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Thesis

Face Masks and the Effect On
Customer's perceived
level of Trust & Sense of Security

“Does the use of face masks by service employees have a negative influence on a customer's perceived level of trust and sense of security”

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2 TABLE OF CONTENT

1	Acknowledgement.....	1
3	Introduction.....	4
4	Literature Review.....	5
4.1	Customer-Employee Interaction.....	5
4.1.1	Facial Expressiveness & Recognition.....	5
4.2	Face Mask Perceptions & Impediments.....	7
4.3	Service Quality & Evaluation.....	9
5	Research Relevance & Theoretical Framework.....	12
5.1	Research Relevance.....	12
5.2	Theoretical Framework.....	13
5.3	Conceptual Model.....	14
6	Research Design & Method.....	15
6.1	Research Design.....	15
6.2	Sampling Method.....	16
6.3	Biases.....	17
7	Results.....	18
7.1	Descriptive Statistics.....	18
7.1.1	Hypothesis 1.....	19
7.1.2	Hypothesis 2.....	20
7.1.3	Hypothesis 3.....	21
7.1.4	Hypothesis 4.....	22
7.1.5	Hypothesis 5.....	23
7.1.6	Hypothesis 6.....	24
7.2	Discussions & Future Research.....	25
7.2.1	Implications.....	25

7.2.2	Limitations.....	26
7.2.3	Future Research.....	27
8	References	28
9	Appendix	38
9.1	Appendix A: Survey Flowchart.....	38
9.2	Appendix B: Survey Blocks.....	39
9.3	Appendix C: Overall Analysis.....	43
9.3.1	Descriptive Statistics	43
9.3.2	Testing Hypothesis 1	44
9.3.3	Testing Hypothesis 2	49
9.3.4	Testing Hypothesis 3	53
9.3.5	Testing Hypothesis 4	58
9.3.6	Testing Hypothesis 5	61
9.3.7	Testing Hypothesis 6.....	66

3 INTRODUCTION

Since its outbreak in Wuhan China, the Coronavirus disease 2019 (Covid-19) has been reported in 223 countries, infected over 125 million individuals and has caused nearly 2.8 million confirmed deaths (World Health Organization, 2021). In order to curb infection rates and relieve the burden cast upon the healthcare sector globally, governments worldwide have implemented numerous preventative policies. As a result, over 50 countries have partially or universally implemented the mandatory use of face mask protection by individuals when in the presence of others (Al Jazeera, 2020; Felter & Bussemaker, 2020).

The compulsory wearing of a face covering has received contrasting views from the general population for both its effectiveness and symbolism (He, et al., 2021; Howard, 2021). Whilst there is an evident distinction between eastern and western cultures regarding the compliance of face mask use (Massimo, 2020; Liu & Chuang, 2021), the efficacy of face masks continuous to be questioned by researchers worldwide (Ueki, et al., 2020; Chan & Yuen, 2020). Although the effectiveness of face masks is still debated, the overall scientific opinion seems to favor the wearing of face masks to help prevent the spread of Covid-19 (Barasheed, et al., 2016; Chan & Yuen, 2020). However, due to somewhat confusing or outright contradicting information from governmental bodies or entities with subject authority, a sizeable portion of the global population continues to resist the wearing of face masks both collectively or individually (Foley, 2020; Eley & Megaw, 2021; Feng, et al., 2020). This resistance of face mask use results in conflicting perceptions of face masks and its protective properties (Hollingsworth & Foley, 2020; Maheshwari, 2021).

Although extensive research has been performed about the implication of face mask use in healthcare and virus controlling context, there seems to be a scarcity of research regarding the influence of face mask use in commercial settings. More specifically, research aimed at customer perception of employee face covering and less so at the effects of face coverings on combating the spread of the disease. The academic field appears to be in demand for more research regarding consumer perception of face mask use and its influence on consumer behavior. Research done by Marler & Ditton (2020) and Ribeiro et al. (2020) lay a narrow foundation about the adverse effects of face masks on interpersonal interaction between individuals in a professional setting. However, no research occurs to touch upon the effects of face mask use in commercial specific context. Hence, the purpose of this paper is to examine the negative effects of face mask use by service employees on customer perception of service quality. The main research question of this paper is as follows:

“Does the use of face masks by service employees have a negative influence on a customer’s perceived level of trust and sense of security”

4 LITERATURE REVIEW

4.1 CUSTOMER-EMPLOYEE INTERACTION

The effect of customer-employee interaction has received extensive scientific attention throughout recent history. Academics and industry experts alike agree that customer-employee interaction is considered a vital aspect of customer evaluation on service quality (Bitner, 1990; Germler & Gwinner, 2000). To add to the importance of interaction between customers and employees, Pine & Gilmore (1999) and Solomon et al., (1985) have established that the encounter between customers and employees should be a satisfying one. As such, a satisfying service encounter positively influences the customer's perception of service quality as observed by Hartline & Ferrel (1996) and Rust et al. (1996). Research by Cooper-Patrick et al. (1999), Moshavi (2004), and Hekman et al. (2010) suggest that both customer and employee sex is suspect to influence customer service evaluations and should be taken into consideration.

A major element of a service encounter is the non-verbal communication an employee expresses towards a customer (Gabbott & Hogg, 2001; Sundaram & Webster, 2000; Lin & Lin, 2017). In essence, communication allows two actors to easily convey messages and intentions between one another (Soliz & Giles, 2010). Non-verbal communication can be expressed through means of visual cues such as body language, eye contact, facial expressions, and even distance between two individuals (Burgoon et al., 2016).

4.1.1 Facial Expressiveness & Recognition

Facial expressions are an essential method of conveying information of both an individuals' social and emotional identity (Firth & Firth, 1999; Van Kleef, Homan, & Cheshin, 2012). Extensive research has been done on the effects of facial recognition through both facial expressiveness and speech movement (Bruce & Young, 1986; Rosenblum, et al., 2002; Xiao, et al., 2014; Girges, Spencer, & O'Brien, 2015). The display and expressiveness of emotions by employees is a possible moderate a customer's perception of service quality, level of trust, and sense of security. Research by Pugh (2001), Tsai (2001), and Diefendorff & Richard (2003) determined a strong relationship between the display of positive emotions by employees and customer affect. This relationship was first observed by Schwartz & Clore (1988) and reinforced through research by Hennig-Thurau et al. (2006) and Lin & Lin (2017), who ascertained that employee positive emotional display positively impacts customer affect which subsequently influences the level of trust a customer experiences.

A noteworthy aspect is the possible moderating role of a customer's gender¹. Deaux (1982), Iacobucci & Ostrom (1993) and Nikolich & Sparks (1995) provide evidence that women are more socially inclined and as such tend to focus on the relational aspects of interpersonal encounters whereas their male counterparts prefer to emphasize the efficiency and accuracy of a service encounter. Research by Iacobucci & Ostrom (1993) suggest that emotional display and its influence on customer affect is emphasized when negative emotions are expressed, whereas positive emotions were perceived as satisfying by both sexes equally.

Furthermore, Oosterhof & Todorov (2008) found that facial recognition affects the trustworthiness of individuals and that certain facial expressions are deemed more trustworthy than others. Their research shows that positive facial expressions, such as a smiling face, result in higher levels of trustworthiness, while negative facial expressions, such as an angry face, result in lower levels of trustworthiness. The level of trust a customer experiences consequently influences customer satisfaction as observed by Rajic et al. (2016). As such, the emotional expressiveness of an employee directly impacts the level of trustworthiness and satisfaction a customer experiences.

Another aspect worth considering is the emotional valence of facial expressions and its influence on the feeling of safety of an individual. Research by Bublatzky et al. (2017) suggest that not only does facial expressiveness affect level of trust, but also the feeling of safety an individual experiences when processing certain expressions. This notion is supported by Porges & Lewis (2009) and Porges (2011) by which they propose that facial expressions are both used to recognize and communicate the physiological state of an individual. To further reinforce this, Geller & Porges (2014) state that the level of security an individual experiences is in part influenced via "expressed markers of social engagement" such as facial expressions and gestures.

¹ Although gender encompasses more than the "male" or "female" identifiers, for purposes of this research only those two identifiers and an "Non-binary / other" will be taken into account when applicable.

4.2 FACE MASK PERCEPTIONS & IMPEDIMENTS

The universal implementation of compulsory face mask coverings was not received unequivocally by the general public in many countries. Especially in western countries there exists a stigma on the wearing of face masks, as doing so communicates one's ill-health and induces a sense of fear or threat in bystanders (Abney, 2018; Buregyeya, et al., 2021). Not only does the wearing of face masks potentially convey one's current health situation, doubt continues to stir public opinion about the efficacy of face masks, despite a plethora of research proving its value combating viruses with airborne transmissions (Barasheed, et al., 2016; Chan & Yuen, 2020; Lyu & Wehby, 2020; Howard, et al., 2021). Although resisters to wearing face mask remain throughout the pandemic, the mandating of face mask usage has increased compliancy to the use of face masks from a voluntary wearing rate of 41% to a compulsory wearing rate of over 90% in (sub-)urban areas in the United States (Haischer, et al., 2020).

Additionally, research by Haischer et al. (2020) observed a notable differences of face mask use between sexes, where females were 7.6% more prone to wearing a mask compared to their male counterparts. This observation has been supported by Capraro & Barcelo (2020) and is in line with other literature that suggest men are more inclined to partake in risky behavior compared to women (Bord & O'Connor, 1997; Palmer, 2003; Finucane et al., 2000; Siegrist et al., 2005). However, contrasting research by Howard (2020) suggest there is no significant disparity of the wearing of face masks between men or women, citing similar research concerning the SARS pandemic, but does propose a notable variance in mask wearing perception between the two. Men seem to perceive face masks as more infringing on their independence whereas women perceive face masks as uncomfortable.

Research focusing on age and the compliancy of wearing a face mask is quite ambiguous and limited. Haischer et al. (2020) observed a small positive relationship between age and the wearing of a face mask whilst Howard (2021) observed older individuals to actually be less likely to wear a face mask. The notion of increased age reducing proper handling of hygiene protocols is supported by Lee et al. (2020), but one should note that proper hygiene protocols is not limited to the wearing of face masks.

Moreover, risk compensation behavior should be taken into account when discussing the implementation of face mask policies. Cartaud et al. (2020) observed a decline of other precautionary measure when individuals donned a face mask. Their research observed a reduction of interpersonal distance when a face mask was present, as this was deemed more trustworthy compared to other conditions. This observation is supported by Brosseau & Sietsema (2020) who suggest people could overvalue the protection of a face mask and gain a false sense of security. These views align with similar research in HIV prevention (Cassel et al., 2006; Rojas Castro et al., 2019). However, contradictory behavior has been observed by Marchiori (2020), Seres et al. (2020) and Betsch et al. (2020) who propose that a face mask actually increases the interpersonal distance between individuals. A possible motive for these contradicting views is the change in stigma that resolves around the individual wearing a face mask. During the onset of the pandemic people were advised to only wear a face mask when feeling ill. The universal face mask policies were implemented much later during the pandemic possibly changing the general opinion on those who are wearing face masks (Tomczyk & Schmidt, 2020; Kelley, 2020; Lyu & Wehby, 2020).

Lastly, the implementation of universal face masks has brought several socio-psychological impediments with it. Research by Calbi et al. (2021), Freud et al. (2020) and Nestor et al. (2020) have found a significant impairment of facial recognition due to the adaption of face masks. As such, one's ability to perceive facial expressions and interpret emotional valence has been significantly reduced. Nestor et al. (2020) suggest such deficiency in perceptivity actually strengthens one's perception of negative emotions. Research by Marler & Ditton (2020) and Riberio et al. (2020) further observe a negative effect of face mask use on communication between two actors. Furthermore, exploratory research by Li et al. (2021) propose that limited information about face mask use might increase the risk of social anxiety. However, Scheid et al. (2020) and Szczesniak et al. (2020) agree on the notion that face masks contribute to a wide array of psychological implications but that these do not outweigh the protective nature of said face masks. Scheid et al. (2020) do take into account a number of uncomfortable characteristics of a face mask and the physiological needs an individual might have such as competence, autonomy and relatedness. However, as mentioned these physiological drawbacks do not outweigh the need for individual and communal protection.

4.3 SERVICE QUALITY & EVALUATION

Service quality offered by organizations is increasingly becoming a part of the core strategy in an effort to position themselves more effectively in the marketplace (Brown & Swartz, 1989). As such, customer assessment of service quality has received continuous scientific attention throughout recent years. Zeithaml (1988) has defined service quality as the customer's judgement of overall excellence or superiority of service and is supported by Gronroos (1988) as from the customer's perspective, service quality indicates whether the provided service meets or exceeds customer expectations. To effectively measure service quality, Parasuraman, Zeithaml & Berry (1998) have constructed the SERVQUAL model which consists of 22 items categorized into five dimensions: (1) reliability, (2) responsiveness, (3) empathy, (4) assurance, and (5) tangibles.

