The numbers game

How prices and likes in advertisements affect consumers' self-esteem and life satisfaction

Abstract

Previous academic literature has gone to great lengths in order to research how advertising has an emotional effect on consumers in general and on consumers self-esteem and life satisfaction in particular. But until today, there is a lack of scientific proof regarding how the numerical communication in these advertisements affect these two emotions. This report aims to answer this question, i.e. how numerical stimuli, more precisely prices (money) and social media likes needed to get a reward, in advertisements affect consumers' self-esteem and life satisfaction. The method of researching this was two quantitative, experimental, studies based on a general population sample. The results show statistical proof that a high number of likes needed to get a reward has a positive effect on both consumer self-esteem and life satisfaction, which contradict the findings of some previous research. No statistical proof was found in the money primed study.

Keywords: likes, money, life satisfaction, self-esteem, advertisements, social media

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Key phrase definitions

Money	Financial means of exchange, store of value.
Likes	Social media feedback through a one-click icon called a “Like”.
Self-esteem	An individual's own subjective attitude towards oneself as well as the feeling of one's self-worth (*definition further elaborated upon in Literature Review*).
Life satisfaction	Long term subjective well being and happiness (*definition further elaborated upon in Literature Review*).
Report	Throughout the text, this thesis is referenced as a report.
Study	The report consists of two studies and these are referenced as multiple “studies” or one “study” throughout the text. We also reference prior literature as studies in the theory section.
Consumer	In this report, consumers and individuals are sometimes used interchangeably. By this we mean people who are active in modern society and hence, see advertisements on a daily basis.
Financially secure	Being financially secure means having a stable personal economic/financial situation.

1 Introduction

The introduction gives an overview of the research topic including problematization and why this research is of importance in the purpose formulation. From that, we present the research questions, what the expected contribution is and the delimitations of the report. Lastly, the research outline for the remainder of the report is presented.

1.1 Background & Problematization

How does exposure to numbers expressed as prices and likes in advertisements affect our self-esteem and life satisfaction? In this report, we want to research exactly this, how consumers' self-esteem and life satisfaction get affected by the numerical stimuli prices and likes in advertisements.

As most of us likely know, numbers are everywhere we look and we give them huge importance in daily life. We measure how quickly we are running, how many steps we walk during a day, how much money we have spent on clothes in a given month and how many likes we get when posting a picture of our kids playing on Instagram. Furthermore, due to the rise of social media and technology, we are exposed to numbers in the form of product prices and likes on Instagram posts as soon as we go online. However, how do these numbers affect us? What happens to our emotional traits when we are exposed to these numerical stimuli? And how are we affected when these measurable and comparable factors are put into play in an advertising setting?

During the 2000s, smartphones and social media have become a more integrated part of society and hence, people are exposed to much more advertisements now than they were before the “smartphone epidemic”. According to Simpson (2017) an average person is exposed to between 4.000 and 10.000 advertising messages per day, both online and offline, and it clearly has an effect on our emotional traits. For example, research shows that the more money that is spent on advertisements in a nation per year, relative life satisfaction actually decreases (Michel et al., 2019). At the same time, studies suggest that the more we are exposed to advertisements, the more our overall well-being will be affected (Primack et al. 2009). Additionally, the more time we spend on social media platforms, the more advertisements we will be exposed to and consequently our emotional state will be more negatively affected (Shakya & Christakis, 2017).

Numbers are used in advertising as a way of persuading people to perform certain actions. For example, consider a toothpaste commercial with the message “recommended by nine out of ten tooth hygienists” or commercials exhibiting expensive shampoo bottles, saying that the product contains “seven natural essential oils”. But, of course, oftentimes the advertisement also consists of the price as a numerical stimulus. Everywhere we look, we are exposed to advertisements and messages aiming to affect our behavior and to make us perform actions such as buying a product. But what happens to our self-esteem and life satisfaction when seeing the price of a product that we feel we cannot afford to buy? This question is of interest since price communication in advertisements has not been broadly investigated, and there is research that shows the profound effect that money has on an individual's emotions. For example Kahneman and Deaton (2010) suggest that: “*low income is associated both with low life evaluation and low emotional well-being*”. Furthermore, Zhang (2009) argues that life satisfaction and self-esteem is positively correlated with economic boosts. It is therefore interesting to examine if the feeling of not having enough money to buy a product given its price can have effects on individuals' emotional traits.

Advertisements communicating offers to consumers who may or may not be able to afford the product is not the only thing that has risen because of social media. It has increased the exposure of posts that we easily can react to by giving a thumbs up, or a like, as it is more commonly known as. Companies are also constantly running campaigns such as “like this picture and have the chance to win a reward” or “the comment with the most likes will win this prize” (Egle & Mandell, 2017). Rosentahl-von der Pütten et al. (2019) suggests that the positive effect we get from a social reward when interacting on social media, i.e. someone likes our profile picture or comments positive feedback on a post, can be comparable to the effect we get from a financial reward when put in the context of social comparison. If we lose money, we will still feel rewarded if someone else loses more. Rosentahl-von der Pütten et al. (2019) draws the same conclusion from likes: if we get few likes, we can still feel rewarded if someone else gets even fewer. Consequently, if being rewarded or unrewarded with either money or likes through social comparison, our self-esteem could theoretically be affected. Furthermore, Hayes, Carr and Wohn (2016) suggest that when we spend time on social media, are exposed to likes and compare our number of likes received to others, our life satisfaction can be affected. As such, it is interesting to examine how likes, as a form of social currency, can affect people's emotional state in an advertisement setting. Connecting money and likes, research suggests that both share similarities

in that they seem to have emotional effects on individuals and both are numerical values to how “well-off” we are, both financially and socially, in today's society (Burke et al., 2010; Hayes, Carr, & Wohn, 2016; Kahneman & Deaton, 2010). More specifically, we can see a connection between money and likes in that both can affect life satisfaction and self-esteem due to their measurable and comparable elements .

Furthermore, empirical research has been conducted regarding the correlation between self-esteem and life satisfaction and it has been revealed by some authors that self-esteem is a crucial factor in life satisfaction and that there is a positive correlation between the two (Baumeister et al., 2003; Moksnes & Espnes, 2013; Patel et al., 2018).

In conclusion, research suggests that there is a connection between self-esteem and life satisfaction. We can also see a connection between money and likes in that both factors can affect self-esteem and life satisfaction (Burke et al., 2010; Hayes, Carr, & Wohn, 2016; Kahneman & Deaton, 2010; Mayol & Pénard, 2017). In addition, social media has given rise to companies being able to expose themselves and have a higher level of interaction with consumers in order to affect their behavior. Since research has shown the effect of money and likes on life satisfaction and self-esteem, can it possibly be that the rise of advertising on social media even further alludes to individuals' own assessment of their amount of money on the bank and likes on social media? And to what extent does it affect their self-esteem and life satisfaction? Lastly, is there any similarity between these assessments when they are put in the same advertising context?

We would like to conclude this section by highlighting some key takeaways:

- Research suggests that money is a major factor that can affect our life satisfaction and self-esteem. The same effect is found when searching for feedback in the form of likes on different social media platforms.
- Advertisements have dramatically increased in number since the introduction of the internet. This has also contributed to individuals getting affected emotionally.
- Combining these three factors: research shows that money, likes and advertisements are all underlying factors that influence our self-esteem and life satisfaction.

1.2 Purpose and Research Questions

In the previous section we have introduced three different factors affecting peoples' self-esteem and life satisfaction: money, likes and advertisements. How advertisements affect self-esteem and life satisfaction have already been thoroughly researched. Although, how the numerical stimuli affects these emotions are to this day quite scarcely researched. On that note, the purpose of this report is to investigate how different types of numerical stimuli in advertising affects individuals' self-esteem and life satisfaction. More specifically, the report aims to further investigate the potential differences in self-esteem and life satisfaction among working-age individuals in Sweden when being exposed to a higher (lower) price or a higher (lower) number of likes needed in order to get a reward in the context of an advertisement. See the figure below, showing our research stimuli, for further explanation.

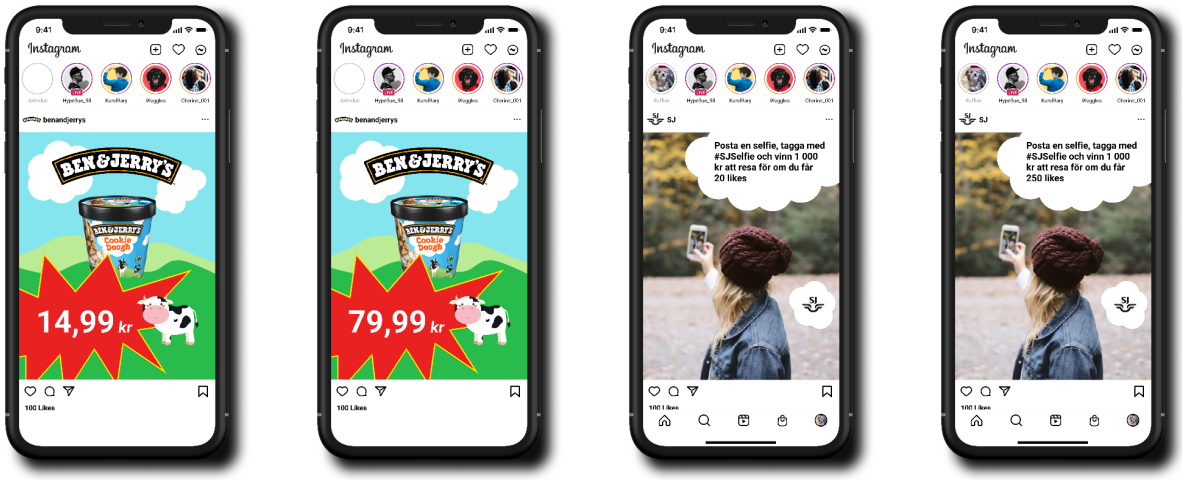


Figure 1,report stimuli

On the left, you see two fictional advertisements for Ben & Jerry's ice cream. This is the stimulus for study one, primed by money. On the right, you see two fictional advertisements where the train travel company SJ is promoting a competition. This is the stimulus for study two, primed by likes.

On that note, we first hypothesize that being exposed to a higher (lower) price will make the respondent feel less (more) financially secure. Secondly, we hypothesize that being exposed to a higher (lower) number of likes needed to get a reward will make the respondent feel as if he, she

or they generally gets less (more) likes when posting on social media. We lastly believe that these two effects will in turn have a negative (positive) effect on both self-esteem and life satisfaction. Consequently, the research questions that this report will try to answer are the following.

How will a higher respectively lower price in an advertisement exposing the same product affect the perceived self-esteem and life satisfaction of the receiver?

How will a higher respectively lower number of social media likes needed to receive a reward affect the perceived self-esteem and life satisfaction of the receiver?

1.3 Expected Contribution

Through answering the above mentioned questions, we believe that this report will both contribute to the academia of marketing psychology as well as providing knowledge and create awareness to consumers and marketers on how numbers can affect individuals emotional state, in this case regarding self-esteem and life satisfaction. Due to the fact that social media today is a part of our daily life, where individuals are exposed to a myriad of advertisements, we believe that the topic is well-suited to the current time era.

Furthermore, the combination of looking further into both prices and likes as numerical stimuli are interesting views on the topic of advertisements since both price and likes have an element of measurability and comparability with others but also act as different forms of currencies in today’s social media landscape.

This report is furthermore expected to mainly contribute to consumers' awareness about how they can be affected by advertisements and perhaps guard themselves against the potential negative effects of them. On the other hand, we also believe that this report can provide insights to marketers and on how numerical values can be communicated to elicit positive effects on the consumers as well as minimizing the negative effects.

As previously described, the research community has given us much information about how advertisements, likes and money affect individuals, as will be shown in our literature review.

However, there still is limited research on the combination of these factors and hence, our research contributes to how different numerical values in an advertising setting affect self-esteem and life satisfaction. Adding on, the research topic of numerical stimuli in advertisements, i.e. how price and number of likes and how it affects human emotions is scarcely researched in academia. This report hence contributes to this, as of now, quite small field of research.

1.4 Delimitations

There are a few delimitations to this research. First of all, this report will only include people living in Sweden, ages 18-65 (the general working population), which is why we can not with certainty say that the empirical findings will be transferable to other countries. Furthermore, in this report we focus on numerical stimuli in advertising and therefore delimit it to that context. Numerical stimuli are also seen in other contexts, not only in advertisements. For example, we are exposed to numbers in the form of product pricing on the shelves in stores. Moreover, previous research regarding social media has mainly focused on Facebook. However, this report will focus on the social media platform Instagram. Lastly, the report will focus on likes as one of the measures and not other social media feedback such as comments or sharing posts.

