

Stockholm School of Economics
Master Thesis in Business and Management
Spring 2020

Smiling, Trust, and Funding in Entrepreneurial Pitching

Blake Morgan (41432) & Sanna Westerberg (23392)

Date of Presentation: 2020-05-28

Supervisor: Mark A. Conley

Abstract:

Entrepreneurs' ability to attract funding is often crucial for their success. Business angels and venture capitals meet many entrepreneurs every year. Upon first contact, entrepreneurs have very little time to capture a potential investor's interest. Initial pitches are characterized by high time pressure, high uncertainty, and large informational asymmetries. Trust is important in overcoming these challenges. Applying the Stereotype Content Model investors can be viewed as evaluating entrepreneurs on two dimensions of trust: warmth and competence. This study builds a conceptual model for explaining the relationship between smiling, perceived trust, and propensity to invest in the context of startup pitches. A randomized experiment using a sample of 200 participants is used to empirically test this model and estimate the effects of smiling. The results show that smiling leads to higher perceived trust, because smiling has a positive impact on perceived warmth. High trust scores are also associated with increased propensity to invest. Based on this information, it is intuitive to think that smiling should have an effect on propensity to invest as well. However, this study's results do not support this conclusion since there is no statistically-significant evidence for a direct effect of smiling on propensity to invest.

Keywords: smiling, trust, funding, entrepreneurship, pitching

Acknowledgements

We want to thank BASE10, Drivhuset and Entrepreneur Academy who let us use their networks to reach entrepreneurs and investors. We also want to thank the participants that participated in our study, your contributions were essential.

We want to thank our two pitchers for an exceptional performance as entrepreneurs in our study's treatment videos. We also want to thank Alex Beyer and Nils Weber who gave us valuable feedback on the pitch.

Finally, we want to thank our thesis supervisor Mark Conley. Your inspiration, engagement and support throughout the process of the study has been invaluable.

Table of Contents

1. Introduction.....	4
1.1 Problematization.....	4
1.2 Purpose, Aim & Expected Contribution	5
1.2.1 Research Question	5
1.3 Delimitations	6
1.4 Road Map	6
2. Theoretical Framework.....	7
2.1 Literature review	7
2.1.1 Entrepreneurship and Funding.....	7
2.1.2 Trust and its Importance in the Entrepreneur-Investor Relationship	9
2.1.3 Communicating Trust During a Pitch.....	11
2.1.4 Research Gap	13
2.3 Theoretical Model	14
2.3.1 Smiling's Effect on Trust	15
2.3.2 Smiling's Effect on Propensity to Invest.....	16
2.3.3 Trust's Effect on Propensity to Invest	16
3. Method.....	18
3.1 Scientific Research Approach	18
3.2 Research Design	18
3.3 Study.....	19
3.3.1 Participants: The Sample	20
3.3.2 The Treatment.....	27
3.3.3 Observations	31
3.3.4 Setting.....	34
3.4 Pre-Study	35
3.5 Data Preparation.....	35
3.6 Empirical Models	35
3.6.1 Regression Models	35
3.6.2 Mediation Model	37
3.7 Validity, Reliability and Replicability	39
3.7.1 Validity	39

3.7.2 Reliability	43
3.7.3 Replicability.....	43
3.8 Ethical considerations	44
4. Results & Analysis.....	45
4.1 Descriptive Statistics	45
4.2 Hypotheses Testing	47
4.2.1 Smiling Leads to Higher Trust	48
4.2.2 Smiling Leads to Higher Perceived Warmth.....	48
4.2.3 Smiling has Little to no Effect on Perceived Competence	49
4.2.4 Smiling Increases Propensity to Invest.....	50
4.2.5 Higher Perceived Trust is Associated with Higher Propensity to Invest	51
4.2.6 Mediation Analysis.....	52
5. Discussion	55
5.1 Discussion of Results	55
5.1.1 Effect of Smiling on Trust and its Dimensions	55
5.1.2 Association Between SCM Trust and Propensity to Invest.....	56
5.1.3 Effect of Smiling on Propensity to Invest	57
5.1.4 The Implications of our Results on our Conceptual Model.....	59
5.1.5 The Influence of the Pitcher on the Effect of Smiling.....	60
5.2 Limitations	61
5.2.1 Effect of Gender	61
5.2.2 Effect of Different Smiles.....	62
6. Conclusion	63
6.1 Theoretical Implications.....	63
6.2 Entrepreneurial Implications	63
6.3 Future Research.....	64
Bibliography	65
Appendix.....	72

1. Introduction

For entrepreneurs, the ability to attract and secure funding for their businesses is often essential to their success and growth. Difficulties raising funds can lead to failure. The initial pitch is frequently the first important step in the investment process (Clark, 2008). Thus, if an entrepreneur wants to build a successful venture, they must master the art of pitching. Business angels and venture capital lead generators meet many entrepreneurs every year, and first impressions are critical. Upon initial contact, entrepreneurs often have very little time to capture a potential investors' interest (Clark, 2008; Clarke et al., 2019). Situations where entrepreneurs first meet with potential investors are characterized by high time pressure, high uncertainty, and large informational asymmetries (van Osnabrugge, 2000). It is imperative for entrepreneurs to overcome these challenges and secure the potential investor's interest in dedicating further time and energy to them and their idea (Clarke et al., 2019).

1.1 Problematicization

Pitching successfully is thus a highly challenging task. For such a high-pressure situation, there are many factors to consider and get right. An important factor for overcoming the twin challenges of high uncertainty and large informational asymmetries is trust. Trust is key to the entrepreneur-investor relationship, and given the time-constraints of an initial pitch that limit the amount of information that can be conveyed, signaling trustworthiness is crucial (Maxwell & Levesque, 2011).

Past research about pitching has often focused on the importance of displaying competence, and it frequently suggests that entrepreneurs should focus on preparing to demonstrate their knowledge and skills to potential investors (Chen et al, 2009; Maxwell et al., 2011).

However, factors such as knowledge and skills associated with the concept of competence are not the only dimension of trust. For an investor to consider an entrepreneur as an attractive investment opportunity, they must not only have confidence in the entrepreneur's ability to accomplish their intent, but they must also believe that the entrepreneur's intent is in line with their own (Maxwell & Levesque, 2011). To be perceived as trustworthy, and thereby increase their chances of receiving funding, entrepreneurs should be concerned with how they can effectively signal good intent. Since research in the field of psychology indicates that body-language is highly important at signaling intent in high-time pressure situations, this paper examines how non-verbal communication, such as smiling, can help entrepreneurs be

perceived as trustworthy and thus improve their likelihood of receiving the funding that they need.

1.2 Purpose, Aim & Expected Contribution

Previous research has found that non-verbal behaviour has a positive effect on propensity to invest (Clarke et al., 2019) and that trustworthiness is crucial for the entrepreneur to convey in order to attract funding (Maxwell & Lévesque, 2011). Other studies have shown that people are able to recognize trustworthiness from a face quickly (Willis & Todorov, 2006) and that smiling signals trustworthiness (Wang et al., 2016; Centorrino et al., 2015). Studies also indicate that smiling is associated with better outcomes (Jiang et al., 2019). While it is evident that previous research has established the separate links relating smiling, trust and funding, the explicit relationship between the three elements in the context of an entrepreneurial pitch is under-researched (Clarke et al., 2019). It is also widely established that personal perceptions consist of warmth and competence evaluations and that trust in an entrepreneur-investor relationship includes both abilities and intent. Current literature provides guidance related to competence characteristics regarding how entrepreneurs should structure and present their pitch (Chen et al., 2009). However, less is known about what the entrepreneur can do during a pitch in order to be perceived as warm.

Our study aims to close this gap by establishing a direct connection between smiling, trust, and positive investor interest during the initial pitch. Furthermore, our research will seek to provide quantitative estimates of how smiling, trust and investor engagement are linked to each other. In doing so, we believe that our study will expand current theory regarding the non-verbal signaling of a smile during an initial pitch. This topic is relevant for researchers in business and behavioral science. Our study also seeks to generate inferences that can provide practical advice to entrepreneurs on how they should prepare for and perform first pitches.

1.2.1 Research Question

In the context of an initial pitch held by an entrepreneur for a potential investor, does smiling on the part of the entrepreneur increase the investor's trust in the entrepreneur and thereby increase the likelihood that they pursue the entrepreneur and their idea further?

1.3 Delimitations

This thesis is delimited to looking at the general effect of an entrepreneur smiling on trust and propensity to invest. Thus, potential influences on the effect of smiling for certain groups of entrepreneurs, such as gender and ethnicity, are beyond the scope of this study. This conscious constraint is beneficial because including those variables would result in an overly complex study design which could undermine the purpose of this study, namely examining the relationship between smiling, trust and propensity to invest.

Another delimitation is that the participants in our study are business students not investors. This is deemed to be inappropriate due to the fact that the core effect that we are studying should be relatively applicable regardless who the participant is. Smiling and the signals that it sends are deeply ingrained in humans. Additionally, our study looks at the immediate effect of smiling while pitching rather than its long-term effect. This was deemed to be appropriate due to the fact that decisions to pursue a business idea to the next stage after a first pitch are generally made immediately.

1.4 Road Map

Section One of this paper gives an introduction. Section Two presents a theoretical framework with an overview of the existing literature on the trust, smiling and entrepreneurial pitching that is used as the theoretical basis for developing a conceptual model and testable hypotheses. Section Three explains our research method and design. Section Four presents the results of our empirical analysis, and Section Five discusses the results and the study's limitations. Finally, Section Six presents a conclusion, including the implications of the paper and avenues for further research.

2. Theoretical Framework

This section explores relevant literature to develop a theoretical framework for this study. We begin by presenting a literature review of current research about the entrepreneurial investment process, trust and nonverbal behavior. This will establish and highlight a current research gap. We then present a theoretical framework that enables us to generate testable hypotheses.

2.1 Literature review

The literature review focuses on three theoretical fields related to the context of a pitch: (1) entrepreneurship and funding, (2) trust in the entrepreneur-investor relationship, explained by using the Stereotype Content Model (Fiske et al., 2002), and (3) nonverbal communication, with a focus on the signal of smiling.

2.1.1 Entrepreneurship and Funding

Scholars recognize that at its core, entrepreneurship consists of the detection, assessment and exploitation of opportunities (Venkataraman 1997; Shane & Venkataraman, 2000).

Entrepreneurial opportunities are exploited by introducing new goods and services in inefficient markets or by destroying market equilibriums with new knowledge, technologies or business models (Venkataraman, 1997). These opportunities are however associated with uncertainty since it is difficult to know how and when a space for creating goods and services for the future will arise. As entrepreneurial activities involve the creation of something beyond existing practices, their results cannot be predicted by using pre-existing facts and common rules. Therefore entrepreneurial activities can always be understood after (ex post) but never before (ex ante) (Schumpeter, 1947). Some people are better informed about the relationship between certain activities and outcome due to the fact that knowledge is diffused and at everyone's disposal. (Hayek, 1945) Therefore, information asymmetries exist and can be understood as the mechanism behind entrepreneurial opportunity (Maxwell & Lévesque, 2011; Venkataraman, 1997).

When entrepreneurs are pursuing an opportunity, the extent of their activities is dependent on what resources the entrepreneur controls in terms of time and personal investment. This implies entrepreneurs' resources are highly constrained (Venkataraman, 1997). Therefore, in order to maximize potential returns, entrepreneurs need to gain access to resources beyond

their initial control by seeking external funding from potential investors. Again, due to information asymmetries it can be a struggle for entrepreneurs to find financial support (van Osnabrugge, 2000). Venture capitalists and business angels are the two main groups of investors that invest in entrepreneurial business ideas. Investing in an entrepreneur involves a long investment process that usually includes several screening steps and meetings before a funding decision is made. The majority of ventures are rejected in the beginning of this process (Fried & Hirsch, 1994; Paul et al., 2007). During the investment process, compared with the entrepreneur, the investor has incomplete and imperfect information about the venture. This makes it difficult for investors to determine the viability of a business idea (Akerlof, 1970).

An initial pitch is often an important first-step in the investment decision process. Initial pitches often occur before a potential investor has seen a detailed business plan (Clark, 2008). During a pitch, the entrepreneur has a short amount of time, usually only a couple of minutes, to convince the investor to pursue their business idea. From the investor's perspective, the time constraints of a pitch implies that investors must assess the uncertainties about both the entrepreneur and the venture's potential based on limited information. For the entrepreneur, it is therefore essential to figure out how to use the short time that a pitch gives them to deal with those uncertainties and increase the likelihood that they get the funding they need by persuading the investor to commit further time and interest to pursuing their idea (Brooks et al., 2014). When evaluating a venture, investors' decision-making criteria emphasize the entrepreneur's ability to communicate adequate information regarding the venture (Maxwell et al., 2011). Research shows that to avoid being rejected entrepreneurs should prepare thoroughly before a pitch to ensure that they present all necessary information about the venture as well as their own cognitive abilities (Chen et al., 2009).

Previous studies have tested investors' willingness to fund a startup by simply asking a question of if they would invest with a binary "yes" or "no" answer (Chen et al., 2009). Clarke and colleagues (2019) criticize such questions since both the investment process and investors' decision making process are sequential (Fried & Hirsh, 1994; Clarke et al., 2019). Clarke and colleagues (2019) conclude that in the context of a pitch, propensity to invest is a better measure than funding outcomes. During the context of an initial pitch there are too many uncertainties between the two parties for investors to make reliable funding judgements (Clarke et al., 2019).

2.1.2 Trust and its Importance in the Entrepreneur-Investor Relationship

Observational studies of first interactions between entrepreneurs and investors show that displaying trustworthiness is essential for entrepreneurs to attract funding by dealing with the uncertainties related to investment decisions (Maxwell & Lévesque, 2011). Furthermore, both business angels and venture capitalists recognize that trust between the entrepreneur and investor is crucial as they will pursue the venture together after the investment has been made (Fried & Hirsch, 1994; Paul et al., 2007). Trust is the mechanism that deals with concerns arising from power imbalances and information asymmetries. Simply believing that the other party is telling the truth and does not want to cause any harm helps confirm that both parties are heading towards the same goal (Maxwell & Lévesque, 2011).

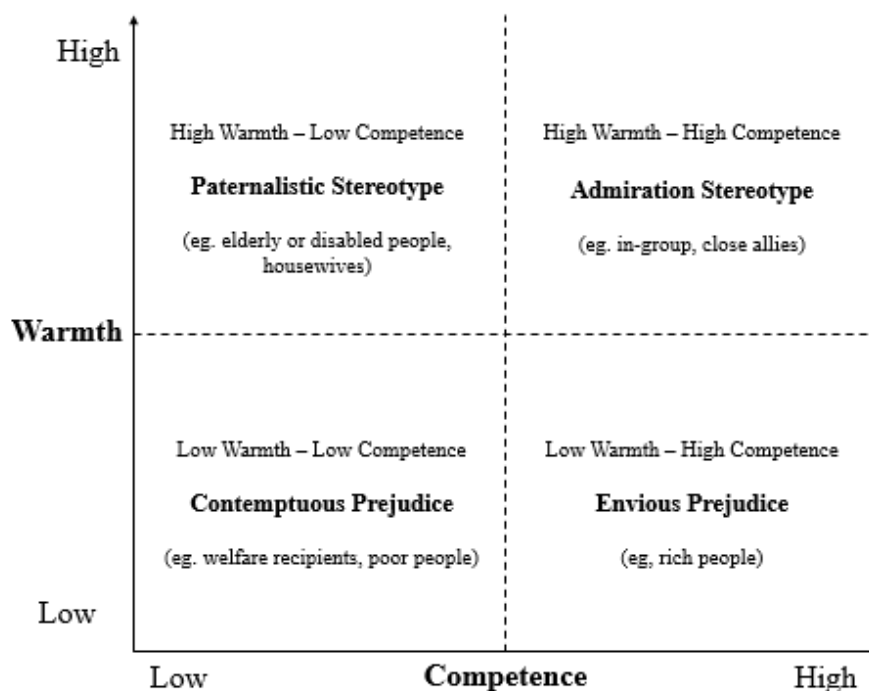
2.1.2.1 Warmth and Competence as Dimensions of Trust

Leading researchers in the field of social psychology assert that social perceptions consist of the two dimensions: warmth and competence (eg Fiske et al., 2002; Judd et al., 2005; Ponsi et al., 2016; Wojciszke, 2005). Warmth and competence serve as the building blocks of the Stereotype Content Model (SCM), which was introduced in 2002 by Fiske and her colleagues as a matrix for grouping stereotypes. The SCM is based on the socio-cognitive judgements that are formed regarding new individuals or groups and is a simple yet informative model commonly used when mapping perceptions of people. Warmth evaluations typically include perceptions of warm, kind, friendly and sincere. Competence evaluations on the other hand included perceptions of confidence, independence and intelligence (Aaker et al., 2010; Fiske et al., 2007; Wang et al., 2016). A high competence score combined with a high warmth score implies that a person has a friendly and trustworthy intent and is able to act in line with that intent. People that are perceived as both having trustworthy intent and the ability to act effectively upon that intent are viewed as close allies in the high-warmth, high-competence condition of the SCM (Fiske et al., 2002).

The concepts warmth and trust are sometimes presented as equivalent by scholars (Johnson et al., 2018; Willis & Todorov, 2006). Other studies see them as closely related, positing that warmth incorporates trustworthy intent but acknowledging that warmth also includes other elements such as morality and sociability (Aaker et al., 2010; Brambilla et al., 2012; Wang et al., 2016). While the literature is somewhat ambiguous on the relationship between warmth and trust, with some authors seeing them as equivalents and others acknowledging that

warmth is a dimension of trust, it is clear that trust in the context of the entrepreneur-investor relationship is the product of both warmth and competence. This is in line with Maxwell and Levesque (2011) whose observational study suggests that both competence and warmth characteristics are essential when building trust with an investor. For an investor to trust an entrepreneur with their money they must believe that the entrepreneur has good intent and the ability to act in line with that intent (Maxwell & Lévesque, 2011). Thus, entrepreneurs should want to be perceived by investors as belonging to the upper-right quadrant of the SCM model as seen in **Figure 1**.