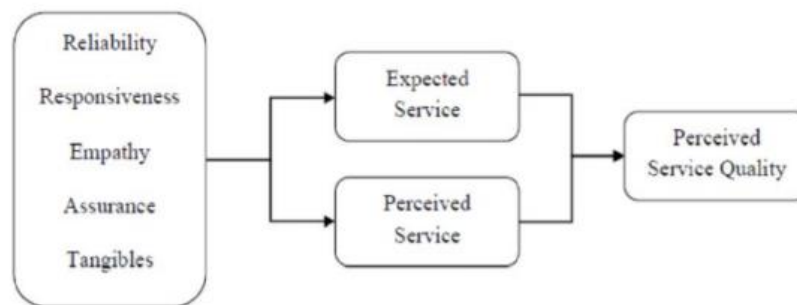


Figure 1 Basic visualization of the SERVQUAL model (Parasuraman et al. 1988)

Since its early adoption in 1985, the SERVQUAL model had been widely accepted as the new standard for measuring service quality in numerous industries by both academics and experts alike (Asubonteng, McCleary, & Swan, 1996). This, however, has not barred the model from receiving its fair share of criticism. As observed by Smith (1995), countless studies failed to simulate the methodology intended by the SERVQUAL model. Many studies added to, or removed items from the initial 22 item format in order to adapt the model for specific research needs. Indeed, Parasuraman et al. (1991) indicated that the SERVQUAL model was a basic framework underlying service quality and as such should be used in its entirety as much as possible. Furthermore, a comprehensive list of concerns regarding the SERVQUAL model has been published by Buttle (1996) touching upon both its theoretical and operational aspects which, according to Buttle, result in construct validity issues and Buttle therefore advocates for further fundamental research in the model.

Whilst the criticism regarding the SERVQUAL model is legitimate, many researchers have concerned themselves with the validity and practicality of the model since its general adaptation. As such, Jiang et al. (2000), Nyeck et al. (2002), Carrillat et al. (2007) and Ladhari (2009) all questioned the use of the SERVQUAL model and surmised that the model remains an accurate and useful indicator of overall service quality. One of the major conclusions drawn, as also observed by Ekinici (2001) is that the context in which the model is used remains an important condition on the validity and adaptability of the SERVQUAL model to measure service quality, and as such does not necessarily rely on the use of the model in its entirety.

Table 1 offers a more in-depth view of the SERVQUAL model, in which the aforementioned 22 item scale is mapped within their respective categories. The five categories, along with its 22 items, provide a foundation upon which other research can refine and contextualize the model to fit their its own research purposes as recommended by Ekinici (2001) and Ladhari (2009).

SERVQUAL Battery	
Reliability	
1.	Providing services as promised.
2.	Dependability in handling customers' service problems.
3.	Performing services right the first time.
4.	Providing services at the promised time.
5.	Maintaining error-free records.
Responsiveness	
6.	Keeping customers informed about when services will be performed.
7.	Prompt service to customers.
8.	Willingness to help customers.
9.	Readiness to respond to customers' requests.
Assurance	
10.	Employees who instill confidence in customers.
11.	Making customers feel safe in their transactions.
12.	Employees who are consistently courteous.
13.	Employees who have the knowledge to answer customer questions.
Empathy	
14.	Giving customers individual attention.
15.	Employees who deal with customers in a caring fashion.
16.	Having the customer's best interest at heart.
17.	Employees who understand the needs of their customers.
18.	Convenient business hours.
Tangibles	
19.	Modern equipment.
20.	Visually appealing facilities.
21.	Employees who have a neat, professional appearance.
22.	Visually appealing materials associated with the service.

Table 1 An overview of the 22 item list categorized in five dimensions (Parasuraman et al. 1994)

The level of trust and security an individual experiences are expected to be motivated by an individual's ability to recognize faces and its emotional valence. Table 1 shows that the categories of assurance and empathy is in part centered around an individual's assessment of trust and sense of security throughout a customer-employee interaction.

Scales to measure interpersonal trust seem limited. Rotter (1967) established the Interpersonal Trust Scale (ITS) which associated trust with an individual's disposition towards faith and financial wellbeing. This measurement scale was consequently applied to the verbal statements of others and whether or not these could be considered trustworthy. A second scale was developed by Yamagishi (1988) which emphasized cross-cultural differences in cooperation. Initially the scale comprised 60 items, including elements from Rotter's ITS scale, but was later shortened by Yamagishi & Yamagishi (1994) to a six-item General Trust Scale (GTS). Both the ITS and GTS scale aggregate attitudes of an individual across any given scenario. As such, these scales define trust as an expectational aspect from other people rather than the outcome of a specific interaction. Research by Eisend (2006) and Ohanian (2013) sourced the dimension of trustworthiness in a five-item inventory as part of a multi-faceted Source-Credibility Scale. The differences between Eisend's scale and that of Ohanian is that the former is focused on company credibility and the latter's scale on interpersonal credibility. Therefore the Ohanian scale is more applicable to this research. Ohanian defines the five items of trustworthiness as 1) Dependability, 2) Honesty, 3) Reliability, 4) Sincerity, and 5) Trustworthiness. These five items align with three dimensions of the SERVQUAL model, namely; Reliability, Assurance, and Empathy.

Scales to measure the sense of security seem to focus rarely on an individual's sense of security, but rather on an overarching body such as a community, team, or organizational hierarchy. Maslow (1942) developed the Psychological Security-Insecurity Questionnaire with three dimensions specified towards security; comprising: 1) safety, 2) belongingness, and 3) receiving love and affection and measured this through a 14-point inventory. Further research by Cong & An (2004) developed a measurement scale with the emphasis on the two dimensions interpersonal security and certainty in control, built upon the earlier work of Maslow. Wang et al. (2019) recognized limitations in both scales and the need for its adaptability to specific situations. Wang et al. modified the scales for measuring the sense of security of residential research, their research demonstrates that elements from both scales can be contextualized to fit the needs of other research as well. Consequently, the most influential items from both scales will be emulated with the dimensions of the SERVQUAL model. This results in the following items being selected as useful for the measuring of one's sense of security in the context of this research: 1) Being accepted, 2) feeling at ease, 3) feeling safe, 4) feeling comfortable, 5) feeling respected, 6) feeling secure. These six items accommodate with the assurance and empathy dimensions of the SERVQUAL model most effectively.

5 RESEARCH RELEVANCE & THEORETICAL FRAMEWORK

“Does the use of face masks by service employees have a negative influence on a customer’s perceived level of trust and sense of security”

5.1 RESEARCH RELEVANCE

Current literature regarding the physiological effects of face mask use is quite limited. This study aims to broaden the theoretical background on the use of face masks in commercial settings and therefore has academic relevance. Whilst a plethora of studies have concerned themselves with the effects of non-verbal communication in commercial settings, emphasizing on facial expressiveness, few-to-none have taken into account the use of a face mask. This is not entirely unexpected, due to the unusual situation the world has found itself in with the widespread impact of the COVID-19 pandemic. The positive effects of optimistic facial expressions during customer interaction with an employee have been proven. However, there exists a gap in literature concerning the partial blocking of facial expressions. Where optimistic facial expressions seem to hold an important mediating effect on a more positive customer service evaluation, it is unknown whether these optimistic facial expressions will bear the same effect when partially obscured through the use of a face mask.

This study holds marketing relevance for companies in various industries. If, ever, another instance occurs where face masks might be necessitated, but strictly voluntarily, this study aims to provide guidance on whether or not the use of such precautionary measure negatively impacts customer service evaluations and subsequently business performance. Companies that make use of the SERVQUAL might be able to more effectively influence customer service evaluations by modifying other dimensions on the SERVQUAL scale in order to mitigate the effects of face mask use.

5.2 THEORETICAL FRAMEWORK

Based on the literature review in chapter 0 several hypotheses can be drawn up in support of the main research question. The effects of *Emotional Display* are an important factor in the Perceived *Levels of Trust* and *Sense of Security* in an interpersonal encounter. As such, the first two hypotheses can be identified:

Hypothesis 1 *Customer's perceived Level of Trust is positively influenced by employee optimistic emotional display*

Hypothesis 2 *Customer's perceived Sense of Security is positively influenced by employee optimistic emotional display*

The effects of *Emotional Display* are suspect to be moderated by the inclusion of face mask use. To explore the effects of facial expressions and facial obscuring the following two hypotheses are identified:

Hypothesis 3 *Customer's Level of Trust is negatively influenced by employee Face Mask use.*

Hypothesis 4 *Customer's Sense of Security is negatively influenced by employee Face Mask use.*

In Hypotheses one and two, the *Emotional Display* of an employee can be identified as an independent variable as this is suspect of individually influencing the dependent variables of perceived *Level of Trust* and the variable of *Sense of security*. Although the effects of *Emotional Display* has been proven to have a positive moderating effect on customer service evaluation, there is no evidence whether or not this assumptions remains true when the face, and subsequently the *Emotional Display*, is partially obscured. To prove the moderating effects of a partially obscured *Emotional Display* the following hypothesis can be identified:

Hypothesis 5 *Positive emotional display does not moderate the effects of Face Mask use on customer's perceived Level of Trust and Sense of Security.*

Lastly, literature has shown that customer demographics can have a moderating role in customer service evaluations. Haischer et al. (2020) seem to disprove the notion that age might be a moderating factor when face mask are taken into consideration. Therefore the moderating variables of *Gender* will be tested in this study. As a result, the following hypothesis is identified:

Hypothesis 6 *Gender moderates the effect of Face Mask use on customer's perceived Level of Trust and Sense of Security.*

5.3 CONCEPTUAL MODEL

The hypotheses stated in chapter 5.2 can be visualized in the conceptual model shown in figure 2. The conceptual model shows the expected negative influence of the use of a face mask on a customer's perceived level of trust and sense of security. The moderating effects of emotional display and gender on perceived level of trust and sense of security are also considered in the conceptual model.

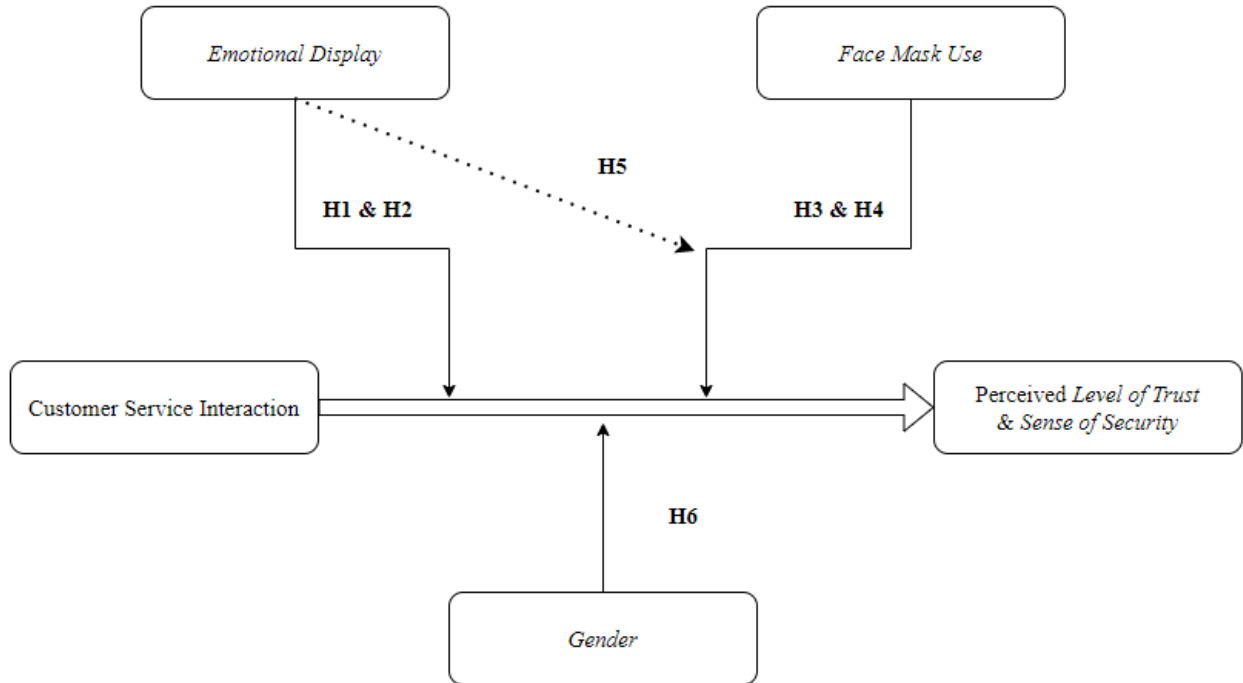


Figure 2 Study Conceptual Model

6 RESEARCH DESIGN & METHOD

6.1 RESEARCH DESIGN

To measure the effects of face masks on a customer's level of trust and sense of security, an online experiment will be conducted. The online experiment is based on the conceptual model shown in figure 2. An online experiment offers numerous advantages such as being able to reach the minimal required amount of respondents more efficient, easy control of given variables, and not having to harm a store's natural workflow (Punch, 2003). Based on previous work assessing nonverbal service encounters by Söderlund & Rosengren (2004), Yuksel (2012), and Kim & Jang (2014), this research will make use of a role-playing scenario to generate responses respecting the terms set by the variables of the conceptual model. Whilst the respondents themselves will not be an active participant in the scenario, they are observing a scenario which will allow them to evaluate interpersonal behavior (Gold, 1958; Johnson et al., 2006).

The scenario in question will resolve around the customer interaction with a service employee and the influence a face masks places on this interaction. As such, four scenario's are drafted and evenly distributed amongst respondents to measure the effects of emotional display and face mask use. Using the four scenario's as a basis will result in 2x2 factor design. The four scenario's will reflect the variables established in the conceptual model and are based on the following premises:

- 1) optimistic emotional display - no face mask,
- 2) optimistic emotional display – face mask,
- 3) neutral emotional display – no face mask,
- 4) neutral emotional display – face mask.

