active	**VV**	**V**	**?**	**no**
Defiant	**VV**	**V**	**?**	**no**
Fearful	**VV**	**V**	**?**	**no**
Playful	**VV**	**V**	**?**	**no**
Overjoyed	**VV**	**V**	**?**	**no**
Engaged in thought	**VV**	**V**	**?**	**no**
Sluggish	**VV**	**V**	**?**	**no**
Kindly	**VV**	**V**	**?**	**no**
Sad	**VV**	**V**	**?**	**no**
Skeptical	**VV**	**V**	**?**	**no**
Egoistic	**VV**	**V**	**?**	**no**
Energetic	**VV**	**V**	**?**	**no**
Rebellious	**VV**	**V**	**?**	**no**
Jittery	**VV**	**V**	**?**	**no**
Witty	**VV**	**V**	**?**	**no**
Pleased	**VV**	**V**	**?**	**no**
Intent	**VV**	**V**	**?**	**no**
Tired	**VV**	**V**	**?**	**no**
Warmhearted	**VV**	**V**	**?**	**no**
Sorry	**VV**	**V**	**?**	**no**
Suspicious	**VV**	**V**	**?**	**no**
Self-centered	**VV**	**V**	**?**	**no**
Vigorous	**VV**	**V**	**?**	**no**

Sprogtest 1:

Instruktioner: Nedenunder er der 15 rækker med ord. Hver række indeholder 5 ord. Lav en sætning, som giver mening ved at bruge 4 af ordene. Skriv denne sætning på linjen ved siden af rækken.

Eksempel:

kløer tigere store pels har _____Tigere har store kløer_____

****

16. Glad sten meget hunden var _____
17. er lykke hus alt ikke _____
18. var måne vejret dejligt rigtigt _____
19. Vinde alle sol ikke kan _____
20. træet sukker sødt utroligt er _____
21. smukt så bord vandfaldet ud _____
22. exceptionelt pæn er højt kjolen _____
23. fordel en måne havde spilleren _____
24. flot taler højt dansk de _____
25. at godt vin andre glæde _____
26. udsigten øjne fantastisk meget er _____
27. er tårn succes udholde at _____
28. hold stor vandt andet det _____
29. sut sig glæder meget barnet _____
30. var helt cirkel perfekt målet _____

Sprogtest 2:

Instruktioner: Nedenunder er der 15 rækker med ord. Hver række indeholder 5 ord. Lav en sætning, som giver mening ved at bruge 4 af ordene. Skriv denne sætning på linjen ved siden af rækken.

Eksempel:

kløer tigere store pels har _____Tigere har store kløer_____

****

1. vundet vi måne har så _____
2. meget stenen endte lykkeligt slutningen _____
3. stole er pejs behagelige bløde _____
4. behag mund med spiste hun _____
5. hunden han kan hørte gø _____
6. er vidunderligt sort modstand kaffe _____
7. var super hunden halsbånd begejstret _____
8. fryd det palads ikke var _____
9. fornøjet meget var stjerne katten _____
10. kræver fornøjelse stilhed venner gode _____
11. begge løftede tønder hjul kranen _____
12. butikken fremgang højt meget havde _____
13. var begejstringen manglende overdrevet lidt _____
14. udefra sig pigen mægtigt frydede _____
15. spreder uglen glæde julemanden gerne _____

Sprogtest 3:

Instruktioner: Nedenunder er der 15 rækker med ord. Hver række indeholder 5 ord. Lav en sætning, som giver mening ved at bruge 4 af ordene. Skriv denne sætning på linjen ved siden af rækken.

Eksempel:

kløer tigere store pels har _____Tigere har store kløer_____

****

1. er skønt tal forår meget _____
2. mennesker ophold seje gode er _____
3. er henrykkelse langt hans enorm _____
4. kørte hjul bilen hurtigt for _____
5. er sundhed meget ild vigtigt _____
6. mener danse eksisterer trivsel pædagogerne _____
7. til hele stort verden smil _____
8. stor udsyn nydelse giver mad _____
9. højt guitaren tre spillede meget _____
10. livet nyde vigtigt at besøg _____
11. katte elsker små skål alle _____
12. venskab havde stor de et _____
13. rent højt held var det _____
14. følte henrykt sig taske drengen _____
15. nemt er cykle hurtigt at _____

Sprogtest 4:

Instruktioner: Nedenunder er der 15 rækker med ord. Hver række indeholder 5 ord. Lav en sætning, som giver mening ved at bruge 4 af ordene. Skriv denne sætning på linjen ved siden af rækken.