Figure 1: Stereotype Content Model (Fiske et al. 2002).



2.1.2.2 The Occurrence of Warmth and Competence

Two main themes are often brought up by scholars studying the occurrence of warmth and competence. The first is the primacy of warmth and the second is the interplay between warmth and competence.

It has been shown that when people make judgements about other people, warmth judgements precede competence judgements both in regard to how quick they are made and the impact they have on the impressions of others (eg. Cislak & Wojciszke, 2008; Cuddy et al., 2011, Wojciszke & Abele, 2008). The primacy of warmth has been explained through an

evolutionary perspective. Intuitively it was evolutionarily more important to determine if a newly encountered person had beneficial or harmful intent than it was to assess how much benefit or harm that person might cause. The result of this is that it is common to make warm judgments about whether a new person is a “friend or a foe” before determining that person's specific capabilities (Fiske et al, 2007).

Several studies have investigated how judgements about warmth- and competence-communicating behaviors relate to one another. Two conflicting effects have been found, the halo effect and the compensation effect (eg. Yzerbyt et al., 2008,). The halo effect implies a positive correlation between warmth and competence. It has been found that when behaviors associated with both dimensions are rated for one individual and competence is manipulated, warmth rating tends to follow the same direction as the competence manipulation (Judd et al, 2005 - study 4). In contrast, the compensation effect refers to a negative correlation between warmth and competence (Judd et al., 2005 study 1, 2; Yzerbyt et al., 2008). Evidence for this effect has been found in experimental studies where participants were given information about either high or low ratings of one of the two dimensions of warmth and competence for two different groups. Participants judged both the manipulated and the unmanipulated dimension for both groups. It was shown that for the manipulated dimension the high group reported higher ratings than the low group, which is natural. On the unmanipulated dimension however, the opposite effect was found (Judd et al., 2005).

2.1.3 Communicating Trust During a Pitch

The entrepreneurial stereotype is perceived as high on competence and medium on warmth (Berry & Sanchez, 2019). The implication of this is that before meeting an investor, the entrepreneur is already primed to be perceived as competent because of their stereotype. In addition to this, when getting ready for pitches entrepreneurs put the majority of their effort into preparing the content of their pitch, a phenomenon that boosts their perceived competence (Chen et al., 2009; Berry & Sanchez, 2019). Although the competence aspect is certainly important, the fact that trust perceptions consist of both warmth and competence dimensions makes it evident that if an entrepreneur solely focuses on projecting competence, they will not be perceived as trustworthy. Furthermore, as the entrepreneurial stereotype already is perceived as competent, and since perceptions of warmth precede perceptions of competence, it is of high importance for entrepreneurs to figure out how to project warmth and thus trust during a pitch.

Previous studies have shown that nonverbal behaviours are effective at communicating higher order constructs such as trust (Naim et al., 2018), and facial expressions have been shown to be particularly influential when conveying trust (Yu et al., 2014; Willis & Todorov 2006; van 't Wout & Sanfey, 2008). Yu and colleagues (2014) provides evidence that a face can signal trust in the context of a cooperation game, and that faces that are perceived as trustworthy lead to greater cooperation. In a study that tested trait attributions during first impressions Willis & Todorov (2006) show that people are able to judge the trustworthiness of a face within just 100ms. Referring to the SCM, the study shows that trustworthiness is detected earlier than competence and hence confirms the primacy of warmth perceptions. Trustworthiness has also been shown to correlate more strongly with perceptions after the first impression, indicating that the initial perception of trustworthiness is important to overall perceptions (Willis & Todorov, 2006). Furthermore, in a study about trust and monetary transactions van 't Wout & Sanfey (2008) found that people with faces rated high on subjective trustworthiness also received more monetary offers (van 't Wout & Sanfey, 2008).

2.1.3.1 Smiling and Trust

A significant amount of literature assess that smiling is a way for individuals to communicate agreement and positive intent (Ekman & Friesen, 1982; Wang et al., 2016). This has gained large empirical support showing that facial expression of smiling is an especially strong way of conveying interpersonal signals related to trust (Cuddy et. al, 2011). Smiling is both simple and complex since smiles are easily detected but occur in many different shapes (Ekman & Friesen, 1982). Despite the complexity of different kinds of smiles, several studies have evaluated the effect of smiling versus not smiling on trust. First, there is evidence that smiling compared to non-smiling increases trust even if the smiling person is instructed to smile. This effect was found in an experimental study using randomized photos of non-smiling people and people instructed to smile (Scharlemann et al., 2001). Lastly, the extent of a smile also matters. When a smile goes from closed mouth to open mouth trust scores increase. This was found in a non-experimental study using faces with different smile intensity (Dewolf, 2014).

The effect of a smile has also been investigated within the SCM and there is evidence that smiling signals warmth (Cuddy et al., 2011). For example, in an experimental study comparing photos of people with broad smiles to photos of people with slight smiles, it was found that broad smiles increase warmth perceptions and compared to slight smiles (Wang et al., 2016). In a study where videos of experts explaining topics were shown to novices

Biancardi and colleagues (2017) show that participants perceived experts that smiled in their videos as much higher on warmth. Overall, the literature on smiling and trust provides strong evidence that smiling has a significant positive effect on trust compared to non-smiling.

2.1.3.2 Smiling and Funding

Several studies suggest that smiling positively affects funding success. Centorrino and colleagues (2015) show that genuine smiles increase monetary cooperation, and Wang and colleagues (2016) find that both broad and slight smiles can be beneficial depending on the context. In a study using a trust game, Mussel and colleagues (2013) show that participants were more likely to accept cooperation offers with potential monetary rewards from smiling people compared with non-smiling people. In an observation study, Jiang and colleagues (2019) find that displaying joy is associated with better outcomes in terms of funding performance. This study was based on analysis of pitch videos, where the facial expression of a smile was used to detect joy (Jiang et al, 2019).

2.1.4 Research Gap

The specific topic of entrepreneurial pitching as a whole is understudied. However, scholars have devoted much effort to studying the nature of entrepreneurship and the importance of trust in the entrepreneur-investor relationship.

Theory and previous studies show that entrepreneurs often need to secure external funding to build and grow their business and that trust is critical to the entrepreneur-investor relationship. Additionally, psychology theories such as the SCM indicate that trust in the context of the entrepreneur-investor relationship has two requisite dimensions: warmth and competence. Empirical studies find that non-verbal behavior such as smiling has a positive effect on perceived trustworthiness. The literature also indicates that in the context of a pitch, where there is high uncertainty and significant time constraints, signaling trustworthiness is especially important. Furthermore, several studies suggest that smiling has a positive effect on funding

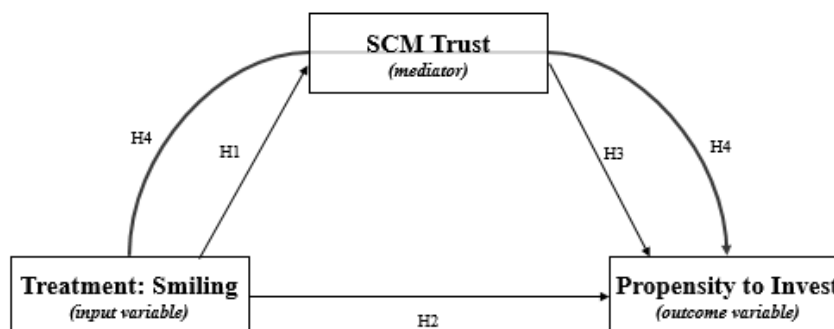
However, the explicit link between, smiling, perceived trustworthiness and funding is a gap within the literature. Estimating the effect that smiling while pitching has on the likelihood of receiving funding through the mediator of increased perceived trust would be highly relevant for scholars and entrepreneurs. Addressing this research gap would help inform the debate

about the importance of overcoming informational asymmetries in the entrepreneur-investor relationship and help estimate what role body-language has in the context of an entrepreneurial pitch. This topic is also of great practical value to entrepreneurs who are highly motivated to find effective ways to increase their pitching success and thereby secure the resources they need for their businesses.

2.3 Theoretical Model

Informed by our literature review, we have used research on smiling, trust and funding from entrepreneurial studies and behavioral science to create a theoretical framework for this study. Our theoretical framework provides a model for explaining how smiling while pitching increases perceived trustworthiness and thereby increases the propensity of a potential investor to invest. Our simplified model includes three variables. The first is the input variable smiling: whether an entrepreneur smiles or not while they are pitching. The second variable is the mediation variable, SCM trust, which is the product of the two sub variables: warmth and competence, as presented by Fiske and colleagues (2002) in the SCM. The third variable is the outcome variable, propensity to invest as explained by Clarke and colleagues (2019). We highlight that this is a simplified model since we believe that there could be other variables influencing the relationship between smiling, trust and propensity to invest. This model will guide us in estimating the effect that smiling while pitching has on propensity to invest through the mediator, perceived trust in the context of a first pitch. It should be noted that H1a and H1b are implicitly included in the model as subcomponents of H1. This is appropriate as SCM trust is the product of warmth and competence. The following subsections will justify and explain the links in the conceptual model and hypothesis generation. Below is a graphic overview of our theoretical framework.

Figure 2. Theoretical Model and Conceptual Framework



2.3.1 Smiling's Effect on Trust

In the context of an entrepreneur-investor relationship trust is the perception that one's partner both has good intent and the ability to act in line with that intent. This perspective is in accordance with the SCM and its two dimensions, warmth and competence (Yu et al, 2014), where trustworthy stereotypes are found in the high-warmth high-competence combination (Fiske et al, 2002). A person perceived as high on warmth is seen as having trustworthy intent, and a perception of high competence means that the person is believed to be able to act in line with their trustworthy intent. Thus, to maximise their likelihood of receiving funding it is important that entrepreneurs are perceived as both warm and competent. In line with Fiske's (2002) matrix of the four stereotypes, trust scores should be based on the product of warmth and competence (Fiske et al, 2002).

In the context of an initial pitch, where time-constraints are high, we believe that smiling while pitching will increase perceived warmth and have little effect of perceived competence. Perceptions of warmth are developed extremely quickly, and Wang and colleagues (2016) and Biancardi and colleagues (2017) provide evidence that smiling increases warmth perceptions significantly. In the context of an entrepreneurial pitch there is reason to believe that the competence dimension should not be heavily affected. Previous studies have shown that it is more difficult to affect competence than warmth in a short amount of time (Willis & Todorov, 2006). Furthermore, entrepreneurs are generally perceived as high on competence and cultivating this perception is a significant focus of their time and energy (Berry & Sanchez, 2019). Thus, we do not expect to observe either a halo or compensation effect in the context of a pitch. Therefore, an entrepreneur's perceived competence, which is already generally high should not be affected by smiling. In line this reasoning, we hypothesize that smiling during a pitch will lead to higher trust in the pitcher by increasing perceived warmth and thereby moving the perception into the high-warmth, high-competence quadrant in the SCM.

Hypothesis 1: Smiling during the pitch leads to higher perceived trustworthiness.

Hypothesis 1a: Smiling during the pitch leads to higher perceived warmth.

Hypothesis 1b: Smiling during the pitch has little to no effect on perceived competence.

2.3.2 Smiling's Effect on Propensity to Invest

For an entrepreneur, the goal of a pitch is to secure the interest of a potential investor and thereby increase the likelihood of eventually receiving funding from them. In line with Clarke and colleagues (2019) a funding decision is hard to make after an initial pitch. Rather, the entrepreneur and the investor will meet several times and the business idea will go through many screening stages before an investment agreement is made. Therefore, as Clarke and colleagues (2019) suggest, this study will measure propensity to invest as it is more in line with the outcome appropriate to an initial pitch. As presented by Mussel and colleagues (2013), Wang (2016) and Jiang and colleagues (2019), smiling has a positive effect on cooperation for monetary gain. This implies that smiling has a positive effect on propensity to invest. Our theoretical framework suggests that the effect of smiling on propensity to invest occurs due smiling's effect on warmth perception and thereby trust, which is important for overcoming the informational asymmetries present during a pitch. However, it is possible that a positive effect of smiling on trust occurs through some other channel than trust. Thus, for the purpose of generating a number of related, testable hypothesis to evaluate our conceptual model, we hypothesize that:

Hypothesis 2: Smiling increases propensity to invest.

2.3.3 Trust's Effect on Propensity to Invest

Using theory as a guide, we conclude that trust is crucial in the entrepreneur -investor relationship since the upside of investing in a business idea also comes with uncertainties (Schumpeter, 1947; van Osnabrugge, 2000). During an initial pitch, investors evaluate entrepreneurs based on the perceptions they form of them. Given the time-constraints and high level of informational asymmetries present in an initial pitch, trust is highly important in such evaluations. In line with van 't Wout & Sanfey (2008) we therefore expect that higher perceived trustworthiness during an initial pitch will have a positive impact on the outcome, which for the intended study is propensity to invest. Therefore we hypothesize:

Hypothesis 3: Higher perceived trust is associated with higher propensity to invest.

Further, in line with this thesis' research question, the aim of this study is to evaluate how smiling, trust, and propensity to invest are related as a whole. Building on previous research we have hypothesized that (H1) smiling leads to higher perceived trustworthiness, that (H2)

smiling leads to higher propensity to invest, and that (H3) trust is associated with higher propensity to invest. Putting those three hypotheses together trust can be viewed as the underlying mechanism between smiling and propensity to invest. By increasing perceived trust, smiling helps overcome the informational asymmetries present during a first pitch and thus leads to a higher propensity of the investor to invest. Putting that relationship in formal terms, we expect trust to mediate the effect of smiling on propensity to invest. Cislak and Wojciszke (2008) have previously established a similar link where warmth perceptions mediate the relationship between attitude and interest for others. Building on previous research, we expect a similar relationship between smiling, trust and propensity to invest. Therefore, we hypothesize:

Hypothesis 4: The effect of smiling on propensity to invest is mediated by trust.

3. Method

The following section starts by exploring our thesis' scientific approach. After that, we go through our methodological processes and present our empirical model. We then discuss the study's validity, reliability and replicability. Lastly, we present ethical considerations related to our methodological choices.

3.1 Scientific Research Approach

We have generated hypotheses rooted in the purpose, aim and research question of this thesis that enable us to test the relationship between smiling, trust and propensity to invest through an empirical study. Our methodological choices have been guided by our wish to find causal explanations rather than understand the underlying contexts of the three variables. Therefore, we have embraced a positivist research approach with an objective orientation. From this perspective, our view is that knowledge is phenomena confirmed by the senses and that social phenomena can be studied externally as they are independent from individuals (Bryman & Bell, 2011, p.15). As researchers, we have acted as neutral agents throughout the research process in order to attempt to capture a value-free and objective reality (Bell & Thorpe, 2013, p.9). Our relation to theory is deductive. The role of theory in relation to research is hence that theory should be tested, which is what we will be doing in our study. As positivists we seek to contribute to a larger body of verifiable and value-free knowledge about the subject of entrepreneurial pitching (Bryman & Bell, 2011, p.15).

3.2 Research Design

In line with our scientific research approach we have employed a quantitative research design, or more specifically a randomized experiment, to assess the causal claims that our theoretical model make about the effect of smiling on trust and propensity to invest. Using quantitative rather than qualitative methods when collecting and analyzing data enabled us to stay more objective throughout our study (Bryman & Bell, 2011, pp. 26-27). Randomized experimentation is well-suited to our study because it is an objective method for assessing causal claims. Practically, a randomized experiment means that participants will randomly be assigned a treatment where the aim is to measure effects dependent on different treatments. Assigning treatments at random ensures that there are no systematic tendencies in the compositions of the groups. Apart from the treatment itself, there is no reason to expect that

one treatment group would be systematically different from another. The randomized experiment method implies that if the experiment were to be conducted repeatedly under similar conditions, the average of the experimental results would accurately estimate the true treatment effect (Gerber & Green, 2012, p. 7-8). Furthermore, randomized experiments generate unbiased estimates of the average treatment effect even if the researcher does not account for other causes of the outcome. This is a significant advantage of experiments and is due to the fact that randomly assigned treatments are statistically independent of all observed and unobserved variables (Gerber & Green, 2012, p. 95).

Experiments, however, are not problem-free since the randomized experiment method depends on a number of important assumptions. Three of the core assumptions that the randomized experiment method is based on are random assignment, excludability and non-interference. Random assignment implies that allocation of treatments is determined using a consistent random assignment method; excludability means that outcomes are solely due to the treatment and not due to consequences of random assignment and; non-interference means that the outcomes for a given participant is due to the treatment that participant received, and not due to the treatment that another participant received (Gerber & Green, 2012, p. 45). Our experiment was designed with the goal of increasing the likelihood that these assumptions hold. We will discuss these and a number of other important assumptions as well as the tradeoffs that they represent in the following sections.

3.3 Study

We designed our study in order to empirically test our hypotheses in a rigorous manner. To aid clarity and consistency, our study will be presented according to Cronbach's Units, Treatment, Outcomes, Setting (UTOS) framework (referred to in Shadish, Cook, & Campbell, 2002). As per this framework, our experiment consists of units, here after referred to as participants, that are randomly assigned to groups that receive different treatments. These treatments result in outcomes that we, the researchers measure. The treatment as a whole is conducted within a certain setting that we chose. In the next sections we will explain all the details of our randomized experiment according to this framework.