1.5 Research Outline

This report is divided into five different sections, providing the following outline of the report:

1. Introduction

The introduction is the above-mentioned information used as a guide for the reader into the topic. The overall purpose of the introduction is to provide information that the reader should have in mind when reading the following sections.

2. Literature review

In this section, previous research and literature will be presented and will later be used to connect the empirical findings with existing theory as well as connected hypotheses. The section will ultimately present the theoretical knowledge gap.

3. Methodological approach

Here, the preparatory work in terms of pre-tests will be presented. The pre-tests later build the foundation for the main studies. This section further presents the scientific approach and research design that was used when conducting the two main studies.

4. Results & Analysis

In this section, the empirical findings from the data gathered in the main studies will be presented. These will later be analyzed in order to try to explain the results. Lastly, validation or rejection of the hypotheses will be presented.

5. Discussion & Conclusions

Based on the results and analysis of the results, we will discuss the reason for the results. Furthermore, different implications of the results will be presented. Lastly, we will provide the reader with the limitations of our research, but also suggestions for further research.

2 Literature review

This theoretical part aims at providing the reader with knowledge of existing literature and studies addressing emotional effects of advertisements, money, and likes. The section starts with a broad overview on the emotional effect of advertisements on individuals followed by four more specific parts regarding money and self-esteem, money and life satisfaction, likes and self-esteem, and lastly likes and life satisfaction. To each of the last four parts, a related hypothesis will be presented.

2.1 Emotional effects of advertisements

In order to gain a greater understanding of how advertisements previously have evoked different kinds of emotions, we start off the theory section by exploring general emotional effects of advertisements, especially regarding self-esteem and life satisfaction.

In 1970, the era before the internet, people were exposed to around 500 advertisements per day. Today, that number is closer to 5.000 (Gregoire, 2018). What has brought about this pandemic of advertisement content? The answer is the internet. Display ads is a concept that was invented after the 70's and which currently have multiple million views each year. Due to the power of the internet, children are being shown 20.000 30-second commercials every year. Meanwhile, adults see an average of 2 million commercials per year. So it has been steadily concluded that people across the world are being shown many orders of magnitude more advertisements than before. The question is, how does this affect us?

Studies have shown that advertisements have multiple emotional effects on human emotion. In a 2011 study, Trampe et al. found that ads featuring beauty products lowered female consumers' self-esteem, even though no human model was present in the commercial. The same results were not found when the subjects were shown problem-solving cosmetic products, such as acne concealer or deodorant. The reason for this is thought to be that advertisers create a problem, such as imperfect skin or wrinkles, and simultaneously solve it by presenting one of many beauty products (Wolf, 1995). Similar results can be found in earlier studies surrounding teenagers (Martin & Gentry, 1997), where the researchers established that advertisements have a negative effect on teenagers self-esteem as the commercials set unrealistic expectations on physical

appearance by using models to push the product. Posavac et al. (1998), believe this to be true, but only when applied to teenagers who already have quite poor self-esteem. Although Mangleurg and Bristol (1998) found evidence that adolescent individuals were quite unaffected by these kinds of advertisements since repeat exposure to them can create an immunity to the images and messages of sorts.

Adding on, in a 2019 study, Michel et al. found a significant negative relationship between advertising spending and overall life satisfaction. Apparently, if a nation was to double advertisement spend, the result would be a 3 percent (not percentage point) drop in life satisfaction. As a competitive measure, that's half the drop in life satisfaction caused by a divorce or a third of the drop after being unwillingly unemployed. Furthermore, it has also been found that advertising which is classified as being materialistic, i.e. trying to sell the consumer a product, leads to an increasing materialism, meaning the belief that having money and possessions is the most important thing in life (Cambridge Dictionary, 2020). This, in turn, raises the behavior of social comparison, where consumers make judgements about their own standard of living in relation to peers. This phenomenon, lastly, decreases one's own satisfaction with life (Sirgy et al., 2012). Furthermore, it has been shown that the simple act of spending money on oneself is not the optimal way to be happy and satisfied with life (Dunn, Gilbert & Wilson, 2011). Apparently, spending money on people who are close to you makes you more happy and satisfied than spending it on yourself. So in a way, the case could be made that advertising is a double negative. Firstly, life satisfaction is decreased as individuals compare their own lives, possessions, appearance etc. to models in ads and to peers. Secondly, people are prone to spend more money on things when watching ads, which increases people's materialistic nature which, in turn, decreases life satisfaction even more as money is not being spent on loved ones.

Advertisements have also been shown to have a direct, as opposed to the previously described indirect, effect on consumer emotions. An AI-powered study by Affectiva (Business Wire, 2020), a company which claims to have assembled the world's largest "emotional database" and has 70% of major advertisers as well as 28% of the Fortune Global 500 as customers, shows that, quote; "*Advertising is making us miserable*". In the study, consumers' facial expressions were analyzed and furrowed brows and downturned mouths were trending higher than more positive facial expressions. This is contradictory as it has been suggested that having commercials which induce the subject with positive emotions is good for sales and for the well being of consumers

(Owolabi, 2009; Sirgy, 2004). Numerous studies have explored the value of communicating happiness and "good feelings" in advertisements as well as how this general positive feeling affect consumer judgment, brand evaluations and decision making (e.g., Bagozzi, Gopinath, & Nyer, 1999; Richins, 1997; Williams, 2014).

Researchers have extensively explored the connection between advertisements and life satisfaction as well as self-esteem, although not how numerical values in the actual advertisement effect outcomes. Seemingly, happiness and life satisfaction are important parts of both modern, as well as not so modern, advertising. To quote the famous Don Draper, from Mad Men (season one, episode one); "*advertising is based on one thing - happiness*".

2.2 How money affect self-esteem

In order to properly understand how money affects self-esteem, we will start off by presenting an overview of general emotional effects money can bring followed by a section which defines the concept of self-esteem. Lastly, we will link the two concepts and see how money has effects on individuals self-esteem as well as present a connected hypothesis.

In both popular culture and academia, it has been shown that people with high amounts of money have a higher likelihood of breaking laws and social customs due to an increased level of greed than in lower class individuals (Piff et al., 2012). Also, high levels of wealth have been linked to higher susceptibility to addiction problems (Luthar, 2007). Furthermore, Jiang, Chen and Wyer (2014) presented findings that money-primed individuals did not only show less emotion themselves, but that they saw public displays of emotion as less appropriate, judged emotions in other people as more extreme, and avoided interacting with emotional individuals. Although, these effects disappeared when the emotional expressions were believed to be private. The same kinds of effects have even been shown in children as young as three to six years (Gasiorowska et al., 2016), where children exposed to money were less inclined to be helpful or generous compared to the control group. The children exposed to money were more likely to try harder when faced with a task. This ties back to Luthar's (2007) point about money priming addictive behavior; the children were inclined to try harder as they got "greedier".

Moving on to the concept of self-esteem, in its simplest form defined as an individual's own subjective attitude towards oneself as well as the feeling of one's self-worth (Rosenberg, 1965).

Furthermore, Adler & Stewart (2004) define it as how much we value and like ourselves and which determines our self-worth. However, the concept of self-esteem is often mixed up with other self-directed traits and it is easier to get an idea of what self-esteem really is if we establish the differences.

(1) Self-esteem vs. Self-Concept: Self-concept is a broad structure that can give an answer to the question: "Who am I?" (Purkey, 1988). It includes strengths, weaknesses, hobbies, skills and all the things that truly define who we are and our self-esteem can be a part of the self-concept (McLeod, 2008).

(2) Self-esteem vs. self-worth: These concepts are similar. However Ackerman (2022) means that while self-esteem is our own thoughts, feelings and beliefs about ourselves, self-worth is more of recognition that every human is valuable and deserves love.

(3) Self-esteem vs. self-image: Self-image is related to self-concept, however it also includes false perceptions of the things that define who we are (McLeod, 2008). Our self-esteem can be reflected in this, e.g. if we have a self-image that we do not have many friends even if we have, our self-esteem can be lowered and consequently value ourselves less.

Self-esteem can be significantly affected by different life events and especially from events in your childhood and upbringing (Becchetti & Castriota, 2007). Suppose an actor gets bad reviews after a performance, it might affect his belief that he is a bad actor and he will value himself less, as an actor that is. Furthermore, self-esteem is important for people's well being. For example, Bushman et al. (2011) found that college students value a self-esteem boost higher than other activities linked to the reward system such as eating your favorite type of food. Furthermore, the concept of self-esteem can be divided into trait self-esteem and state self-esteem where the former is more stable over time and the latter can vary from different situations and is easier to influence (Leary et al., 1995). Other studies confirm this and argue that self-esteem is a general trait but which can fluctuate over time (Drago, 2011). Studies also show that adolescents with low self-esteem are more likely to have poorer self-confidence, health, economy and are more likely to be involved in criminality (Trzesniewski et al., 2006).

Furthermore, in their 2003 article, Baumeister et al. makes several experiments in order to confirm or disconfirm certain beliefs of self-esteem through objective measures. For example, people with high self-esteem are not objectively more popular and attractive than those with low self-esteem. There is no significant proof of relationship quality being dependent on a person's self-esteem either. However, as seen in other studies, life satisfaction is strongly correlated with self-esteem and people being depressed are more likely to have low-self esteem (Baumeister et al., 2003; Moksnes & Espnes, 2013; Patel et al., 2018).

Relating self-esteem to money and advertisements, studies examining the effect of advertisement on self-esteem have also focused on the connection between self-esteem and body satisfaction when being exposed to an advertisement picturing a body image (Lennon et al.,1999). People with lower self-esteem tend to socially compare themselves to others and hence become less satisfied with themselves. Wills (1981) also suggests that comparing with people will affect self-esteem negatively if we compare upwards and vice versa. More specifically, people with low trait self-esteem are more likely to compare themselves with others compared to those with high trait self-esteem. This stems from their need to enhance their self-evaluation and seeking acceptance from others, especially those with higher trait self-esteem.

Studies also show that people with lower self-esteem tend to be more compulsive when it comes to purchase behavior (Hanley & Wilhelm, 1992). This is explained by the belief that spending more money might lead to an increased self-esteem. Furthermore, Zhang (2009) addresses the relationship between self-esteem and money and argues that the two compensate for one another and people tend to sacrifice money in order to defend or boost their self-esteem. Self-esteem is also closely related to life satisfaction and both are positively correlated to and affected by economic boosts. Moreover, Sekścińska (2020) found that self-esteem is positively related to taking financial risk investments. If self-esteem is temporarily raised, people get an increased propensity to take financial risks.

In conclusion, when looking at past research, research suggests that individuals who lack self-esteem tend to compare themselves to others more than people with high levels of self-esteem (Lennon et al.,1999). When combined with past findings, telling us that self-esteem might be a large part of life satisfaction (Baumeister et al., 2003; Moksnes & Espnes, 2013; Patel et al., 2018; Sirgy et al. 1998) which, as will be presented in the next section, is affected by how

much money one has, as well as our own logic that seeing a high price will make one compare oneself to others more, we hypothesize the following.

H1: Higher (lower) advertisement price will make the consumer have lower (higher) self-esteem.

That is, by seeing a higher (lower) advertisement price the respondent will feel as if he or she has a worse (better) financial security which in turn will make the subject have less (more) self-esteem.

2.3 How money affect life satisfaction

In order to properly understand how money can have an effect on life satisfaction, we start this section off by defining the concept of life satisfaction followed by an exploration of how money can affect it. Lastly, we present a connected hypothesis.

In its infancy, psychological research was mostly focused on negative emotions, such as anxiety and depression, and how to "cure" them (Pavot & Diener, 2008). In more recent years, the term positive psychology has emerged as a new important direction in psychological research (Seligman & Csikszentmihalyi, 2014). An important part of this field is subjective well-being and life satisfaction is a large part of subjective well-being (Pavot & Diener, 2008).

Life satisfaction can be defined in many ways. Diener et al. (2002) defines life satisfaction as "a person's cognitive and affective evaluations of his or her life" while Veenhoven (1996) defines it as "Life satisfaction is the degree to which a person positively evaluates the overall quality of his/her life as a whole. In other words, how much the person likes the life he/she leads" and Ellison et al. (1989) believes life satisfaction is "[A] cognitive assessment of an underlying state thought to be relatively consistent and influenced by social factors". Finally, in his book Happiness Explained (2016), Paul Anand defines life satisfaction as a measurement for the way people show their emotions, moods, relationships, achieved goals, and how they feel about the general direction of future life.

Furthermore, research has shown that life satisfaction does not equal happiness. In Daniel Gilbert's book Stumbling on happiness (2009), happiness is explained as being a more short term

and transitory feeling while life satisfaction is a long term state of mind one has. Happiness can be triggered by short term events and activities while life satisfaction is not only a more stable feeling, but also broader in scope, it is one's general feeling regarding how pleased one is with life itself, which is echoed in the above mentioned quotes. Another important distinction to make is that life satisfaction is not the same as quality of life (Veenhoven, 1996). Quality of life regards having solid living conditions such as shelter, food and the state of one's health.

