Surviving Supply Chain Crises: The Role of Effective Communication in Maintaining Brand Trust and Loyalty

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ABSTRACT

Title: Surviving Supply Chain Crises: The Role of Effective Communication in Maintaining Brand Trust and Loyalty

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Global crises such as pandemics and geopolitical tensions disrupt supply chains, affecting business operations and consumer behavior worldwide. This study explores the influence of crisis communication strategies on consumer-brand relationships, particularly brand trust and loyalty, during such supply chain crises. Focusing on different product categories, the research examines how proactive and reactive communication strategies impact brand trust and loyalty during disruptions.

A quantitative survey within a 2x2 experimental framework tested five hypotheses across four scenarios involving proactive and reactive communication strategies applied to essential and non-essential products. The results demonstrate that proactive communication significantly enhances brand loyalty and trust, especially for essential goods. Proactive strategies, marked by transparency and credibility, were more effective in fostering brand trust and enhancing loyalty than reactive strategies, which appeared defensive or insincere.

This research contributes to crisis communication theories by linking them with supply chain management and consumer behavior, filling a gap in interdisciplinary research. Managerially, it provides insights into effective communication strategies that can help maintain consumer trust and loyalty, particularly for essential goods, during supply chain disruptions.

Keywords: Crisis Communication, Brand Trust, Brand Loyalty, Supply Chain Disruptions, Proactive Communication, Reactive Communication, Essential Products, Non-Essential Products, Consumer Behavior.

SUMÁRIO

Título: Sobreviver a crises na cadeia de abastecimento: O Papel da Comunicação Eficaz na Manutenção da Confiança e Lealdade à Marca

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As crises globais, como as pandemias e as tensões geopolíticas, perturbam as cadeias de abastecimento, afectando as operações comerciais e o comportamento dos consumidores em todo o mundo. Este estudo explora a influência das estratégias de comunicação de crise nas relações entre o consumidor e a marca, em particular a confiança e a lealdade à marca, durante essas crises na cadeia de abastecimento. Centrando-se em diferentes categorias de produtos, a investigação examina o impacto das estratégias de comunicação proactivas e reactivas na confiança e lealdade à marca durante as perturbações.

Um inquérito quantitativo num quadro experimental 2x2 testou cinco hipóteses em quatro cenários envolvendo estratégias de comunicação proactivas e reactivas aplicadas a produtos essenciais e não essenciais. Os resultados demonstram que a comunicação pró-ativa aumenta significativamente a lealdade e a confiança na marca, especialmente no caso de produtos essenciais. As estratégias pró-activas, marcadas pela transparência e credibilidade, foram mais eficazes na promoção da confiança na marca e no aumento da lealdade do que as estratégias reactivas, que pareciam defensivas ou insinceras.

Esta investigação contribui para as teorias da comunicação de crise, associando-as à gestão da cadeia de abastecimento e ao comportamento do consumidor, preenchendo uma lacuna na investigação interdisciplinar. Em termos de gestão, fornece informações sobre estratégias de comunicação eficazes que podem ajudar a manter a confiança e a lealdade dos consumidores, em especial no que respeita aos bens essenciais, durante as perturbações da cadeia de abastecimento.

Palavras-chave: Comunicação de crise, confiança na marca, lealdade à marca, perturbações da cadeia de abastecimento, comunicação proactiva, comunicação reactiva, produtos essenciais, produtos não essenciais, comportamento do consumidor.

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As I conclude this thesis and my master's program at Católica Lisbon, I close a significant chapter in my life, and I am incredibly proud of this accomplishment. I am thankful to all my colleagues, fellow students, and professors who have supported my professional journey, as well as my friends and family who have shaped my personal growth. I am excited about the new beginnings ahead, especially starting my first full-time professional role. My time at Católica Lisbon has been extraordinarily enriching, providing not only professional insights but also valuable life experiences in a foreign country and culture.

DISCLOSURE

I would like to disclose that I used ChatGPT, a large language model, during the preparation of this thesis. The tool was used primarily to enhance clarity, refine the language, and support in brainstorming ideas. Its use was supplementary and always under my critical judgment, ensuring that the thesis's originality, analysis, and conclusions are entirely my own.

This statement is provided in accordance with the guidelines of Católica Lisbon School of Business and Economics to ensure transparency and academic integrity.