Our study's treatment was filmed pitches held by two pitchers who were trained to present a short pitch of a fictional startup with either a smiling or a neutral face. The pitch was distributed to test participants via a link to a digital self-completion Qualtrics survey, which

was the setting. When participants began the survey they were randomly assigned to a smiling or non-smiling treatment. As such, the design of our study was unpaired, between-subjects (Gerber & Green, 2012, pp.77-85). After watching the randomly assigned pitch video, participants answered a short questionnaire that was designed to measure their perceived trust and propensity to invest. The answers to this questionnaire were our experimental outcomes. Manipulating smiling makes it possible to make inferences about the effect of deliberately smiling while pitching (Bryman & Bell, 2011, p.45). Each step of the experiment was designed and if possible tested to ensure smoothness and reduce potential bias.

Much emphasis will be put on explaining how we dealt with minimizing interference from factors other than those we measure (Gerber & Green, 2012, p. 43). This study took place during the early stages of COVID-19 crisis in Sweden, and this impacted certain elements of our study. This impact will be mentioned in the upcoming sections. It is relevant to note that our original plan for the study called for our experiment to be conducted with live pitches and face-to-face interactions at tech startup co-working space in Uppsala. We cancelled the live pitching component of our study for ethical reasons in order to protect our pitchers and participants and resorted to a digital survey format instead. However, the overarching principles of our quantitative study in the form of a randomized experiment were not affected.

3.3.1 Participants: The Sample

In brief, the participants, in our study were a mix of current and recently graduated university business students and entrepreneurs within the Uppsala startup community. Given that we accessed participants through partner organizations and by reaching out directly to those on a list selected from our network, our sample was a convenience sample not a probability sample (Bryman & Bell, 2011, p.190). However, the sample shares many important characteristics with our population of interest and can be argued to be a suitable rough proxy for potential startup investors.

3.3.1.1 Power Analysis and Sample Size

In order to estimate the appropriate desired sample size for our study and to calculate the probability of finding an effect given a certain sample, we conducted a power analysis. In experimental studies the power of a test is central as it refers to the probability that the null

hypothesis of no treatment effect will be rejected (Tomczak et al., 2014). Practically the power tells us how likely we are to find a statistical significant effect. When doing a power analysis the goal is to control Type II error rates, which means that the researcher wants to limit the probability of observing a non-significant result, assuming there is an effect of a specific size (Lakens, 2017). Furthermore, a power analysis helps answer the question of how large a sample the researcher needs in order to detect the effect of interest, which is important since both too small and too large sample sizes entail issues. The goal should be to find the specific number of subjects that is appropriate for the circumstances since this adds both confidence and strength in the research results (Tomczak et al., 2014).

We conducted a power analysis using the power analysis Shiny App created by Professor Daniel Lakens. A link to the app may be found in **Appendix 1**. Our goal was to obtain a 0.95 power to detect an estimated true effect size of Cohen's D of 0.52 at the standard 0.05 alpha level. A common method used to estimate the true effect size is to examine published results from similar studies. Despite concerns related to publication bias inflating effect size when using published literature (Lakens, 2017) many researchers use this method in order to calculate effect size (Tomczak et al., 2014). Keeping in mind the risk of potential publication bias, we decided to base the power analysis for our study on effects in previously published literature since we regarded this method to be the most feasible. We looked at a number of similar studies to estimate the true effect size. The average effect size in the seven related studies was a Cohen's D of 0.52 from 0.28 at the smallest to 0.82 at the largest. While this effect size is relatively large, we believe that this average provides a reasonable estimate for the true effect size (Lakens, 2017). **Table 1** shows a summary of previous studies used in our power analysis. The results of our power analysis indicated that we needed a sample size of 200 to have 0.95 probability of detecting a true effect size of Cohen's D of 0.52 at the standard 0.05 alpha error probability. Thus our desired sample size was 200 participants.

Table 1. Related Publications for Power Analysis

Author	Article	Sample	Effect	Two Groups Cohen's D
Clarke, Cornelissen & Healey (2019)	“Actions Speak Louder than Words: How Figurative Language and Gesturing in Entrepreneurial Pitches Influences Investment Judgments.”	Sample 1: 124 professional investors Sample 2: 180 Business Students)	Figurative body language’s effect on propensity to invest.	Sample 1: 0.320 Sample 2: 0.282
Brambilla et al. (2016)	“You Want to Give a Good Impression? Be Honest! Moral Traits Dominate Group Impression Formation”	105 Italian University students	Morality, sociability and competence’s effect on group impression.	0.476
Dewolf (2014)	“Effects of Attractiveness on Perceived Trustworthiness”	60 american undergraduate students	Smiling intensity's effect on perceived trustworthiness.	0.296
Maxwell & Lévesque, (2011)	“Trustworthiness: A Critical Ingredient for Entrepreneurs Seeking Investors”	54 pitch interactions.	Entrepreneur’s trust violating /damaging behaviours effect on investor offers.	0.440
Willis & Todorov (2006)	“First Impressions: Making up your mind after a 100 ms Exposure to a Face”	245 american undergraduate students	Exposure time’s effect on trait attribution	0.972
Zawisza & Pittard (2015)	“When do warmth and competence sell best? The ‘golden quadrant’ shifts as a function of congruity with the product type, targets’ individual differences and” advertising appeal type	96 British University students	Warmth- and competence-based marketing strategy effect on high vs low involvement products.	0.826

3.3.1.2 Planned Sample

In order to reach potential participants we sought to collaborate with three organizations based in Uppsala who work with entrepreneurship; BASE10, Entrepreneurs Academy and Drivhuset. However, due to the crisis situation stemming from the global spread of COVID-19 we encountered difficulties in reaching enough potential participants with our marketing text, which can be found in **Appendix 2**, through our partners channels. For a variety of reasons, none of the organizations sent out direct emails or conducted multiple marketing attempts.

With the study having officially begun on March 30th, by April 2nd, with only 17 respondents it was clear that we were not close to being on track to reaching our target sample size and therefore we made the decision to contact potential participants directly.

3.3.1.3 Fallback Sample: Direct Recruitment

Given the difficulties with recruiting a suitable number of participants through our partner organizations, we created a list of 280 potential participants from people within our contact networks. In order to get a relatively homogenous sample that could serve as a reasonable proxy for potential investors and to minimize the introduction of bias we established five criteria for inclusion in the contact list. First, potential participants in the list must be studying or have recently finished studies in business at a Swedish university thus ensuring that they are interested in business and have some familiarity with entrepreneurship and investing. Second, in order to facilitate contacting them in a consistent way they must be Facebook friends with the authors of this paper. Third, they must not have been told anything about our thesis topic since that would create bias. From the beginning of our thesis process we have been very restrictive about who we have told about our thesis. Fourth, they must not know either female or male pitcher. We tried to ensure this by checking that no one on our contact list is Facebook friends with either pitcher. Fifth, they must not have any direct connection to the Stockholm School of Economics (SSE), for example by being a current or former student. This criterion helps ensure that potential participants have not heard about our thesis and that they do not recognize the male pitcher since he is a student at SSE. While the overwhelming majority of those on the contact list were from universities in other cities, four people on the list attend or have attended Stockholm University. These four are studying in or have graduated from different programs than the female pitcher and are not Facebook friends with her. See **Appendix 3. Table 2** below provides a summary of participants in the contact list.

Table 2. Overview of Participants in Contact List.

	N.	%
Female	140	50.000%
Male	140	50.000%
Studying	160	57.143%
Done with Studies	120	42.857%
Friends of Blake	253	90.357%
Friend of Sanna	27	9.643%
Native Swedish Speaker	266	95.000%
No-Swedish English Speaker	14	5.000%

3.3.1.4 Data Collection

We designed the survey to secure high response rates. This was important because the longer the survey was open the greater the likelihood would be that participants would confer with each other (Bryman & Bell, 2011, pp. 232-234). We tried to mitigate this risk by reminding participants to not discuss the contents of the study and by suggesting a brief evasive answer that they could give to anyone who asked what the study was about. Further, we took several actions to secure a high response rate. First, we made sure that the design of our questionnaire was easy to follow and relatively short so the participant would not perceive it as time-consuming. Second, we informed participants prior to their participation what the study was about, what was required in order to participate, and how long it would take to complete the survey. Third, we decided to offer a 40 SEK monetary incentive to participants. Monetary incentives have been shown to have a positive impact on response rates even when the compensation amount is small (Bryman & Bell, 2011, p. 236). After successfully completing the questionnaire, participants had the option to submit their phone numbers after the survey to receive 40 SEK within 24 hours as compensation for their time. The source of the money used for this incentive was the researchers' personal funds.

Primary data collection occurred between March 30th and April 7th, during which time the survey was live. We began contacting potential participants directly on April 2nd. The contact text can be found in **Appendix 4**. Between April 2nd and April 6th we contacted all 280 people on our contact list. 204 (72.86%) responded positively by April 7th that they had or would complete the survey. By the morning of April 7th we had reached our target sample size of 200. As of April 7th we had 212 participants who had completed the survey. Over the following week we received 13 more completed responses for a total of 225.

3.3.1.5 Criteria for Inclusion in the Sample

Everyone who received the link to the Qualtrics survey could take it and be included in the sample. When participants had answered the survey, we had three criteria for inclusion in our sample. First, only participants over 18 years were included in the sample. No participants were excluded from the sample due to age since none reported being under 18. Second, only participants that agreed with the terms and conditions shown in the beginning of the survey were included in the sample. If participants did not agree with the terms they were taken directly to the end of the survey and were excluded from the sample. Third, we only wanted participants who had received and complied with the treatment to be included in the sample.

We tracked and recorded how many incomplete submissions there were and how many subjects failed a control question. With the exception of two suspect responses that were dropped, our sample includes the first 200 participants who successfully completed the survey. Two concerns related to the criteria for inclusion in our sample are the risk of non-compliance and attrition. These are discussed in the following sections.

3.3.1.6 Noncompliance

One implementation problem that can threaten inferences based on experiments is noncompliance. Noncompliance occurs when subjects assigned to a treatment do not receive the treatment and hence go untreated, or when subjects assigned to one treatment group end up receiving a different treatment (Gerber & Green, 2012, p.131). In our study one-sided noncompliance would have occurred if a participant skipped watching the treatment video and went on direct to the questions. We attempted to address this form of noncompliance by reminding participants via written text before and after the treatment pitch to make sure that they watched the video before continuing to the questionnaire. We also included a control question to identify non-compliance. This question is as follows: “What was the pitch you just watched about?” (E-commerce, Digital legal services, food science). Respondents who answered this question incorrectly were automatically taken directly to the end of the survey message and were excluded from our sample. Of the 225 complete submissions, three participants failed the control question indicating that they did not watch the treatment video. These participants were not included in the sample.

Another form of non-compliance, two-sided non-compliance could have occurred in our study if a participant was assigned to one treatment group, watched the video and then exited

the survey and then re-accessed and answered the survey for another treatment group (Gerber & Green, 2012, p.173). A similar issue would occur if a participant answered the survey multiple times. We tried to limit the risk of these two issues by reminding participants that they may only complete the survey once and by using a Qualtrics option to only allow each participant to use the link once. However, participants could potentially circumvent this by entering the survey through the link on another browser or another device.

We sought to check for this and excluded two submissions from the sample due to suspicious behavior. These two submissions were associated with the same IP address and were recorded starting three minutes apart. The first submission was 169 in duration and the second submission was 69 seconds in duration. Given that the treatment videos are all 75 seconds, it is impossible for the participant in the second submission to have watched the video and answered the questions. We guess that the same person may have completed the survey twice having watched the video the first time. Thus, we decided to exclude these two suspect responses. We found no other indications of suspicious activity.

3.3.1.7 Attrition

Randomized experiments are built around the idea that the difference between treatment groups provides an unbiased estimator of the average treatment effect. However, this statement implicitly includes the assumption that outcomes are observed for all subjects who are allocated to treatment groups. Attrition after subjects have been randomly assigned to treatment groups means that the remaining subjects in each group are no longer a random sample of the original overall sample of subjects. Therefore, a comparison of group averages may no longer be an unbiased estimator of the average treatment effect (Gerber & Green, 2012, p. 211).

We deliberately excluded some outcomes with missing data from our sample. Furthermore, in addition to the 225 complete survey submissions that we received, we recorded seven incomplete submissions where for some reason participants did not reach the end of the survey message and complete the survey. In five of these seven cases the participant did not even answer the terms and conditions question and thus was not assigned to a treatment group. Attrition is not a concern for these cases as subjects were never assigned to a treatment group. In two of the seven incomplete submissions the participant exited the survey after receiving a treatment. In these two cases plus the five submissions that we excluded due to

noncompliance, attrition may be a concern if attrition was systematically connected to treatment. For example, if the neutral-facial expression videos made people bored and thus more likely to drop out of the study then our experimental results would underestimate the treatment effect.

However, in randomized experiments, the estimated treatment effect will still produce unbiased inferences when missingness is independent of potential outcomes (Gerber & Green, 2012. p. 214). We had a relatively small attrition rate of three percent (7 out of the total of 232 completed and partial incomplete responses). Furthermore, of the seven participants who were dropped after being assigned to a treatment group, three were assigned to a non-smiling treatment and four were assigned to a smiling treatment. Thus, we do not believe that attrition was systematically connected with treatment or outcomes. Therefore, we do not believe that attrition is a significant threat to our study.

3.3.1.8 Composition of the Sample

Since we reached participants both through our partners and through our contact list we wanted to understand the composition of our sample, since it influences what inferences we can make based on our results (Gerber & Green, 2012, pp. 2-3). We used data available through qualtrics to estimate that the proportion of non-contact list participants is between 13.5 percent and 25.47. See **Appendix 5** for the calculation used to produce this result. Our sample is thus primarily composed of business students and recently-graduated business students from our contact list.

3.3.2 The Treatment

The treatment consists of four 1 minute 15 second-long videos of a pitcher acting as an entrepreneur giving a standardized pitch of a business idea. We will go through the treatment by examining all elements briefly. These are the (1) pitch text, (2) recruitment of the pitchers, (3) approach to training the pitchers, (4) filming the pitches, (5) random assignment, and finally (5) the input variables for our treatment.

3.3.2.1 The Pitch Text

We recognized that the content of our pitch should be representative for a first pitch for a potential investor. Ideally we wanted some variation in the interest generated by the pitch (Bryman & Bell, 2011, p. 262). In order to limit potential effects from the content of the

pitch, we were attentive to construct the text to minimize the risk of having effects from certain sources of information. Below are areas we specifically addressed:

Name of pitchers: We chose the assumed names, Amanda and Filip for our female and male pitchers. As of 2019, they are the 61st most common female and male first names in Sweden respectively (Statistiska Centralbyrån, 2019). We believe that Amanda and Filip are just common enough to not stick out as either uncommon or too stereotypical.

Business idea: Due to the ongoing COVID-19 situation, entrepreneurs are affected in a way that makes investors less likely to be interested to invest in companies affected by the crisis. Therefore we decided to make our fictitious startup a legal-tech startup with a web-based service business-model that should be relatively little impacted by the COVID-19 situation.

Name of start-up: The name of the fictional startup, Forsetor, was chosen since it is not used by any other company in Sweden (<https://www.allabolag.se/what/forsetor>) and since it is fluent in both Swedish and English.

Length of pitch: We wanted the length of our pitch to be in line with the general rule for initial pitches, which often is said to be less than 118 seconds (Hayzlett, 2012). Therefore we chose to write a pitch that is approximately 1.15 minutes.

We validated our pitch in order to make sure that it was representative for initial pitches by showing the manuscript for two experienced entrepreneurs. They verified that the pitch came across as legitimate and it sounds like a first pitch to an investor should. They also provided feedback that the pitch and idea described in it come across as very interesting. In terms of constructive feedback, they highlighted that the pitch could be improved by making it more customer-experience-focused and by including information on competition. We used this feedback to re-write the pitch for its final version. The manuscript of the final version of the pitch can be found in **Appendix 6**.

3.3.2.2 Recruitment of the Pitchers

We chose to recruit two pitchers for our study. We did so in order to reduce the risk of some unknown personal characteristics of a single pitcher influencing our results since the aim of our study is to estimate the general effect of smiling, not the person who is pitching (Gerber & Green, 2012). Obviously, this risk would have been reduced even further if we had even

more pitchers but it is already reduced a lot by having two pitchers and finding and training many pitchers was not feasible for this study. Having two pitchers allowed us to compare the effect of smiling for each pitcher to confirm that it is generally similar.

For our two pitchers, we chose one male and one female. We did so because there are both male and female entrepreneurs and we want to examine the general effect of smiling for entrepreneurs as a whole. However, it is important to point out that making generalizations about the impact that gender has on the effect of smiling based on comparisons of the effect of smiling for each of our pitchers is inappropriate. With only one male and one female pitcher it is impossible to distinguish what effects may be due to their gender and what may be due to individual characteristics. This was also outside the scope of our study's focus.

Before recruiting the pitchers, we selected several recruitment criteria. We wanted our pitchers to be roughly equal in terms of English fluency and attractiveness both of which we assessed subjectively. Additionally, we wanted our pitchers to be comfortable presenters and to have some experience pitching or presenting in English on business related topics. Lastly, it was very important that the pitchers did not know about our research topic and were blind to our hypotheses since that could create bias in their performance of the pitches (Gerber & Green, 2012). See **Table 3** for an overview of information about the pitchers.

Table 3: Demographics of the Pitchers

Demographic	Male	Female
Age	27	23
Nationality	Swedish	Swedish
Education	Business and Marketing	Business and HR
University	Stockholm School of Economics	Stockholm University

3.3.2.3 Approach to Training the Pitchers

Ditlmann and Lagunes (2014) emphasize the importance of training and preparing testers who will perform the treatment. This is extra important when you do a between-groups study since you want effects to be due to treatment, and not due to individual differences other than those the researchers manipulate. Therefore, in accordance with Ditlmann and Lagunes' recommendations (2014) we trained the two pitchers together to ensure they received instructions and information in the same way. Hence, training and preparing enabled us to

validate the pitchers assessments and ensure maximal comparability between the two pitchers (Ditlmann & Lagunes, 2014).