Scenario 1 will concern hypothesis 1, as good service with optimistic *Emotional Display* is to be expected by a customer (Pine & Gilmore, 1999; Solomon et al., 1985). Scenario 2 will test hypotheses 3, 4, and 5 as the inclusions of the face mask directly influences both a customer's *Level of Trust*, *Sense of Security* and ability to recognize *Emotional Display* and general facial features as outlined in chapter 4.2. Scenario 3 will concern hypothesis 2, as no optimistic *Emotional Display* will likely result in lower *Levels of Trust* and *Sense of Security* for a customer.. Scenario 4 will concern hypotheses 3, 4, and 5 as in this scenario the face mask again is suspect to negatively influence a customer's *Level of Trust* and *Sense of Security*. An in between-subject design has been chosen for this study in order to properly measure the differences in experimental conditions. Participants observing scenario 1 and 3 will establish the control groups for this study.

To measure the customer's perceived *Level of Trust*, the trusting scale based on the Source-Credibility scale of Ohanian (1989) will be used as outlined in chapter 4.3. The *Level of Trust* a customer experiences will be a combined score based on the five-item list rated with a five point Likert Scale (Agree – Disagree). The *Sense of Security* a customer experiences will be measured through a modified security scale based on the interpersonal security dimension by Cong & An (2004). To measure the *Sense of Security* a customer experiences they will rate their feeling on a seven point Likert scale (none - very much) based on the six-item list outlined in chapter 4.3.

Gender will be sampled in either “Male”, “Female”, or “ Non-Binary / Other” and will be used to test Hypothesis 6. Whilst this might not encompass the spectrum of gender in modern society, it will more than likely represent the majority of respondents participating in this survey, unless this will be proven otherwise during data collection.

This study will utilize an alpha of $p .05$, as this is a widely accepted level of significance in testing.

6.2 SAMPLING METHOD

Due to time and resource constraints this study will utilize a non-probability sampling method. A non-probability sampling method allows researchers to more easily collect data as it involves non-random selection based criteria (Mazzocchi, 2008). Probability sampling does not allow the researcher to select the research participants and is considered to be more complex as this requires sampling allocation rules and probabilities of extraction. As this study is based on an online-experiment, a snowball sampling method is used to reach research participants. In a snowball sampling method, research participants are asked to identify and reach out to others who belong to the research population and as such increase overall research participation (Mazzocchi, 2008).

Central Limit Theorem establishes that for every independent random variable a minimum of 30 research participants are required to properly tend towards a normal distribution (Kwak & Kim, 2017). As such, this study, with four independent variables, as outlined in the previous paragraph, will require a minimal amount of 120 research participants to make a sufficiently valid analyses.

This study will make use of an online experiment supplemented with a survey to gather the perceived levels of trust and sense of security of research participants. Every scenario is approximately 20 seconds in length and the survey should take no longer than 3 minutes to complete. The research participants are randomly assigned to one of four service interaction scenario's as outlined in the previous paragraph and will subsequently answer the questions regarding the level of trust and sense of security. The survey has a section of filler questions aimed at service quality to obscure the true purpose of this study. The flowchart of this survey can be found in Appendix A: Survey Flowchart The experiment is hosted on Qualtrics and the accompanied service interaction scenario's are hosted through YouTube as unlinked video's. An anonymous link has been shared through social media platforms and communicated through flyers with an attached QR code throughout the Dutch city of Vlaardingen to recruit research participants. To incentivize research participation a cash drawing of € 25 euro's was attached at the end of the survey and participants were given the option to leave their correspondence in the form of an e-mail address if they wish to enter the prize drawing. The full questionnaire can be observed in Appendix B: Survey Blocks.

6.3 BIASES

As in every research, the prevention of biases is of major concern to uphold the validity of the study (Simundic, 2013). To prevent a response bias, a minimal amount of information about the purpose of this study has been given to research participants. This will minimize the possibility of research participants being influenced with knowledge or expectations of this study's purpose. Participating in the survey will create a slight voluntary response bias, but as the participant selection criteria are considered minimal, this will not interfere with the validity of this study. Furthermore, equality in gender is preferred to prevent a gender selection bias. As such, this study aims to stay close to a 50-50 split in gender participation².

² The 50-50 split is centered around participation of either "male" or "female" participants. The option of "Non-binary / other" is not taken into consideration. However, if the "other" gender has a large enough sample than it will be included in the research analysis.

7 RESULTS

7.1 DESCRIPTIVE STATISTICS

A total of 199 surveys were recorded of which 133 surveys were complete and able to be used. As such a dataset of 137 surveys will be used for this study's purposes. Of the 137 research participants (henceforth called subjects), 76 subjects identified as male, 59 subjects identified as female and 2 subjects identified as non-binary / other. This means that the aforementioned targeted gender split of 50% males and 50% females is almost achieved at 55.4% males, 43.1% females and 1.5% for Non-Binary / others. The average subject age was 28.7 years old and ranges from 15 to 58 years old. A full view of descriptive statistics can be found in Appendix C: Overall Analysis, paragraph 9.3.1.9.3.1

The subjects were split into four groups according to the four experimental conditions. The subjects are virtually equally divided among the four groups as shown in table 2. Notable is a slight shift in gender dispersion between scenario's 1 – 3 and scenario 4. No explanation can be provided for this.

Experimental_Groups * Gender Crosstabulation

Count

		Gender			Total
		Male	Female	Non-binary / other	
Experimental_Groups	Optimistic - No Mask	21	13	1	35
	Optimistic - Mask	21	11	0	32
	Neutral - No Mask	21	13	0	34
	Neutral - Mask	13	22	1	36
Total		76	59	2	137

Table 2 Experimental group subject dispersion

7.1.1 Hypothesis 1

Hypothesis 1 *Customer's perceived Level of Trust is positively influenced by employee optimistic Emotional Display*

- H0** Employee optimistic *Emotional Display* does not positively influences a customer's perceived *Level of Trust*.
- H1** Employee optimistic *Emotional Display* positively influences a customer's perceived *Level of Trust*.

Hypothesis 1 centers around the assumption that optimistic emotional display (ED) positively influences a customer's perceived level of trust. The subjects are divided into two groups, namely optimistic -, and neutral ED. The groups have a population of N= 67 for the former and N=70 for the latter. To analyze the influence of emotional display, an independent T-test has been employed to examine whether or not the mean scores between both groups varied significantly. Where Optimistic ED: M=10.1045, SD=3.9394 and Neutral ED: M=11.9143 and SD=3.98091. Note that the measurement scale was reversed and as such a lower mean actually implies a higher perceived level of trust.

Levene's Test for Equality of Variances shows a significance level (F=-.252) of $p .617 > 0.05$ which indicates an equality in variances in perceived Level of Trust in both ED groups. There exists a significant negative relationship where p-value (2-tailed) = $.008 < .05$, between optimistic ED and perceived Level of Trust $t(135) = -2.674$ and as such the assumption that optimistic ED positively influences a customer's level of trust can be presumed.

A Kolmogorov-Smirnov and Shapiro-Wilk test for normality had been used and determined that neither groups were normally distributed. A violation of normal distribution required the analysis of a non-parametric test as a standard parametric test might not accurately represent study outcomes.

A Mann-Whitney U Test has been applied to confirm whether or not there is a significant difference between optimistic-, and neutral ED. The Mann-Whitney U Test confirmed there is indeed a significant difference between the groups and rejected the null hypothesis on the basis of Sig $0.009 < 0.05$. This confirms the results brought forth by Levene's test In the first paragraph.

In conclusion, the null hypothesis is rejected and the alternative hypothesis, that optimistic emotional display does influence a customer's perceived level of trust, is accepted. This result is not surprising, as literature has shown that positive emotional display indeed positively influences an individuals perceived level of trust. A greater examination of hypothesis 1 can be found in Appendix C: Overall Analysis, chapter 9.3.2.

7.1.2 Hypothesis 2

Hypothesis 2 *Customer's perceived Sense of Security is positively influenced by employee optimistic emotional display*

- H0** Employee optimistic *Emotional Display* does not positively influences a customer's perceived *Sense of Security*.
- H1** Employee neutral *Emotional Display* positively influences a customer's perceived *Sense of Security*.

Hypothesis 2 centers around the assumption that optimistic emotional display (ED) positively influences a customer's perceived Sense of Security. Similar to hypothesis one, subject are divided into two ED groups, optimistic and neutral with an N=67 and N=70 respectively. An independent T-test has been applied to the data to examine the influence of ED on sense of security. Optimistic ED has a mean of M=30.8060 and a Standard Deviation of SD=7.29724 whilst Neutral ED has a M=28.5286 and SD=7.76600. Unlike hypothesis 1, this scale is not reversed and a higher mean thus suggest a higher perceived sense of security. Whilst tests of normality suggest that data for optimistic ED might not be normally distributed, assessing corresponding plots showed no significant outliers and as such there has been chosen the preserve the data.

Levene's Test for Equality of Variances shows a significance level of $p = .735 > 0.05$ which indicates an equality of variances but a Sig (2-tailed) of $p = .079 > .05$ implies no statistically significant differences can be observed between the two conditions.

In conclusion, the null hypothesis is retained which states that employee optimistic Emotional Display does not influence a customer's perceived sense of security. A greater examination of hypothesis 2 can be found in Appendix C: Overall Analysis, chapter 9.3.3.

7.1.3 Hypothesis 3

Hypothesis 3 *Customer's Level of Trust is negatively influenced by employee Face Mask use.*

H0 Customer's *Level of Trust* is not negatively influenced by employee *Face Mask* use.

H1 Customer's *Level of Trust* is negatively influenced by employee *Face Mask* use.

Hypothesis 3 aims to test whether or not employee face mask use negatively influences a customer's perceived level of trust. The continuous variable level of trust, as used in hypothesis 1, chapter 7.1.1, has been compared to two groups. First a No Mask group with a subject population of N=69, and a With Mask group with a subject population of N=68. Descriptive data shows that Level of trust and No mask had a mean of 10.62 and a standard deviation of 4.07 whilst the With Mask comparison had a mean of 11.44 and a standard deviation of 4.02. The skewness and kurtosis levels of both group suggested a normally distributed set of data but upon testing for normality contradicting results were presented by the Kolmogorov-Smirnov test and the Shapiro-Wilk test. Examining the corresponding graphs revealed that the No Mask group might indeed not be normally distributed, at least for the histograms, whilst the With Mask Group seems to follow a decently normal distribution. Due to the contradicting assessment of normality, this study opted to preserve the data, but include a non-parametric analysis to confirm or reject the T-test assumptions.

Due to the preservation of data, an independent samples T-test has been performed which shows a Significance value of $p .606 > .05$, indicating that equality of variances can be assumed. The statistical significance of equal variances signaled a Sig (2-tailed) of $.239 > .05$, which indicates no statistically significant relationship exists between a customer's perceived level of trust and employee face mask use. Aforementioned in the previous paragraph, contradicting tests of normality requested the use of a non-parametric analysis, and as such a Mann-Whitney U Test was conducted to confirm the results of Levene's variance test. The Mann-Whitney test showed an asymptotic significance p-value of $.270 > .05$, which confirms the results of Levene's test and reinforce the notion that the null hypothesis has to be accepted.

In conclusion, this study failed to find a statistically significant relationship between customer's perceived Level of Trust and employee's use of a face mask. As a result, the null hypothesis is retained. A greater examination of hypothesis 3 can be found in Appendix C: Overall Analysis, chapter 9.3.4.

7.1.4 Hypothesis 4

Hypothesis 4 *Customer's Sense of Security is negatively influenced by employee Face Mask use.*

H0 Customer's *Sense of Security* is not negatively influenced by employee *Face Mask* use.

H1 Customer's *Sense of Security* is negatively influenced by employee *Face Mask* use.

Hypothesis 4 examines the effect of employee face mask use onto a customer's perceived Sense of Security. The continuous variable Sense of Security, as established during the testing of hypothesis 2, chapter 7.1.2, and No Mask and With Mask groups established during the testing of hypothesis 3, chapter 7.1.3, will be used to test this hypothesis. This hypothesis will be tested using an independent samples T-test, assuming a normal distribution of data and homogeneity of variances. The data provided will be tested on these criteria.

The independent samples T-test analysis has been conducted to test whether the mean scores on Sense of Security (No Mask: $M=29.22$, $SD=8.02$ versus With Mask: $M=30.07$, $SD=7.18$) were significantly different between the two groups. Note that the scale, unlike Level of Trust, has not been reversed and as such, a higher mean indicates a more positive effect. The Shapiro-Wilk test of normality indicated that both groups were distributed normally and could thus reliably be analyzed by the independent samples T-test. Utilizing Levene's Test for Equality of Variance, equal variances could be assumed ($f=1.807$, $Sig=.181 > .05$) but a significant effect could not be observed ($p\text{-value (2-tailed)}=.512 > .05$).

In conclusion, no statistical significant relationship could be observed between a customer's perceived Sense of Security and employee Face Mask use. As a result, hypothesis 1 is retained. As a result, the null hypothesis is retained. A greater examination of hypothesis 3 can be found in Appendix C: Overall Analysis, chapter 9.3.5.

7.1.5 Hypothesis 5

Hypothesis 5 *Optimistic Emotional Display does not moderate the effects of Face Mask use on customer's perceived Level of Trust and Sense of Security.*

H0 *Optimistic Emotional Display does not moderate the effect of Face Mask use onto the perceived Level of Trust and Sense of Security of customers*

H1 *Optimistic Emotional Display moderates the effect of Face Mask use onto the perceived Level of Trust and Sense of Security of customers*

Hypothesis 5 builds upon the notion that optimistic Emotional Display (ED) positively affects a customer's perceived Level of Trust and Sense of Security. To examine the moderation effects of optimistic ED of Face Mask use onto customer's perceived Level of Trust and Sense of Security

Hypothesis 5 examines the moderation effects of optimistic Emotional Display (ED) of Face Mask use onto customer's perceived Level of Trust and Sense of Security. To determine whether or not optimistic ED had a moderating effect on the use of face masks and a customer's perceived Level of Trust and Sense of Security.