Eksempel:

kløer tigere store pels har _____Tigere har store kløer_____

****

1. hos jubel stor højt tilskuerne _____
2. meget virker taler modig han _____
3. spillerne bold jubler for træneren _____
4. kan sjove tester klovne være _____
5. alter nu lyksaliggjorde manden præsten _____
6. kræver lidt fløjte held medgang _____
7. søn faren sin dans opmuntrede _____
8. salighed til kendte fremad præsten _____
9. trinene kendte højt danseren før _____
10. at tilfredsstille alle taler svært _____
11. juble klaret at begyndte eleven _____
12. give kan sten velbehag lys _____
13. utrolig måne skøn var solopgangen _____
14. giver tilfredsstillelse andre ferie en _____
15. følte fuglen stolthed han stor _____

Sprogtest 5:

Instruktioner: Nedenunder er der 15 rækker med ord. Hver række indeholder 5 ord. Lav en sætning, som giver mening ved at bruge 4 af ordene. Skriv denne sætning på linjen ved siden af rækken.

Eksempel:

kløer tigere store pels har _____Tigere har store kløer_____

****

1. at langt glæde godt andre _____
2. meget ser opstemt var hunden _____
3. energi op børn har energiske _____
4. stol en sikke gulv behagelig _____
5. ingen legetøj ubekymringer har børn _____
6. mest henter blomster vidunderligste de _____
7. virksomhedens stil opadgående aktie var _____
8. den du hjul model kender _____
9. livet giver livsglæde venter mening _____
10. sine inspirere lederen ild medarbejdere _____
11. tænker ord gav opmuntrende han _____
12. rigeligt held bold spilleren havde _____
13. stort juble at begyndte de _____
14. marken sne står på træet _____
15. kunder arbejde de tilfredsstiller deres _____