3.3.2.4 Filming the Treatment Videos

In total, we used five hours during one day to train and record the pitchers. Two days before the pitch day we sent out instructions to the pitchers about the time and location of the pitch as well as a brief overview of the day. In order to limit the effects of individual differences in fashion choices, we gave them dress code instructions (Ditlmann & Lagunes, 2014). The prescribed attire was a white shirt and dark jacket, which is clothing that is natural for male and female entrepreneurs in the context of a legal startup pitch. The full information that was provided to the pitchers can be found in **Appendix 7**.

Before the pitch day we made a schedule for the day to ensure that we trained them in a structured way and gave specific and prepared instructions. See **Appendix 8** for the schedule for the pitch day. When giving instructions about the treatment, we showed our pitchers photographs of smiling and non-smiling entrepreneurs in order to emphasize what we meant and avoid misconceptions. This helped the pitchers prepare to perform the treatment. See **Appendix 9** for photos of our pitchers with neutral and smiling facial expressions. Further, as we did not want any effect of body language other than smiling, the pitchers were instructed to hold their hands together in a natural pose during the entire pitch (Ditlmann & Lagunes, 2014).

In order to minimize the influence of factors other than smiling, we made sure that the treatment videos were of the same length and that their quality, the entrepreneur's posture, their fluency, the lighting, and other factors were as consistent as possible across the videos (Gerber & Green, 2012, p. 39).

3.3.2.5 Random Assignment

Our treatments were randomized using simple randomization, which means that each participant in the study was randomly assigned to one of the four pitch videos (Gerber & Green 2012, p. 32). The randomization was computer generated using the survey software Qualtrics. Upon accepting the terms of our study, participants were shown one of the four treatment videos with a known probability of 0.25. Thus, all participants had a 50 percent chance of receiving a smiling treatment and a 50 percent chance of receiving a non-smiling

treatment. Since we used a large sample we could expect that the randomization would result in a similar number of participants in each treatment group (Gerber & Green, 2012, p. 36).

3.3.2.6 Input Variables

The primary input variable in our study that measures our experimental manipulation, smiling is labeled “**smile**” and indicates if a participant was assigned to a treatment where the pitcher was consciously smiling. It is a binary variable that takes the value of one if the participant was shown one of the two smiling videos and the value of zero if the participant was shown one of the two non-smiling videos.

The secondary input variable in our study that indicates if a participant was assigned to video with the male pitcher is labeled “malepitch”. It is a binary variable that takes the value of “one if the participant was shown one of the two videos with the male pitcher and the value of “zero” if the participant was shown one of the two videos with the female pitcher. This variable essential allows us to include fixed effects for the pitcher in our models.

3.3.3 Observations

This section explains how the outcome variables and demographic variables in this experiment are operationalized and measured. We start with presenting the questionnaire that was used and then explain the dependent variable, propensity to invest, the mediation variable, trust and the demographic variables that serve as covariates.

3.3.3.1 The Questionnaire

The questionnaire that follows the treatment video in our study seeks to measure respondents' trust in the entrepreneur in the video that they just watched as well as their propensity to invest in the entrepreneur and their business idea. The questionnaire consists of 10 questions: one about terms and conditions, one control question, three demographic questions, and five core questions to measure the trust and propensity to invest variables. We created the questionnaire using the survey platform Qualtrics, which enables us to design a survey that randomizes which of the four treatment videos is shown without changing the following questions. The full questionnaire can be found in **Appendix 10**.

We used Fiske and colleagues (2002), Wang and colleagues (2016) and Clarke and colleagues (2019) to guide the design of the questions intended to gauge trust and interest. To increase internal consistency and simplicity possible answers to all of the core questions are

on a seven-point Likert scale, from low to high for the relevant variable. This is in line with the measures used in Wang and colleagues (2016) who were investigating the effect of smile intensity on warmth and competence and Clarke and colleagues (2019) who were investigating the effect of body language on propensity to invest.

3.3.3.2 Dependent Variable: Propensity to Invest

The questions which are used to construct the measure propensity to invest are borrowed directly from Clarke and colleagues (2019) who studied non-verbal behaviours' effect on propensity to invest. As Clarke and colleagues (2019) points out, the most important goal for an entrepreneur during an initial pitch is getting a potential investor to invest more time into them and their idea. These four questions are designed specifically to provide a measure of a potential investors' propensity to invest. They were also originally designed to be appropriate for both respondents that are actual investors and respondents that are students (Clarke et al., 2019). In order to make the questions fit with the context of our study we made a slight modification insofar as we specified the name Forsetor instead of using the generic term, "business" when appropriate. The four questions are as follows: How interested are you in finding out more information about Forsetor? (1=not interested at all, 7=extremely interested); How likely is it that you would do further research into the industry and/or market of the business? (1=not at all likely, 7=extremely likely); How interested are you in meeting this entrepreneur to discuss Forsetor? (1=not at all interested, 7=extremely interested) and How interested are you in finding out more information about the entrepreneur/management team? (1=not at all interested, 7=extremely interested). With a Cronbach Alpha of 0.86, the four questions comprising propensity to invest showed a high degree of internal reliability. As in Clarke and colleagues (2019), we use them to create an index variable specified as the arithmetic mean of a subject's answers to the four interest questions.

The primary dependent variable in our study that measures our experimental outcome, propensity to invest is thus a discrete variable with possible values in intervals of 0.25 from one to seven. It is labeled "**propinvest**" and indicates how interested a participant is in the startup idea, business, and entrepreneur and thus serves as a measure of their propensity to invest.

3.3.3.3 Mediation Variable: Stereotype Content Model Trust

Our trust measure is patterned on Fiske and colleagues (2002). This measure assesses the two dimensions of trust in the SCM: warmth and competence. The corresponding question is composed of eight sub questions. The participant is asked: For the following characteristics: according to you how is the entrepreneur? (1=not at all, 7=extremely). This is followed by eight adjectives, four for competence and four for warmth. The competence adjectives are *competent, confident, independent, intelligent*. The warmth adjectives are *tolerant, warm, good natured, and sincere*. This is the same as in Fiske and colleagues (2002) study 1 except that we decided to drop a fifth adjective for competence, “competitive.” We decided to do so for two reasons. First, the inclusion of “competitive” is internally inconsistent in Fiske’s work. In a two-dimensional, four-quadrant space, she defines the quadrant high warmth, high competence as non-competitive. Secondly, we wanted the measures of warmth and competence to be balanced with four adjectives each.

With a Cronbach Alpha of 0.76, and 0.82 respectively, the items related to competence and warmth both demonstrate relatively high internal reliability. Guided by Fiske and colleagues (2002) and Wang and colleagues (2016), we create an index variable by measuring the perceived competence score as the arithmetic mean of a participant's answers to the sub-questions about the four competence adjectives. Likewise, we measure the reported perceived warmth score as the arithmetic mean of a subject’s answers to the sub-questions about the four warmth adjectives (Fiske et al., 2002; Wang et al., 2016).

Thus, the variable “warmthscore” indicates a participant’s reported perception of the pitcher’s warmth. Similarly, “competencescore” indicates a participant’s reported perception of the pitcher’s competence. Both are discrete variables with possible values in intervals of 0.25 from one to seven.

In Fiske and colleagues (2002) trust is a product of the two dimensions: warmth and competence. Trusting someone entails that you perceive them high on warmth and competence. Therefore, we construct our SCM trust variable as the scaled product of our constructed perceived warmth variable, “warmthscore” and our constructed perceived competence variable, “competencescore”. The mediation variable in our study that measures our experimental outcome, trust is labeled “SCMtrust”. We construct this variable by dividing the product of “warmthscore” and “competencescore” by seven. “SCMtrust” is thus a discrete variable with possible values from 0.1429 to seven. It indicates the level of

reported trust a participant has for the pitcher. With a Cronbach alpha of 0.85 SCM trust demonstrates a high internal consistency. We initially considered using a one-question trust measure but decided against doing so. Trust may have lots of different meanings in different contexts and in our study, we have argued that in the context of a first pitch, the type of trust that is important for investment decisions is SCM trust with the two dimensions: warmth and competence. Furthermore, single-question trust measures can be problematic when trying to capture the multiple dimensions of trust (Wang et al., 2016).

3.3.3.4 Covariates

Three demographic questions follow the core questions about trust and propensity to invest. They are standard demographic questions which provide information about our participants that could be of interest. Covariates should be variables that are fixed prior to the random intervention (Gerber & Green, 2012, pp. 95-105). Participant's gender, age and occupation should logically exist prior to assignment of treatment and not be determined by any effect of the treatment. (Gerber & Green, 2012, pp. 123-130). We thus use the demographic questions in our questionnaire to construct three potential covariates. The first covariate is labeled "participantmale", which is a dummy variable that takes the value of one if a participant indicates that they are male and a value of zero if a participant indicates that they are female or other. The second covariate is labeled "age" and is an ordinal variable that represents the reported age of a participant. The third covariate is labelled "student" and is a dummy variable that takes the value of one if a participant indicates that they are a student and a value of zero if a participant indicates that they are working for their own company or a salary or belongs to the category other.

3.3.4 Setting

3.3.4.1 Qualtrics Self-completion Survey

The experiment's setting is a self-completion survey operationalized using the survey tool. Qualtrics. A link to the survey may be found in **Appendix 11**. In the context of our study, using a self-completion survey was appropriate for several reasons. First, given our large sample a self-completion questionnaire allowed us to gather a large amount of data in a relative short amount of time. Second, self-completion questionnaires ensure that there are no interviewer effects. An alternative for questionnaires is to use structured interviews; however, in such situations, interviewers can introduce bias by unconsciously asking questions

differently to different participants (Bryman & Bell, 2011, pp. 225-226). Third, given the special circumstances related to COVID-19, a self-completion questionnaire that participants could fill in online was both convenient and safe for participants.

3.4 Pre-Study

In order to evaluate our study design, we conducted a pre-study with Qualtrics using a preliminary version of our study's questionnaire as a measure of outcomes and a treatment comprised of two different videos that Sanna recorded pitching our script with a smiling facial expression and with a neutral facial expression. The purpose of the pre-study was to test the treatment observations and setting by checking that the instructions, treatment format, pitch script, and overall survey design were suitable (Bryman & Bell, 2011, pp. 85-86). The average self-reported time to complete the questionnaire was 3.05 minutes. The respondents reported that they were able to understand all of the questions and that none of them were uncomfortable. Overall, the results of our pre-study provided indication that our survey design was on the right track and that the language that we used was appropriate.

3.5 Data Preparation

We conducted our empirical data analysis using the statistical analysis software program, Stata. Some preparation had to be done in order to prepare the data for analysis. First, we downloaded the raw data from Qualtrics into an excel file, where we removed the question titles to ease importing the data into Stata. Once we imported the data into Stata we combed through the data to identify potential irregularities. Additionally, we had to drop the observations that we decided to exclude. Several of the variables used in our analysis had to be constructed from the responses to multiple questions in the questionnaire. Our data preparation in Stata was done using a do.file and log file in order to ensure that the process was transparent and that our results are confirmable.

3.6 Empirical Models

3.6.1 Regression Models

This study uses multivariate ordinary least squares (OLS) linear regression models with robust standard errors to test our three core hypotheses. Regression analysis is consistent with the literature on smiling and investment decisions. Analyzing the results of an experiment

using regression analysis with covariates can help eliminate observed differences between the treatment and control groups and thereby reduce variability in outcomes. Including multiple prognostic covariates as regressors and letting OLS determine their respective scaling parameters reduces disturbance variability more effectively than rescaled regression and thus can help to estimate the treatment effect more precisely. When handled inappropriately covariates can be a source of error in the analysis of experimental data. Our covariates reasonably satisfy the requirement that they are fixed prior to the random intervention. Given our relatively large sample size ($n=200$), controlling for covariates should not lead to bias. We are also careful to avoid the common pitfall of attaching causal interpretation to covariates' apparent "effect" on outcomes (Gerber & Green, 2012, pp. 95-105).

Our specified model to test hypothesis 1 is as follows:

$$Ti = bSi + dMi + fZi + ei$$

Where Ti is report trust score that participant i has in the pitcher in their treatment video, Si indicates whether the participant was assigned to a smiling treatment group, Mi reflects whether the participant was assigned to a treatment video with the male pitcher, Zi is a vector of control variables, and ei is the unobserved error term. For hypotheses 1a and 1b, Ti is substituted for Wi the reported warmth score for participant i and Ci the reported competence score for participant i respectively.

Our specified model to test hypothesis 2 is as follows:

$$Pi = gSi + hMi + jZi + ei$$

Where Pi is propensity to invest score for participant i .

Our specified model to test hypothesis 3 is as follows:

$$Pi = kTi + lMi + nZi + ei$$

The vector of controls is composed of three covariates: *age*, *participantmale*, and *student*. We will use the standard $p < .05$ criteria for determining if the coefficients on the variables of interest in our multiple regression models are statistically significant.

3.6.2 Mediation Model

We use regression-based mediation analysis with a three-equation model to test hypothesis 4 that the relationship between smiling and propensity to invest is mediated by trust. A mediation effect is when the effect of the input variable on the outcome variable is mediated by a third variable or mediation variable. In our study, SCM trust is the hypothesized mediation variable. For a variable to be a mediator it must be endogenous and reveal more about how the input variable impacts the outcome variable (Gerber & Green, 2012, pp. 319-25).

Statistical mediation analysis using a three-equation model has four steps. First, OLS regression analysis is conducted to test for the total effect of smiling on propensity to invest. In essence, this is the same model as for hypothesis 2. There are conflicting opinions about whether the relationship between the input and outcome variables needs to be statistically significant (Gelfand et al., 2009). Some researchers argue that there must be a significant relationship between the two (Ibid). Without such a relationship, even if there is a significant indirect effect, it cannot be established that manipulating the input variable has any impact on the outcome variable. Conversely, other researchers assert that a significant relationship between the input and outcome variables is not necessarily required (Ibid). According to this thinking finding no significant correlation does not disprove causation (Bollen, 1989, p. 52; Hayes, 2018, p. 80). The second step is to use OLS regression analysis to conduct a test for the effect of the input variable, smiling on the mediator, SCM trust. This is the same model as for hypothesis 1. This effect must be statistically significant for mediation to be possible (Gerber & Green, 2012, pp. 319-325). Step three is to use regression analysis to confirm that the mediator explains variance in the outcome variable even when the input variable is controlled for. This is done by conducting an OLS regression of the outcome variable on the mediator while including the input variable as a covariate. The fourth step is to estimate various quantities for causal mediation analysis by comparing the direct effect with the indirect effect. In our study, we do this using Raymond Hick's "mediation" package in Stata.

Thus, our study's regression-based mediation analysis uses a three-equation model with the following specification:

$$P_i = gS_i + hM_i + jZ_i + e_{1i}$$

$$T_i = bS_i + dM_i + fZ_i + e_{2i}$$

$$P_i = \alpha T_i + \beta S_i + \gamma M_i + \delta Z_i + e_{3i}$$

Where P_i is propensity to invest score for participant i , T_i is report trust score that participant i has in the pitcher in their treatment video, S_i indicates whether the participant was assigned to a smiling treatment group, M_i reflects whether the participant was assigned to a treatment video with a male pitcher, Z_i is a vector of control variables, and e_i is the unobserved error term.

3.6.2.1 Discussion of the Mediation Model

Using regression analysis to infer a causal chain depends on two underlying assumptions. First, that treatment effects are constant and second, that unobserved disturbance terms are unrelated. This second assumption means that error terms, e_2 and e_3 in the specified mediation model equations must not be related. Without the second assumption regression-based analysis will generate bias estimates. These two assumptions do not follow from randomized experimental design (Gerber & Green, p. 325). Therefore, the results of our mediation analysis should be taken with a large grain of salt. The first assumption, constant treatment effects is relatively reasonable in our study given that the literature on smiling, trust, and investing does not suggest that smiling versus non-smiling should have a negative impact on trust or monetary decisions (Scharlemann et al., 2001; Mussel et al., 2013). The second assumption is a particular concern in our study. It is closely related to Gelfand and colleagues' (2009) no omitted variables assumption.

Due to the characteristics of our randomized experiment design, the strongest possible causal inference can be made regarding smiling's effect on SCM trust and propensity to invest. However, randomized treatment does not mean that participants are randomly assigned to values of the mediation variable. Reported SCM trust scores were observed not assigned with a randomization procedure. Thus, even though SCM trust was recorded before propensity to invest, the association between SCM trust and propensity to invest may be confounded or spurious (Gelfand et al., 2009).

The fact that two variables are correlated does not imply causation. In a mediation model, a correlation between the meditation variable and outcome variable could be found due to a third unknown variable that may cause both the mediation and outcome variables. Omitting

such a third variable from the mediation model can bias estimates. This bias can exist even if the temporal order of the input, mediation, and outcome variables is unambiguous (Ibid).

The no-omitted variables assumption is not possible to verify using any data-analysis procedure. Therefore, this assumption must be argued for using theory and logic. Any obvious potentially important omitted variables should be factored into mediation models (Ibid). The literature on smiling, trust, and investment decisions does not indicate any important variables that may cause high perceived warmth and propensity to invest. However, given this strong assumption, the results of our mediation analysis should be approached and interpreted with caution.

3.7 Validity, Reliability and Replicability

Validity, reliability and replicability are important criteria for evaluating positivist research. Each subject is addressed in turn in the following sections.