To test this hypothesis, a general linear regression model has been employed to study the outcome of both dependent variables separately. Whilst optimistic ED is considered to be statistically significant for perceived Level of Trust, no statistically significant moderation effects could be observed when considering a .05 level of significance. Similarly, for perceived Sense of Security optimistic ED is assumed to be statistically significant but the interaction effect again proved to be statistically insignificant. These assumptions have been confirmed by employing the use of a Multivariate Analysis, simultaneously running both independent, moderator, and dependent variables. This analysis too observed no statistically significant relationships.

In conclusion, the null hypothesis will be retained as optimistic Emotional Display does not moderate the effects of Face Mask use on the customer's perceived Level of Trust and Sense of Security. A further examination of hypothesis 3 can be found in Appendix C: Overall Analysis, chapter 9.3.6.

7.1.6 Hypothesis 6

Hypothesis 6 *Gender moderates the effect of Face Mask use on customer's perceived Level of Trust and Sense of Security*

H0 *Gender does not moderate the effect of Face Mask use onto the perceived Level of Trust and Sense of Security of customers.*

H1 *Gender moderates the effect of Face Mask use onto the perceived Level of Trust and Sense of Security of customers.*

Hypothesis 6 examines the moderation effects of gender on the use of Face Masks and customer's perceived Level of Trust and Sense of Security. Similarly to hypothesis 5, a general linear regression model will be used to test the hypothesis. First the outcome of both dependent variables will be examined separately and later will be combined into a Multivariate test to confirm or reject earlier assumptions.

According to the overall test results, neither the impact of Mask Groups, Gender or the interaction effect between the two variables were deemed statistically significant. All Sig. p-values are greater than this study's assumed p-value of .05. As such, no moderation effect between Gender and the effects of Face Mask use onto customer's perceived Level of Trust and Sense of Security could be observed. This has been confirmed by the Multivariate analysis which also showed no statistically significant relationships.

In conclusion, the null hypothesis will be retained as Gender does not moderate the effects of Face Mask use on the customer's perceived Level of Trust and Sense of Security. A further examination of hypothesis 3 can be found in Appendix C: Overall Analysis, chapter 9.3.7.

7.2 DISCUSSIONS & FUTURE RESEARCH

This study has been conducted to test whether or not perceived levels of trust and sense of security by customers are negatively influenced by the use face mask by service employees. These perceptions can subsequently influence a customer's overall evaluation of store service quality as dictated by the scale for measuring Service Quality. The effects of face mask use were expected to be moderated by the customer's gender and whether or not the employee was displaying positive emotions.

This study has been confirmative of the notion that optimistic emotional display does significantly influence a customer's perceived level of trust, but does not affect a customer's perceived sense of security. Interestingly, the use of a face mask by service employees will not influence a customer's perceived level of trust but does significantly influence the perceived sense of security customers experience. Lastly, no moderating effect of emotional display on the effects of face mask us can be proven.

In general, the effects of face mask use by employees during a customer service encounter seem not to have a significant impact on customer perceived Level of Trust or Sense of security, and subsequently on customer service evaluations. As such, the main research question can be answered negatively; face mask use by service employees does not have a negative influence on a customer's perceived level of trust and sense of security.

“Does the use of face masks by service employees have a negative influence on a customer's perceived level of trust and sense of security”

7.2.1 Implications

Several exploratory studies have been conducted to examine the effects of face mask use on the perception of individuals. This study confirms earlier findings by Calbi et al. (2021), Freud et al. (2020), and Nestor et al. (2020) that the use of face masks by individuals impairs the ability to recognize facial expressions as the positive emotional displayed expressed by employees donning a face mask were no longer as statistically relevant when compared to employees not wearing a face mask.

Due to this study not being able to prove a significant negative influence on the use of face mask in a commercial service setting, it has relevance to the current COVID-19 situation. Stores and services, whether actively making use of a scale to measure service quality or not, will not have to dread any negative service evaluations when choosing to opt precautionary measures for health and safety reasons such as viral infections. Although it might reduce a customer's perception of optimistic emotional display it can increase their perceived Sense of Security, possibly explained by feeling safer in a pandemic scenario such as is currently experienced.

7.2.2 Limitations

This study suffers from a number of limitations. To start, the COVID-19 pandemic has created a near unique situation in which a study like this can be conducted. While the outbreak of a virus is certainly not an exceptional phenomenon, the impact of COVID-19 is not comparable to other pandemics such as the 2009 flu -, or the 2002 SARS pandemic for example. The global controversy of compulsory face mask implementation is assumed unlikely to be repeated in the near future. And whilst other studies are able to emulate similar conditions to this study, the perception of face masks might have changed in the meantime. Additionally, not only might the perception of face masks be different, so too might the overall perception of store visits or direct interpersonal contact with other individuals as these too are regulated due to the COVID-19 restrictions; such as the (partial-) lockdowns and the 2 meter interpersonal distance guidelines. These restrictions might have prevented research participants from objectively assess the service received. Another limitation is that, due to (partial-) lockdowns, this study had to rely on active participant observation, in which the research participants had to imagine themselves in the scenario's shown during this study. This might result in a different factual experience by participants as actual store visits have not been possible for almost a year. Moreover, due to the COVID-19 government lockdown, proper scenario's could not be drafted from a real location. As a result, stock footage has been used to draft the scenario's and digitally altered to include face masks. Therefore participants might experience the face mask as unrealistic. This could potentially alter participant perception of the face mask for this study.

Furthermore, whilst participation for this study is deemed sufficient, a majority of the participants were from the Netherlands whilst the survey was conducted exclusively in English. Consequently, the possibility of misinterpretations of the survey can not be dismissed. In addition, the online-experiment might have prevented certain individuals from participating in this study. Whilst not considered likely, this can not be ruled out. A greater sample size could provide further insights into the effect of face mask use in commercial setting on customer perception and behavior.

A final limitation that should be noted is that the moderation effects of both optimistic emotional display and gender could not be explained via non-parametric test consistently and as such this study assumes a normal distribution of key outcome variables.

7.2.3 Future Research

As mentioned, the COVID-19 pandemic has had a high impact on socio-economical interactions an individual usually experiences. The objectivity of a customer's perception of face mask usage will likely be influenced by current events. Future studies might be interested in conducting an experiment on how the opinion of face masks differ depending on the time passed since the COVID-19 pandemic. To add to this, the perceptions on face mask usage has only been recorded in one different setting before this study; namely healthcare institutes. Consequently, it might be interesting to perform a study about face mask perceptions in different settings to gain better insights over a wider audience. An additional factor to study might be the proper use of face masks and how people's perception change due to added factor. Lastly, the cultural, political, educational and/or religious background of individuals might be can provide insights on how general face mask perceptions are received in different target groups.

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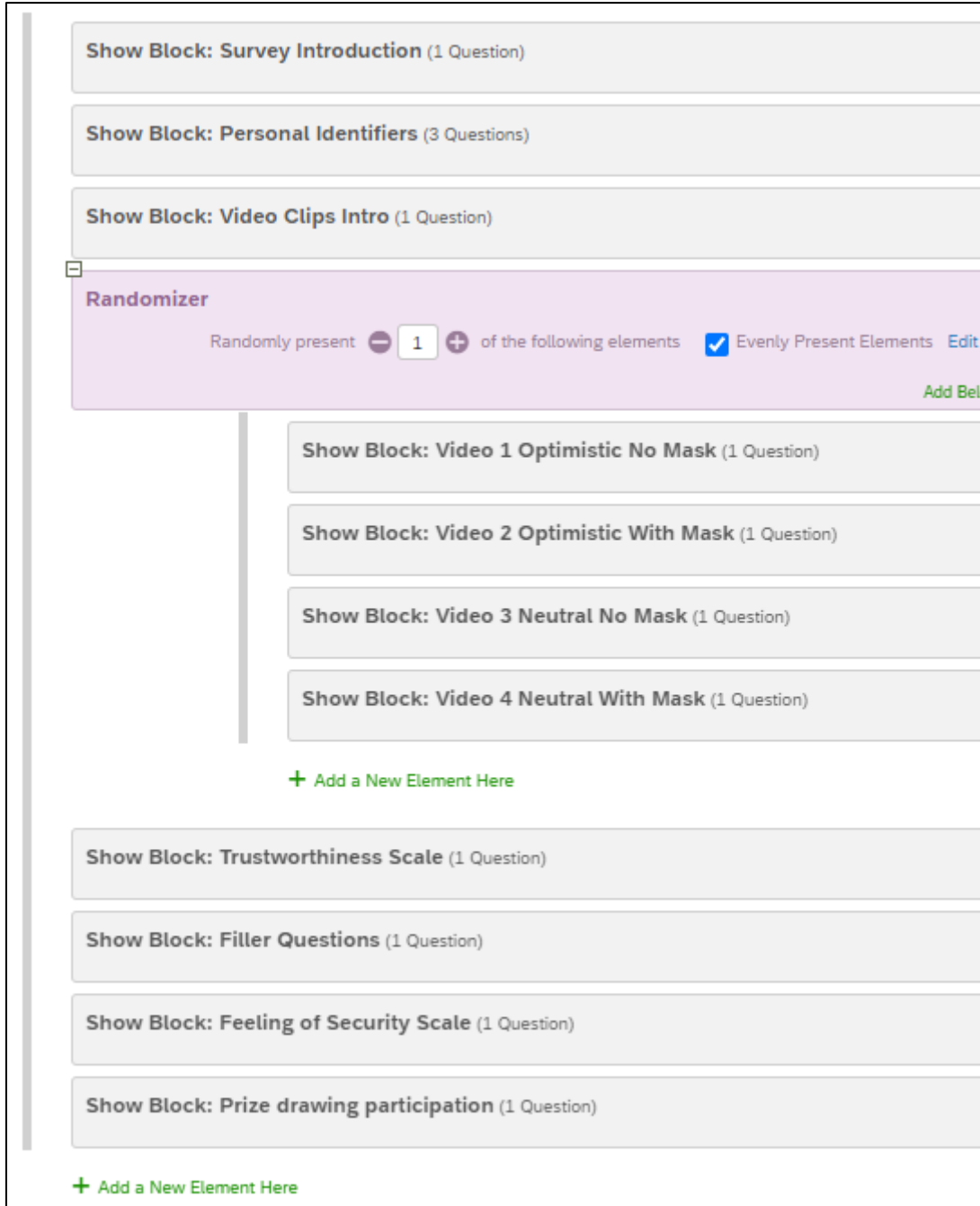
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9 APPENDIX

9.1 APPENDIX A: SURVEY FLOWCHART



9.2 APPENDIX B: SURVEY BLOCKS

Introduction

Welcome and thank you for participating in this survey about store service evaluation!

This survey will only take a brief moment of your time, no longer than a few minutes. As part of this survey you will be asked to watch and listen to a short video clip.

Please read the questions carefully and answer them as truthfully as possible. Obviously there are no right or wrong answers and your response will be treated confidentially and anonymously. Please make sure to fill out every question.

If you have any questions, comments or concerns, feel free to contact me at 545876cd@eur.nl

Thank you!

Casper van Dorp
Student MSc Marketing
Erasmus University Rotterdam

Demographical Identifiers

Personal Identifiers

Q1

Q1 What gender do you identify as?

- Male
- Female
- Non-binary / other

Q2

Q2 How old are you? (please enter your age)

Scenario's

Video Clips Intro

You will now be shown a video in which an interaction with a service employee takes place.

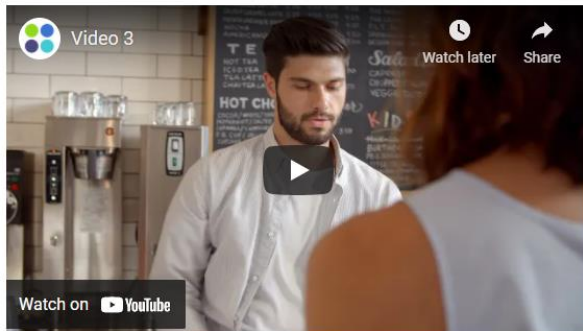
Video 1 Optimistic No Mask



Video 2 Optimistic With Mask



Video 3 Neutral No Mask



Video 4 Neutral With Mask



Questions regarding level of trust

Trustworthiness Scale					
Q4					
Q3 Please rate the service employee on the following characteristics					
	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
I thought the service employee was Dependable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I thought the service employee was Honest	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I thought the service employee was Reliable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I thought the service employee was Sincere	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I thought the service employee was Trustworthy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Questions regarding sense of security

Feeling of Security Scale							
Q6							
Q5 If you were to imagine yourself in the position of the customer, how would you feel about the interaction:							
	Not at all	Very little	Somewhat negative	Neutral	Somewhat positive	A good amount	Very Much
I feel Accepted	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel at Ease	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel Safe	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel Comfortable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel Respected	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel Secure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Filler Questions

Filler Questions					
Q5					
Q4 If you were to imagine yourself in the position of the customer, how would you rate the service received:					
	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
The employee informed me about my order	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The employee handled my request with ease	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The employee understood what I wanted	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The employee paid attention to me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The employee provided the service I expected	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The employee was professional	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Participation to prize drawing

Prize drawing participation
<p>If you want to participate in the prize drawing to win a € 25 cash prize, please leave your email address.</p> <p>Your personal information will remain anonymous and email addresses will not be kept for longer than 21 days.</p> <input type="text"/>

End of Survey

End of Survey
<p>We thank you for your time spent taking this survey.</p> <p>Your response has been recorded.</p>

9.3 APPENDIX C: OVERALL ANALYSIS

9.3.1 Descriptive Statistics

9.3.1.1 Demographic Statistics

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	76	55,5	55,5	55,5
	Female	59	43,1	43,1	98,5
	Non-binary / other	2	1,5	1,5	100,0
	Total	137	100,0	100,0	

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Age	137	15,00	58,00	28,6715	9,22681
Valid N (listwise)	137				

Figure 3 Demographic Statistics

Experimental_Groups

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Optimistic - No Mask	35	25,5	25,5	25,5
	Optimistic - Mask	32	23,4	23,4	48,9
	Neutral - No Mask	34	24,8	24,8	73,7
	Neutral - Mask	36	26,3	26,3	100,0
	Total	137	100,0	100,0	

Experimental_Groups * Gender Crosstabulation

Count

		Gender			Total
		Male	Female	Non-binary / other	
Experimental_Groups	Optimistic - No Mask	21	13	1	35
	Optimistic - Mask	21	11	0	32
	Neutral - No Mask	21	13	0	34
	Neutral - Mask	13	22	1	36
Total		76	59	2	137

Figure 4 Experimental groups and gender dispersion

9.3.2 Testing Hypothesis 1

Hypothesis 1 *Customer's perceived Level of Trust is positively influenced by employee optimistic Emotional Display*

- H0** Employee optimistic *Emotional Display* does not positively influences a customer's perceived *Level of Trust*.
- H1** Employee optimistic *Emotional Display* positively influences a customer's perceived *Level of Trust*.