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CHAPTER 1: INTRODUCTION

1.1 Background

Global crises, including natural disasters, pandemics, geopolitical tensions, and technological failures, disrupt supply chains and affect businesses worldwide (Holloway, 2024). The complexity of modern supply chains, due to their global interconnections and reliance on just-in-time manufacturing, heightens businesses' vulnerability to such disruptions (Ivanov, 2020). Consequently, these disruptions impact a brand's ability to sustain operations, fulfill product or service delivery, and maintain customer relationships (Holloway, 2024). Recent events, such as the COVID-19 pandemic and the Russia-Ukraine war, have demonstrated how supply chain disruptions can impact industries globally, forcing producers to find alternative supply solutions (Savin et al., 2022; Holloway, 2024). Supply chain crises affect not only business operations but also consumer behavior, leading to actions like panic buying (Sun, 2024) or switching to alternative products (Holloway, 2024). This occurs because crises often heighten consumers perceived risk, diminish their loyalty and trust in the brand (Siomkos & Kurzbard, 1992; Vassilikopoulou et al., 2018), and decrease their purchase intentions, ultimately resulting in reduced sales (Dawar & Pillutla, 2000). An effective marketing strategy, including crisis communication and brand positioning, is essential for maintaining brand equity and loyalty during times of crisis (Rahman et al., 2024; Holloway, 2024). Therefore, this study examines how crisis communication strategies influence consumer-brand relationships, aiming to understand how proactive and reactive communication can mitigate the impact of product shortages on consumer perceptions. The findings of this study are academically relevant, as interdisciplinary research on crisis communication and its effects on consumer behavior during supply chain crises remains limited (Vassilikopoulou et al., 2018). They also offer valuable insights for communication managers aiming to protect brand loyalty and trust during challenging times.

Effective crisis management fundamentally relies on a comprehensive communication plan, as the audience evaluates an institution's actions based on the messages it conveys, underscoring the importance of communication management (Coombs, 2010; Civelek et al., 2016). Additionally, it is important to recognize that the communication landscape has evolved with the growing use of social media and digital communication technologies, which have transformed the relationship between companies and users, who are now key actors able to share information and spread news (Anderson & Caumont, 2014; Lee, 2020).

The choice of a crisis communication strategy - whether proactive or reactive - comes with both opportunities and challenges, depending on the context, situation, product, or industry involved. Proactive crisis communication, which emphasizes transparency and empathy, has been shown to be more effective in preserving brand trust by meeting consumer expectations for honest communication, especially during times of uncertainty (Lee, 2020). Social media has further enhanced the effectiveness of proactive strategies, enabling real-time updates and interactive engagement with stakeholders (Rodriguez González et al., 2013). However, proactive approaches are not universally suitable for all product categories (Claeys, 2017) and carry risks such as premature disclosures or potential legal complications, thus requiring careful consideration when applying (Claeys & Opgenhaffen, 2021). Some situations may require reactive communication (Sellnow & Seeger, 2020), providing companies with the opportunity to collect facts and identify immediate risks during a crisis (Woldt & Prasad, 2022). However, reactive strategies can be risky, as they may seem defensive or insincere, potentially reducing public trust and control of the public narrative (Marsen, 2019; Rodriguez González et al., 2013).

1.2 Problem Statement

The scope of this research is to examine how various crisis communication strategies used by companies facing product shortages affect brand trust and loyalty, with consideration of the product category the company offers. Essentially, the problem statement for this research is summarized as follows:

> Understanding the impact of crisis communication strategies on brand trust and loyalty during product shortages, considering the moderating role of product category.

This problem statement is supported by the following research questions:

RQ 1: What is the effect of proactive versus reactive communication strategies on brand trust and brand loyalty during supply chain crises?

RQ 2: To what extent does brand trust influence the relationship between brand communication strategies and brand loyalty during supply chain crises?

RQ 3: Does the effectiveness of communication strategies in maintaining brand trust and loyalty vary between essential and non-essential goods during supply chain crises?

1.3 Relevance

Recent crises, including the COVID-19 pandemic and the Russia-Ukraine war, have exposed the fragility of interconnected supply chains, disrupting business operations and customer relationships (Holloway, 2024; Ivanov, 2020). This underscores the need for effective risk-mitigation strategies to sustain stable operations (Holloway, 2024). During times of crisis, successful public relations and crisis communication are crucial, playing a key role in managing crises and sustaining brand equity (Civelek et al., 2016; Rahman et al., 2024; Holloway, 2024).