3.7.1 Validity

There are four types of validity that are commonly considered important in randomized-experiment-based research. These are statistical conclusion validity, internal validity, construct validity, and external validity (Bryman & Bell, 2011).

3.7.1.1 Statistical Conclusion Validity

We took a number of steps to ensure that the theoretically informed cause and effect in this experiment actually covary. First, we conducted a power analysis to determine the appropriate sample size given the estimated true effect size. Our power analysis indicated that a sample size of 200 would be appropriate given our expected effect and desired alpha and power. We gathered 220 complete responses excluding five observations that we dropped due to important concerns. Due to our cutoff rule, our primary analysis was conducted on our sample of the first 200 non-excluded observations. Second, using pre-recorded pitching videos ensured a standardized implementation of the treatment. Third, our design ensured a reliable and consistent treatment and adherence.

3.7.1.2 Internal Validity

Randomized experiments generally reduce many concerns related to internal validity. One strength of experiments is that the temporal precedence is straight forward. Experimental design means that the cause or treatment precedes the outcome. Furthermore, due to random

assignment any observed differences in outcomes between the treatment groups can be attributed to our manipulation of the primary input variable, smiling. This is due to the fact that random assignment means that preexisting differences in the compositions of the treatment groups should be randomly distributed on average (Gerber & Green, 2012, p. 95). This characteristic of randomized experiments is beneficial because it generally results in higher levels of internal validity. Additionally, while attrition can be a significant threat to the internal validity of experiments, we have sought to argue in 3.3.1.7 that this is not a large concern in our study.

The internal validity of experiments rests on a number of assumptions. Two of the most important are excludability and non-interference. Excludability is the assumption that outcomes respond only to the treatment and not to some other feature of the experiment, such as the way the treatment is assigned or how outcomes are measured (Gerber & Green, 2012, p. 39). There are two important ways to help strengthen this assumption: double-blindness and parallelism in the administration of the experiment. We employed both methods in our study. Double-blindness is when neither the participants nor those charged with measuring outcomes are aware of which treatment group the participants were assigned to (Gerber & Green, 2012, p. 41). Our participants were blind to which treatment they received. They would not even reasonably know that there were multiple treatments and since the survey standardized and automated the collection of data, there was no-one to know or be affected by knowing on the data collection side. Furthermore, we made sure not to tell the two pitchers about our study's topic or hypothesis until after the experiment was conducted in order to ensure that they did not bias the treatment itself. The use of a survey which ensured that all participants, regardless of treatment group, answered the same questions during the same time period produced parallelism which further strengthens the excludability assumption.

Non-interference is the assumption that the outcome for a given subject responds to the treatment that the subject received and not the treatment that other subjects received (Gerber & Green, 2012, p. 9). This means that it is of high importance to make sure that participants do not interfere with each other while they are participating in the study. For example in our study, interference could have occurred if a participant talked with someone about the study who had previously participated and was influenced by them. To address this, we explicitly instructed our participants not to discuss the study and suggested an evasive reply for participants to give if some asked them what the study was about. Due to the circumstances

around the ongoing COVID-19 situation people in Sweden were recommended to stay at home and limit social contacts at the time of the experiment. This situation helped to strengthen the assumption of non-interference since social distancing meant that people had much less contact with others during the course of our experiment.

3.7.1.3 Construct Validity

Construct validity refers to whether or not a measure of a concept actually reflects the concept that it is supposed to represent. High construct validity depends on stable measurements and constructs that are representative of the real-world concepts they stand for (Bryman & Bell, 2011, p. 42).

Given that the participants of our study were primarily current and recently graduated business students, the construct that they form differs somewhat from the startup investors that they are used to approximate. However, given their business studies and interest or engagement in entrepreneurship we argue that they can reasonably serve as a proxy for potential investors. Thus, this sample is useful for the purposes of this study.

As a video, the format of the treatment was different from how smiling would occur during a live pitch in the real world. This could detract from construct validity. Most entrepreneurial pitches occur live but there are also cases when they occur in a recorded video format. On the plus side, our study design allowed us a high degree of control over our treatment and thus we could ensure that it was administered in a consistent way.

Our measurements of the observations were guided and developed from measures and constructs used in recent, commonly-cited papers from research in psychology and business. We also used Cronbach's alpha tests to examine the internal consistency of the measures that we employed. Furthermore, we tested the sensitivity of our SCM trust measure by constructing an alternative SCM trust measure using the scaled sum of warmth and competence scores instead of the product. Running our analysis with the alternative measure we received the same overall results.

In so far as that our setting was a purely digital format that was obviously part of a survey and thus participants were aware that they were not engaging in a true investor-entrepreneur interaction our setting has limited construct validity. However, our setting did have the

significant advantage of allowing us to administer treatments and measure outcomes in a reliable and consistent manner.

3.7.1.4 External Validity

External validity refers to whether the results of a study can be generalized beyond the particular research context. There are five common threats to external validity in an experiment study design (Bryman & Bell, 2011, p. 43).

The first of these is interaction of selection and treatment. This threat refers to whether an experimental finding can be generalized to groups that differ in demographics from the experiment's participants (ibid). Since smiling is a very basic human interaction, its effect on core human psychological evaluations like trust should be generalizable across different populations (Ekman & Friesen, 1982).

The second common threat is the interaction of setting and treatment. This threat refers to the question, does the experimental setting influence the treatment effect? (ibid). This is a significant concern for the external validity of our study. Since it may be that a digital smile in a relatively one-way interaction could have a different effect than a smile in a face-to-face interaction, the interaction of setting and treatment potentially detracts from the external validity of our study.

The third threat is the interaction of history and treatment. Can the findings be generalized across time? (ibid). This should not be a major concern because smiling and trust are so core in human's biology and psychology that the effect of smiling on trust should be relatively stable over time (Ekman & Friesen, 1982).

The fourth common threat is interaction effects of pre-testing. This refers to the idea that pre-testing on participants could affect their sensitivity to the treatment (Bryman & Bell, 2011, p. 43). This potential threat should not be a concern for our study. We did not pre-test on our primary study participants and we maintained a geographical separation between our pre-test sample and primary sample in order to minimize the risk of an effect.

The fifth common threat is reactive effects of experimental arrangements. Participants' awareness of being in a study may influence how they respond to treatment (Ibid). This threat is a concern for our study's external validity because while it is reasonable that many participants believed that the pitch was that of a real startup, the Qualtrics survey format

made it very clear that they were participating in a master thesis study. This could have potentially affected their reaction to treatment.

When designing experiments, there is often a trade-off between internal and external validity. Giving more control to the researchers over the treatment and measurement of outcomes can increase internal validity, but doing so can decrease external validity because such a level of control is rare in the real world (Bryman & Bell, 2011, pp. 46-47). The focus of this study is to empirically examine the theoretically informed relationship between smiling, trust, and propensity to invest. In addition, we were constrained by external factors such as the COVID-19 health crisis. Thus, internal validity was prioritized over external validity. An interesting next step could be to replicate this experiment with more externally-valid participants, treatment, and setting. Our original plan of conducting the pitches live in face-to-face interactions with participants could serve as a guide for this.

3.7.2 Reliability

Reliability is concerned with the consistency of measures and how their consistency affects if the results of a study are repeatable or not. There are three important components of reliability: stability, internal reliability, and inter-observer consistency. Stability refers to the idea that measures should be stable over time. Internal reliability concerns whether the parts that make up an index are consistent. Finally, inter-observer consistency refers to keeping subjective observer judgments out of measurements (Bryman & Bell, 2011, pp. 157-158).

We argue that our study design ensures high reliability. We used standard, objective measures based upon commonly-cited papers. These should be stable and using a digital survey ensures that subjective observer judgments in measures were avoided. Finally, we used Cronbach alpha tests to confirm high internal reliability in our index measures.

3.7.3 Replicability

The ability to replicate a study's findings is important for positivist researchers. Thus, it is critical that a study is capable of replication. To this end, it is imperative that researchers explain and document their procedures in great detail. We have taken many steps in our research process to ensure that our study is replicable. We have documented and recorded our research procedures including pre-registering our experiment with our thesis advisor Mark Conley. Doing so, not only eases replication but also helps ensure that researchers do not

manipulate their procedures or findings for improper reasons. Our well-documented, consistent quantitative research procedures also ease replicability. Our use of Qualtrics, a recorded treatment, and established outcome measurements further increases transparency and ease reproducibility. Furthermore, we have saved our raw data and Stata code and are willing to share both with anyone who asks.

3.8 Ethical considerations

As researchers we have been careful to consider ethical aspects when we designed and carried out our experimental study. Experiments involve intervening in the world through a manipulation, something that can be more or less sensitive depending on the context, extent and nature of the treatment. Guided by Gerber and Green (2012) we crafted our experiment so it would ensure the protection of our participants. In our pre-study, we confirmed that the topic and treatment were not sensitive since all pre-study participants reported that they did not feel that any element of the survey felt risky or harmful. We also sought to avoid potential harm or invasions of privacy by clearly informing participants that participation was completely voluntary, anonymous and that it did not involve any identified risks. If participants in the study felt uncomfortable when taking the survey they always had the choice to quit and their answers would not be reported. Additionally, we made sure to provide the participants with all necessary information such as the overall topic of our study, what was required of them to participate, how their answers would be recorded, and what the study would be used for. This enabled our participants to make informed decisions about whether they wanted to participate or not. In regard to the incentive, we explicitly stated that participants' phone numbers and names would be saved, shared, or connected to their survey responses and that receiving the incentive was completely voluntary (Gerber & Green, 2012, pp. 447-451).

4. Results & Analysis

In this section we will present the results of our study. We first present descriptive statistics and the results of our primary hypothesis tests. Finally, we present our mediation analysis.

4.1 Descriptive Statistics

Table 4 displays summary statistics for our sample. We had a sample that was relatively balanced between male and female participants. Students made up the majority of the sample but there was also a relatively high proportion of respondents that listed working as their primary occupation.

Table 4. Summary of Descriptive Statistics for Sample

	N.	% of sample
Participant Female	95	47.50%
Participant Male	104	52.00%
Participant Other	1	0.50%
Studying	124	62.00%
Non students	76	38.00%
Working (salary)	66	33.00%
Working (own)	7	3.50%
Other	3	1.50%
Average Age	24.710	SD 3.926
	19 to 53	median 24

Table 5 presents summary statistics for the distribution of treatment. As expected when using simple randomization and a relatively large sample size, approximately half of the participants received the smile treatment. These proportions are as expected and help provide a check of the effectiveness of our randomization procedure (Gerber & Green, 2011, pp. 34-35).

Table 5. Summary of Treatment Distribution

	N.	% of sample
Smiling Treatment	101	50.500%
Neutral Treatment	99	49.500%
Female Pitch	96	48.000%
Male Pitch	104	52.000%
Female-neutral	47	23.500%
Female-smile	49	24.500%
Male-neutral	52	26.000%
Male-smile	52	26.000%

Table 6 displays demographic data by treatment group. Looking at the demographic data for the smiling and the non-smiling groups can be informative. Given simple randomization and a relatively large sample there is no reason to expect that the demographic breakdown of the treatment groups should vary to any large degree. While the proportion of male participants was higher in the non-smiling treatment group than in the smiling treatment group, a t-test producing a p-value of 0.12 showed that this difference was not statistically significant. This helps to indicate that the small differences in demographics that we observed between the treatment groups are reasonable given our sample size and simple randomization procedure. Together, these results suggest that our study's randomization procedure worked as expected.

Table 6. Treatment Distribution Among Participants

	Non-smiling		Smiling	
	N.	%	N.	%
Participant Female	42	42.424%	53	52.475%
Participant Male	57	57.576%	47	46.535%
Participant Other	0	0.000%	1	0.990%
Studying	62	62.626%	62	61.386%
Non students	37	37.374%	39	38.614%
Working (salary)	31	31.313%	35	34.653%
Working (own)	4	4.040%	3	2.970%
Other	2	2.020%	1	0.990%
Average Age	25.020	SD 4.759	24.406	SD 2.906

4.2 Hypotheses Testing

Table 7 presents the results of t-tests conducted on our variables of interest by treatment. The full-sample results show that the SCM trust score was 3.018 in the non-smiling condition and 3.582 in the smiling condition. For the sample as a whole, the average warmth score was 4.189 in the non-smiling condition and 4.752 in the smiling condition. The average competence score was 4.907 in the non-smiling condition and 5.163 in the smiling condition. Finally, the average propensity to invest score was 3.889 in the non-smiling condition and 4.019 in the smiling condition. Taken as whole the results of the t-tests indicate preliminary support for hypotheses 1, 1A, and 1B but fail to support hypotheses 2. These results also provide some indication that the effect of smiling was not substantially impacted by the identity of the pitcher.

Table 7. Scores for Variables

		SCM Trust	SD	Warmth	SD	Competence	SD	Propinvest	SD
Full Sample	Neutral	3.018	1.115	4.189	1.091	4.907	0.898	3.889	1.407
	Smile	3.582	1.200	4.752	1.082	5.163	0.967	4.019	1.330
	Difference	-0.564		-0.563		-0.256		-0.130	
	T test P-value	0.001		0.000		0.053		0.498	
Pitcher 1 (Male)	Neutral	3.052	1.161	4.288	1.112	4.856	0.805	3.942	1.373
	Smile	3.662	1.198	4.966	1.050	5.063	0.984	4.188	1.340
	Difference	-0.610		-0.678		-0.207		-0.246	
	T test P-value	0.001		0.002		0.244		0.359	
Pitcher 2 (Female)	Neutral	2.981	1.075	4.079	1.068	4.963	0.996	3.829	1.456
	Smile	3.497	1.220	4.526	1.086	5.271	0.946	3.842	1.274
	Difference	-0.516		-0.447		-0.308		-0.013	
	T test P-value	0.031		0.046		0.124		0.966	

4.2.1 Smiling Leads to Higher Trust

Table 8 shows OLS regressions of SCM trust on smiling. In line with our expectations, the results show that smiling has a positive effect on trust. The results of three different regression models are present. Column (1) shows the results of a simple linear regression of trust scores on smiling. In this simple model we see that the coefficient on smiling is 0.564 and is significant at the 0.001 percent level. In columns (2) and (3) we see that the effect of smiling on trust is not affected by the inclusion of a control for the pitcher and that it is robust to the inclusion of our demographic covariates. In the full model in column (3) the coefficient on smiling of 0.514 indicates that on average, smiling while pitching increases reported trust score by 0.514 points on the scaled 7-point trust score measure all other things held constant. Therefore, our results support hypothesis 1 that smiling leads to higher trust.

Table 8: Regression of Trust on Smiling

VARIABLES	(1) SCMtrust	(2) SCMtrust	(3) SCMtrust
Smile	0.564*** (0.164)	0.566*** (0.164)	0.514** (0.168)
Malepitch		0.119 (0.164)	0.083 (0.163)
Participantmale			-0.448** (0.168)
Student			-0.099 (0.186)
Age			-0.000 (0.015)
Constant	3.018*** (0.112)	2.956*** (0.138)	3.296*** (0.487)
Observations	200	200	200
R-squared	0.056	0.059	0.094

Robust standard errors in parentheses

*** p<0.001, ** p<0.01, * p<0.05

4.2.2 Smiling Leads to Higher Perceived Warmth

Table 9 displays OLS regression models of warmth scores on smiling. We hypothesized that smiling would lead to higher perceived warmth since previous research has shown that smiling is a strong signal for warmth, and since warmth signals are easily detected during

initial meetings, such as in the context of the pitch in our study. The coefficient on smiling is positive and significant at the 0.001 level in all three models. The results from our study show that smiling has a significant effect on warmth scores and that the results are robust to the inclusion of controls for the pitcher and participant gender, age and occupation. In the full model in column (3) the coefficient on smiling of 0.527 indicates that on average, smiling while pitching increases reported warmth score by 0.527 points on the 7-point Likert scale measure all other things held constant. We therefore have strong support for hypothesis 1A that smiling leads to higher perceived warmth scores. The results of tests for the effect of smiling on warmth also serve as a manipulation check. Since the effect of smiling on perceptions of warmth and trust can be highly subconscious, including a direct question about whether the pitcher smiled was deemed to be inappropriate. For this study, it is not of interest to us if the participants consciously realized that the pitcher was smiling.

Table 9: Regression of Perceived Warmth on Smiling

VARIABLES	(1) warmthscore	(2) warmthscore	(3) warmthscore
smile	0.563*** (0.154)	0.566*** (0.152)	0.527*** (0.158)
malepitch		0.326* (0.152)	0.299 (0.153)
participantmale			-0.371* (0.159)
student			-0.145 (0.173)
age			0.006 (0.013)
Constant	4.189*** (0.110)	4.018*** (0.134)	4.177*** (0.450)
Observations	200	200	200
R-squared	0.063	0.085	0.115

Robust standard errors in parentheses

*** p<0.001, ** p<0.01, * p<0.05

4.2.3 Smiling has Little to no Effect on Perceived Competence

Table 10 displays OLS regression models of competence scores on smiling. We hypothesized that smiling would have little to no effect on competence since there is no previous evidence that smiling should affect competence perceptions, and since competence

is more difficult and time-consuming to perceive than warmth. Our results show no significant effect of smiling on perceived competence. As shown in **Table 10**, while the coefficient on smiling is positive in all three models it is not significant at any conventional significance level in any of the models. Thus, there is no evidence that smiling while pitching causes a statistically-significant effect on competence scores and hypothesis 1B is supported.