In order to test hypothesis 1, the five-items on the Ohanian (1989) trusting scale are combined into a single continuous variable named: "Level_Trust". Due to the 5 point Likert scale going from positive to negative in ascending order, a lower value of Level_Trust means a higher level of Trust experienced by a subject. The Level_Trust will be compared to the groups showing optimistic emotional display and neutral emotional display. Subjects exposed to either optimistic emotional display scenario will be combined into a single "Optimistic_Group". Similarly, Subjects exposed to either neutral emotional display scenario will be combined into a single "Neutral_Group". A number of N=67 subjects were exposed to a scenario with an optimistic emotional display. Intuitively, N=70 subject have been exposed to a neutral emotional display scenario. The subjects exposed to neutral emotional display will be considered the control group.. Since a number of 30 subjects per condition was deemed necessary to perform a valid analyses, both condition suffice.

As stated in the previous paragraph, three dimensions will be used to test hypothesis 1, applicable to this situation is an T-test. A T-test assumes a normal distribution and homogeneity of variances, and as such will be tested on these two assumptions.

Table 3 on the next page shows the a slight difference in means between the two groups, where the optimistic emotional display has a lower mean (10.1045) than its counterpart (11.9143) and is thus experienced as having a higher level of trust by subjects. The factors of skewness and kurtosis are worth mentioning. Examining optimistic emotional display in table 3, it can be stated that the data is skewed somewhat to the left, which corresponds with a higher level of trust being reported, the kurtosis with a value of -.641 reveals that the overall dispersion of data is quite flat, but still acceptable. Subsequently, examining the skewness for the neutral emotional display shows that data is more equally distributed which result in overall lower levels of trust being experienced by subjects. The kurtosis of neutral emotional display informs us that the data has a slight platykurtic distribution compared to a normal distribution. However, this does not mean that the data does not suffice and as such can be analyzed properly.

Table 3 Hypothesis 1 Descriptives

Descriptives

Emotional_Display		Statistic	Std. Error		
Level_Trust	Optimistic Emotional Display	Mean	10,1045	,48128	
		95% Confidence Interval for Mean	Lower Bound	9,1436	
			Upper Bound	11,0654	
		5% Trimmed Mean	9,9113		
		Median	10,0000		
		Variance	15,519		
		Std. Deviation	3,93944		
		Minimum	5,00		
		Maximum	20,00		
		Range	15,00		
		Interquartile Range	7,00		
		Skewness	,341	,293	
		Kurtosis	-,641	,578	
	Neutral Emotional Display	Mean	11,9143	,47581	
		95% Confidence Interval for Mean	Lower Bound	10,9651	
			Upper Bound	12,8635	
		5% Trimmed Mean	11,8651		
		Median	12,0000		
		Variance	15,848		
		Std. Deviation	3,98091		
Minimum		5,00			
Maximum		20,00			
Range		15,00			
Interquartile Range		5,00			
Skewness		-,013	,287		
Kurtosis		-,537	,566		

Table 4 Hypothesis 1 tests of normality

		Kolmogorov-Smirnov ^a			Shapiro-Wilk		
Emotional_Display		Statistic	df	Sig.	Statistic	df	Sig.
Level_Trust	Optimistic Emotional Display	,120	67	,018	,936	67	,002
	Neutral Emotional Display	,109	70	,040	,964	70	,044

a. Lilliefors Significance Correction

Table 4 shows a test of normality. Based on an alpha level of $p .05$ neither the control group nor the experimental group are considered to be normally distributed according to the Shapiro-Wilk tests. Whilst the data does not seem to fit the normality assumed for an independent T-test sample, a closer look should be taken towards the data distribution. Looking at figure 5, it is abundantly clear that the optimistic emotional display group is favored by subjects in terms of level of trust, the neutral emotional group seems to be somewhat normally distributed.

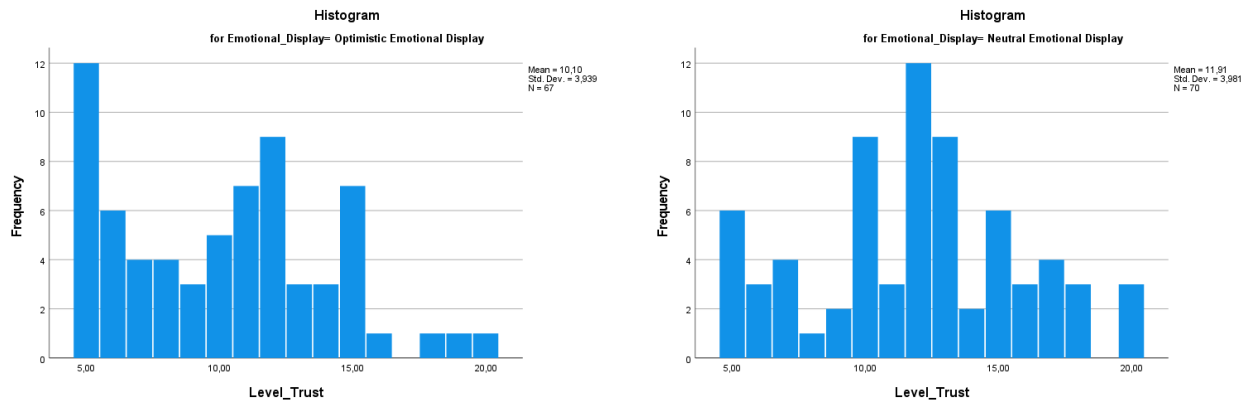


Figure 5 Histogram distribution for level of trust and emotional display groups

Plotting both groups in figure 6 reveals that there are no significant outliers to be found in the data. All data points seem to follow the general trendlines although the optimistic emotional display group does variate somewhat more than its counterpart. To find extreme outliers a last examination can be conducted on the boxplot in figure 7. This reveals, again, that there are no significant outliers. As there are no significant outliers to observe, and the data non-normality remains a violation of the independent samples T-test is considered. Consequently, the results of this T-test cannot be taken into account and a non-parametric test needs to be computed in addition to the t-test to see if results are comparable.

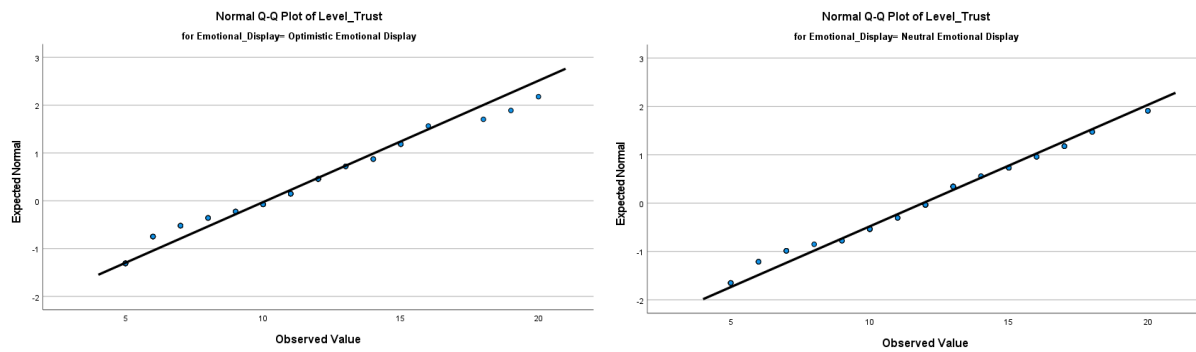


Figure 7 Plotted data level of trust and emotional display groups

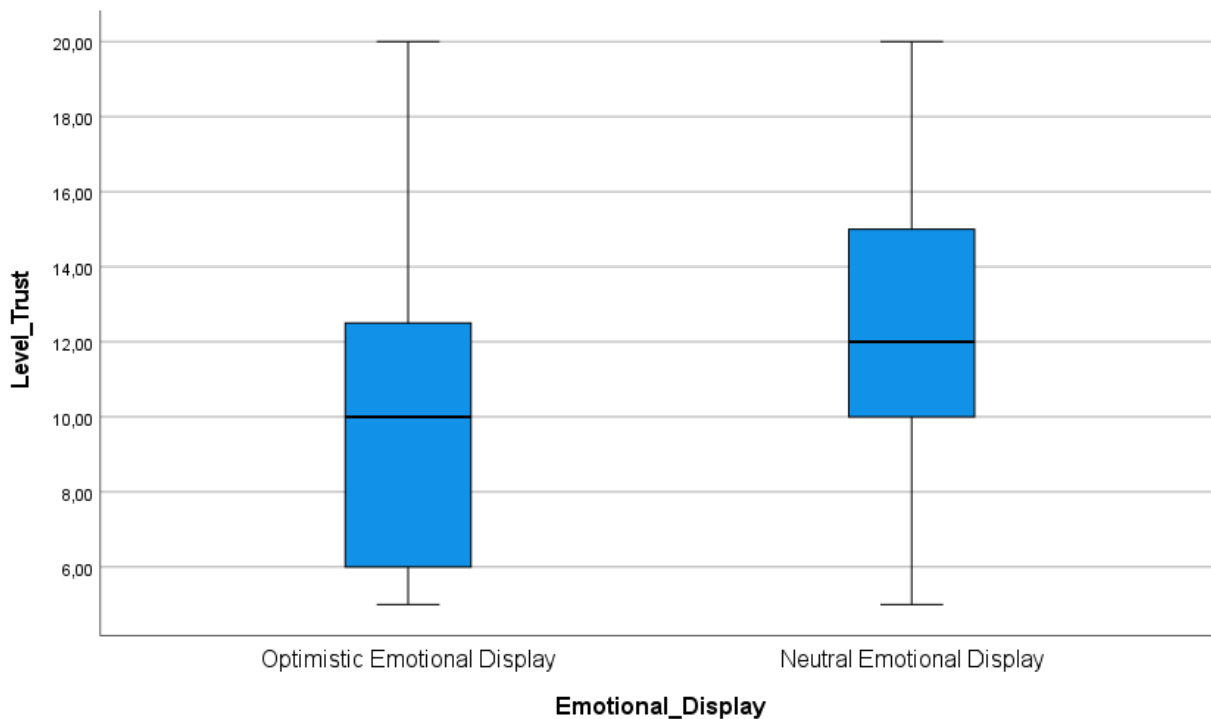


Figure 6 Boxplot of level of trust and emotional display groups

First an independent samples T-test is performed and are found in figure 8. The results of Levene's test of equal variance has a p-value larger than the determined alpha of 0.05 and as such equal variances are assumed. Subsequently, the non-parametric Mann-Whitney U test is applied and can be found in figure 9.

Levene's Test Equality of Variances has a significance level of shows a significance level of $p .617 > 0.05$, which indicates a equality of variances. Where the Sig (2-tailed) equals $p .008 < 0.05$ and as such shows that there is a significant difference between both emotional display groups and level of trust. The mean difference between the two groups is negatively influenced, which means that optimistic emotional display positively influences level of trust.

Group Statistics									
Emotional_Display		N	Mean	Std. Deviation	Std. Error Mean				
Level_TrustNO	Optimistic Emotional Display	67	2,0209	,78789	,09626				
	Neutral Emotional Display	70	2,3829	,79618	,09516				

Independent Samples Test										
		Levene's Test for Equality of Variances				t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Level_TrustNO	Equal variances assumed	,252	,617	-2,674	135	,008	-,36196	,13539	-,62971	-,09421
	Equal variances not assumed			-2,674	134,847	,008	-,36196	,13536	-,62966	-,09427

Figure 8 T-test level of trust and emotional display groups

Hypothesis Test Summary				
	Null Hypothesis	Test	Sig. ^{a,b}	Decision
1	The distribution of Level_Trust is the same across categories of Emotional_Display.	Independent-Samples Mann-Whitney U Test	,009	Reject the null hypothesis.

- a. The significance level is ,050.
- b. Asymptotic significance is displayed.

Figure 9 Non-parametric Mann-Whitney U Test for level of trust and emotional display groups

Since the result of the Mann-Whitney U test shows a significance level of .009, which is lower than this study's established alpha of $p .05$, the assumption is drawn that there is a significant difference in perceived level of trust when consumers are exposed to optimistic emotional display compared to neutral emotional display.