Even though the academic community is quite coherent in the definition of life satisfaction, they seem to differ as to what has the largest effects in determining how satisfied one is with life. This is to be expected as the concept is highly varied and is influenced by many upon many factors (Cockrill, 2012). Although, you can largely divide it into two main fundamentals (Sirgy et al. 1998). Firstly, the top-down theory, where one thinks life satisfaction is shaped by internal factors such as self-esteem. This is echoed in multiple other academic publications (Baumeister et al., 2003; Moksnes & Espnes, 2013; Patel et al., 2018). Secondly, the bottom-up theory, where the theory bases life satisfaction on things such as community (Cockrill, 2012). Adding on, one of the most well acted researchers in this field is Ed Diener from the University of Illinois, the father of the term "Subjective well-being", came to the conclusion that long term well being, which life satisfaction is one of the most important components of (Huebner, 1991), is mostly determined by genetics and that the events most likely to have a lasting negative effect are accidents which have a prolonged negative effect on life, such as being unable to work or perform sexually (Diener & Diener, 1996). Veenhoven (1996) on the other hand believes that the factors determining life satisfaction are (1) life chances, such as financial resources and family bonds, (2) course of events, such as how beautiful one finds him-/herself and other things out of our control in daily life, (3) the flow of experiences, such as loneliness and other feelings in response to life events, and finally, (4) evaluation of life, where one compares actual life to what one might consider a "good life". Life satisfaction is considered to be the average of the three preceding categories.

Having a meaning of life has also been shown to correlate with a high life satisfaction (Park, Park & Peterson, 2010). In their study, Park, Park, and Peterson (ibid.) found that individuals who search for, or already have, a meaning to life had a higher likelihood of being happy, have a high degree of well-being and life satisfaction while having a lower chance to get depressed. Though meaning can mean different things to different people, Peterson, Park & Seligman

(2005) defined it as "*one in which people feel connected to something larger than themselves*", which overlaps with the Emmons (1986) discussion where they relate meaning to external goals. It is also close to Damon, Menon, and Bronk's (2019) definition of meaning as the drive for accomplishing something noteworthy beyond one's self. In conclusion, having a meaning to life increases one's life satisfaction.

Connecting life satisfaction to money, money does not seem to make us happier (or more satisfied with life), at least not after a certain point according to some researchers. Kahneman and Deaton (2010), a psychologist and an economist who both won the nobel prize in economics, have shown that emotional well being has a connection to how much money one makes up until a yearly salary of $75.000, or $90.000 adjusted for inflation since the publication of the study. When reaching this tipping point, people were not happier as their salary kept increasing. That is, the marginal benefit of that extra dollar keeps getting smaller and smaller. In their study, Kahneman and Deaton found that, "*low income is associated both with low life evaluation and low emotional well-being*", and that, "*high income buys life satisfaction but not happiness*". But, as it seems, only up to a peak of $90.000 per year (2022 nominal value).

However, later research has shown that the marginal benefit goes beyond what Kahneman and Deaton thought was the peak of the life satisfaction/salary graph. Killingsworth (2021) echoed previous findings in terms of the relationship between life satisfaction and salary, but he also found that the marginal benefit goes well beyond a salary of $90.000 per year.

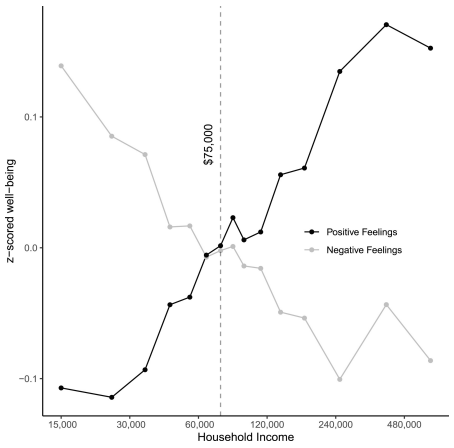


Figure 2 (Killingsworth, 2021)

In Killingsworth's study, he surveyed 1.725.994 experiences from 33.391 US adults. His conclusion was, "*that higher incomes may still have potential to improve people's day-to-day well-being, rather than having already reached a plateau for many people in wealthy countries*".

Furthermore, in the book Psychology and Consumer Culture (Kasser & Kanner, 2004), the authors suggest that people with strong materialistic values seem to have a goal orientation that may lead to poorer well-being. Diener and Diener (1995) believe that striving for wealth is not bad for well-being in and of itself, but if it interferes with your social life, it can have negative consequences on your well being and life satisfaction. This is due to findings that having a good social life, friends and family that you can rely on, has a strong link to overall life satisfaction. These findings are strengthened as Kasser (2002) found that people who strive for extrinsic goals such as materialism, social status, reward and praise among other things, report greater unhappiness in personal relationships, poorer moods and more psychological problems compared to individuals who focus life's goals around intrinsic values such as personal growth, community and self-love (ibid.). A term has even been coined to explain the irrational strive for wealth, "*affluenza*" (De Graaf, Wann & Naylor, 2005). The expression is described as a "*painful, contagious, socially transmitted condition of overload, debt, anxiety, and waste, resulting from the dogged pursuit of more*".

The academic community seems to have a coherent view of what life satisfaction is, but not what is the driving factor to being more or less satisfied with life. Although, self-esteem seems to be a part of it (Cockrill, 2012., Sirgy et al. 1998).

In conclusion, research suggests that money has a strong correlation to well-being, life satisfaction and happiness to the point where it does not interfere with one having a solid social stability in life. Hill, Martin, and Chaplin (2012) share that view. It seems clear that many researchers have explored this connection between money and life satisfaction, but not in the same way we propose as a possible effect. That is, the effect of pricing communication may affect life satisfaction. In the theories previously explored, academia has explored the connection between how much money one makes, how one uses money, materialism, levels of social life and life satisfaction. Although, the connection between advertisement pricing and life satisfaction has, to the best of our knowledge, hardly been researched. In conclusion, these findings make us hypothesize the following.

H2: Higher (lower) advertisement price will make the consumer feel less (more) satisfied with life.

That is, by seeing a higher (lower) advertisement price the respondent will feel as if he or she has a worse (better) financial situation which in turn will make the subject feel less (more) satisfied with life.

2.4 How likes affect self-esteem

In order to properly understand how social media likes affect self-esteem, we will start off by presenting a general academic background of social media and define the term likes. This will be followed by a theoretical overview of how a combination of likes and social media affect individuals' self-esteem. Lastly, from this, a connected hypothesis will be presented.

Until this point in the report, it has been described how money can have an effect on our self-esteem and life satisfaction. Furthermore, since the rise of the internet and different social media platforms over the past two decades, a new era of social interaction and in turn social comparison as well as status has been brought to life (Kross et al., 2013; Verduyn et al., 2015). As such, in the coming section an exploration of how likes affect these social comparisons as well as self-esteem and life satisfaction will be presented.

To quote Joseph Grenny from a 2013 report: "*The key to what we've found is that we enjoy these moments less when we're focused on capturing rather than experiencing*" (Vital Smarts, 2013). This suggests that people nowadays have taken a step away from the real-world and try to accomplish social inclusion in a more low-effort way on social media when posting different types of content. For example, Instagram is currently used by 1.3 billion people and the amount of Facebook likes that is distributed on a daily basis is approximately 4.5 billion (Ozanne et al., 2017). Our social networking on these platforms is today showing the number of friends and number of likes we have, and get, on everything we post, which in turn can give hints about a person's credibility, social status and physical attractiveness (Tong et al., 2008). Likes can be described as a form of Paralinguistic Digital Affordances (PDAs) where individuals communicate and give feedback to one another through a one-click icon called a "Like" (Hayes,

Carr, & Wohn, 2016). Just like other PDAs, likes is an indication of social support and is thus highly valued by some, resulting in a “likes-seeking”-behavior.

The feedback you get in terms of likes when e.g. posting a picture on social media has a positive relationship with self-esteem (Burrow & Rainone, 2017). That is, receiving more likes and positive comments positively influence self-esteem. However, the same study indicates that people with a greater sense of purpose in life tend to not put much attention to and are not affected greatly by social media feedback. In these cases, social media is more used for an informational purpose rather than boosting self-esteem. Furthermore, Steinfield, Ellison and Lampe (2008) argue that university students with lower self-esteem tend to gain more by intense Facebook use than those with higher self-esteem. Moreover, in a 2006 study, Valkenburg, Peter and Schouten argued that likes could be a source of enhanced self-esteem if being positive and vice versa. Studies also show that people with certain traits are more susceptible to elicit negative emotional effects on social media (Wohn et al. 2016). For example, people with low self-esteem will be more likely to attach great importance to likes and consequently be dissatisfied if not getting “enough” likes. Although enough number of likes seems like a vague measure, it can be connected to the sender of the message's own perceived importance of what is being posted on a social media platform and something that is established depending on our environment (Grinberg et al. 2017).

Furthermore, even if a lower amount of likes can lead to a lower self-esteem, feeling of loneliness and less well-being, one has to acknowledge the other side of the coin where people perceiving their amount of likes as high can get positively affected by social media activity (Burke et al., 2010). The number of likes can significantly boost self-esteem and is not only the outcome of posting a picture online, but also a motivator (Pounders, Kowalczyk & Stower 2016). If a person is in a low state of mind, this can change if he, she, or they gets positive feedback when posting a picture. However, the opposite goes if we do not receive a certain amount of likes that we expect.

In conclusion, to our best knowledge, there has been a limited amount of research examining how likes as a numerical expression in an advertisement setting can affect self-esteem. However, there has been a wide array of research on the topic of social media and its effect on individuals self-esteem. Taking the above mentioned research into account, we hypothesize that when being

exposed to an advertisement in which it is communicated that you need a higher amount of likes on a posted picture in order to win a reward, you will perceive the general amount of likes you get when posting on social media as lower which in turn will have a negative effect on your self-esteem. Hence, we present the following hypothesis.

H3: Higher (lower) amount of likes needed to receive a reward will make the consumer have lower (higher) self-esteem.

That is, by seeing a higher (lower) amount of likes needed to win a reward when communicated in an advertisement, the respondent will feel as if he or she generally gets less (more) likes when posting a picture on social media which in turn will make the subject have lower (higher) self-esteem.

2.5 How likes affect life satisfaction

In order to properly understand how likes on social media affect life satisfaction, this section will present a theoretical overview of how likes and social media affect individuals' life satisfaction. We will also further introduce the topic of social comparison and how it relates to life satisfaction when using social media platforms. Lastly, from this, a related hypothesis will be presented.

Being exposed to likes on social media platforms can have an effect on our well-being and perceived life satisfaction (Hayes, Carr, & Wohn, 2016). That is, if you perceive your own number of likes as low, there is a risk that you get affected emotionally in a negative way. This is further strengthened in a study from Mayol and Pénard (2017) which conducted an experiment on 2.000 people. The result showed that there is a positive relationship between the number of likes that you get and your perceived life satisfaction. On the contrary, receiving less likes can lead to lower perceived life satisfaction which can be explained by envy towards others. Moreover, studies show that people getting less likes on a social media post get the feeling of being left-out (Poon & Jiang, 2020). This can be further stretched to the study made by Carr, Wohn and Hayes (2016) which shows that getting an amount of likes that we are satisfied with is

positively correlated with a stronger feeling of social support i.e. not being left out. One reason for feeling either left out or feeling that you have strong social support could be explained by Rosenthal-von der Pütten et al. (2019). In their article, they prescribe likes as a social currency. This social currency can be seen as a numerical expression of one's social acceptance and in turn social status leading to negative effects on well-being, especially when comparing our social currency with others. Connecting this to the previous section and the emotional effects of money, the social currency in social media can be seen as the same type of reward you get when receiving a financial reward. More specifically, we will feel rewarded if gaining more or lose less money or likes than our peers. Moreover, humans have a biological need to be rewarded for their actions and also to have a sense of social belonging. Translating this into likes, if we do not have enough of these social rewards, we will not get enough stimulation from the reward and less of a feeling of social belonging which will affect our life satisfaction negatively (ibid.). Furthermore, our self-esteem is affected by acceptance or rejection in our relational environment (Leary & Downs, 1995).