Table 10: Regression of Perceived Competence on Smiling

VARIABLES	(1) compscore	(2) compscore	(3) compscore
smile	0.257 (0.132)	0.255 (0.132)	0.224 (0.136)
malepitch		-0.158 (0.132)	-0.181 (0.134)
participantmale			-0.247 (0.135)
student			-0.006 (0.141)
age			-0.006 (0.012)
Constant	4.907*** (0.090)	4.990*** (0.122)	5.308*** (0.383)
Observations	200	200	200
R-squared	0.019	0.026	0.044

Robust standard errors in parentheses

*** p<0.001, ** p<0.01, * p<0.05

4.2.4 Smiling Increases Propensity to Invest

Table 11 displays OLS regression models of propensity to invest on smiling. We hypothesized that smiling while pitching increases propensity to invest. Surprisingly, we did not find any support for this in our study. As shown in **Table 11**, while the coefficient on smiling is positive in all three models it is not significant at any conventional significance level in any of the models. Thus, our results fail to provide evidence that smiling while pitching has a statistically-significant effect on propensity to invest. Therefore, hypothesis 2 is not supported.

Table 11: Regression of Propensity to Invest on Smiling

VARIABLES	(1) propinvest	(2) propinvest	(3) propinvest
smile	0.131 (0.193)	0.133 (0.193)	0.174 (0.199)
malepitch		0.230 (0.193)	0.258 (0.193)
participantmale			0.241 (0.194)
student			0.081 (0.213)
age			0.021 (0.023)
Constant	3.889*** (0.141)	3.768*** (0.178)	3.051*** (0.691)
Observations	200	200	200
R-squared	0.002	0.010	0.021

Robust standard errors in parentheses

*** p<0.001, ** p<0.01, * p<0.05

4.2.5 Higher Perceived Trust is Associated with Higher Propensity to Invest

Table 12 displays OLS regression models of propensity to invest on SCM trust, warmth, and competence. We hypothesized that propensity to invest is positively associated with perceived trust. Regression models of propensity to invest on SCMtrust are displayed in columns (1), (2) and (3) of **Table 12**. The coefficient on SCMtrust is positive and significant at the 0.001 level in all three models. Therefore, hypothesis 3 is supported.

Columns (4), (5) and (6) examine how propensity to invest is associated with competence and warmth scores. Columns (4) and (5) shows that competence scores and warmth scores are individually statistically-significantly associated with propensity to invest. Finally, column (6) shows that when both warmth and competence are included in a model warmth scores are more strongly associated with propensity to invest than competence scores. This result provides some supporting evidence for our assertion that perceived warmth is more predictive of propensity to invest than perceived competence in a time-constrained, first pitch scenario.

Table 12: Regression of Propensity to Invest on Trust

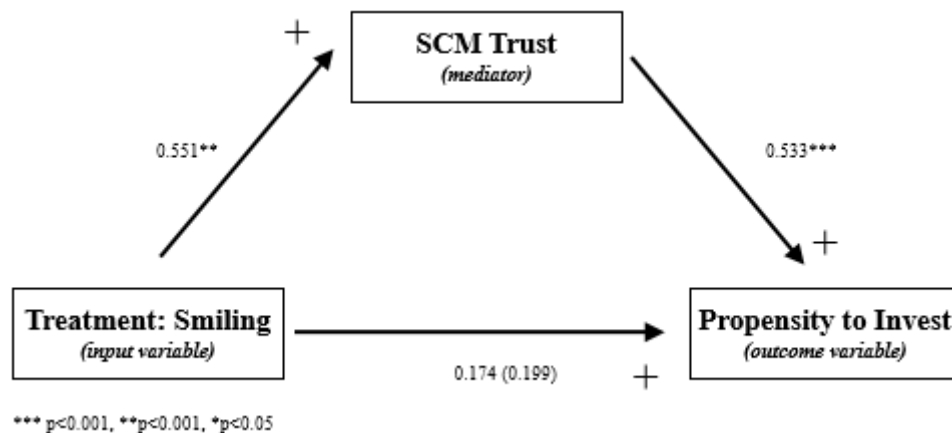
VARIABLES	(1) propinvest	(2) propinvest	(3) propinvest	(4) propinvest	(5) propinvest	(6) propinvest
SCMtrust	0.482*** (0.079)	0.479*** (0.079)	0.524*** (0.076)			
participantmale			0.487** (0.172)	0.366* (0.181)	0.451* (0.175)	0.467** (0.174)
age			0.022 (0.021)	0.023 (0.022)	0.018 (0.021)	0.021 (0.021)
student			0.138 (0.187)	0.081 (0.200)	0.165 (0.187)	0.147 (0.187)
malepitch		0.175 (0.176)	0.217 (0.172)	0.353* (0.178)	0.100 (0.180)	0.184 (0.182)
competencescore				0.532*** (0.090)		0.257* (0.109)
warmthscore					0.534*** (0.080)	0.408*** (0.096)
Constant	2.362*** (0.282)	2.283*** (0.279)	1.238 (0.629)	0.275 (0.780)	0.723 (0.673)	-0.106 (0.737)
Observations	200	200	200	200	200	200
R-squared	0.179	0.183	0.218	0.148	0.199	0.219

Robust standard errors in parentheses

*** p<0.001, ** p<0.01, * p<0.05

4.2.6 Mediation Analysis

According to hypothesis 4, the effect of smiling on propensity to invest is mediated by trust. To look for statistical support for mediation we conduct a mediation analysis using a three-equation model.

Figure 3: Mediation Diagram

As **Figure 3** illustrates, the regression coefficient between smiling and interest was not significant. This result was seen in **Table 11**. However, as required for mediation the regression coefficient between smiling and SCM trust was statistically significant as seen in **Table 8**. In accordance with step three of the mediation analysis, the results of a regression of propensity to invest on SCM trust, displayed in **Table 13** show that the coefficient on SCM trust was significant even when smiling was included as a covariate.

Table 13: Regression of Propensity to Invest on SCM Trust and Smile

VARIABLES	(1) propinvest	(2) propinvest	(3) propinvest
SCMtrust	0.497*** (0.076)	0.493*** (0.077)	0.533*** (0.074)
smile	-0.150 (0.169)	-0.146 (0.170)	-0.101 (0.173)
malepitch		0.172 (0.176)	0.214 (0.172)
participantmale			0.480** (0.173)
student			0.134 (0.187)
age			0.021 (0.022)
Constant	2.388*** (0.289)	2.310*** (0.287)	1.293 (0.667)
Observations	200	200	200
R-squared	0.182	0.186	0.219

Robust standard errors in parentheses

*** p<0.001, ** p<0.01, * p<0.05

The indirect effect of was $(0.551) \times (0.533) = 0.293$. As suggested by Preacher and Hayes (2004) the significance of this indirect effect was tested using simulations and bootstrapping procedures. The results are displayed in **Table 14**. Unstandardized indirect effects were computed for each of 1,000 bootstrapped samples, and the 95% confidence interval was computed by determining the indirect effects at the 2.5th and 97.5th percentiles. The bootstrapped unstandardized indirect effect was 0.293, and the 95% confidence interval ranged from .109 to 0.489. The indirect effect was statistically significant ($p < .001$).

Table. 14 Mediation Analysis – SCM Trust

Effect	Mean	[95% Conf. Interval]	
ACME	0.293	0.109	0.489
Direct Effect	-0.102	-0.491	0.297
Total Effect	0.191	-0.231	0.636
% of Total Eff. mediated	0.998	-15.355	18.316

ACME: Average Causal Mediation Effects

ADE: Average Direct Effects

The mediation analysis thus provides mixed support for hypothesis 4 that the relationship between smiling and propensity to invest is mediated by trust. On the one hand the prerequisite that smiling has a significant effect on trust and that trust explains variance in the propensity to invest even when the smiling is controlled for are satisfied. Furthermore, our mediation analysis yielded a statistically significant estimation for the indirect effect of smiling on propensity to invest. On the other hand, the direct effect of smiling on propensity to invest was not statistically significant and total effect estimates were not statistically significant at any conventional significance level.

5. Discussion

This section is divided into two parts. First, we discuss our study's results. We discuss the links between the primary variables of interest and provide a suggestion for how our conceptual model should be revised. Second, we discuss the study's limitations and what implications they have for our results.

5.1 Discussion of Results

Overall, the results of our empirical analysis provide support for hypotheses 1, 1A, 1B, and 3; fail to provide support for hypothesis 2; and provide mixed support for hypothesis 4. Our results show that smiling does lead to higher SCM trust scores, mainly because smiling has a positive impact on warmth scores. Further, high trust scores are associated with increased propensity to invest. Based solely on this information, it is intuitive to think that smiling by itself should have an effect on propensity to invest as well. However, the results of our study do not support this conclusion since there is no statistically significant evidence for a direct link between smiling and propensity to invest. In the next sections we will discuss our results and interpret their implications.

5.1.1 Effect of Smiling on Trust and its Dimensions

In support of hypothesis 1A and our conceptual model, we found strong evidence in line with existing research that smiling leads to higher warmth perceptions (Wang et al, 2016; Cuddy et al., 2008; Bianciardi et al., 2017). As our results show, there is a positive, statistically-significant effect of smiling while pitching on perceived warmth. This implies that smiling while pitching is a good way to signal warmth.

In line with hypothesis 1B and our conceptual model, smiling while pitching does not seem to have a significant effect on perceived competence. The relatively high average competence scores in both the smiling and non-smiling condition can potentially be explained by the fact that the business idea pitched by the entrepreneur sounded promising, and hence the content in the business idea by itself reflected competence characteristics to the study participants. Another explanation could be that since the stereotype of an entrepreneur is that they are competent (Berry & Sanchez, 2019), participants in our study entered the study with a predetermined conception of what an entrepreneur is.

What does the evidence for a positive effect of smiling on warmth but a lack of evidence for an effect on smiling on competence imply? The results contradict the existence of a halo effect from warmth to competence. A halo effect implies that the other dimension, in the case of this study, competence, should be affected in the same direction as the manipulated dimension, warmth. Our study's results indicate that there is not an effect. Smiling has a strong effect on warmth perceptions and could hence be seen as an indirect way to manipulate warmth. Although our study does not provide support for a halo effect between warmth and competence, warmth was not manipulated directly so this inference must be interpreted with caution.

Likewise, our results regarding the effect of smiling on warmth and competence suggest that there is not a compensation effect between warmth and competence in our study. A compensation effect implies that indirectly positively manipulating perceived warmth through smiling would have a negative effect on perceived competence (Yzerbyt et al., 2008; Judd et al., 2005). The results of our analysis suggest that this is not the case since the coefficient on "smile" is not negative in any of the regressions of perceived competence on smiling.

Due to the positive effect smiling had on warmth and the lack of effect of smiling on competence, our SCM trust measure was positively affected by smiling to a statistically-significant degree. In line with our conceptual model and hypothesis 1, our results support Scharlemann's argument (2001) that a smiling face induces more trust than a non-smiling face. In Scharlemann's (2001) study the effect of smiling versus non-smiling was observed when using static photographs of people. Since our study uses dynamic films instead of photographs, we expand Scharlemann (2001) by showing that the effect of smiling on trust occurs for both static and dynamic smiles.

5.1.2 Association Between SCM Trust and Propensity to Invest

Our results show a statistically-significant positive association between SCM trust and propensity to invest. Therefore, other things held constant, participants who perceived the pitcher as more trustworthy were also more likely to score higher on propensity to invest. This results is fully in line with our conceptual model and hypothesis 3.

This result is also in line with previous research showing that trust increases performance in two-player cooperation games with monetary incentives (van 't Wout & Sanfey, 2008). Our study expands previous knowledge regarding the importance of trust during an initial pitch as we are measuring propensity to invest rather than actual funding outcomes, which is more suitable for an initial-pitch setting (Clarke et al., 2019). Our results suggest that trust is important during an initial pitch even though nothing is asked about how much money the investor wants to put in the business. This means that trust is important in order for the investor to be willing to pursue the venture further, and hence only investing in terms of time in the business. Our study expands the idea Clarke and colleagues (2019) had when they proposed propensity to invest is a good measure for outcomes or performance during an initial pitch. Clarke and colleagues (2019) explain that the measure is better than funding outcomes since it can be difficult to determine funding after a pitch, and our study builds on that explanation, asserting that higher trust increases propensity to invest.

Furthermore, our results show that both warmth and competence are positively associated with propensity to invest. Additionally, our results indicate that warmth is more strongly correlated with propensity to invest than competence is. This result provides suggestive support for our assertion that being perceived as warm during an initial pitch is highly important, which is in line with previous studies showing the primacy of warmth in time constrained situations (Willis & Todorov, 2006).

5.1.3 Effect of Smiling on Propensity to Invest

In contradiction to our conceptual model, our results do not support hypothesis 2, that smiling while pitching increases propensity to invest. Hence our study cannot support other scholars' findings that smiling increases the amount of money that subjects are willing to stake on a partner in a two-player cooperation game (Centorrino et al, 2015).

In our study, there is no evidence of a statistically-significant effect of smiling while pitching on propensity to invest. However, the lack of evidence for causation is not proof of lack of causation. Our results do not necessarily mean that there is no effect of smiling on propensity to invest.

What might explain the lack of evidence in our study for an effect of smiling on propensity to invest? If the core assumptions that our experiment relies on hold and our experiment has

high construct and internal validity, then there are three potential explanations. The first possibility is that smiling does have a significant impact on propensity to invest but that we were simply unlucky as to not observe it. Our power analysis indicated that if the true effect size of smiling while pitching has a Cohen's D of 0.52 then we had a 95 percent chance of observing a statistically-significant effect with an alpha value of 0.05 and a sample of 200.

The second possible explanation is that we overestimated the true effect size and that smiling while pitching actually has a much smaller effect on propensity to invest. For example, given a true effect size of Cohen's D of 0.3 then we would have had a 56 percent chance of observing a statistically-significant effect with an alpha value of 0.05 and a sample of 200. It is possible that the true effect size is null or so low that it could only be detected with a high probability with an extremely large sample. Even if a small effect size could be detected with a large enough sample, increasing the sample size substantially would not necessarily be worthwhile since such a small effect would not be practically interesting.

The third potential explanation is that the interaction between the treatment and setting affected our results. It is possible that both smiling in a static photo and smiling in a face-to-face interaction increase propensity to invest but that smiling in recorded video does not. This phenomenon could exist for a variety of reasons. Our results indicated that smiling in a recorded video increases perceived warmth and trust. Smiling in other settings could conceivably increase perceived warmth and trust even more. A photo is more binary than a video, being either only smiling or only neutral whereas in a video smiling does not occur 100 percent of the time. Further, humans may be more attuned to judging warmth in a face-to-face setting. Even if smiling does not have a smaller effect on warmth in the video setting, the effect of perceived warmth on propensity to invest may conceivably be lower for the video setting. With a static photo, smiling and thus warmth are one of the few impressions that a viewer can receive. In a true face-to-face interaction, trust and warmth may be more salient because the interaction is more immediate and personal. Overall, our study's null result for a significant effect of smiling on propensity to invest indicates that smiling is not an effective way to increase the likelihood of receiving funding in the context of a pre-recorded video pitch.

If the interaction between the treatment and setting is important, our results may be generalizable to other situations where entrepreneurs deliver initial-pitches via recorded

videos, such as crowdfunding platforms, but not to settings where the first pitch is delivered in face-to-face interactions. The generalizability of our inferences based on our study's results to a crowdfunding platform context is increased by the fact that our participants somewhat more closely resemble typical crowdfunding platform investors than they do business angels or venture capitalists. Like our participants, crowdfunding platform users are usually non-professional investors that tend to be young and well-educated (Kuppuswamy & Bayus, 2018).

5.1.4 The Implications of our Results on our Conceptual Model

Given the lack of evidence for an effect of smiling on propensity to invest and the results of our mediation analysis, the support for hypothesis 4, the effect of smiling on propensity to invest is mediated by trust, is mixed at best. While it is not possible to rule out that smiling has an indirect effect on propensity to invest through the mediator SCM trust, the evidence in our study for this effect is scant.

What might explain our finding that smiling increases trust and that trust is positively associated with propensity to invest but that smiling while pitching does not seem to increase propensity to invest? A likely explanation is that there is an unknown, unmeasured variable that causes both perceived warmth scores and propensity to invest. If there is an unmeasured variable that causes both perceived warmth scores and propensity to invest, this would break the no-omitted-variable assumption and thus the results of our mediation analysis would not be valid (Gelfand et al., 2009).

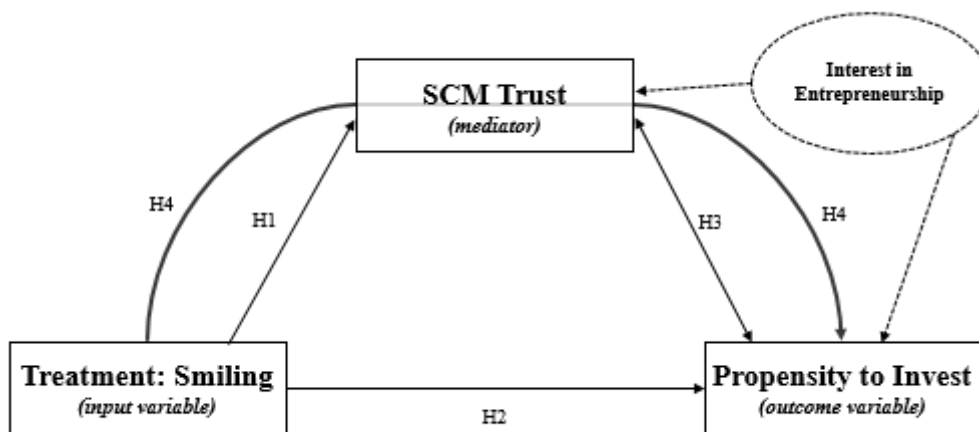
One potential such variable could be interest in entrepreneurship. Participants may vary in their *a priori* degree of interest in entrepreneurship. Those participants who came into the study more interested in entrepreneurship could have been more likely to view the pitching entrepreneur as similar to themselves, more like a friend or an in-group peer. As Fiske and colleagues have shown, people are more likely to perceive those in their in-group as warmer (Fiske et al., 2002). Logically, participants who came into the study more interested in entrepreneurship could also be more likely to score higher on propensity to invest due to their higher interest in entrepreneurial ideas.