In short, the effects of optimistic emotional display positively influences the experienced level of trust by subjects and as such the null hypothesis can be rejected and the Alternative hypothesis can be accepted.

9.3.3 Testing Hypothesis 2

Hypothesis 2 *Customer's perceived Sense of Security is positively influenced by employee optimistic emotional display*

- H0** Employee optimistic *Emotional Display* does not positively influences a customer's perceived *Sense of Security*.
- H1** Employee neutral *Emotional Display* positively influences a customer's perceived *Sense of Security*.

Similar to Chapter 9.3.2, in which hypothesis 1 was tested, this hypothesis is focused around the influence of employee optimistic emotional display (ED) and customer perceived Sense of Security. The 6-items from the modified security scale based on the interpersonal security dimension by Cong & An (2004) will be combined into a singular continuous variable called "Sense_Security". Unlike "Level_Trust" the seven point Likert scale will be going from negative to positive in ascending order and is thus not reversed. The Sense_Security will be compared to both ED group outlined in the previous chapter

As stated in the previous paragraph, three dimensions will be used to test hypothesis 2, applicable to this situation is an independent T-test. A T-test assumes a normal distribution and homogeneity of variances, and as such will be tested on these two assumptions.

Examining table 5 on the next page shows a slight difference in means between the two groups. The optimistic emotional display has a higher mean (30.8060) than its neutral counterpart (28.5286). At first glance it could be assumed that optimistic ED has a positive effect on a customer's perceived sense of security. Looking at skewness and kurtosis, the optimistic ED appears to be both slightly skewed right and somewhat flat. Looking at neutral ED, the skewness and kurtosis seem to be more properly aligned towards the center.

Table 5 Hypothesis 2 Descriptives

Descriptives

Emotional_Display		Statistic	Std. Error		
Sense_Security	Optimistic Emotional Display	Mean	30,8060	,89150	
		95% Confidence Interval for Mean	Lower Bound	29,0260	
			Upper Bound	32,5859	
		5% Trimmed Mean	31,0448		
		Median	32,0000		
		Variance	53,250		
		Std. Deviation	7,29724		
		Minimum	12,00		
		Maximum	42,00		
		Range	30,00		
		Interquartile Range	11,00		
		Skewness	-,527	,293	
		Kurtosis	-,428	,578	
	Neutral Emotional Display	Mean	28,5286	,92821	
		95% Confidence Interval for Mean	Lower Bound	26,6768	
			Upper Bound	30,3803	
		5% Trimmed Mean	28,6349		
		Median	28,0000		
		Variance	60,311		
Std. Deviation		7,76600			
Minimum		9,00			
Maximum		42,00			
Range		33,00			
Interquartile Range		12,00			
Skewness		-,105	,287		
Kurtosis		-,354	,566		

Table 6 Hypothesis 2 Tests of Normality

Group Statistics					
	Emotional_Display	N	Mean	Std. Deviation	Std. Error Mean
Sense_Security	Optimistic Emotional Display	67	30,8060	7,29724	,89150
	Neutral Emotional Display	70	28,5286	7,76600	,92821

Independent Samples Test										
		Levene's Test for Equality of Variances			t-test for Equality of Means				95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Sense_Security	Equal variances assumed	,115	,735	1,767	135	,079	2,27740	1,28876	-,27137	4,82617
	Equal variances not assumed			1,770	134,956	,079	2,27740	1,28699	-,26789	4,82268

Looking at table 6, optimistic ED does not appear to be distributed normally whilst the neutral ED does have a normality significance of $p .122 > 0.05$ and as such should be normally distributed. Looking at the histogram in figure 10 however, there are some clear peaks for neutral ED at a score of around 20, indicating numerous reports of low sense of security. Examining the Q-Q plots in figure 11 do not indicate a serious deviation from the normal distribution and as such suggest a normal distribution.

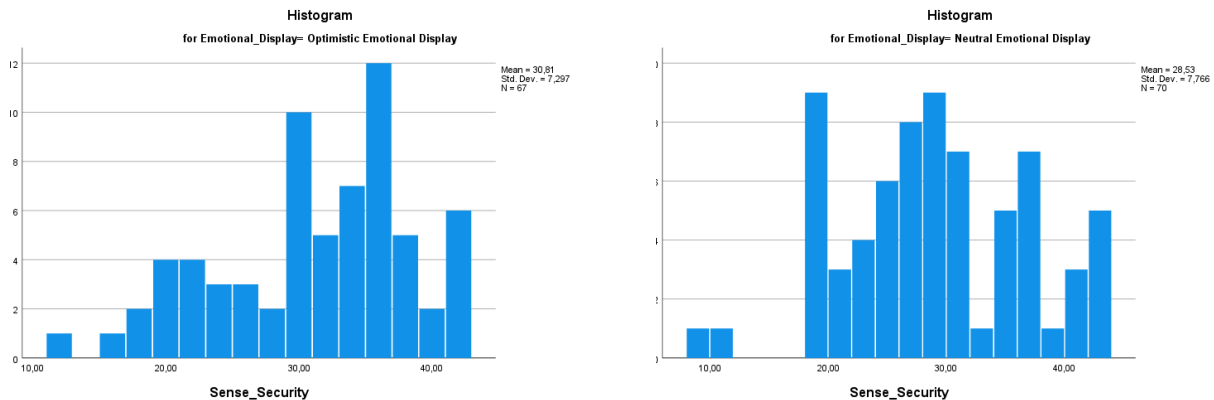


Figure 10 Hypothesis 2 histograms for normal distribution

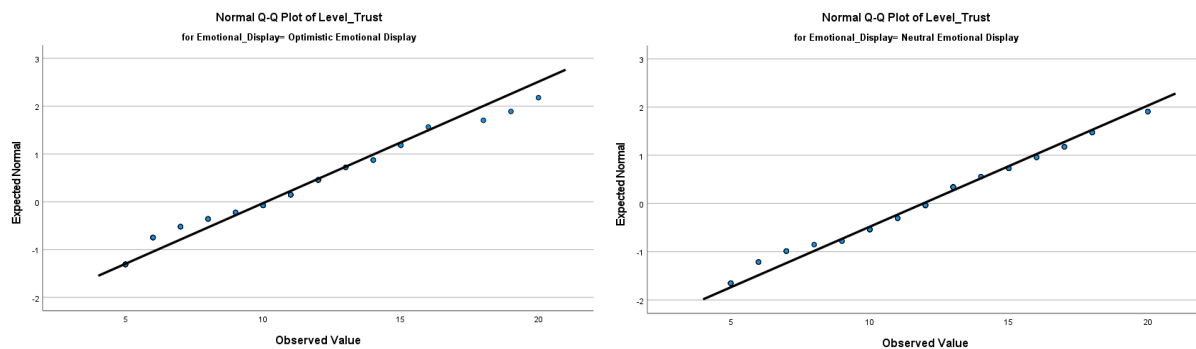


Figure 11 Plotted data sense of security and emotional display groups

Applying Levene's Test for Equality of Variances, similar to chapter 9.3.2, provides the results shown in table 7. Levene's test indicates a Sig .735 > .05 which suggests there is no equal variances can be assumed when considering a customer's perceived sense of security. Levene's test indicates a Sig (2-tailed) of p .079 > .05 and as such suggest that optimistic ED does not influence a customer's perceived sense of security.

Table 7 Levene's Test for Equality of Variance for sense of security and emotional display

		Independent Samples Test					t-test for Equality of Means			
		Levene's Test for Equality of Variances							95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Sense_Security	Equal variances assumed	,115	,735	1,767	135	,079	2,27740	1,28876	-,27137	4,82617
	Equal variances not assumed			1,770	134,956	,079	2,27740	1,28699	-,26789	4,82268

Even though the data is preserved despite non-normality distribution of the optimistic ED group, it might be worth to cross-reference the results of Levene's Test with a non-parametric Mann-Whitney U test.

Hypothesis Test Summary				
	Null Hypothesis	Test	Sig. ^{a,b}	Decision
1	The distribution of Sense_Security is the same across categories of Emotional_Display.	Independent-Samples Mann-Whitney U Test	,058	Retain the null hypothesis.

- a. The significance level is ,050.
- b. Asymptotic significance is displayed.

Figure 12 Mann-Whitney U test for Sense of Security and emotional display

The Mann-Whitney test shown in figure 12 confirms the presumptions made from Levene's Test that the null hypothesis should be retained and the alternative hypothesis should be rejected.

To summarize, Levene's test for Equality of Variances indicates a p-value of .735 which is greater than the selected alpha of .05 and as such accept the null hypothesis that optimistic emotional display does not significantly influence a customer's perceived sense of security.

9.3.4 Testing Hypothesis 3

Hypothesis 3 *Customer's Level of Trust is negatively influenced by employee Face Mask use.*

H0 Customer's *Level of Trust* is not negatively influenced by employee *Face Mask* use.

H1 Customer's *Level of Trust* is negatively influenced by employee *Face Mask* use.

To test hypothesis 3, the five items of on the Ohanian (1989) trusting scale persist to be combined as was similar to the testing of hypothesis 1. Note that this means the scale remains reversed. The variable "Level_Trust" will be compared to the groups with and without a face mask. Subjects exposed to either optimistic or neutral emotional display without face masks will be combined into a single group, named "No Mask". Similarly, subjects exposed to either optimistic or neutral emotional display with face masks will be combined into another group, named "With Mask". The No Mask group will be considered the control group with a subject population of N=69 whilst the With Mask group consists of N=68. Here too, a minimal amount of 30 subjects per condition was deemed necessary to perform a valid analyses and as such both groups will suffice.

Similar to hypothesis 1 and 2, three dimensions will be used to test this hypothesis. Applicable to this situation is an independent samples T-test. With the normality and homogeneity assumptions in place, the data will be tested on those two assumptions.

Table 8 on the next page indicates a slight difference in means between both groups and Level of Trust, where the No Mask group hold a M=10.6232 and an SD=4.0660. Furthermore, the skewness of .289 and a kurtosis of -.668 suggest the No Mask group is fairly evenly distributed, albeit slightly left leaning. The With Mask group has a M=11.4412 and a SD=4.0200 with a skewness of .039 and a fairly similar platykurtic distribution (-.616) compared to the No Mask group. At first glance the assumption can be made that both groups are normally distributed.

In short, no statistical significance can be observed between a customer's level of trust and an employee's use of a face mask. As a result the null hypotheses will be accepted.

Table 8 Hypothesis 3 Descriptives

Descriptives

Mask & No Mask Groups			Statistic	Std. Error	
Level_Trust	No Mask	Mean	10,6232	,48949	
		95% Confidence Interval for Mean	Lower Bound	9,6464	
			Upper Bound	11,5999	
		5% Trimmed Mean	10,4614		
		Median	11,0000		
		Variance	16,532		
		Std. Deviation	4,06600		
		Minimum	5,00		
		Maximum	20,00		
		Range	15,00		
		Interquartile Range	6,00		
		Skewness	,272	,289	
		Kurtosis	-,668	,570	
	With Mask	Mean	11,4412	,48750	
		95% Confidence Interval for Mean	Lower Bound	10,4681	
			Upper Bound	12,4142	
		5% Trimmed Mean	11,3529		
		Median	12,0000		
		Variance	16,161		
		Std. Deviation	4,02003		
Minimum		5,00			
Maximum		20,00			
Range		15,00			
Interquartile Range	6,75				
Skewness	,039	,291			
Kurtosis	-,616	,574			

Tests of Normality

Mask & No Mask Groups	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Level_Trust No Mask	,111	69	,035	,946	69	,005
With Mask	,095	68	,200*	,958	68	,022

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Figure 13 Test of Normality of level of trust and mask use

The conducted test of normality on both groups, as seen in figure 13, indicate that neither are distributed normally according to the Shapiro-Wilk test. The Kolmogorov-Smirnov Test however indicates that the With Mask group actually is distributed normally. Since both test use a different point of view, it is quite possible to get contradicting results. Looking at the histograms in figure 14 it is easy to see why the No Mask group is not considered normally distributed. Quite contradictory are the Q-Q plots in figure 15 which show no significant deviations from the normal distribution.