On a further note, social comparison has been broadly researched in academia. For example, when comparing ourselves to others that are more successful or are better off than us, our life satisfaction tends to decline (Frieswijk et al., 2004). On the contrary, our life satisfaction can increase if we compare ourselves to people that are worse off than ourselves (Wheeler & Miyake, 1992). Furthermore, in 2019, Boers, Afzali and Newton released research in which they found that the use of social media has the same effect. The reason for this ramification is mostly explained by upward social comparison, which simply means that when seeing our best friend posing next to the Taj Mahal on an expensive vacation or a model posing for Victoria’s Secret, we feel less good about ourselves. Similarly, Shakya and Christakis (2017), put this to the test by investigating how one feels when spending time on Facebook, a digital platform filled with advertisements as well as what one might call “personal advertisements", i.e. pictures posted by friends and celebrities where one looks attractive by means of filters and editing. The findings were clear: more time on Facebook equals a worse emotional state, especially worse mental health in eldery years as well as a decrease in overall life satisfaction. This is comparable to the findings of Rosenthal-von der Pütten et al. (2019) and their findings on rewards in a social comparison context. Further research on the topic of social media use, social comparison and life satisfaction shows that the more time an individual spends on Facebook, the greater the risk is

that there is an envy towards other people and hence; life satisfaction declines (Krasnova et al., 2013). On the other hand, Oh, Ozkaya and LaRose (2014) found that positive outcomes from social media use such as supportive companionship has a positive effect on life satisfaction due to the fact that we feel that we are a part of a community and hence, not being left out.

It seems to us that social media use and likes are strongly associated with social comparison to others which can have an effect on our life satisfaction. Furthermore, if comparing ourselves with people that are better off than ourselves, our life satisfaction can decline (Frieswijk et al., 2004). Consequently, we hypothesize that when being exposed to an advertisement in which it is communicated that you need a higher amount of likes on a posted picture in order to win a reward, you will perceive the general amount of likes you get when posting on social media as lower which in turn will have a negative effect on your life satisfaction. Hence, we present the following hypothesis.

H4: Higher (lower) amount of likes needed to receive a reward will make the consumer feel less (more) satisfied with life.

That is, by seeing a higher (lower) amount of likes needed to win a reward when communicated in an advertisement, the respondent will feel as if he or she generally gets less (more) likes when posting a picture on social media which in turn will make the subject have lower (higher) life satisfaction.

2.6 Research gap

When reviewing the past written literature regarding emotional effects of advertising, likes and money as well as life satisfaction and self-esteem, many areas have tangents to our research subject.

Studies have for example shown that advertisements can have a large impact on individuals self-esteem (Cockrill, 2012.; Lennon et al.,1999; Sirgy et al. 1998), that self esteem might be a large part of life satisfaction (Baumeister et al., 2003; Moksnes & Espnes, 2013; Patel et al., 2018; Sirgy et al. 1998), and that this connection might be due to social comparison (Wills,

1981). It has also been shown that receiving a low number of likes on social media posts can negatively affect self-esteem (Burrow & Rainone, 2017; Wohn et al. 2016).

Adding on, life satisfaction can be negatively affected by high levels of advertisements (Michel et al., 2019) as well by how much one makes in salary each year (Kahneman & Deaton, 2010; Killingsworth, 2020). As with self-esteem, life satisfaction has also been shown to have a negative correlation with getting a low number of likes on social media (Boers, Afzali & Newton, 2019; Hayes, Carr, & Wohn, 2016; Mayol & Pénard, 2017).

When concluding these previous research studies, one top level research gap becomes apparent. Past literature has done a great job of connecting life satisfaction and self-esteem to advertising, likes and money in general. However, research has not yet explored the numerical values presented in the advertisement, i.e. how the actual price or number of likes needed to get a reward affects consumer self-esteem and life satisfaction.

With this as a background, we see a clear research gap within advertising numerical values and human emotion in general and how money as well as likes needed to get a reward affects life satisfaction and self-esteem in particular.

2.7 Hypothesis summary

The literature presented above on the topics of money, likes (on social media) and advertisement, shows the different emotional effects these topics have on individuals. There is further a wide array of research on the factors affecting our self-esteem and life satisfaction. These emotional effects can all be examined separately, but they also have common patterns that make them possible to connect. For example, although research shows that there are problems with money, money often leads to an increased life satisfaction, at least to a certain point (Kahneman & Deaton, 2010). Given this, we hypothesize that seeing a higher price in the advertisement will make the respondent feel as if he, she, or they have a worse overall financial situation which in turn will lead to a negative effect on the subject's self-esteem as well as life satisfaction.

H1: Higher (lower) advertisement price will make the consumer have lower (higher) self-esteem.

H2: Higher (lower) advertisement price will make the consumer feel less (more) satisfied with life.

Furthermore, the research of social media use shows that having more or less social interactions both in real life and in social media has an effect on our perceived life satisfaction and self-esteem. Given this, we hypothesize that seeing a high amount of likes needed to win a reward in the advertisement will make the respondent feel as if he, she, or they generally gets a low amount of likes when posting on social media which in turn will lead to a negative effect on the subject's self-esteem as well as life satisfaction.

H3: Higher (lower) amount of likes needed to receive a reward will make the consumer have lower (higher) self-esteem.

H4: Higher (lower) amount of likes needed to receive a reward will make the consumer feel less (more) satisfied with life.

The preceding sections, i.e. the literature review, can be summarized in the conceptual model presented below (figure two).

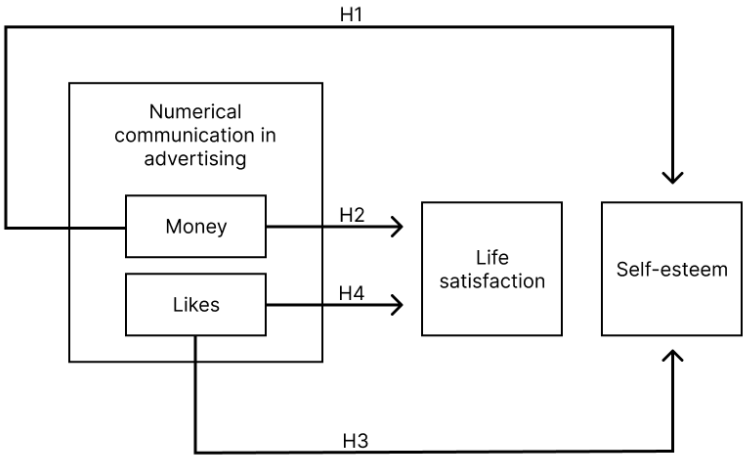


Figure 3, Conceptual model

3 Methodological approach

This section will start by presenting the analytical tools used followed by the scientific research approach used in the report. This will be followed by a presentation of the process and different steps conducted in order to get the results. Lastly, there will be a section discussing the overall quality of the report.

3.1 Analytical Tools

Qualtrics, an online survey tool, was used to create the surveys used in our studies. Norstat, a Swedish data gathering company, provided us with the respondents. After collecting the data with the help of Norstat, the statistical analysis program SPSS was used to analyze and elicit data that would later form the basis of our empirical findings and analysis.

3.2 Scientific Research Approach

In order to test the hypothesis previously presented, two independent main studies were conducted, each with two different stimuli; the first one investigating how price (lower/higher) in an advertisement of a cheap good affects the self-esteem and life satisfaction of the respondents. The second one was measuring the same dependent variables but with the number of likes (lower/higher) needed to get a reward on a social media post as the manipulated, independent, variable.

This report was conducted using a quantitative approach where theory on the subject of interest was looked into. This was followed by generating hypotheses based on the revision of theory, collecting data, analyzing data in order to confirm or reject hypotheses and ultimately a revision of the theory; a so-called deductive research approach. Data was collected using a self-completion survey, which Bryman & Bell (2019) argues is commonly used and preferred when doing a quantitative report.

3.3 Preparatory Work

Preparatory work was made in order to optimize all stimuli before conducting the main studies presented in later sections. A first draft of the stimuli was designed which communicated (1) an ad with a lower/higher price as the numerical stimuli and (2) lower/higher amount of likes needed in order to receive a reward as a numerical stimuli. A decision was also made to include control questions in order to test whether the stimuli had to be adjusted in order to produce the intended effects. The ultimate goal was to see if the low numerical stimuli actually was perceived as low or not. If not, there is a need to reevaluate the numerical stimuli or reformulate the control questions.

3.3.1 Selection of Stimuli

In order to test our hypotheses, we had to design several stimuli for our main studies that ultimately would lead to valuable data to analyze extracted from the empirical findings. We came up with four different stimuli that will constitute our two main studies. All stimuli were communicated using fictional advertisements from the well-known brands SJ and Ben & Jerry's. However, they differ in terms of the communicated numerical value. One fictional advertisement communicates a good in terms of monetary value and one is more socially oriented displaying a specific number of likes the consumer would need to get on a tagged selfie in order to win a voucher of SEK 1.000. In addition, the two study groups were subdivided into a high, and one low, stimulus group, making it a total of four stimuli (Ben & Jerrys high/low and SJ high/low). The respondents were randomly assigned to either the high or low group. To keep in mind is that although all brands are real, the ads are completely fictional and designed by us, the authors.

The advertisement communicating a monetary value is an advertisement of the ice cream brand Ben & Jerry's which we categorize as a "cheap good". The advertisement is displayed as an Instagram advertisement, reflecting the type of advertising individuals are exposed to during a daily basis making it more realistic. The socially oriented advertisement gives the receiver an opportunity to get 1.000 SEK to travel with SJ if he/she gets a given number of likes on an Instagram post, more specifically a selfie, in conjunction with a hashtag associated with SJ, this advertisement is also communicated as an Instagram post.

The motivation for choosing a rather cheap consumer good from a brand that is relatively well-known is to make it more relatable to the respondents. If we were to use a more expensive good, some respondents (due to their overall financial situation) might find it expensive even if it is relatively cheap compared to the normal price. Regarding the socially oriented advertisement, we chose the Swedish passenger train operator SJ which is also relatable for the general Swedish population, as it is (almost) the only train ride provider in the country.

3.3.2 Pre-Tests

The pre-tests were designed to test the control questions and the perceived difference between the low and high stimuli (i.e. price and likes) in all studies. This was conducted in order to know if our perceived notion of the high and low stimuli is correct and if that is not the case, for us to be able to change it in our actual studies. Our research is focused on the Swedish working population. As such, to ensure that the sample did not carry cultural differences in price perception, we used the Swedish language in designing the pre-tests.

The respondents were exposed to one of the two advertisements and either the high or low stimulus (Ben & Jerry's high or low price; SJ high or low amount of likes) of which all are a treatment stimuli. After being shown the advertisement, we asked the respondents all three of our control questions in a self-completion survey. As we have two different studies in our report, the control questions somewhat differ but all questions were answered using a ten point likert scale with different kinds of values attached to the one and ten, i.e. the start and end values. A likert scale is recommended by Bryman & Bell (2019) in order to get a wider range of answers and to be able to extract more precise differences in the individual answers.

A sample goal of 30 respondents per survey (30 x 2 = 60 in total) as we believe it to be sufficient to have a normal distribution assumption. Also, according to Newbold, Carlson, and Thorn (2012), a sample size of at least 30 is considered to be a sufficient representation of a population. Convenience sampling was used in all our pre-studies and consisted mostly of our friends and acquaintances at the Stockholm School of Economics as well as friends and family outside the university. Although this could potentially pose some bias risk, Saunders, Lewis and Thornhill (2009) argue that if it can be assumed that if the sample population has a low variance to the population, the risk is reduced. As our report is aimed at the general Swedish population, it is

reasonable to assume a low variance between our sample and the main study population since most individuals living in Sweden are exposed to the same kinds of advertisements. This makes us as authors comfortable using this sampling method for the pre-tests.

Finally, the goal with the pre-test phase of the report is to receive a large delta in the treatments in all control questions. Since a ten point likert scale was used, it was decided that we want the low stimuli group to have an average answer value of below five in question one, where we ask how the numerical stimuli is perceived. While we want the high stimuli group to have an average answer value above five. In questions two and three where we ask the respondent about the perceived wealth/number of friends/normal amount of likes on social media, we want a large delta between the two groups, of at least one (1.0), but the groups average answers does not need to be on a specific side of the value five. The reason for us not choosing to have a statistical measure, i.e. p-value, as a tool for deciding if the respondents understands the stimuli as intended is due to the fact that statistical models mark quite small absolute deltas as significant. In this report, we are researching how high vs. low numerical stimuli affects self-esteem and life satisfaction and hence, a small perceived delta in our control questions may be statistically significant, but still not be large enough for the intended purpose of the report.

3.3.2.1 Pre-Test 1

See the entirety of pre-test one in appendix one.