In terms of managerial relevance, the findings from this research can offer companies practical guidance on effectively handling product shortages, while simultaneously preserving brand trust and loyalty within their customer base and minimizing negative impacts on brand reputation. By identifying which communication strategies are most effective in sustaining customer satisfaction, trust, and loyalty during crises, companies can align their communication approach accordingly. Additionally, the differentiation between essential and non-essential goods will provide communication managers with a better understanding of how the effects of these strategies vary depending on the product type. This allows businesses to tailor their communication strategies to the specific crisis situation and the product category. Academically, the findings contribute to existing crisis communication theories by integrating supply chain management with consumer behavior, linking communication strategies across disciplines as discussed in the literature review in Chapter 2.1. This study fills a research gap in crisis management from a consumer perspective (Vassilikopoulou et al., 2018), offering insights into how product shortages and specific communication strategies influence consumer perceptions, and how these approaches can mitigate the effects of global disruptions.

1.4 Research methods

To address the research questions and examine the effects of crisis communication strategies on brand trust and loyalty, this study will utilize primary data. In the literature review, information will be gathered from various academic articles and papers to summarize key insights in the field. Following this, primary data will be gathered through a structured, quantitative survey, designed to test five hypotheses in a controlled 2x2 experimental framework. The experiment will expose participants to one of four scenarios depicting a well-known brand's crisis communication strategy - either proactive or reactive – applied to either an essential or non-essential product. This design will facilitate comparisons of brand trust and

loyalty between communication strategies and product types. Information from state of the art will also be used to support the framework's development and the stimuli development, including the selection of representative products and integrating communication strategies into the scenario based on academic insights.

The statistical tests to be used in this study will include independent samples t-tests to evaluate the direct impact of proactive and reactive communication strategies on brand trust and brand loyalty, and PROCESS MACRO regression analysis to examine the causal mediation effect of brand trust and the moderating effect of product categories on the relationship between communication strategies and brand trust and loyalty. Post-hoc analyses will identify significant differences between groups, and Cronbach's alpha will ensure measurement reliability. The SPSS software will be used to conduct all analyses, providing insights into how communication strategies during crises affect consumer perceptions across product categories.

1.5 Dissertation outline

The following chapter presents the conceptual framework of the study and includes a literature review that provides an overview of the key variables and their interactions. Chapter Three outlines the confirmatory methodology used to test the hypotheses, covering the methodological approach, data collection, stimulus development, variable measurement, and statistical analysis. Chapter Four presents the results identified from the survey. The final chapter draws conclusions from this research, offering managerial insights and practical guidelines for businesses, along with study limitations and suggesting directions for future research in this field.

CHAPTER 2: LITERATURE REVIEW

This chapter provides a literature review of topics that align with the research questions and form the theoretical foundation for the hypotheses. It explores and compares key concepts and theories from existing literature, offering a deeper understanding of the study's background. The first section examines crisis communication strategies, focusing on proactive and reactive approaches and their benefits and challenges for companies. Next, it reviews how consumer behavior is influenced during crises, with an emphasis on essential versus non-essential goods and the different impacts these categories have. Following this, the chapter delves into how crises and crisis communication strategies affect brand trust and loyalty. Finally, the conceptual framework summarizes the relationships between these variables and outlines the resulting hypotheses, which provide the structure for the research study.

The research makes a significant academic and managerial contribution by addressing gaps in the existing literature on crisis management, particularly in the context of supply chain disruptions and consumer trust. Previous studies have emphasized the need for a deeper exploration of communication strategies and trust during crises. According to Woldt & Prasad (2020), little attention has been given to the importance of corporate communication in supply chain disruptions. Similarly, Vassilikopoulou et al. (2018) point out that research on crisis management from the consumer's perspective remains limited, with no findings that show how trust, perceived risk, and purchase intentions interact across different crisis situations. This study aims to address gaps in the literature by exploring crisis communication strategies and their impact on brand trust and loyalty, providing original insights for proactive crisis management and valuable academic and managerial perspectives.

2.1 Crisis Communication Strategies

In the context of managing public relations during supply chain crises, crisis communication strategies are important for companies to mitigate the negative impact of disruptions. These strategies, which aim to align with stakeholder and organizational interests during a crisis (Coombs, 2015), involve managing information distribution and shaping stakeholder perceptions of the crisis and the company's role (Coombs, 2010). The core of effective crisis communication lies in how well the strategies align with the goals of minimizing harm and responding effectively to threats (Sellnow & Seeger, 2020).