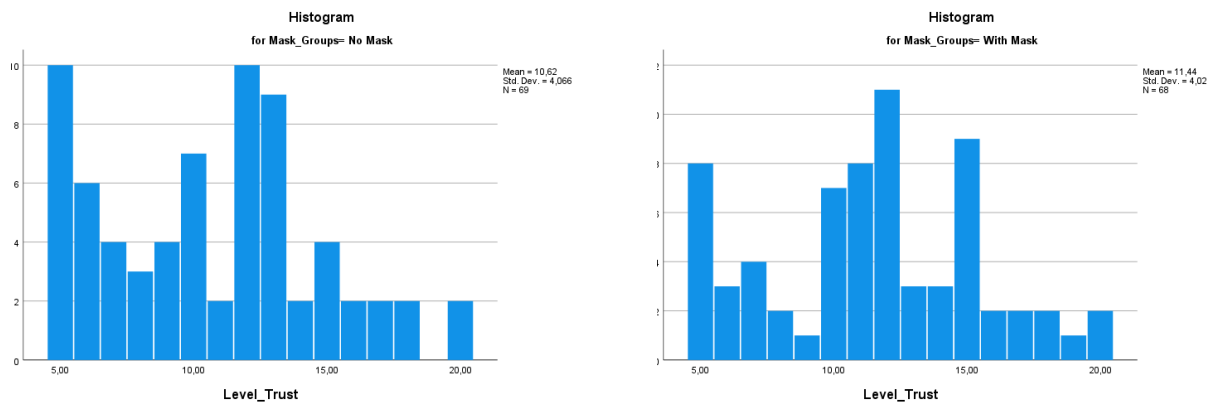


Figure 14 Hypothesis 3 histograms for normal distribution

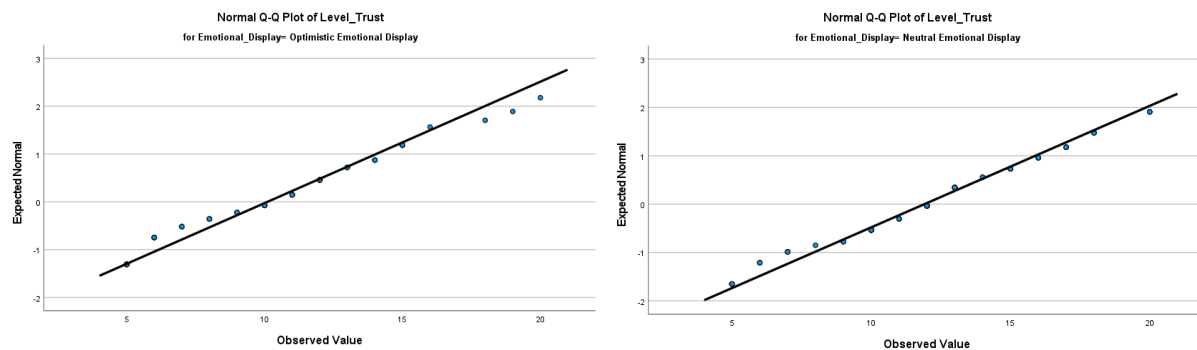


Figure 15 Plotted data level of trust and mask use

Even the boxplot in figure 16 does not seem to indicate any unusual outliers, even so, data normality will not be assumed and as such a T-test cannot be reliably trusted. Similar to hypotheses 1 and 2, a non-parametric test will be applied in addition to the t-test to see if the results are somewhat comparable

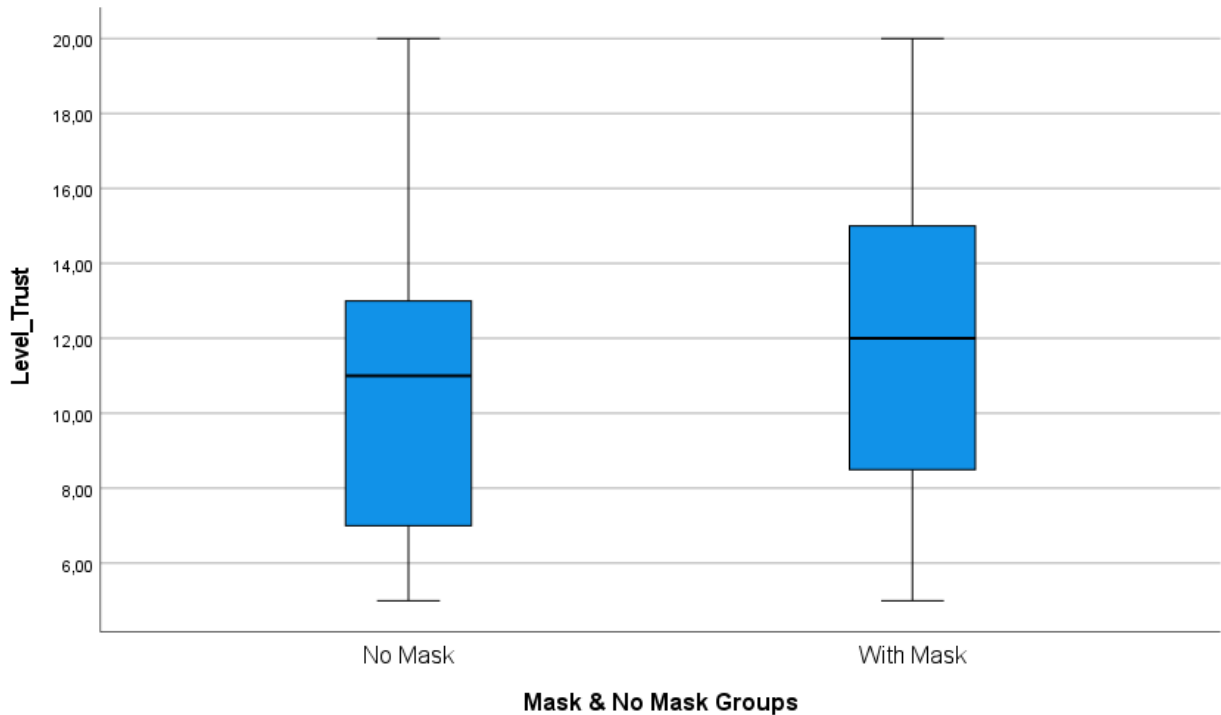


Figure 16 Boxplot of level of trust and mask use

To start, the independent samples T-test in figure 17 shows a Sig of $.606 > .05$ evidently pointing out a equality of variances can be assumed. The 2-tailed significance of equal variances has a p-value of $.239 > .05$ which indicates there is no statistically significant relationship between mask use and level of trust. To confirm these presumptions a Mann-Whitney U Test will be applied.

Group Statistics					
	Mask & No Mask Groups	N	Mean	Std. Deviation	Std. Error Mean
Level_Trust	No Mask	69	10,6232	4,06600	,48949
	With Mask	68	11,4412	4,02003	,48750

Independent Samples Test										
		Levene's Test for Equality of Variances			t-test for Equality of Means					
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Level_Trust	Equal variances assumed	,268	,606	-1,184	135	,239	-,81799	,69090	-2,18437	,54839
	Equal variances not assumed			-1,184	134,998	,238	-,81799	,69084	-2,18425	,54828

Figure 17 independent samples T-test for level of trust and mask use

Running the Man-Whitney U Test results in a more normally distributed set of data as shown in figure 18. Taking a look at the Mann-Whitney hypothesis test in figure 19 it confirms the presumptions made by Levene's test of equal variances that there appears to be no statistically significant relationship between a customer's perceived level of trust and face mask use.

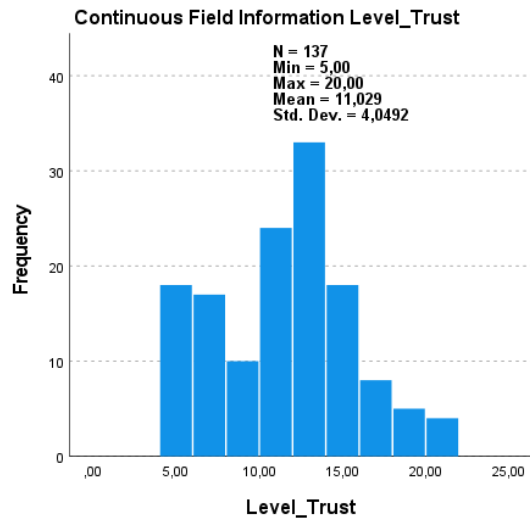


Figure 18 Mann-Whitney distribution for level of trust and face mask use

Hypothesis Test Summary

	Null Hypothesis	Test	Sig. ^{a,b}	Decision
1	The distribution of Level_Trust is the same across categories of Mask & No Mask Groups.	Independent-Samples Mann-Whitney U Test	,270	Retain the null hypothesis.

a. The significance level is ,050.

b. Asymptotic significance is displayed.

Independent-Samples Mann-Whitney U Test

Level_Trust across Mask & No Mask Groups

Independent-Samples Mann-Whitney U Test Summary

Total N	137
Mann-Whitney U	2601,000
Wilcoxon W	4947,000
Test Statistic	2601,000
Standard Error	231,179
Standardized Test Statistic	1,103
Asymptotic Sig.(2-sided test)	,270

Figure 19 Mann-Whitney hypothesis test

9.3.5 Testing Hypothesis 4

Hypothesis 4 *Customer's Sense of Security is negatively influenced by employee Face Mask use.*

H0 Customer's *Sense of Security* is not negatively influenced by employee *Face Mask* use.

H1 Customer's *Sense of Security* is negatively influenced by employee *Face Mask* use.

In similar fashion to hypothesis 3 in the previous chapter, hypothesis 4 will examine the influence of face mask use, but rather onto customer's perceived Sense of Security instead of perceived Level of Trust. The continuous variable of "Sense_Security" will be utilized, established earlier during the testing of hypothesis 2, chapter 9.3.3. The same face mask groups established in the testing of hypothesis 3 will be utilized to compare the perceived Sense of Security with the groups No Mask versus With Mask. Again, unlike the perceived Level of Trust, Sense of Security has not been measured in reverse order.

Three conditions will be used to test hypothesis 2, applicable to this situation is an independent T-test. A T-test assumes a normal distribution and homogeneity of variances, and as such will be tested on these two assumptions.

Table 9 on the next page offers insights into the "Sense_Security" and No Mask versus With Mask groups. For starters, the No Mask group shows a $M=29.2174$ with a $SD=8.01629$. Followed by a skewness and kurtosis of $-.101$ and -7.64 respectively, suggesting fairly normally distributed, albeit slightly platykurtic data. The With Mask group shows a $M=30.0735$ and a $SD=7.18480$. The skewness and kurtosis here are $-.560$ and $.020$ respectively, similarly indicated a fairly normal distributed set of data.

Table 9 Hypothesis 4 Descriptives

Descriptives

Mask & No Mask Groups		Statistic	Std. Error		
Sense_Security	No Mask	Mean	29,2174	,96505	
		95% Confidence Interval for Mean	Lower Bound	27,2917	
			Upper Bound	31,1431	
		5% Trimmed Mean	29,3237		
		Median	29,0000		
		Variance	64,261		
		Std. Deviation	8,01629		
		Minimum	9,00		
		Maximum	42,00		
		Range	33,00		
		Interquartile Range	13,00		
		Skewness	-,101	,289	
		Kurtosis	-,764	,570	
		With Mask	Mean	30,0735	,87129
	95% Confidence Interval for Mean		Lower Bound	28,3344	
			Upper Bound	31,8126	
	5% Trimmed Mean		30,3170		
	Median		30,0000		
	Variance		51,621		
	Std. Deviation		7,18480		
	Minimum		10,00		
	Maximum		42,00		
	Range		32,00		
Interquartile Range	10,75				
Skewness	-,560	,291			
Kurtosis	,020	,574			

Table 10 Hypothesis 4 Tests of Normality

Mask & No Mask Groups		Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Sense_Security	No Mask	,083	69	,200*	,966	69	,058
	With Mask	,105	68	,062	,965	68	,053

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

The Shapiro-Wilk test of normality shown in table 10 indicates that both the No Mask and With Mask groups have a Sig p-value of .058 and .053 respectively and are thus both greater than this study’s established alpha value of .05. This indicates that both groups are normally distributed and can reliably be analyzed with an independent samples T-test, without the need for further data amplification.

The results of the independent samples T-test concerning perceived sense of security and face mask use can be observed in figure 20. Looking at the Significance value of Levene’s Test for Equality of Variances we can ascertain that the Sig p value $.181 > .05$ which allows for the assumption of Equal Variances. Comparing the Sig (2-tailed) value of .512 with this study’s alpha of .05 we can assess there is no statistical significant relationship between a customer’s perceived Sense of Security and employee Face Mask use.

Group Statistics					
Mask & No Mask Groups		N	Mean	Std. Deviation	Std. Error Mean
Sense_Security	No Mask	69	29,2174	8,01629	,96505
	With Mask	68	30,0735	7,18480	,87129

Independent Samples Test										
		Levene's Test for Equality of Variances			t-test for Equality of Means					
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
Sense_Security	Equal variances assumed	1,807	,181	-.658	135	,512	-.85614	1,30122	-3,42955	1,71727
	Equal variances not assumed			-.658	133,806	,511	-.85614	1,30017	-3,42769	1,71542

Figure 20 Independent Samples T-test for sense of security and use of face masks

To summarize, There appears to be no statistical significant relationship between a customer’s perceived Sense of Security and employee Face Mask use. As such, the null hypotheses is retained.

9.3.6 Testing Hypothesis 5

Hypothesis 5 *Optimistic Emotional Display does not moderate the effects of Face Mask use on customer's perceived Level of Trust and Sense of Security.*

H0 *Optimistic Emotional Display does not moderate the effect of Face Mask use onto the perceived Level of Trust and Sense of Security of customers*

H1 *Optimistic Emotional Display moderates the effect of Face Mask use onto the perceived Level of Trust and Sense of Security of customers*

Hypothesis 5 concerns itself with whether the optimistic Emotional Display (ED) moderates the effects of employee face mask use on perceived levels of trust and sense of security. The individual and interaction effects of the moderator variable will be applied with a linear regression model. This method opts to test both dependent variables separately.

Firstly, the effects of optimistic ED and face mask use on perceived Levels of Trust will be analyzed. As shown by table 11 below, the overall regression model cannot be considered significant where $F=2.996 > .05$, the model furthermore explains 6.3% of the variance (R-square = .063). Subsequently, the impact of optimistic ED is statistically significant, although the effects of Mask Groups and the interaction variable (emotional display * mask groups) are insignificant at a value of .05.

Table 11 Tests of Between-Subject Effect hypothesis 5 – Optimistic emotional display, face mask use and level of trust

Tests of Between-Subjects Effects					
Dependent Variable: Level Trust					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	141.141 ^a	3	47.047	2.996	.033
Intercept	16612.353	1	16612.353	1057.786	.000
Emotional Display	108.003	1	108.003	6.877	.010
Mask Groups	19.985	1	19.985	1.273	.261
Emotional Display * Mask Groups	9.637	1	9.637	.614	.435
Error	2088.743	133	15.705		
Total	18895.000	137			
Corrected Total	2229.883	136			

a. R Squared = .063 (Adjusted R Squared = .042)

The insignificant interaction suggest no moderation effect of optimistic ED when comparing between Face Mask use and a customer's perceived Level of Trust. Table 12 indicates similar results. However, it should be noted that the coefficient value suggest a lower impact of the No Mask group and an even lower effect of the No Mask * Optimistic ED compared to other groups. This doesn't however change the fact that these effects are statistically insignificant.