In the first pre-test, the aim was to test the stimuli i.e. the price and number of likes that the respondents of our main survey were going to be exposed to. We kept the visual stimuli constant throughout the survey. That is, the only difference between the two treatment groups per advertisement was the numerical stimuli. As we have two main studies, and each of them has two stimuli, the total number of stimuli are four. Our first draft of control questions, are stated below (translated from Swedish):

Study	Question	Scale
Study 1 - Money primed - Ben & Jerry's - 41 responses	I believe the price in the ad is…	1 (Low) - 10 (High)
	I am comfortable financially.	1 (Don't agree at all) - 10 (Totally agree)
	I have more money than most people.	1 (Don't agree at all) - 10 (Totally agree)
Study 1 - Like primed - SJ - 48 responses	I think the number of likes needed in order to win to be…	1 (Low) - 10 (High)
	I normally get many likes when I post on Social Media.	1 (Don't agree at all) - 10 (Totally agree)
	I normally get many likes when I post on Social Media.	1 (Don't agree at all) - 10 (Totally agree)

Table 1

The result of pre-test one was not to our satisfaction as the differences in perceived level of numerical stimuli as well as wealth and likes was not up to the pre-decided levels (i.e. perception of the low stimuli to be < five on average and for the high stimuli > five on average as well as the other two questions to have deltas of at least 1.0 on average)

We hypothesize that the reason for the disappointing result was twofold. Firstly, the price deltas need to be larger. For example, Ben & Jerry's price of 34.99 SEK was still seen as quite high and the high stimuli in the SJ advertisement were seen as quite low. Secondly, we think questions two and three are poorly formulated for the purpose of the questions (regarding both studies). To solve this, we did the following in pre-test two; (1) Increased the numerical stimuli delta between the treatment groups in question one. (2) We think it is wiser to prime the respondents to relate questions one and two to the ad in question. As such, we formulated the questions differently.

3.3.2.2 Pre-Test 2

See the entirety of pre-test two in appendix two.

As a result of the unsatisfactory outcome from pre-test one, adjustments had to be made to get the intended effect of the stimuli. The aim of pre-test two was to see if a change in the numerical

data in the ad i.e. price and number of likes can more significantly affect the respondents' perception of the low and high stimuli and ultimately lead to a larger numerical delta in question 1 (i.e. perception of the low stimuli to be < five on average and for the high stimuli > five on average as well as the other two questions to have deltas of at least 1.0 on average). Hence, the decision was made to reevaluate and alter the low respectively high stimulus. Furthermore, as the stimulus did not seem to have a significant impact on the respondents' perception of their own money and likes (i.e. question two and three), we deemed it necessary to reformulate these control questions to relate more to the ad that the respondents were exposed to. Hence, the following questions were distributed in pre-test two.

Study	Question	Scale
Study 1 - Money primed - Ben & Jerry's - 36 responses	I believe the price in the ad is…	1 (Low) - 10 (High)
	When I see the ad, I feel that my own financial situation is good	1 (Don't agree at all) - 10 (Totally agree)
	When I see the ad, I feel that I have more money than most people.	1 (Don't agree at all) - 10 (Totally agree)
Study 1 - Like primed - SJ - 38 responses	I think the number of likes needed in order to win to be…	1 (Low) - 10 (High)
	The ad makes me feel that I normally get many likes when I post on Social Media	1 (Don't agree at all) - 10 (Totally agree)
	When I see the ad, I feel that I get more likes than most people on Social Media.	1 (Don't agree at all) - 10 (Totally agree)

Table 2

With the reformulated questions and altered stimulus, we hypothesized that (1) the numerical delta will be larger for question one, and (2) that the respondents will perceive their own amount of money and likes as lower (higher) when being exposed to the high (low) stimuli. The results after conducting pre-test two are shown in the table below.

	What good?	Low stimulus	High stimulus
When I see the ad, I feel that my own financial situation is good	Ben and Jerry's - Ice Cream (SEK 14.99 vs. 79.99)	6.1	4.9
When I see the ad, I feel that I have more money than most people		5.4	3.9
I believe the price in the ad is…		1.5	9.0
The ad makes me feel that I normally get many likes when I post on Social Media	SJ - Friends to like selfie (20 vs. 250 likes)	4.1	2.9
When I see the ad, I feel that I get more likes than most people on Social Media		6.5	3.7
I believe the amount of likes needed to win is…		3.7	7.4

Table 3

The numerical delta in question one was, as hypothesized, much larger and the self-evident explanation for this is the adjustment of the price/likes for all stimuli. This result was also desirable in that the low stimulus had a value of < five and the high stimulus > five. The respondents were further affected in terms of how they perceived their own money situation and the number of likes in question two for all stimuli; hence, we deemed this delta to be at a satisfactory level. Consequently, the current low and high numerical stimuli as well as pre-test two control questions will be used in our main studies.

3.4 Main Studies

See the entirety of the main studies in appendix three.

The pre-tests set the foundation for the two main studies with four different stimuli: money (Ben & Jerry's high/low price) and likes (SJ high/low amount of likes). The next step was to design and distribute surveys to qualified respondents. Furthermore, the surveys were in Swedish. The studies were made independently, where each respondent was randomly assigned to one of the four stimuli. Since the aim of the studies are to make respondents relate to their own financial

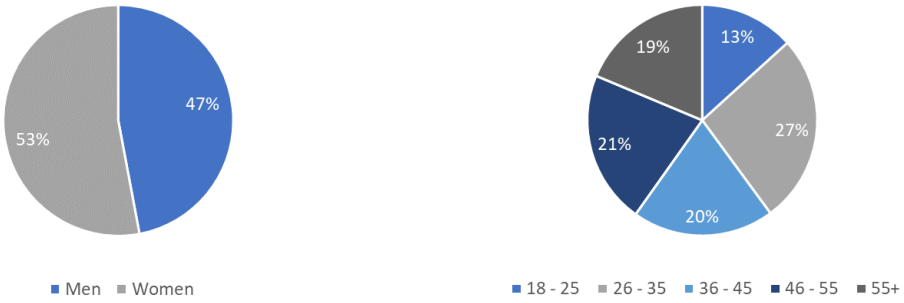
situation or number of likes on social media, all stimuli are manipulations and all respondent groups are treatment groups. Consequently, we have no control groups for the main studies.

Both studies were conducted by, again, using the online survey tool Qualtrics and which randomly distributed the respondents. With the help of our data collector Norstat, respondents from a panel were randomly distributed to either Ben & Jerry's low/high stimuli or SJ low/high stimuli. After being exposed to one stimuli, the respondents were asked the same control questions that were asked in pre-test two followed by the questions measuring the dependent variables life satisfaction and self-esteem (see section 3.7.1).

The distribution of the two studies is presented in the following sections.

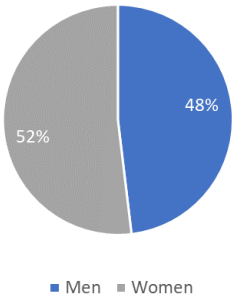
3.4.1 Main study 1 - Money primed - Ben & Jerry's

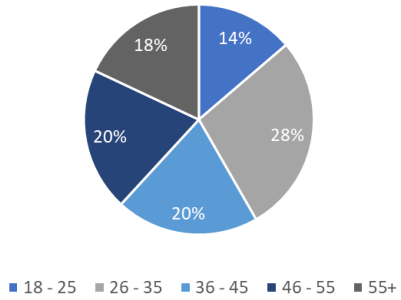
For main study one, a total of 398 answers were collected and the following gender and age distribution was met.



3.4.2 Main study 2 - Like primed - SJ

For main study two, a total of 413 answers were collected and the following gender and age distribution was met.





3.5 Sampling and Sample

Our data-partner, Norstat, has a long history of high quality data collecting and has worked with over 1.500 customers (Norstat, 2022). By using their tool, we were able to collect data from a large sample representing the Swedish working population well while also adhering to academic data quality standards. Our agreement with Norstat was to have a total of 2.400 minutes to distribute over the two studies. As one study took approximately three minutes to fulfill and we had an initial target to survey at least 60 respondents per study, we hit our target with a wide margin. See calculation below.

(2 400 000 / 3) / 2 = 400 respondents per survey. Therefore each stimulus, two per survey, would get approximately 200 responses.

This passes what Newbold, Carlson & Thorne (2012) think of as a large enough sample set to have a normal distribution, 30 participants, with a very wide margin. Although, as this is the number of respondents that Norstat will send our survey to and not the number of individuals that will actually finish it, there was some drop off. A total of 811 people finished our survey with the following distribution.

Study one - Money primed - Ben & Jerry's: 398 respondents

Study two - Like primed - SJ: 413 respondents

Each respondent answered the survey online between February 23rd and March 7th in the year 2022.

3.6 Data cleansing

Irrational, i.e. distractive or phony, behavior is an imminent issue within digital research (Jones, House & Gao, 2015), and after attentive analysis, it was shown that our report was not an exception. That is, we cleaned the data from responses that were recorded but clearly deviated from a certain pattern affecting the results and hence were deemed non-complete. In order to prevent and fix phony responses, the following was done. Firstly, we guarded from the risk of respondents not responding to the entire survey since questions were made mandatory. Secondly, instead of taking the time necessary to successfully complete the survey, some respondents speeded through the process or completed the survey in a very slow manner and hence, did not constitute a quality candidate. This is due to the fact that faster responses could be a sign that the respondents were not paying attention to the stimulus and questions and slow responses could be explained by respondents starting the survey and finishing later which causes a risk that the respondent forgot the stimulus. In order to transform the dataset into higher quality, this needed to be settled. This was done by timing the respondent survey answering time and excluding the respondents who had a survey answering time that was either too short or too long. We decided that a response time should be in the range of one to six minutes in order to be labeled as a high quality response. The rationale for these cut off points was based on time testing the survey. This type of cleaning, based on response time, is also recommended by Godinho, Kushnir and Cunningham (2016). A total of 81 respondents were removed. Consequently, through this cleansing process, we decided that the result of these adjustments will make the dataset of responses of high quality and which would constitute our empirical findings.

3.7 Survey Design

According to Bryman & Bell (2019), self-completion surveys are the most suitable data gathering method for quantitative research. It also provides researchers with a solid tool collecting “unobservable” data such as consumer opinions, making it particularly suitable for our report. Adding on, it is a good tool for collecting data from a large sample (Bhattacherjee, 2012). Although Bryman & Bell (2019) argue that self-completion surveys could pose the risk of not capturing the honest beliefs of the respondents, it was still deemed to be the most appropriate

way of designing the survey due to the fact that it is one of the most common methods in quantitative research.

Moving on to the survey itself, it was made up of ten questions where the first three were the control questions that slightly differed between the main studies (see appendix three for full outline of questions). The control questions were designed to make the respondent to (1) assess their perception of the price/likes in the ad and (2) reflect on their own amount of money and likes in relation to the advertisement. The remaining questions were instead aiming to measure the dependent variables. The measurements are further elaborated on in section 3.7.1. The survey was exclusively in Swedish due to the respondents' nationality. Since the questions were taken from different acknowledged measurements in English, we had to translate them. Furthermore, all questions were mandatory to answer, i.e. you could not move on with the survey if not responding to a question.

A decision was made to use a ten points likert scale for all questions even though the original scales described in the next section did not. However, according to Malohtra (2010) it is favorable to convert different measures into the same scale in order to make them comparable to each other. A likert scale is also recommended by Bryman & Bell (2019) in order to get a wider range of answers and to be able to extract more precise differences in the individual answers.

3.7.1 Measures

In the coming sections, an explanation of our study measures are presented.

3.7.1.1 Manipulation check, control questions

The respondents were randomly assigned to one of the four stimuli and got to answer three manipulation control questions. These questions were first designed as a preliminary draft and further optimized during the pre-test phase. For main study one (Ben & Jerry's) the respondents first had to assess whether they perceived the price as one (low) or ten (high) and then respond to two questions where they were asked to relate their own financial situation in relation to the advertisement. For example: "When I see the advertisement I feel that my own financial situation is good" on a scale of one (Strongly disagree) to ten (Strongly agree). Similar questions were asked for the second main study (SJ), only small adjustments were made as we were asking

about likes, not money. See appendix three. After the manipulation check, it was time to measure the dependent variables.

3.7.1.2 Self-esteem

The first dependent variable measured was that of self-esteem. This part constituted four questions where three was from the Rosenberg Self-Esteem Scale (Rosenberg, 1965) and one question was from the Single-item Self-esteem scale and once again a ten point likert scale was used. The questions were also this time formulated as claims and the respondents were asked to reflect and rank from one (strongly disagree) to ten (strongly agree). The Rosenberg Self-Esteem scale is a good measure due to its use in many different publications and it is known for its reliability and validity (Baumeister et al., 2003; Gray-Little, Williams & Hancock., 1997). The single-item self-esteem scale is an alternative and shortened version of the Rosenberg Self-Esteem Scale and has the same high validity (Robins, Hendin & Trześniewski, 2001). All questions were indexed into one measure with Cronbach's alpha α of 0.770 in study one (money primed) and 0.775 in study two (like primed), which is above academic accepted levels (Saunders, Lewis & Thornhill, 2009; Ursachi, Horodnic & Zait, 2015).