In order to determine if *a priori* interest in entrepreneurship predicted both perceived warmth and propensity to invest, we should have included a question prior to the treatment video

asking participants to report their level of interest in entrepreneurship. If this had been done, we could have included *a priori* interest in entrepreneurship as a covariate in models.

If an unmeasured variable such as interest in entrepreneurship causes both SCM trust and propensity to invest, then controlling for it in our models could potentially have allowed us to detect a statistically-significant effect of smiling on propensity to invest and also to gather evidence for a mediation of that effect by SCM trust. **Figure 4** displays our conceptual model with the addition of the variable interest in entrepreneurship. As we did not include such a question, and therefore we do not have a variable to include in our models, we can only speculate what effect that this may have had. However, our results do indicate that an additional variable that explains SCM trust and propensity to invest should be included in our conceptual model.

Figure 4. Adjusted Conceptual Model



Regardless of any potential omitted variables causing a significant portion of the variance of SCM trust and propensity to invest, our experimental results regarding the impact of smiling while pitching on perceived warmth, perceived competence, and SCM trust stand.

5.1.5 The Influence of the Pitcher on the Effect of Smiling

The fact that the coefficient on the variable “malepitch” is not significant in any of our full models indicates that all else being equal there was not a significant difference in the effect of smiling between the two pitchers. Furthermore, the results of t-tests of smiling versus neutral pitching for the full sample, the pitcher one sample and the pitcher two sample indicate that the effect of smiling on perceived warmth, perceived competence, SCM trust, and propensity

to invest was roughly the same for the two pitchers. While this is only a preliminary indication, this result may suggest that the effect of smiling is roughly consistent across different individuals.

5.2 Limitations

We recognize that our research is not without limitations. Despite our attempts to address concerns related to different aspects of validity, such concerns remain. A potential effect of the interaction between treatment and setting as well as the potential of an important omitted variable are of particular concern. In addition to limitations that we tried to address with our study design, there two interesting areas in which our study was consciously limited. We present these in the following sections.

5.2.1 Effect of Gender

Our study is limited in regards to the effect of gender of the pitcher. Previous research indicates that the effect of gender would have been interesting to measure in combination with smiling, trust and propensity to invest since studies show that during the investment process investors are biased against women in multiple elements. For example, when comparing male voice to pitching to a female voice pitching, the male voice is preferred even if the content of the pitch is exactly the same (Brooks et. al, 2014). Further, males and females are treated differently during the pitching context in terms of questions asked by the investors. While males are asked promotion questions focusing on potential gains, females are asked prevention questions focusing on potential losses (Kanze et al., 2018). Relating to the stereotype content model, the feminine stereotype is associated with warmth characteristics and the male stereotype is associated with competence characteristics (Johnson et al., 2018). Studies show that investors are biased against ventures pitched by entrepreneurs who display feminine-stereotyped behaviour, as it is associated with a lack of business competence, preparedness and leadership (Balachandra et al., 2019). Further, women who act against their prescribed stereotype are punished for not acting in line with their stereotype (Heilman, 2012).

The reason for why the effect of gender was excluded from this study is mainly due to the fact that it would have been problematic to design an experimental study that measured gender effects. Experiments require that the researcher intervene in the world by

manipulating the explanatory variable of interest. Gender is difficult to manipulate since gender cannot just be assigned to a real person (Bryman & Bell, 2011, p. 95). In order to manipulate gender, we would have needed to manipulate a fictitious person, for example by manipulating names on a resume. However, using fictitious persons would not have complied with the aim of the study to examine the effect of smiling in the context of an initial pitch. One way to get around the problem with manipulating gender could have been to increase the number of male and female pitchers in order to form a representative sample of pitchers for both genders. Without a representative sample it is impossible to determine if differences are due to gender or other individual effects. However, increasing the number of pitchers to the level that would have been required to have a reasonably representative sample for each gender was not practical in the context of this study. This would change the entire design of our study and for the gender dimension our results would be observational rather than experimental. Although we recognize that gender would have been interesting to investigate, it simply was not feasible within the scope of our study. Our study is therefore limited in terms of potential effects regarding gender.

5.2.2 Effect of Different Smiles

Our study is also limited insofar as it does not examine different kinds of smiles. As suggested by previous research, type of smile, for example if it is genuine or not, and extent of the smile have been shown to have an effect on social perceptions (Centorrino et al, 2015; Wang et al, 2016). However, the current study looks at the difference between smiling and non-smiling, and thus disregards the fact that the type of smile itself could have a potential effect on the results. Although we have included two pitchers for our treatment in order to minimize potential effects from differences in smiling, we recognize that the study is still limited due to potential variations in smiling.

6. Conclusion

Situations where entrepreneurs have initial contact with potential investors are characterized by high time pressure, high uncertainty, and large informational asymmetries. The literature on entrepreneur-investor relationships indicates that trust is important in overcoming these obstacles and thereby increasing the likelihood of receiving funding. Theory suggests that smiling may be an effective way of increasing perceived trust. Therefore, the aim of this thesis was to investigate the explicit relationship between smiling, trust and propensity to invest. In order to measure trust, our study adopted the stereotype content model that consists of the two dimensions warmth and competence, which serve as the two fundamental dimensions when evaluating perceptions of other people.

6.1 Theoretical Implications

With this study we have expanded the theoretical understanding about how non-verbal behaviour influences trust through the dimensions of warmth and competence. We have found strong support in line with previous research that smiling is an effective way of increasing perceived warmth and thereby trust during an initial pitch. In contrast to warmth, however, our results show no evidence for an effect of smiling on competence. Thus, by indicating that halo and compensation effects are not present in the context of an entrepreneurial pitch, our study contributes to current theory about the occurrence of halo and compensation effects (Judd et al., 2005).

Our study expands the current literature on entrepreneur-investor relations and pitching. By confirming that there is strong association between perceived trust and propensity to invest, our study highlights that importance of trust in entrepreneur-investor relationships. Although smiling is an effective way of increasing warmth perceptions while pitching, our study shows that smiling by itself does not have an impact on propensity to invest in the context of a pre-recorded video. As such, our study also contributes to the literature on how humans react to non-verbal signals in different media.

6.2 Entrepreneurial Implications

Our study also has several important practical implications for entrepreneurs and investors. First, by confirming that there is a strong association between perceived trust and propensity to invest, our study highlights the importance of trust in entrepreneur-investor relationships.

While our study did not establish a causal relationship between trust and propensity to invest, our results indicate that entrepreneurs should think about how they are perceived in terms of warmth and trust. Second, our results suggest that smiling while pitching is an effective way for entrepreneurs to increase perceived warmth. This could be particularly useful for entrepreneurs in fields where warmth is especially important to potential investors such as social impact entrepreneurship. Finally, our study suggests that for the specific context of pre-recorded first pitches, entrepreneurs do not have to worry about smiling while pitching and can instead put their energy into other areas. This conclusion may be particularly relevant for entrepreneurs on crowdfunding platforms where videos are often used to pitch to non-professional-investor audiences.

6.3 Future Research

As mentioned previously, an interesting avenue for future research would be to replicate this experiment with more externally valid participants, treatment, and setting. Given that the interaction with the treatment and setting is a concern, it would be especially interesting to run a similar experiment in a face-to-face setting. Likewise, it would be especially desirable to do so with a sample of business angels and venture capitalists. As our results indicate, any replication not using a sample that is uniformly highly-interested in entrepreneurship should include a pre-treatment question regarding the participant's general level of interest in entrepreneurship.

While the impact of an entrepreneur's gender on the effect of smiling on perceptions of trust and propensity to invest was beyond the scope of this study, our review of existing theory indicates that it warrants further research. Likewise, the impact of attractiveness on smiling's effects could be interesting to examine. More broadly, further research into how body language affects pitching success would help guide entrepreneurs in overcoming the challenges inherent in a first pitch.

Bibliography

Aaker, J. Vohs, K.D. & Mogilner, C. (2010). Nonprofits Are Seen as Warm and For-Profits as Competent: Firm Stereotypes Matter. *Journal of Consumer Research*, 37(2), 224–237, doi: 10.1086/651566

Akerlof, G. (1970). The Market for "Lemons": Quality Uncertainty and the Market Mechanism. *The Quarterly Journal of Economics*, 84(3), 488-500.

Balachandra, L., Briggs, T., Eddleston, K., & Brush, C. (2019). Don't Pitch Like a Girl!: How Gender Stereotypes Influence Investor Decisions. *Entrepreneurship Theory and Practice*, 43(1), 116–137. doi: 10.1177/1042258717728028

Bell, E. & Thorpe, R. (2013). *A Very Short, Fairly Interesting and Reasonably Cheap Book about Management Research* (First ed.). Sage Publications Ltd.

Berry, J.W. & Sanchez, J. (2019). Perceiving entrepreneurs: Job title comparisons in warmth and competence. *Journal of Business Venturing Insights*, 12. doi: 10.1016/j.jbvi.2019.e00145.

Biancardi, B., Cafaro, A. & Pelachaud, C. (2017). Analyzing first impressions of warmth and competence from observable nonverbal cues in expert-novice interactions. *International Conference on Multimodal Interaction*. doi: 10.1145/3136755.3136779

Bollen, K.A. (1989). *Structural Equations with Latent Variables* (First ed.). Wiley-Interscience.

Brambilla, M., Sacchi, S., Rusconi, P., Cherubini, P., & Yzerbyt, V. Y. (2012). You want to give a good impression? Be honest! Moral traits dominate group impression formation. *British Journal of Social Psychology*, 51(1), 149-166. doi:10.1111/j.2044-835X.2010.02011.x,

Brooks, A., Huang, L., Kearney, S. & Murray, F.(2014). Investors Prefer Entrepreneurial Ventures Pitched by Attractive Men. *Proceedings of the National Academy of Sciences of the United States of America*, 111(12). doi: 10.1073/pnas.1321202111.

Bryman, A. & Bell, E. (2011). *Business Research Methods* (Third ed.). New York: Oxford University Press.

Centorrino, S. Djemai, E., Hopfensitz, A., Milinski, M. & Seabright, P. (2015). Honest signaling in trust interactions: smiles rated as genuine induce trust and signal higher earning opportunities. *Evolution and Human Behavior*, 36(1), 8-16. doi: 10.1016/j.evolhumbehav.2014.08.001

Chen, X., Yao, X., & Kotha, S. (2009). Entrepreneur Passion and Preparedness in Business Plan Presentations: A Persuasion Analysis of Venture Capitalists' Funding Decisions. *The Academy of Management Journal*, 52(1), 199-214. doi: 10.5465/amj.2009.36462018

Cislak, A. & Wojciszke, B. (2008). Agency and communion are inferred from actions serving interests of self or others. *European Journal of Social Psychology*, 38(7), 1103-1110. doi:10.1002/ejsp.554

Clark, C. (2008). The impact of entrepreneurs' oral 'pitch' presentation skills on business angels' initial screening investment decisions. *Venture Capital*, 10(3), 257-279. doi: 10.1080/13691060802151945

Clarke, J.S., Cornelissen, J.P. & Healey, M.P. (2019). Actions Speak Louder than Words: How Figurative Language and Gesturing in Entrepreneurial Pitches Influences Investment Judgments. *Academy of Management Journal*, 62(2), 335–360. doi:10.5465/amj.2016.1008

Cuddy, A.J., Glick, P.J., & Beninger, A. (2011). The Dynamics of Warmth and Competence Judgments, and Their Outcomes in Organizations. *Research in Organizational Behavior*, 31, 73-98. doi: 10.1016/j.riob.2011.10.004

Dewolf, T. (2014) Effects of Attractiveness on Perceived Trustworthiness. *Undergraduate Journal of Psychology*. 27(1).

Ditlmann, R., & Lagunes, P. (2014). The (Identification) Cards You Are Dealt: Biased Treatment of Anglos and Latinos Using Municipal-Issued versus Unofficial ID Cards. *Political Psychology*, 35(4), 539-555.

Ekman, P. & Friesen, W.V. (1982) Felt, false, and miserable smiles. *Journal of Nonverbal Behavior*, 6, 238–252. doi: 10.1007/BF00987191

Fiske, S T., Cuddy, A J.C., Glick, P. & Jun, X. (2002). A Model of (Often Mixed) Stereotype Content: Competence and Warmth Respectively Follow From Perceived Status and Competition. *Journal of Personality and Social Psychology*, 82(6), 878–902. doi: 10.1037//0022-3514.82.6.878

Fiske, S T.; Cuddy, A J.C. Glick, P. (2007). Universal dimensions of social cognition: warmth and competence. *Trends in Cognitive Sciences*, 11(2), 77-83. doi:10.1016/j.tics.2006.11.005

Fiske, S. T. (2018). Stereotype Content: Warmth and Competence Endure. *Current Directions in Psychological Science*, 27(2), 67–73. doi: 10.1177/0963721417738825

Fried, V. & Hisrich, R.(1994). Toward a Model of Venture Capital Investment Decision Making. *Financial Management*, 23(3), 28-37. doi: 10.2307/3665619

Gelfand, L.A., Mensinger, J.L & Tenhave, T. (2009) Mediation Analysis: A Retrospective Snapshot of Practice and More Recent Directions. *The Journal of General Psychology*, 136(2), 153-178. doi: 10.3200/GENP.136.2.153-178

Gerber, A.S & Green, D.P. (2012). *Field Experiments: Design, Analysis, and Interpretation*. W. W. Norton & Company.

Hayek, F. (1945). The Use of Knowledge in Society. *The American Economic Review*, 35(4), 519-530.

Hayes, A.F. (2017). Introduction to Mediation, Moderation, and Conditional Process Analysis, Second Edition: A Regression-Based Approach (Methodology in the Social Sciences). The Guilford Press.

Hayzlett, J. (2012). Why You Need a Better Elevator Pitch. *Harvard Business Review*.

Heilman, M.E. (2012). Gender stereotypes and workplace bias. *Research in Organizational Behavior*, 32, 113-135, doi: 10.1016/j.riob.2012.11.003.

Jiang, L., Yin, D., & Liu, D. (2019). Can Joy Buy You Money? The Impact of the Strength, Duration, and Phases of an Entrepreneur's Peak Displayed Joy on Funding Performance. *Academy of Management Journal*, 62(6), 1848–1871. doi: 10.5465/amj.2017.1423

Johnson, M.A, Stevenson, R.M. & Letwin, C.R. (2018) A woman's place is in the... startup! Crowdfunder judgments, implicit bias, and the stereotype content model. *Journal of Business Venturing*. 33 (6), 813-831. doi: 10.1016/j.jbusvent.2018.04.003.

Judd, C. M., James-Hawkins, L., Yzerbyt, V. Y., & Kashima, Y. (2005). Fundamental dimensions of social judgment: Understanding the relations between judgments of competence and warmth. *Journal of Personality and Social Psychology*, 89(6), 899–913. doi: 10.1037/0022-3514.89.6.899

Kanze, D., Huang, L., Conley, M.A. & Higgins, E.T. (2018). We Ask Men to Win and Women Not to Lose: Closing the Gender Gap in Startup Funding. *Academy of Management Journal*, 61(2), 586–614. doi:10.5465/amj.2016.1215

Kuppuswamy V., Bayus B.L. (2018). Crowdfunding Creative Ideas: The Dynamics of Project Backers. In: Cumming D., Hornuf L. (eds) The Economics of Crowdfunding. Palgrave Macmillan, Cham

Lakens, D. (2017). Equivalence tests: A practical primer for t-tests, correlations, and meta-analyses. *Social Psychological and Personality Science*. doi: 10.1177/1948550617697177

Maxwell, A., Jeffrey, S. & Lévesque, M. (2011). Business Angel Early Stage Decision Making. *Journal of Business Venturing*, 26(2). 212-225. doi: 10.1016/j.jbusvent.2009.09.002.

Maxwell, A. & Lévesque, M. (2011). Trustworthiness: A Critical Ingredient for Entrepreneurs Seeking Investors. *Entrepreneurship Theory and Practice*, 38(5), 1057–1080. doi: 10.1111/j.1540-6520.2011.00475.x

Mussel, P., Göritz, A.S., & Hewig, J. (2013). The value of a smile: Facial expression affects ultimatum-game responses. *Judgment and Decision Making*, 8(3), 381–385.

Naim,I .,Tanveer, M. I., Gildea,D,. & Hoque, M. E. (2018). Automated Analysis and Prediction of Job Interview Performance. *IEEE Transactions on Affective Computing*, 9(2), 191-204. doi: 10.1109/TAFFC.2016.2614299

Paul, S., Whittam, G., & Wyper, J. (2007). Towards a model of the business angel investment process. *Venture Capital*, 9(2), 107-125. doi: 10.1080/13691060601185425

Ponsi, G., Panasiti, M. S., Scandola, M., & Aglioti, S. M. (2016). Influence of warmth and competence on the promotion of safe in-group selection: Stereotype content model and social categorization of faces. *Quarterly Journal of Experimental Psychology*, 69(8), 1464–1479. doi: 10.1080/17470218.2015.1084339

Preacher, K. & Hayes, A. (2004). SPSS and SAS Procedures for Estimating Indirect Effects in Simple Mediation Models. *Behavior research methods, instruments, & computers*, 36(4), 717-31. doi: 10.3758/BF03206553.

Scharlemann, J., Eckel, C., Kacelnik, A. & Wilson, R. (2001). The value of a smile: Game theory with a human face. *Journal of Economic Psychology*. 22(5), 617-640. doi: 10.1016/S0167-4870(01)00059-9

Schumpeter, J. (1947). The Creative Response in Economic History. *The Journal of Economic History*, 7(2), 149-159.