Table 12 Estimates for optimistic emotional display, face mask use and level of trust

Parameter Estimates

Dependent Variable: Level Trust

Parameter	B	Std. Error	t	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Intercept	12.028	.660	18.210	.000	10.721	13.334
[Emotional Display=1.00]	-1.247	.963	-1.295	.198	-3.151	.658
[Emotional Display=2.00]	0 ^a	.	.	.	.	.
[Mask Groups=1.00]	-.234	.948	-.247	.806	-2.108	1.641
[Mask Groups=2.00]	0 ^a	.	.	.	.	.
[Emotional Display=1.00] *	-1.062	1.356	-.783	.435	-3.743	1.619
[Mask Groups=1.00]	0 ^a	.	.	.	.	.
[Emotional Display=1.00] *	0 ^a	.	.	.	.	.
[Mask Groups=2.00]	0 ^a	.	.	.	.	.
[Emotional Display=2.00] *	0 ^a	.	.	.	.	.
[Mask Groups=1.00]	0 ^a	.	.	.	.	.
[Emotional Display=2.00] *	0 ^a	.	.	.	.	.
[Mask Groups=2.00]	0 ^a	.	.	.	.	.

a. This parameter is set to zero because it is redundant.

Additionally, the effects of optimistic ED and face mask use onto customer's perceived Sense of Security must be considered. As shown in table 13, similar results are shown when compared to a customer's perceived Level of Trust. According to the table, the overall regression model is insignificant at $F=1.628 > .05$ where the model significance $p=.186 > .05$. Furthermore, the model only explains 3.5% of the variance in the dependent variable. Here the impact of optimistic ED is statistically insignificant at $p=.05$. Both the effects of Mask Groups and the interaction variable (Emotional Display * Mask Groups) are also considered insignificant as both are greater than $p=.05$ at a Sig. $p\text{-value} = .483$ and $p\text{-value} = .268$ respectively. The insignificant interaction suggest no moderation effect of optimistic ED on Face Mask use and Sense of Security.

Table 13 Tests of Between-Subject Effect hypothesis 5 – Optimistic emotional display, face mask use and Sense of Security

Tests of Between-Subjects Effects

Dependent Variable: Sense Security

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	278.179 ^a	3	92.726	1.628	.186
Intercept	120167.208	1	120167.208	2109.784	.000
Emotional Display	180.696	1	180.696	3.172	.077
Mask Groups	28.223	1	28.223	.496	.483
Emotional Display * Mask Groups	70.347	1	70.347	1.235	.268
Error	7575.296	133	56.957		
Total	128231.000	137			
Corrected Total	7853.474	136			

a. R Squared = .035 (Adjusted R Squared = .014)

Interestingly, table 14 indicates that, while statistically insignificant ($p\text{-value} = .268 > .05$) it has a somewhat high impact on a customer's perceived Sense of Security. Suggesting that not wearing a mask might positively affect a customer's perceived Sense of Security.

Table 14 Parameter Estimates for moderation effects of optimistic emotional display on face mask use and sense of security

Parameter Estimates						
Dependent Variable: Sense Security						
Parameter	B	Std. Error	t	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Intercept	29.667	1.258	23.586	.000	27.179	32.155
[Emotional Display=1.00]	.865	1.834	.472	.638	-2.762	4.491
[Emotional Display=2.00]	0 ^a	.	.	.	.	.
[Mask Groups=1.00]	-2.343	1.805	-1.298	.196	-5.913	1.227
[Mask Groups=2.00]	0 ^a	.	.	.	.	.
[Emotional Display=1.00] *	2.869	2.582	1.111	.268	-2.237	7.975
[Mask Groups=1.00]						
[Emotional Display=1.00] *	0 ^a	.	.	.	.	.
[Mask Groups=2.00]						
[Emotional Display=2.00] *	0 ^a	.	.	.	.	.
[Mask Groups=1.00]						
[Emotional Display=2.00] *	0 ^a	.	.	.	.	.
[Mask Groups=2.00]						

a. This parameter is set to zero because it is redundant.

To confirm the presumed assumption, a multivariate test is conducted where both variables are run simultaneously with the independent variable and the moderator variable. As seen in table 15, similar results are observed where optimistic ED shows significant but not as an interaction effect with Mask Groups.

Table 15 Multivariate tests for optimistic emotional display moderation on Face Mask use on perceived Levels of Trust and Sense of Security

Effect		Multivariate Tests ^a				
		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.982	3513.742 ^b	2.000	132.000	.000
	Wilks' Lambda	.018	3513.742 ^b	2.000	132.000	.000
	Hotelling's Trace	53.239	3513.742 ^b	2.000	132.000	.000
	Roy's Largest Root	53.239	3513.742 ^b	2.000	132.000	.000
Mask Groups	Pillai's Trace	.028	1.929 ^b	2.000	132.000	.149
	Wilks' Lambda	.972	1.929 ^b	2.000	132.000	.149
	Hotelling's Trace	.029	1.929 ^b	2.000	132.000	.149
	Roy's Largest Root	.029	1.929 ^b	2.000	132.000	.149
Emotional Display	Pillai's Trace	.050	3.481 ^b	2.000	132.000	.034
	Wilks' Lambda	.950	3.481 ^b	2.000	132.000	.034
	Hotelling's Trace	.053	3.481 ^b	2.000	132.000	.034
	Roy's Largest Root	.053	3.481 ^b	2.000	132.000	.034
Mask Groups * Emotional Display	Pillai's Trace	.009	.631 ^b	2.000	132.000	.534
	Wilks' Lambda	.991	.631 ^b	2.000	132.000	.534
	Hotelling's Trace	.010	.631 ^b	2.000	132.000	.534
	Roy's Largest Root	.010	.631 ^b	2.000	132.000	.534

a. Design: Intercept + Mask Groups + Emotional Display + Mask Groups * Emotional Display

b. Exact statistic

Tests of Between-Subjects Effects						
Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	Level Trust	141.141 ^a	3	47.047	2.996	.033
	Sense Security	278.179 ^b	3	92.726	1.628	.186
Intercept	Level Trust	16612.353	1	16612.353	1057.786	.000
	Sense Security	120167.208	1	120167.208	2109.784	.000
Mask Groups	Level Trust	19.985	1	19.985	1.273	.261
	Sense Security	28.223	1	28.223	.496	.483
Emotional Display	Level Trust	108.003	1	108.003	6.877	.010
	Sense Security	180.696	1	180.696	3.172	.077
Mask Groups * Emotional Display	Level Trust	9.637	1	9.637	.614	.435
	Sense Security	70.347	1	70.347	1.235	.268
Error	Level Trust	2088.743	133	15.705		
	Sense Security	7575.296	133	56.957		
Total	Level Trust	18895.000	137			
	Sense Security	128231.000	137			
Corrected Total	Level Trust	2229.883	136			
	Sense Security	7853.474	136			

a. R Squared = .063 (Adjusted R Squared = .042)

b. R Squared = .035 (Adjusted R Squared = .014)

To summarize, based on the statistically insignificant moderation effects of optimistic Emotional Display on the effects of Face Mask use onto customer's perceived Level of Trust and Sense of Security, the null hypothesis is retained.

9.3.7 Testing Hypothesis 6

Hypothesis 6 *Gender moderates the effect of Face Mask use on customer's perceived Level of Trust and Sense of Security*

H0 *Gender does not moderate the effect of Face Mask use onto the perceived Level of Trust and Sense of Security of customers.*

H1 *Gender moderates the effect of Face Mask use onto the perceived Level of Trust and Sense of Security of customers.*

Hypothesis 6 examines a moderation effect similar to hypothesis 5 in chapter 9.3.6. Hypothesis 6 will test the moderation effects of Gender on the influence of Face Masks and perceived Levels of Trust and Sense of Security. For this hypothesis, a Multivariate analysis will be conducted to test the two dependent variables together. This also allows for testing the interaction effect of Gender on the two dependent variables.

As can be seen in table 16 below, the impact of Mask Groups, Gender, and the Interaction of (Mask Group * Gender) are all statistically insignificant based on this study's p-value = .05. All Sig p-values are greater than the given significance level of this study.

Table 16 Multivariate Tests results for hypothesis 6, effect of Gender on Face Mask use and perceived Level of Trust and Sense of Security.

		Multivariate Tests				
Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.874	451.233 ^b	2.000	130.000	.000
	Wilks' Lambda	.126	451.233 ^b	2.000	130.000	.000
	Hotelling's Trace	6.942	451.233 ^b	2.000	130.000	.000
	Roy's Largest Root	6.942	451.233 ^b	2.000	130.000	.000
Mask Groups	Pillai's Trace	.022	1.485 ^b	2.000	130.000	.230
	Wilks' Lambda	.978	1.485 ^b	2.000	130.000	.230
	Hotelling's Trace	.023	1.485 ^b	2.000	130.000	.230
	Roy's Largest Root	.023	1.485 ^b	2.000	130.000	.230
Gender	Pillai's Trace	.012	.395	4.000	262.000	.812
	Wilks' Lambda	.988	.392 ^b	4.000	260.000	.814
	Hotelling's Trace	.012	.389	4.000	258.000	.816
	Roy's Largest Root	.006	.403 ^c	2.000	131.000	.669
Mask Groups *	Pillai's Trace	.023	.745	4.000	262.000	.562
Gender	Wilks' Lambda	.978	.743 ^b	4.000	260.000	.564
	Hotelling's Trace	.023	.740	4.000	258.000	.565
	Roy's Largest Root	.021	1.388 ^c	2.000	131.000	.253

a. Design: Intercept + Mask Groups + GENDER + Mask Groups * GENDER

b. Exact statistic

c. The statistic is an upper bound on F that yields a lower bound on the significance level.

Testing for between-subject effects in table 16, here too can be seen how there are no statistically significant relationships between either variables or the interaction effect of (Mask Groups * Gender) on the customer's perceived Level of Trust and Sense of Security. Taking a further look at the parameter estimates shown in table 18 on the next page, no estimate is considered significant at a .05 level of significance.

To summarize, due to the statistically insignificant moderation effects, Gender does not seem to moderate the effects of Face Masks onto customer's perceived Level of Trust or Sense of Security. As a result, the null hypothesis is retained.

Table 17 Between Subject test for Hypothesis 6

Tests of Between-Subjects Effects						
Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	Level Trust	70.478 ^a	5	14.096	.855	.513
	Sense Security	205.602 ^b	5	41.120	.704	.621
Intercept	Level Trust	2012.069	1	2012.069	122.062	.000
	Sense Security	16307.557	1	16307.557	279.331	.000
Mask Groups	Level Trust	49.268	1	49.268	2.989	.086
	Sense Security	62.695	1	62.695	1.074	.302
Gender	Level Trust	13.160	2	6.580	.399	.672
	Sense Security	46.741	2	23.370	.400	.671
Mask Groups *	Level Trust	35.073	2	17.536	1.064	.348
Gender	Sense Security	135.808	2	67.904	1.163	.316
Error	Level Trust	2159.405	131	16.484		
	Sense Security	7647.872	131	58.381		
Total	Level Trust	18895.000	137			
	Sense Security	128231.000	137			
Corrected Total	Level Trust	2229.883	136			
	Sense Security	7853.474	136			

a. R Squared = .032 (Adjusted R Squared = -.005)

b. R Squared = .026 (Adjusted R Squared = -.011)

Table 18 Parameter Estimates for hypothesis 6

Parameter Estimates					
Dependent Variable	Parameter	B	Std. Error	t	Sig.
Level Trust	Intercept	15.000	4.060	3.695	.000
	[Mask Groups=1.00]	-9.000	5.742	-1.567	.119
	[Mask Groups=2.00]	0 ^a	.	.	.
	[GENDER=1]	-3.853	4.119	-.935	.351
	[GENDER=2]	-3.364	4.121	-.816	.416
	[GENDER=3]	0 ^a	.	.	.
	[Mask Groups =1.00] * [GENDER=1]	8.258	5.818	1.419	.158
	[Mask Groups =1.00] * [GENDER=2]	8.517	5.840	1.459	.147
	[Mask Groups =1.00] * [GENDER=3]	0 ^a	.	.	.
	[Mask Groups =2.00] * [GENDER=1]	0 ^a	.	.	.
	[Mask Groups =2.00] * [GENDER=2]	0 ^a	.	.	.
	[Mask Groups =2.00] * [GENDER=3]	0 ^a	.	.	.
	Sense Security	Intercept	27.000	7.641	3.534	.001
[Mask Groups =1.00]		14.000	10.806	1.296	.197
[Mask Groups =2.00]		0 ^a	.	.	.
[GENDER=1]		2.941	7.752	.379	.705
[GENDER=2]		3.303	7.756	.426	.671
[GENDER=3]		0 ^a	.	.	.
[Mask Groups =1.00] * [GENDER=1]		-14.394	10.948	-1.315	.191
[Mask Groups =1.00] * [GENDER=2]		-16.072	10.990	-1.462	.146
[Mask Groups =1.00] * [GENDER=3]		0 ^a	.	.	.
[Mask Groups =2.00] * [GENDER=1]		0 ^a	.	.	.
[Mask Groups =2.00] * [GENDER=2]		0 ^a	.	.	.
[Mask Groups =2.00] * [GENDER=3]		0 ^a	.	.	.

a. This parameter is set to zero because it is redundant.