3.7.1.3 Life satisfaction

The second dependent variable measured was that of life satisfaction. To measure this, the widely used Satisfaction With Life Scale (SWLS) (Diener et al., 1985) was used where respondents were asked to take a stand on to which extent they agree or disagree to different claims e.g.: “My life is in most ways ideal”. Although the original scale is from one to seven, we, again, decided to redesign it to a ten point likert scale where one corresponded to strongly disagree and ten strongly agree. SWLS has been heavily used in assessing life satisfaction and well-being of individuals and has a strong validity and reliability (Pavot et al., 1991). The scale has further been cited over 34 000 times on Google Scholar. In our studies, we used three SWLS questions which subsequently got indexed into one measure with Cronbach’s alpha α of 0.900 in study one (money primed) and 0.891 in study two (like primed), which, again, is above academic accepted levels (Saunders, Lewis & Thornhill, 2009; Ursachi, Horodnic & Zait, 2015).

3.8 Data quality

When assessing the quality of the data and measures, reliability, validity and replicability was further looked into (Bryman & Bell, 2019). This is used in order to make sure that more accurate conclusions can be drawn from the findings and to increase the overall trustworthiness of the entire report.

3.8.1 Reliability

When assessing reliability, Bryman & Bell (2019) defines reliability as how consistent the empirical findings are in relation to how data was collected. Reliability can be achieved through, for example, using measures that have been applied and proven successful in other research. Given the established measures used in surveys and when collecting data (Rosenberg Self-esteem Scale, Satisfaction With Life Scale) we argue that the reliability can be considered to be high. Reliability is further increased by being consistent in the item-scales the respondents used to answer the questions. Given that we throughout the survey used a ten point likert scale, it can be considered consistent and hence increases reliability.

3.8.2 Validity

The validity of the research can, according to Bryman & Bell (2019) be discussed using internal, external and ecological validity. That is, how reliable and accurate are the results measured given what they were supposed to measure.

Firstly, the internal validity refers to how strong the causal relationship between the independent and dependent variables are, i.e. if the findings actually can be explained by the different stimulus (Bryman & Bell, 2019). To begin with, the decision was made to design the stimulus exactly the same, i.e. as an Instagram post with the same design. That is, one design per study (money high/low, likes high/low). The only difference between the high and low stimuli design is the independent variables of low/high price and low/high amount of likes. This is something that increases the internal validity since it could otherwise be a risk that the design of the advertisement affects respondents' responses and in turn the dependent variables. Since the respondents from the arguably large panel were randomly assigned to one out of four stimuli, we deem the internal validity to be high since potential other factors affecting the empirical findings

and in turn the internal validity will be blurred out. Furthermore, before analyzing the gathered data, a decision was, as previously mentioned, made to clean up the data. Respondents who answered in less than one minute and more than six minutes did not get their answers counted. Consequently, there was a limited time span to answer the questions which decreased the risk of individuals either merely clicking on choices without reflecting on the independent variable and also that individuals start the survey and finish it at a later time with risk of forgetting the independent variable. This further strengthens the relationship between the variables and in turn the internal validity. Lastly, it could be argued that the decision of using self-completion surveys could increase the risk of respondents not answering the questions in accordance with their honest beliefs which in the extent affects the dependent variables (Bryman & Bell, 2019). However, as previously stated, self-completion surveys are commonly used and suitable in quantitative research.

Secondly, external validity instead examines the generalizability of the findings to the rest of the population (ibid.). In the data collection, a panel of 811 people (730 after data cleansing process) were participating in the studies and were a representative sample of the Swedish working population i.e. women and men between the ages 18 to 65. Generalizability increases the more respondents we have, but the exact number of respondents needed is arbitrary. However, given the demographic traits of the respondents, we argue that the external validity is high since the distribution is of a representative sample. Even if the findings can be generalizable for the Swedish population, we can not with certainty claim that the report would generate the same findings in other parts of the world. The external validity is also high due to the aforementioned randomizing procedure which mitigates the risk of respondents being affected by the fact that they are aware that they are part of a report. However, the external validity can be argued to be weaker since we can not prove that it is generalizable for all product categories. We would therefore suggest performing similar studies with more or other product categories.

Lastly, the ecological validity is referred to as how well the setting and treatment reflect real-life of the respondents (ibid). We deem the ecological validity to be high due to the design of the stimuli which is as close as possible to a real-life setting given the circumstances. The stimuli was communicated as an Instagram post and the advertisement could be argued to be similar to what the general population is exposed to on a daily basis. Also the fact that the majority of respondents answered on their mobile phones could strengthen this since Instagram and

Facebook are oftentimes used on these devices. Furthermore, considering the nature of the two brands (Ben & Jerry´s and SJ) the ecological validity can be considered to be high since they are well-known brands that consumers have a relationship with in daily life. This is supported by Cicourels' quote regarding ecological validity: *"Do our instruments capture the daily life conditions, opinions, values, attitudes, and knowledge base of those we study as expressed in their natural habitat?"* (Sirgy, Samli & Meadow, 1982, p. 15).

3.8.3 Replicability

Although this report is merely focused on and provides empirical data collected from a limited amount of stimulus and product categories, we believe that this report builds a good foundation for further research that could either confirm or further develop the findings of this research. According to Bryman and Bell (2019), this is referred to as replicability and we would argue that the replicability of this report is high. This is strengthened by providing two studies that indicate the relationship between the independent variables (low/high price and low/high amount of likes) and the dependent variables (self-esteem and life-satisfaction). Moreover, the dependent variables are taken from acknowledged measures that are widely used. Considering these factors alongside the methodological approach and theoretical framework provided, we deem it highly possible to perform similar yet different studies in the future.

3.8.4 Ethical considerations

Ethical considerations are very important to have in mind when performing this report since respondents answer rather personal questions about how satisfied they are with their life and their perception of themselves. When answering the survey, all respondents were anonymous. Furthermore, only completed surveys were recorded. Hence, if respondents would not be willing to answer questions of that nature they could leave the survey and their answers would not be visible. Lastly, a high confidentiality is in place where only the the authors of this report has access to the individual answers which was later deleted after the completion of the report.

4 Result & Analysis

In this section of the report, we will answer the hypotheses through statistical testing of our survey responses. For pedagogical reasons, we start by presenting our manipulation check followed by study one and the related hypotheses, followed by study two and the related hypotheses. Lastly, a summary of our findings are presented. For clarification, the section starts off by presenting our four hypotheses as well as the conceptual model.

H1: Higher (lower) advertisement price will make the consumer have lower (higher) self-esteem

H2: Higher (lower) advertisement price will make the consumer feel less (more) satisfied with life.

H3: Higher (lower) amount of likes needed to receive a reward will make the consumer have lower (higher) self-esteem.

H4: Higher (lower) amount of likes needed to receive a reward will make the consumer feel less (more) satisfied with life.

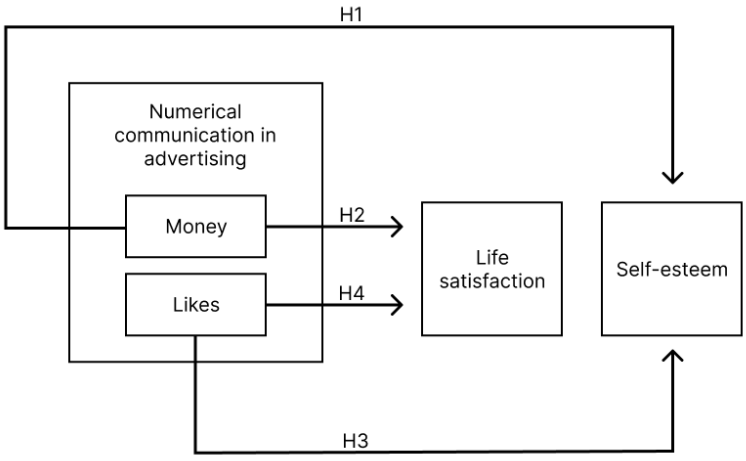


Figure 3, Conceptual model

4.1 Manipulation check

As we wanted to make sure that the manipulation is perceived as we intended it to be, i.e. that a high (low) price/number of likes is perceived as such and hence, we redid the manipulation check previously done in the pre-tests in both study one and two.

As control question two and three measure the same thing, we choose to index them into one control question with a Pearson Correlation of 0.699 (statistically significant on the 0.01 level) in the money primed study and with a Pearson Correlation of 0.635 (statistically significant on the 0.01 level) in the like primed study, which is a solid correlation according to academic standards (Dundee University, 2022).

See list of control questions below:

Study	Question	Control question
Study 1 - Money primed - Ben & Jerry's	I believe the price in the ad is…	Control 1
	When I see the ad, I feel that my own financial situation is good	Control 2 (indexed)
	When I see the ad, I feel that I have more money than most people.	Control 2 (indexed)
Study 1 - Like primed - SJ	I think the number of likes needed in order to win to be…	Control 1
	The ad makes me feel that I normally get many likes when I post on Social Media	Control 2 (indexed)
	When I see the ad, I feel that I get more likes than most people on Social Media.	Control 2 (indexed)

Table 4

The results still showed significant differences in the high/low stimuli on both study one and two. The results are shown in table one and two below.

Study 1 - Money primed - Ben & Jerry's

	Price, group	N	Mean	St. Deviation
Control 1	Low	187	2.4813	1.94368
	High	172	9.2267	1.32046
Control 2	Low	187	4.7460	2.37956
	High	172	3.8314	2.13041

Table 5

Study 2 - Likes primed - SJ

	Number of likes, group	N	Mean	St. Deviation
Control 1	Low	182	3.8901	2.46501
	High	189	6.3404	2.87178
Control 2	Low	182	4.1593	1.99914
	High	189	2.7249	1.88103

Table 6

We found the manipulations to be at a satisfactory level according to the rules explained in the methodology section. Adding on, as the low/high stimuli is perceived as intended throughout the studies, the robustness of the findings are strengthened.

4.2 Main study 1 - Money primed - Ben & Jerry's; Hypothesis testing

To test the hypotheses, an Independent Samples T-Test was used as this is preferable when the same variables are tested across different groups (Newbold et al., 2012). Independent Samples T-Tests are used to determine whether there exists statistical significant evidence between two, or more, means attributed to different groups. The test was applied to all dependent variables while the manipulation, low or high stimuli, was fixed. To clarify further, the dependent variables, life satisfaction and self-esteem, were tested with multiple questions based on viable scientific question measurements. In our Independent Samples T-Tests, we have indexed all questions so as to get one measurement per dependent variable which, as presented in the methodology section, all have satisfactory Cronbach's alpha's. These indexes, one for life satisfaction and one for self-esteem, were later used in all subsequent analyses (in both study one and two). See all questions in appendix three.

Accepted academic standards rule that in order for a T-test to be statistically significant, the p-value should be < 0.05 (Bryman & Bell, 2019). As we want to be as confident as possible that we find statistically significant results, we won't accept a hypothesis as supported unless we find a two tailed p-value below 0.05.

Regarding study one (money primed), the test showed no significant effect on any dependent variable (self-esteem: p-value = 0.164, t-stat = 1.395; life satisfaction: p-value = 0.537, t-stat = 0.618). To test the related hypotheses, each dependent variable was tested individually, comparing the high vs. low manipulation groups.

Table 3

	Low price group	High price group	T stat	p-value (two tailed)
Self-esteem	6.8249	6.5625	1.395	.164
Life satisfaction	6.3832	6.2558	.618	.537

Table 7

Our hypothesis one and two (H1, H2) regarded study one and as this study showed no statistical significance, we can conclude the following.

H1: Higher (lower) advertisement price will make the consumer have lower (higher) self-esteem.

NOT SUPPORTED

H2: Higher (lower) advertisement price will make the consumer feel less (more) satisfied with life.

NOT SUPPORTED

These results indicate that being exposed to high price levels in advertising does not in fact affect self-esteem and life satisfaction in any statistically significant way. As such, no empirical support for H1 and H2 was found in study one. As no positive statistical evidence was found, a mediator analysis, to test whether the result was mediated by a general feeling of having a worse financial situation, was not needed.

4.3 Main study 2 - Likes primed - SJ; Hypothesis testing

In order to test the related hypotheses in study two, the same process was used as in testing the hypothesis in study one, through Independent Samples T-Test. In this study, the results were statistically significant, although not in the direction we anticipated (**self-esteem: p-value 0.020, t-stat = -2.341; life satisfaction: p-value = 0.024, t-stat = -2.265**). That is, being exposed to a high number of likes in order to receive a reward in an advertisement have a positive, not negative, effect on both life satisfaction and self esteem.