Shane, S. & Venkataraman, S. (2000). The Promise of Entrepreneurship as a Field of Research. *The Academy of Management Review*, 25(1), 217-226.

Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). *Experimental and quasi-experimental designs for generalized causal inference*. Houghton, Mifflin and Company.

Statistiska Centralbyrån, SCB (2019) Förnamn kvinnor topp 100. Retrieved on 2020-03-18 from <https://www.scb.se/hitta-statistik/statistik-efter-amne/befolkning/amnesovergripande-statistik/namnstatistik/pong/tabell-och-diagram/samtliga-folkbokforda--fornamn-och-tilltalsnamn-topplistor/fornamn-kvinnor-topp-100/>

Statistiska Centralbyrån, SCB (2019) Förnamn män topp 100. Retrieved on 2020-03-18 from <https://www.scb.se/hitta-statistik/statistik-efter-amne/befolkning/amnesovergripande-statistik/namnstatistik/pong/tabell-och-diagram/samtliga-folkbokforda--fornamn-och-tilltalsnamn-topplistor/fornamn-man-topp-100/>

Tomczak, M., Tomczak, E., Kleka, P. & Lew, R. (2014). *Using power analysis to estimate appropriate sample size*. Trends in Sport Sciences. 21. 195-206.

van Osnabrugge, M. (2000). A comparison of business angel and venture capitalist investment procedures: An agency theory-based analysis. *Venture Capital*, 2(2), 91-109. doi: 10.1080/136910600295729

van 't Wout, M. & Sanfey, A.G. (2008). Friend or foe: the effect of implicit trustworthiness judgments in social decision-making. *Cognition*, 108(3) 796-803. doi: 10.1016/j.cognition.2008.07.002.

Venkataraman, S. (1997). The Distinctive Domain of Entrepreneurship Research. *Advances in Entrepreneurship, Firm Emergence and Growth*, 3, 119-138.

Wang, Z., Mao, H., Li, Y.J., & Liu, F. (2016). Smile Big or Not? Effects of Smile Intensity on Perceptions of Warmth and Competence. *Journal of Consumer Research*, 43, 787-805. doi: 10.1093/jcr/ucw062

Willis, J., & Todorov, A. (2006). First Impressions: Making up Your Mind after a 100-Ms Exposure to a Face. *Psychological Science*, 17(7), 592-598. doi: 10.1111/j.1467-9280.2006.01750.x

Wojciszke, B. (2005) Morality and competence in person- and self-perception. *European Review of Social Psychology*, 16(1), 155-188. doi: 10.1080/10463280500229619

Wojciszke, B. & Abele, A. (2008). The primacy of communion over agency and its reversals in evaluations. *European Journal of Social Psychology*, 38(7). 1139 - 1147. doi: 10.1002/ejsp.549.

Yu, M., Saleem, M. & Gonzalez, C. (2014). Developing trust: First impressions and experience. *Journal of Economic Psychology*, 43, Pages 16-29. doi:10.1016/j.joep.2014.04.004

Yzerbyt, V. Y., Kervyn, N., & Judd, C. M. (2008). Compensation Versus Halo: The Unique Relations Between the Fundamental Dimensions of Social Judgment. *Personality and Social Psychology Bulletin*, 34(8), 1110–1123. <https://doi.org/10.1177/0146167208318602>

Zawisza, M. & Pittard, C. (2015). When do warmth and competence sell best? The ‘golden quadrant’ shifts as a function of congruity with the product type, targets’ individual differences and advertising appeal type. *Basic and Applied Social Psychology*. 37(2), doi: 10.1080/01973533.2015.1015130

Appendix

Appendix 1: Power Analysis Shiny App

Link to professor Daniel A. Lakens Shiny App: <https://lakens.shinyapps.io/p-curves/>

Appendix 2: Marketing Text

Are you interested in entrepreneurship and want to earn 10 kr a minute to share your impression of an exciting startup pitch?

A research team from the Stockholm School of Economics is conducting an important study about entrepreneurial pitching. They are looking for participants to give 4 minutes of their time to watching a short pitch video and answer several short questions. The first 200 participants who complete the survey will receive a 40 kr reward. Use the following link to participate: https://hhs.qualtrics.com/jfe/form/SV_9Roztfaf1DePJgF

Appendix 3: Universities for Contacted Participants

Table 15. Overview of universities and contacted participants.

University	N.	%
Uppsala University	242	86.43%
Umeå University	12	4.29%
Gothenburg University	8	2.86%
Stockholm University	4	1.43%
Linköping University	4	1.43%
Växjö University	2	0.71%
Linné University	2	0.71%
Jönköping University	2	0.71%
Luleå University	2	0.71%
Lund University	1	0.36%
Gävle University	1	0.36%
Total	280	100.00%

Appendix 4: Contact Text

Swedish Version:

Hej NAMN! Jag hoppas att allt är bra med dig! Just nu håller jag på att skriva min masteruppsats, och undrar ifall du kan vara med i min studie? Det är 1 min video följt av ett par frågor, totalt tar den max 4 min att genomföra. Som tack för ditt deltagande får du 40kr! Här är länken till studien: https://hhs.qualtrics.com/jfe/form/SV_9Roztfaf1DePJgF Har du tid att hjälpa mig med detta? Stort tack på förhand!

English Version:

Hi NAME! I hope that everything is well with you! I am currently writing my master's thesis and am wondering if you can participate in my study? It consists of a 1-minute video, followed by a few short questions. In total it should take a maximum of 4 minutes. As a thank you for your participation you can get 40 kr through swish! Here is the link to the study: https://hhs.qualtrics.com/jfe/form/SV_9Roztfaf1DePJgF Do you have time at to help with this? A big thanks in advance!

Appendix 5. Incentives to Participants and Calculations for Composition of Sample

Table 16. Incentives to participants

	N.	% of sample
Swish	106	53,00%
Contact List Swish	79	74,53%
Non-contact list swish	27	25,47%
Confirmed non-contact list	27	13,50%

We used data on the incentives in order to understand the composition of the sample. 200 respondents in our sample, 106 (53 percent) chose to receive the 40 kr reward by providing their phone number in the optional final question. When making the swish payment we checked whether the name was on the contact list or not. We did not record any names and deleted the numbers after making the final Swish transactions. Additionally, we never connected names to questionnaire responses. This provided us with the information that of the 106 participants that provided a number to be swished, 79 (74.53 percent) were from our contact list and 27 (25.47 percent) were not from the contact list. This information helps us generate an estimate for how many participants in our sample are from our contact list and how many were reached through our partner organizations. We reason that those not on our contact list, who participated due to marketing by our partner organizations were more likely to accept the reward. Thus, the number of non-contact list participants should fall into the range of 13.5 percent, if all non-contact list participants accepted the payment, and 25.47 percent if the proportion of non-contact list participants and contact list participants was the same for those who did not accept the reward as for those who did.

Appendix 6: Pitch Manuscript

“Hello my name is Amanda/Filip and I am the founder of Forsetor. We are a legal-tech startup on a mission to disrupt the legal services industry by making high-quality digital legal solutions accessible to all. Today, the legal service industry is characterized by high prices and a complete lack of transparency. For private individuals and small companies, even simple tasks like writing relatively basic contracts often require visiting a law firm’s offices and paying steep hourly fees.

At Forsetor, our goal is to change that by using a digital platform and powerful natural language processing algorithms to automate legal advice and contract writing. Forsetor is unique among legal service providers in offering a full-service digital platform that makes customers feel empowered and in-control.

Using our proven platform we can provide customers with access to on-demand, high-quality legal solutions for low, transparent prices, all in the comfort of their own homes or businesses.

Our scalable business model also enables us to serve customers at a fraction of the cost of traditional competitors.”

Appendix 7: Instructions Before Pitch Day

What: Blake and Sanna are conducting a study for their master thesis. One part of the study consists of two persons individually holding a pitch. The pitch will be recorded and distributed together with a questionnaire to approximately 200 people.

To pitcher:

Please read these instructions clearly before coming to the “pitch day”

- During one day, maximum five hours, you will practice and record a pitch. Blake and Sanna will practice the pitch together with you before it is recorded.
- The pitch will be about a start-up idea, where you will act as an entrepreneur pitching for potential investors.
- The total amount of time for practicing and recording is estimated to be maximum 5 hours with a break for lunch included. Lunch will be provided.
- Blake and Sanna will prepare a manuscript and give instructions on how to practice and perform the pitch.
- The manuscript will be for a 1 min pitch.
- You will not receive the manuscript beforehand, the manuscript will be given to you on the same day as we practice / record.
- Another person will during the same day do the exact same thing as you. However, your pitches will be recorded separately.

Time and Place: On Saturday 28/3 between 11.00 - 16.00 in Blake’s apartment in Gärdet.
Furusundsgatan 8 lgh 1105

Dress Code: White shirt and dark jacket - Business attire.

Neutral colors (black, white, grey, navy).

Dress up as you would be dressed if you were going to a job interview.

Appendix 8: Schedule and Instructions on Pitch Day

First of all - big thanks to both of you for being here today. We will have a quite intense, but hopefully fun, day together here today. By the end of today, we will have a pitch held individually by you recorded.

Throughout the day, it is important that you listen and follow Blake and Sanna's instructions. We will start with practicing the pitch and you will soon get the manuscript for the pitch. During the day you (the two pitchers) will receive the same information from Blake and Sanna. You will also be practicing and recording the same pitch.

During this day, please do not photograph or share any content. We also ask you to not discuss details of your experience with anyone within the next two weeks as it might affect our study. We will not be able to answer any questions about other parts of the study today. However, in two weeks when we have conducted the study, we will be able to explain the details of the study to you.

*If the pitcher asks further questions (especially about the smiling/not smiling) Sanna and Blake will answer:

This experiment concerns multiple variables and is part of a larger study. We cannot currently share any further information.

Agenda:

11.00 - 11.15.15 Welcome go-through of the day.

11.15 - 11.45 Manuscript is handed out, individual reading and memorizing.

11.45 - 12.15 Male practice with Blake and Sanna.

12.15 - 12.45 Female practice with Blake and Sanna.

12.45 - 13.15 Male and Female practice together with Blake and Sanna.

13.15 - 14.00 LUNCH

14.00 - 14.45 Male records with Blake and Sanna

14.45 - 15.30 Female records with Blake and Sanna

15.30 - 16.00 Wrap-up and thank you for today.

11.15 - 11.45 Manuscript is handed out, individual reading and memorizing

Process (Blake and Sanna only): Participants receive the pitch and read it separately. The aim for these 45 minutes is to get the pitchers familiar with the manuscript and start memorizing it.

Instructions to pitchers: You will now get the manuscript for the pitch. Please read it carefully and try to memorize it as well as possible.

11.45 - 12.45 Individual practice with Blake and Sanna

Process (Blake and Sanna only): Participants will individually practice the pitch with Blake and Sanna. The aims with the practice are:

- 1. The first aim is to ensure that participants learn the pitch fluently, understand the content and pronounce the words correct. If words are pronounced incorrect, Blake and Sanna should correct the pitcher to avoid misunderstandings.*
- 2. The second aim is to make the pitcher feel comfortable and confident when performing the pitch.*
- 3. The third aim is to make sure that the pitcher keeps within the time frame. When Blake and Sanna practiced the pitch it took around 75 seconds. The pitcher should be as close to that as possible.*
- 4. The fourth aim is to see if the pitcher understands the instructions of smiling and neutral face.*

Instructions for the pitcher:

We will now practice the pitch together with you. Follow our instructions.

- Read the pitch outloud for Blake and Sanna (several times). ‘
 - Blake and Sanna correct the pitcher if any words are pronounced incorrect.
 - Blake and Sanna ask the pitcher if he/she understands the content of the pitch. If the pitcher does not understand specific words, Blake and Sanna can give the swedish translation of the word.

- Read it without the manuscript (several times).
 - *Blake and Sanna time the pitch.*
- Read it and smile.
 - *Blake and Sanna will show the pitcher photos of entrepreneurs smiling. Then, Blake and Sanna will ask the pitcher: Can you do the pitch with a smile, similar to these people?*
 - *Blake and Sanna instruct the pitcher to not smile during two specific sentences of the pitch.*
- Read it with a neutral face:
 - *Blake and Sanna will show the pitcher photos of entrepreneurs with neutral faces. Then, Blake and Sanna will ask the pitcher: Can you do the pitch with a neutral face, similar to these people?*

12.45 - 13.15 Male and Female practice together with Blake and Sanna.

Process (Blake and Sanna only): Now the two pitchers will practice the pitch together.

Both pitchers will do it several times with both smiling and neutral face instructions.

The aim is for the pitchers to get further practice on the pitch, and for the pitchers to see how the other pitcher performs the pitch. Record the pitch times for each training pitch.

Instructions for pitchers:

We will now practice on the pitch together. Make sure to follow our instructions all the time.

First, male will present.

1. Please do the pitch with neutral face.
2. Please to the pitch smiling

Second, female presents

1. Please do the pitch
2. Please do the pitch smiling

(Practice will continue until Blake and Sanna are satisfied)

13.15 - 14.00 LUNCH

14.00 - 15.30 Record pitches

Process (Blake and Sanna): Now the pitches will be recorded. The same instructions as previously will be told, smile or not smile. Make sure that the pitcher keeps within the time frame. The recording of the pitch must be in one take.

Instructions for pitcher:

- We will now record the pitch with you.
 - Your body will be shown from the waist and up.
 - The pitch should be in one take, if you make any mistakes we will start from the beginning again.
 - As before, follow our instructions.
1. First, do the pitch **with natural face**.
 2. Second, do the pitch **smiling**.

15.30 - 16.00 Wrap-up and thank you for today.

Process (Blake and Sanna): Be grateful towards the two pitchers and explain what they can / can not tell people in the next two weeks.

Instructions for pitchers:

Thank you for today! You did a great job and we really appreciate that you participated as pitchers in our study.

During the next two weeks we will do the remaining parts of the study. We ask you to not discuss your experience here today with anyone, and if someone asks about what you have done today we suggest you tell them: “I held a pitch which Blake and Sanna recorded for their study, but I do not remember the exact details about what it was about”.

In two weeks, we will be done with the study and we will explain to you in more detail what the study is about. In two weeks you are also free to discuss your experience with other people.

Appendix 9: Pitchers' Smiling and Neutral Faces

Female Pitcher



Male Pitcher



Appendix 10: Final Version of the Survey

Start of Block: Information and Terms

Q0:

Thank you for participating in our study. You will be shown a 1-minute video of an entrepreneur giving a pitch that will be followed by several brief questions. The total estimated participation time is 4 minutes. At the end of the questionnaire you will have the opportunity to provide your phone number to receive a swish with your 40 kr reward. Your answers will be anonymous and your phone number will not be saved.

- ☐ I accept these terms
- ☐ I do not accept these terms

End of Block: Information and Terms

Start of Block: FN Question Block

Treatment Video:

Please take a minute to watch the entire pitch video. Remember to have your audio turned on.

Page Break

Q0:

You have just watched a short video in which an entrepreneur pitched a business idea. You will now be asked several brief questions about your perception of the pitcher and their business.

Before you answer:

Make sure that you have watched the video.

Read each question carefully and answer in line with your perception. There are no right or wrong answers.

Q1:

What was the pitch you just watched about?

- ☐ E-commerce
- ☐ Digital legal services
- ☐ Food science

Page Break

Q2:

How trustworthy did you find the entrepreneur? (1=not at all trustworthy, 7=extremely trustworthy)

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7

Q3:

For the following characteristics: according to you how is the entrepreneur? (1=not at all, 7=extremely)

	1	2	3	4	5	6	7
--	---	---	---	---	---	---	---

Competent	☐	☐	☐	☐	☐	☐	☐
Confident	☐	☐	☐	☐	☐	☐	☐
Independent	☐	☐	☐	☐	☐	☐	☐
Intelligent	☐	☐	☐	☐	☐	☐	☐
Tolerant	☐	☐	☐	☐	☐	☐	☐
Warm (friendly)	☐	☐	☐	☐	☐	☐	☐
Good natured	☐	☐	☐	☐	☐	☐	☐
Sincere	☐	☐	☐	☐	☐	☐	☐

Page Break

Q4:

How interested are you in finding out more information about Forsetor? (1=not interested at all, 7=extremely interested)

- ☐ 1
- ☐ 2
- ☐ 3

☐ 4

☐ 5

☐ 6

☐ 7

Q5:

How likely is it that you would do further research into the industry and/or market of the business? (1=not at all likely, 7=extremely likely)

☐ 1

☐ 2

☐ 3

☐ 4

☐ 5

☐ 6

☐ 7

Q6:

How interested are you in meeting this entrepreneur to discuss Forsetor? (1=not at all interested, 7=extremely interested)

☐ 1

☐ 2

☐ 3

☐ 4

☐ 5

☐ 6

☐ 7

Q7:

How interested are you in finding out more information about the entrepreneur/management team? (1=not at all interested, 7=extremely interested)

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7

Q8:

I identify as:

- ☐ Female
- ☐ Male
- ☐ Other

Q9:

I am _____ years old (please answer in numbers not words).

Q10:

I am currently primarily:

- ☐ Studying

- ☐ Working (own company)
- ☐ Working (salary)
- ☐ Other

End of Block: Demographic Information

Start of Block: Payment Information

Q12:

If you would like to receive your 40 SEK reward, please provide your phone number for swish:_____ (Your number will only be used for payment and not be saved or distributed)

End of Block: Payment Information

Appendix 11: Link to Qualtrics Survey

https://hhs.qualtrics.com/jfe/form/SV_9Roztfaf1DePJgF?fbclid=IwAR2ihREzWlcRFxV2kgYw9KFACCCQi4eJ5zTbiFJ5P-8OfvklagWGfFNbYdg