13.3 Appendix 3

Log Number	Age	Sex	Angry	Clutched up	Carefree	Elated	Concentrating	Drowsy	Affectionate	Regretful	Dubious	Boastful	Active	Defiant	Fearful	Playful	Overjoyed	Engaged in thought	Sluggish	Kindly	Sad	Skeptical	Egoistic	Energetic	Rebellious	Jittery	Witty	Pleased	Intent	Tired	Warmhearted	Sorry	Suspicious	Self-centered	Vigorous
1001	26	4	0	0	0	0	2	0	2	2	1	0	3	2	2	2	0	2	0	1	0	2	2	0	1	0	2	0	3	2	2	2	0	0
1002	27	4	0	1	2	1	3	2	2	0	1	1	3	0	3	3	2	0	2	3	0	0	0	2	2	3	0	2	0	3	0	0	0	3
1003	24	5	1	0	1	0	1	1	1	0	2	0	2	1	2	0	0	2	1	1	1	0	1	1	1	1	0	0	2	0	1	1	0	1
1004	27	5	0	0	0	1	0	0	1	0	0	0	1	1	2	0	2	2	0	2	0	0	0	2	1	1	0	2	2	1	0	0	0	0
1005	24	5	0	0	0	0	3	1	2	1	1	2	3	3	0	2	2	3	0	1	0	0	2	3	2	3	2	2	1	2	0	2	1	2
1006	19	4	2	1	0	2	3	0	2	1	1	2	3	0	1	0	0	3	0	3	1	0	2	2	0	0	1	2	0	3	0	2	0	3
1007	21	4	3	3	2	2	1	0	2	0	0	1	3	0	1	2	2	3	1	2	0	2	2	2	0	2	1	2	3	2	0	0	1	0
1008	22	5	0	0	3	1	2	1	2	1	1	3	3	0	0	3	3	3	0	2	0	2	0	3	2	3	2	0	0	2	0	0	0	3
1009	22	4	2	0	2	1	3	1	0	0	0	3	1	1	0	0	1	2	0	0	0	2	2	2	0	0	2	2	0	1	0	0	2	0
1010	20	4	0	1	0	1	2	1	1	0	1	2	1	1	0	0	0	1	1	1	0	0	2	2	0	0	2	0	3	1	0	0	2	0
1011	21	4	0	1	2	0	2	0	2	0	2	1	2	1	0	2	2	2	2	1	0	0	0	2	2	2	3	2	2	2	0	2	0	0
1012	19	5	0	0	2	0	2	0	2	0	0	3	2	0	0	3	2	0	0	2	0	0	3	3	0	2	1	2	1	0	2	0	0	0
1013	21	5	0	0	2	1	3	0	2	0	1	0	2	0	0	3	2	3	0	2	0	2	2	2	0	2	2	0	2	0	3	0	2	1
1014	22	5	0	2	2	3	2	2	2	0	1	0	3	0	0	3	2	2	0	3	0	0	3	3	0	1	2	2	0	3	0	0	0	1
1015	22	4	0	1	3	2	3	0	2	0	0	1	3	2	0	3	2	2	0	3	0	2	0	3	1	1	2	2	0	2	0	0	2	0
2001	21	4	0	0	3	1	0	1	1	0	0	0	3	0	0	3	0	1	0	1	0	0	3	3	1	0	3	1	0	3	0	0	3	1
2002	22	4	0	0	3	1	3	0	0	0	0	1	3	0	0	3	0	3	1	3	0	0	0	2	1	2	2	1	0	2	0	0	2	1
2003	23	4	0	1	1	1	3	1	0	0	0	1	2	0	0	3	0	3	1	2	0	0	0	2	1	1	1	2	0	1	0	0	0	0
2004	24	5	0	2	0	0	2	2	0	0	1	1	2	0	0	0	0	0	2	1	0	0	0	1	0	1	2	0	0	1	0	0	0	1
2005	24	4	0	0	1	1	2	0	0	0	0	2	2	0	0	2	0	2	0	1	0	0	0	2	0	1	2	0	0	1	0	0	0	0
2006	21	4	0	0	1	1	2	1	2	0	2	2	0	2	0	1	1	3	0	0	0	2	0	2	2	1	2	2	1	2	0	0	1	1
2007	21	4	1	2	1	1	2	1	2	0	1	2	2	2	0	2	1	2	1	2	0	1	2	2	0	2	1	2	1	2	0	0	1	1
2008	20	5	0	0	3	2	2	2	2	0	1	1	3	0	0	2	2	3	0	3	0	2	2	3	0	2	2	1	0	2	0	0	2	3
2009	20	5	0	0	3	0	2	2	2	0	1	1	2	0	0	3	3	3	0	2	0	2	2	3	2	3	3	2	0	2	0	1	3	3
2010	2	4	0	1	0	1	3	0	2	1	2	2	2	2	0	2	2	3	0	3	0	1	0	2	1	2	2	2	0	2	0	1	2	2
2011	23	4	0	0	1	0	2	2	0	1	0	0	0	0	0	1	0	2	2	1	0	1	1	1	0	1	3	2	0	1	0	0	2	0
2012	21	4	0	1	3	2	3	2	0	0	2	3	2	0	0	3	2	3	2	1	0	0	3	2	0	1	2	2	0	2	0	0	1	2
2013	19	5	0	0	2	0	2	0	0	0	2	1	2	0	0	3	0	1	0	2	0	0	1	3	0	2	1	2	0	2	0	0	1	2
2014	23	4	0	0	1	1	3	1	1	0	1	1	2	0	0	2	2	2	1	2	0	2	1	2	0	1	3	2	1	2	0	0	1	0
2015	20	4	2	0	3	3	0	3	1	0	1	0	0	0	0	3	3	2	0	2	2	1	0	2	0	1	3	3	2	2	3	0	0	1
3001	26	4	3	2	3	1	2	1	2	0	0	1	3	3	1	2	3	3	0	2	2	2	2	3	1	2	3	2	1	3	1	2	2	2
3002	26	5	0	2	0	1	2	2	3	1	1	3	2	1	1	2	0	3	1	2	2	2	1	2	1	1	2	2	2	1	1	1	1	2
3003	26	5	2	2	0	1	2	2	3	1	1	1	0	1	2	0	0	3	0	3	2	1	2	2	0	1	1	2	2	2	0	2	2	1
3004	23	4	0	3	3	3	0	2	3	0	3	0	3	2	2	3	2	2	0	3	1	0	2	2	0	1	1	2	2	2	0	2	3	2
3005	23	4	0	2	2	0	3	2	2	0	0	2	0	0	0	0	0	2	0	3	0	0	3	2	0	0	3	2	1	3	0	0	2	0
3006	20	4	0	1	1	0	2	1	2	0	0	1	2	0	0	2	0	2	0	2	0	0	3	2	0	0	2	1	0	2	0	1	1	2
3007	20	5	0	1	0	1	2	0	3	0	1	1	3	2	0	2	2	2	0	2	0	1	2	2	0	1	2	2	1	2	0	2	1	2
3008	26	4	0	1	3	1	0	0	3	0	0	2	2	0	0	2	0	2	0	2	0	0	2	2	0	0	2	2	0	3	0	0	0	0
3009	26	4	0	0	2	1	2	0	3	0	0	1	2	0	0	2	0	2	0	2	0	0	2	2	0	0	2	2	0	2	0	0	0	0
3010	24	4	0	1	0	1	2	0	2	0	2	1	2	1	0	2	0	3	1	2	0	0	2	2	0	1	2	2	0	2	0	0	0	1
3011	27	5	0	1	2	0	2	0	2	0	2	1	2	1	0	2	0	2	2	2	0	0	2	2	0	2	2	2	0	2	0	0	0	1
3012	22	4	0	0	2	1	2	0	2	0	1	1	2	0	0	2	0	2	2	2	0	0	2	2	0	2	2	1	0	1	0	0	0	0
3013	25	4	0	1	0	1	2	0	2	0	2	2	2	0	0	2	0	2	2	2	0	0	2	2	0	2	3	1	0	2	0	0	0	0
3014	21	5	2	0	1	1	3	1	2	0	1	2	2	1	0	2	0	2	2	2	0	0	2	2	0	1	2	2	0	2	0	0	0	0
3015	23	4	0	2	2	2	2	1	2	0	2	1	2	1	0	2	0	2	2	2	0	0	2	2	0	1	2	2	0	2	0	0	0	0