	Low number of likes group	High number of likes group	T stat	p-value (two tailed)
Self-esteem	6.5508	6.9814	-2.341	.020
Life satisfaction	6.2033	6.6367	-2.265	.024

Table 8

Our hypothesis three and four (H3, H4) regarded study two and as this study showed statistical significance, but in the opposite direction we hypothesized, we can conclude the following.

H3: Higher (lower) amount of likes needed to receive a reward will make the consumer have lower (higher) self-esteem.

NOT SUPPORTED

H4: Higher (lower) amount of likes needed to receive a reward will make the consumer feel less (more) satisfied with life.

NOT SUPPORTED

These results indicate that being exposed to high levels of likes needed in advertising does in fact affect self-esteem and life satisfaction in a statistically significant way, but not in the way we anticipated. When being exposed to a high number of likes needed to get a reward in an advertisement, the indication is actually that you get a higher self-esteem and life satisfaction. As such, no empirical support for H3 and H4 was found in study two. As no positive statistical evidence was found, a mediator analysis, to test whether the result was mediated by a general feeling of getting a low amount of likes when posting on social media, was not needed.

4.4 Summary of findings

	Hyphosesis	Measure	t stat	p-value (two tailed)	Supported/ Not supported
Money primed	H1: Higher (lower) advertisement price will make the consumer have lower (higher) self-esteem.	Self-esteem	1.395	.0164	Not supported
	H2: Higher (lower) advertisement price will make the consumer feel less (more) satisfied with life.	Life Satisfaction	.618	.537	Not supported
Like primed	H3: Higher (lower) amount of likes needed to receive a reward will make the consumer have lower (higher) self-esteem.	Self-esteem	-2.341	.020	Not supported
	H4: Higher (lower) amount of likes needed to receive a reward will make the consumer feel less (more) satisfied with life.	Life Satisfaction	-2.265	.024	Not supported

Table 9

5 Discussion & Conclusion

The final section of this report will focus on discussing whether our results and analysis, the previous section, answer our research questions. Following this general discussion, we will present possible report limitations followed by managerial implications. Lastly, the report is concluded with theoretical implications and suggestions for future research.

5.1 General discussion of results

This report was introduced with the following sentence; *"How does exposure to numbers expressed as prices and likes in advertisements affect our self-esteem and life satisfaction?*". Our overall results tell us that consumers are affected by like-primed advertisements, although not in the same way we anticipated, as shown in the SJ study. But not by money-primed advertisements, as shown in the Ben & Jerry's study.

The results were collected in two similar studies where respondents were, in the first study, shown either a low (14.99 SEK) or high (79.99 SEK) price regarding Ben & Jerry's ice cream and later asked an academically reliable set of questions to measure life satisfaction and self-esteem. In study two, the same series of questions were asked, but the stimuli were different. In this case, we showed the respondent a fictional ad where the train travel company SJ marketed a competition where the competitor was asked to post a selfie and if the respondent got a certain number of likes, the stimulus, he or she won 1.000 SEK to travel for. The low stimulus was 20 likes and the high was 250 likes. The study design briefly repeated above aimed to answer our research questions.

How will a higher respectively lower price in an advertisement exposing the same product affect the perceived self-esteem and life satisfaction of the receiver?

How will a higher respectively lower number of social media likes needed to receive a reward affect the perceived self-esteem and life satisfaction of the receiver?

The results of the studies showed that being shown a high price point, in SEK, did not produce a statistically significant result as defined (p-value < 0.05) in either the self-esteem or life satisfaction measure. Although, when primed with likes, in the second study, the results were statistically significant in both the self-esteem and life satisfaction measurements but in the opposite way we initially thought. As such, people tended to be more affected by likes than money. In the sections below, we will divide the discussion into one on self-esteem, one on life satisfaction, and one concluding section.

5.1.1 Self-esteem

The first part of our research interest, and hence our theoretical model for the effect of high numerical stimulus in commercial advertising, is the concept of self-esteem. Some believe self-esteem is a large part of life satisfaction (Sirgy et al. 1998) and if so is the case, since we found evidence for increased life satisfaction in the like primed study, we would also have found statistically significant results regarding this concept, which we did.

We found statistically significant results in the second, i.e. the like primed study but not in the first study regarding money. As previously stated, the result in the study primed with likes was in the opposite direction of our hypothesis. In the SJ advertisement, where it was communicated that the respondents needed to post a picture and receive 20 or 250 likes to win, it was thought that the high primed group would produce a lower self-esteem since it is harder to get 250 likes compared to 20. As this was not the case, we firstly examined if the respondents misinterpreted the stimuli. When looking at control question one (I think the number of likes needed in order to win to be… 10=high, 1=low), it is clear that the stimulus is perceived as intended;

- Low primed group average: 3.8901
- High primes group average: 6.3404

The result of control question 2, indexes of questions; (1) “The ad makes me feel that I normally get many likes when I post on Social Media” and (2) “When I see the ad, I feel that I get more likes than most people on Social Media” (10=storngly agree, 1=strongly disagree), also indicate that the general feeling of getting many likes when posting on social media in the high primed group was somewhat negatively affected.

- Low primed group average: 4.1593
- High primed group average: 2.7249

It is possible to believe that when a respondent in the high stimuli group saw that they needed to get 250 likes, the respondent felt as if SJ “believed” that he, she or they could get it and hence, got an increased level of self-esteem. This could be argued to go in line with what Tong et al. (2008) found, that platforms showing the number of friends and likes in a public manner gives other people hints about a person’s credibility, social status and physical attractiveness. That is, SJ “believing” in the person's credibility, social status and physical attractiveness increases the respondent’s self-esteem.

However, our results also contradict previous findings. For example Burrow and Rainone’s (2017) found that getting positive feedback after posting a picture on Facebook increases one’s self-esteem and as 250 likes is harder to get than 20 likes, the respondent should feel a decreased feeling of self-esteem. In our study, this was not the case. Furthermore, Valkenburg, Peter and Schouten (2006) argued in their study that likes indeed have an effect on self-esteem. If one gets more positive feedback on social media, chances are that self-esteem increases. However, as shown in our study, the respondents exposed to a higher amount of likes were also those that answered that they usually get a lower amount of likes when posting content on social media. Hence, our findings contradict these claims as our results indicate that having a lower amount of likes does not necessarily have to be negative in terms of self-esteem. This, we would argue, is an interesting finding in itself.

5.1.2 Life satisfaction

Part two of our theoretical model regards life satisfaction. As previously stated in the results section of this report, subjects in the high stimulus group were shown to be more satisfied with life in the second study (primed with likes) although no statistical significance was found in the first study (primed with money). As with self-esteem, the finding in the like primed study was in opposite to what was hypothesized. We believed that the group being primed with a higher number of likes would be less satisfied with life, not more satisfied. Although, we can see some logic to this finding when looking at past literature.

Shakya and Christakis (2017) argue that spending much time on Facebook makes one feel worse about oneself as well as feeling less satisfied with life. We hypothesized that our findings could have an overlap with what Shakya and Christakis found. That we, the general public, have been infected with constant influxes of sunshine stories on applications such as Facebook, Instagram, and TikTok showing the highlight of not only our personal friends, but also celebrities who we, before the emergence of the internet and social media, had a much more distant communication with. All in all, it is much more simple to compare oneself with one's surroundings than it used to be. This is not only argued by us, but also shown in Boers, Afzali and Newton's (2019) study where spending time on social media was shown to have a high correlation with upward social comparison. This upward social comparison might be the reason for our findings. On social media apps and websites, how many friends, followers etc. people have are on full display. As discussed in the self-esteem discussion, it can be argued that the respondents self-esteem increased due to SJ "believing" that he, she or they could get the number of likes needed. Self-esteem is, by some, seen as a vital part of life satisfaction (Sirgy et al. 1998) and as such, it could be argued that the same effect could increase life satisfaction. That is, when the respondent sees that he, she or they need to get 250 likes in order to win, they feel as if it is possible as SJ "believes" it is and hence, life satisfaction increases. This opens up new research possibilities; to look into self-esteem as a mediator to life satisfaction.

Although, as in the self-esteem discussion, our findings contradict some other previous research since several studies have shown that if one receives a lower amount of likes, life satisfaction can be affected negatively. For example, Grinberg et al. (2017) means that we can be negatively affected by not receiving the amount of likes that we expect. One could argue that if a respondent sees the ad with 250 likes and he, she or they clearly can not reach it, it could cause these negative effects. Similar results can also be found in Poon and Jiang's (2020) study, which tells us that getting a low number of likes increases a feeling of being left out. Furthermore, in their study from 2017, Mayol and Pénard found a statistically significant correlation between the number of likes we get and our life satisfaction; a lower amount of likes on a posted picture can lead to lower life satisfaction, envy being the mediating factor. One could argue, as we hypothesized from the beginning, that seeing a high amount of likes needed to win a reward will make you perceive the general amount of likes you get, when posting on social media, as low.

This was indeed the case, but this group actually showed a higher life satisfaction which contradicts findings from previous research.

5.2 Conclusions and answer to research questions

To conclude, the results of our report are of mixed nature. It is clear that stimulus regarding likes has a larger effect than actual money, as we found significant results in study two but not in study one regarding both life satisfaction and self-esteem. Although in the opposite direction than we initially thought. Our findings oppose most other research, which tells us that receiving a low number of likes has negative effects on self-esteem and life satisfaction (Burrow & Rainone, 2017; Grinberg et al., 2017; Mayol and Pénard, 2017; Valkenburg, Peter & Schouten, 2006).

That being so, in accordance with our findings in section four, Result & Analysis, the research questions can be answered as follows.

5.2.1 Answer to research question one

Research question one: How will a higher respectively lower price in an advertisement exposing the same product affect the perceived self-esteem and life satisfaction of the receiver?

Answer to research question 1: Being exposed to a high respectively low price in an advertisement exposing the same product has no significant negative effect on the receiver's self-esteem and life satisfaction.

5.2.1 Answer to research question two

Research question two: How will a higher respectively lower number of social media likes needed to receive a reward affect the perceived self-esteem and life satisfaction of the receiver?

Answer to research question two: Being exposed to a high respectively low number of likes in an advertisement exposing the same reward has no significant negative effect on the receiver's self-esteem and life satisfaction. However, it has a significant positive effect on the receiver's self-esteem and life satisfaction.

5.3 Limitations

We, as authors, feel confident in the internal validity of the results presented as we designed the research project into a four-stage process where we firstly, with the help of our data partner Norstat, devised a sample of the general Swedish working population, assigned the sample randomly into one of the treatment groups, administered the appointed study to the respondent and lastly concluded a post-test assessment of the respondents answer quality. Nevertheless, there are of course limitations in our research approach which will be exposed below.

5.3.1 Research scope

The results could be argued to be limited by the choice of brands in our report, Ben & Jerry's as well as SJ. The respondents might have earlier relationships with these brands and if so, these can not be known to us, the researchers. Although, this effect is equally likely in both the treatment and control group and hence, should not pose a problem for our results. Although, if a previous relationship exists it is likely to either enhance or neglect the effect of our stimulus, depending on the respondents' relationship to the brand.

Additionally, the choice of products might also have some effect. For example, in study one we marketed a jar of Ben and Jerry's ice cream. It is not unbelievable that some respondents do not like ice cream and in study two, the SJ study, there is some probability that some respondents do not like traveling by train and hence, the results could be affected negatively.

5.3.2 Methodological approach

For starters, as our sample is of the Swedish general working population, i.e. men and women 18-65 years of age. Consequently, even if the result is generalizable in a Swedish context, the results can not with certainty be generalized on a global level. We believe that the simple use of advertisements should not incur too different outcomes, but cultural differences could of course present somewhat different outcomes. For example, our use of language in the commercials shown in both studies could have different cultural meanings in different countries.

Furthermore, even though the control questions went through extensive testing in the pre-test phase, it is impossible for us to control certain things in regard to the treatment groups. Simple things such as graphical layout, tone of voice in the text presented, and/or color tone may to some extent have altered, either by neglify ot amplify, the measured effects of our studies. Even though our research method represents clearly established academic procedures, one can always find one way or another to criticize the validity or our approach.

When consumers normally see an advertisement, it is when watching TV, interacting on apps such as Instagram or it might even be when walking down the street. It is usually not when taking an active choice to answer a survey sent out by a data panel company, and especially not when getting paid (as Norstat respondents are). Even though the setting was controlled, this fact clearly limits the realism of the commercial acting as both control and stimulus in our studies.

Lastly, the answers of the respondents in our studies were self-recorded and hence, there are factors that we can’t control for. These include things such as if the respondent had recently gone through a troubling personal experience. These things are statistically even between our groups as we have such a large sample set, but in any case, it could be argued to interfere with the results presented.

5.4 Managerial implications

There are some managerial implications we want to shine the light on in this section. Most importantly, current research presents findings allowing managers, preferably within marketing departments, to know how the decisions made in marketing strategy, campaigns and commercials have a larger effect on consumers. Allow us to explain.

Overall, we believe that this report could be useful for marketers since we explored how numerical communication can elicit certain emotions for the consumer. As we did not find statistically significant results in study one, the money experiment, it is implied that managers do not have to take consumers' life satisfaction and self-esteem into consideration when deciding the price of a product or at least not when communicating it. However, regarding the advertisement concerning likes, we believe that companies can to an even greater extent create advertisements where consumers are asked to share a picture and be given a reward if reaching a certain amount of likes. And, as shown from our results, a higher communicated number of likes could be beneficial since this increases the perceived life satisfaction and self-esteem among consumers. This opens up new marketing possibilities for companies. Lastly, as our results contradict some previous research, we would like to advise managers to have a critical view towards what is generally agreed upon within academia and which this report based its hypotheses upon.

5.5 Theoretical implications & implications for future research

First and foremost, this report fills a research gap regarding how higher vs. lower numerical stimulus in advertising affects consumers' feelings in general, and the specific feelings of life satisfaction and self-esteem in particular. In this research, consistent effects were found relating higher consumer life satisfaction and self-esteem to higher amounts of likes communicated in an advertisement. This does not confirm our research questions, but it is still an interesting finding.

Furthermore, the present report adds to existing management, as well as psychological theory, a new ambiance. As already discussed, previous research has gone to great lengths to find correlations between advertisements and life satisfaction/self-esteem. Although, to the best of our knowledge, academia has not set foot in this highly interesting research subject; the link between pricing (in different forms) and life satisfaction/self-esteem. As such, the present research constitutes a new perspective on these theoretical fields and hence, is paving the way for further, interesting, research.

Adding on, in our research we have evaluated the concepts of life satisfaction and self-esteem. Some believe self-esteem is a sub-concept of life satisfaction while some don’t. Nonetheless, life satisfaction, and self-esteem for that matter, are two broad concepts and hence, breaking them down into smaller components and correlating these to our research question would improve the

understanding of what are the core psychological traits which provide the effects found in our report. Further research could focus on other traits such as self-confidence, self-sufficiency, happiness.

Also, as we found statistically significant results in the like primed study both regarding self-esteem and life satisfaction, however in the opposite direction than we thought, it is possible to hypothesize that self-esteem might actually be a large part of life satisfaction and hence, our findings support previous academic findings (Baumeister et al., 2003; Moksnes & Espnes, 2013; Patel et al., 2018; Sirgy et al. 1998). However, this conclusion can not be drawn from our research and as such, opens up new research possibilities. That is, to research self-esteem as a mediator to life satisfaction. Furthermore, due to the fact that our findings contradicts previous research in that we have shown that a lower amount of likes actually leads to a higher life satisfaction and self-esteem, further research could elaborate on our findings and explore the mediating effect to why a lower amount of likes can lead to a higher life satisfaction and self-esteem.

Moreover, as our research project only measured two numerical values, future researchers could gain new insights by applying our methods with regard to, for example, recommendations, social media shares, comments, credit card points as opposed to the values we used, i.e. likes and money. Also, in study one, we used a Ben & Jerry's as the marketed product and, in study two, we used posting a selfie as the "task" in the advertisement. As such, researchers could explore whether additional graphical stimuli or even different product categories can produce different or similar results.

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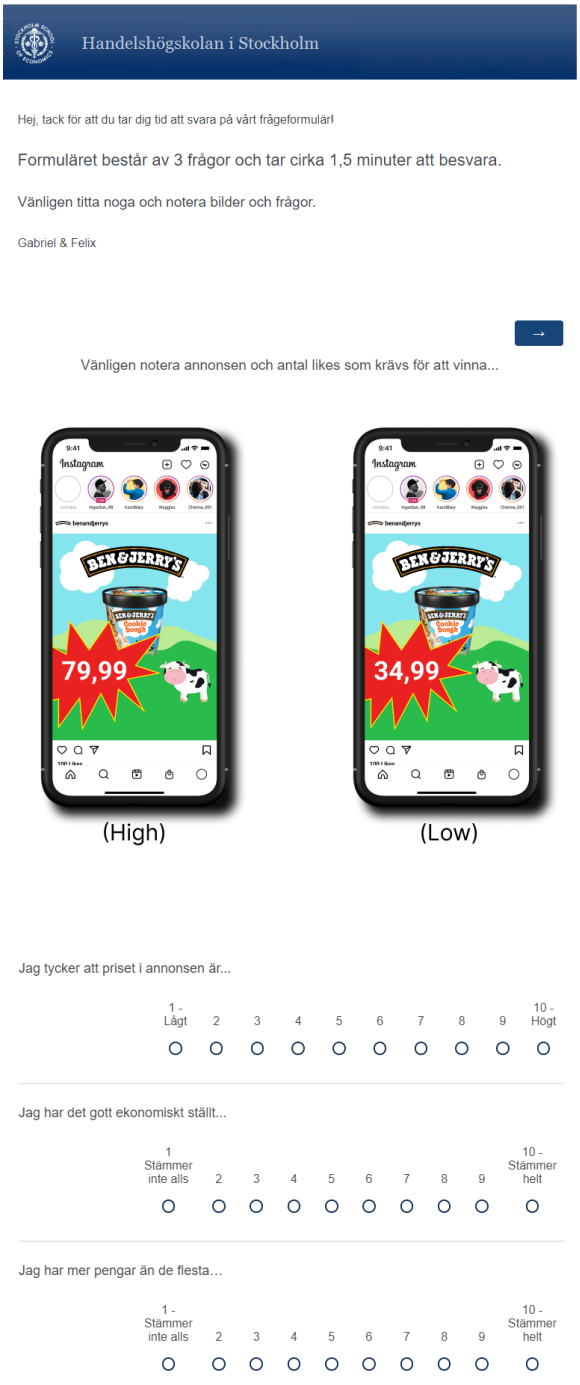
Appendix

Appendix 1 - Pre-test 1



Handelshögskolan i Stockholm

Hej, tack för att du tar dig tid att svara på vårt frågeformulär!

Formuläret består av 3 frågor och tar cirka 1,5 minuter att besvara.

Vänligen titta noga och notera bilder och frågor.

Gabriel & Felix

→

Vänligen notera annonsen och antal likes som krävs för att vinna...

(High)

(Low)

Jag tycker antalet likes som behövs för att vinna är...

1 - Lågt	2	3	4	5	6	7	8	9	10 - Högt
O	O	O	O	O	O	O	O	O	O

Jag får vanligtvis många likes när jag gör inlägg på sociala medier...

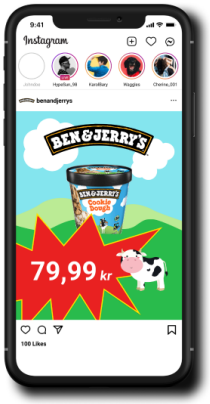
1 - Stämmer inte alls	2	3	4	5	6	7	8	9	10 - Stämmer helt
O	O	O	O	O	O	O	O	O	O

Jag får fler likes på sociala medier än de flesta...

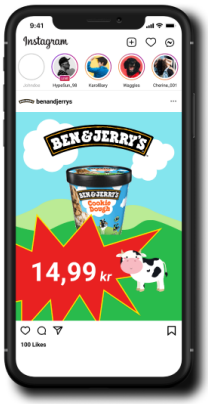
1 - Stämmer inte alls	2	3	4	5	6	7	8	9	10 - Stämmer helt
O	O	O	O	O	O	O	O	O	O

Appendix 2 - Pre-test 2

Vänligen notera annonsen och varans pris.



(High)



(Low)

Jag tycker att priset i annonsen är...

1 - Lågt	2	3	4	5	6	7	8	9	10 - Högt
○	○	○	○	○	○	○	○	○	○

När jag ser annonsen känner jag att jag har det gott ekonomiskt ställt...

1 Stämmer inte alls	2	3	4	5	6	7	8	9	10 - Stämmer helt
○	○	○	○	○	○	○	○	○	○

När jag ser annonsen känner jag att jag har mer pengar än de flesta...

1 - Stämmer inte alls	2	3	4	5	6	7	8	9	10 - Stämmer helt
○	○	○	○	○	○	○	○	○	○

Handelshögskolan i Stockholm

Hej, tack för att du tar dig tid att svara på vårt frågeformulär!

Formuläret består av 3 frågor och tar cirka 30 sekunder att besvara.

Vänligen titta noga och notera bilder och frågor.

Gabriel & Felix

→

Vänligen notera annonsen och antal likes som krävs för att vinna...

(High)

(Low)

Jag tycker att antalet likes som behövs för att vinna är...

1 - Lågt	2	3	4	5	6	7	8	9	10 - Högt
○	○	○	○	○	○	○	○	○	○

Annonsen får mig att känna att jag vanligtvis får många likes när jag gör inlägg på sociala medier...

1 - Stämmer inte alls	2	3	4	5	6	7	8	9	10 - Stämmer helt
○	○	○	○	○	○	○	○	○	○

När jag ser annonsen känner jag att jag får fler likes än de flesta på sociala medier...

1 - Stämmer inte alls	2	3	4	5	6	7	8	9	10 - Stämmer helt
○	○	○	○	○	○	○	○	○	○

Appendix 3 - Main survey

Handelshögskolan i Stockholm

Hej,

Tack för att du medverkar i vår studie. Vänligen titta på följande annons och svara utifrån dina spontana intryck. Alla svar behandlas anonymt.

Tack, Felix & Gabriel

→

Vänligen notera annonsen och varans pris

(High)

(Low)

	1 - Lågt	2	3	4	5	6	7	8	9	10 - Högt
Jag tycker att priset i reklamen är...	O	O	O	O	O	O	O	O	O	O

	1 - Stämmer inte alls	2	3	4	5	6	7	8	9	10 - Stämmer helt
När jag ser annonsen känner jag att jag har det gott ekonomiskt ställt...	O	O	O	O	O	O	O	O	O	O
När jag ser annonsen känner jag att jag har mer pengar än de flesta...	O	O	O	O	O	O	O	O	O	O

	1 - Stämmer inte alls	2	3	4	5	6	7	8	9	10 - Stämmer helt
Mitt liv är på de flesta sätt idealt.	O	O	O	O	O	O	O	O	O	O
Mina livsvillkor är utmärkta.	O	O	O	O	O	O	O	O	O	O
Jag är nöjd med mitt liv.	O	O	O	O	O	O	O	O	O	O

	1 - Stämmer inte alls	2	3	4	5	6	7	8	9	10 - Stämmer helt
Jag känner att jag är en värdefull person, åtminstone lika värdefull som andra.	O	O	O	O	O	O	O	O	O	O
Jag kan göra saker lika bra som de flesta människor.	O	O	O	O	O	O	O	O	O	O
Jag önskar att jag hade mer respekt för mig själv.	O	O	O	O	O	O	O	O	O	O
Jag har en hög självkänsla.	O	O	O	O	O	O	O	O	O	O

Handelshögskolan i Stockholm

Hej,

Tack för att du medverkar i vår studie. Vänligen titta på följande annons och svara utifrån dina spontana intryck. Alla svar behandlas anonymt.

Tack, Felix & Gabriel

→

Vänligen notera annonsen och antal likes som krävs för att vinna...

(High)

(Low)

	1 - Lågt	2	3	4	5	6	7	8	9	10 - Högt
Jag tycker att antalet likes som krävs för att vinna är...	○	○	○	○	○	○	○	○	○	○

	1 - Stämmer inte alls	2	3	4	5	6	7	8	9	10 - Stämmer helt
Annonsen får mig att känna att jag vanligtvis får många likes när jag gör inlägg på sociala medier...	○	○	○	○	○	○	○	○	○	○
När jag ser annonsen känner jag att jag får fler likes än de flesta på sociala medier...	○	○	○	○	○	○	○	○	○	○

	1 - Stämmer inte alls	2	3	4	5	6	7	8	9	10 - Stämmer helt
Mitt liv är på de flesta sätt idealt.	○	○	○	○	○	○	○	○	○	○
Mina livsvillkor är utmärkta.	○	○	○	○	○	○	○	○	○	○
Jag är nöjd med mitt liv.	○	○	○	○	○	○	○	○	○	○

	Stämmer inte alls	2	3	4	5	6	7	8	9	Stämmer helt
Jag känner att jag är en värdefull person, åtminstone lika värdefull som andra.	○	○	○	○	○	○	○	○	○	○
Jag kan göra saker lika bra som de flesta människor.	○	○	○	○	○	○	○	○	○	○
Jag önskar att jag hade mer respekt för mig själv.	○	○	○	○	○	○	○	○	○	○
Jag har en hög självkänsla.	○	○	○	○	○	○	○	○	○	○