Communication with internal and external stakeholders should go beyond media interactions and include building relationships with government officials, employees, financial entities, and consumers (Civelek et al., 2016). It is essential to ensure that messages are tailored for each group and consistent over time, as public judgment tends to focus more on the organization's response and behavior during the crisis rather than the causes (Civelek et al., 2016). A company's goal is to protect its reputation, shaped by stakeholder perceptions, by mitigating the crisis's negative effects on its brand (Coombs, 2015). Effective crisis communication is essential for repairing reputation damage, regaining organizational control, restoring the brand image, and rebuilding stakeholder trust (Benoit, 1997; Marsen, 2019).

To support stakeholders and consumers during a crisis, the organization's communication must be adapted to convey empathy, provide clear information about the ongoing crisis, and explain the measures being taken to address the situation and mitigate its impact (Coombs, 2015; Sturges, 1994). Additionally, organizations must make strategic trade-offs among legal, financial, and reputational consequences when determining their communication approach, whether opting for transparency or a more defensive stance (Claeys & Opgenhaffen, 2021).

Proactive Communication

Proactive communication is an important component in crisis communication strategy, incorporating key elements such as timing, honesty, and credibility. Timing plays a crucial role, as a quick reaction can benefit companies during crises (Marsen, 2019), but it carries the risk of misjudgment if it is executed under pressure (Lee, 2020; OECD, 2015). Honesty and transparency are also essential in proactive communication, as stakeholders perceive organizations as more confident and credible when they proactively disclose negative information (Lee, 2016; Lee, 2020). Moreover, maintaining control over the narrative is important to prevent external parties like news media from filling gaps with alternative stories that could harm the organization (Lee, 2020). Social media platforms have become trusted channels for real-time consumer engagement, allowing businesses to monitor feedback, capture audience perceptions, and maintain control over situations (Rodriguez González et al., 2013). However, online and offline communication strategies must be aligned to ensure consistent messaging and effective crisis communication (Rodriguez González et al., 2013). Lee (2020) suggests that consumers, as active participants who generate and share information on social media, are central in the digital age, necessitating communication strategies that emphasize engaging with consumers and providing them with reliable information during crises.

"Stealing thunder" is a proactive crisis communication strategy where an organization discloses negative information before it becomes public (Coombs, 2015). By taking the lead in informing stakeholders, the organization can reduce the negative impact of the crisis (Arpan & Roskos-Ewoldsen, 2005). This approach aligns with stakeholder interests, as it emphasizes transparency and honesty throughout the crisis, helping to maintain trust (Lee, 2020). The benefits of stealing thunder are significant: it enhances credibility, protects the organization's reputation, and prevents the escalation of a secondary crisis (Claeys, 2017; Mitroff & Anagnos, 2001). However, challenges arise from the reluctance of legal advisors and CEOs to adopt the stealing thunder strategy, as there is disagreement over whether the legal risks are justified (Claeys & Opgenhaffen, 2021). Some researchers, like Claeys & Opgenhaffen (2016) and Patel & Reinsch (2003), argue that self-revealing crisis information carries potential legal and organizational risks. On the other hand, Claeys (2017) contends that these legal concerns and unforeseen consequences are often overstated or misunderstood, suggesting that organizations should not hesitate to employ the strategy. Stealing thunder may be less effective for controversial industries, and it could trigger more negative perceptions (Lee et al., 2018). While proactive communication strategies offer substantial advantages in many crisis situations, they are not universally applicable to all businesses (Lee, 2020). When implementing these strategies, it is crucial to strike a balance between transparency and strategic considerations. Acknowledging responsibility for a crisis can suggest failed strategies, which might erode consumer trust and complicate recovery efforts (Woldt & Prasad, 2022). Therefore, two notable theories advocate for considering the situational context when companies communicate during crises.

Situational Crisis Communication Theory (SCCT), developed by Coombs (1995), guides crisis communication by matching strategies with the crisis type and the organization's responsibility level. The primary focus of SCCT is to protect an organization's reputation by providing timely and clear public information during crises (Coombs, 2015; Sturges, 1994). SCCT advises organizations to employ accommodative strategies like apologies when they hold significant responsibility for a crisis, and defensive strategies like denial or excuses, when they carry less responsibility (Coombs, 2007). This theory benefits organizations by guiding managers in tailoring their responses to crisis severity and maintaining control over public perceptions (Coombs, 2007). However, it may increase legal risks with overly accommodative responses and potentially neglect other vital issues like public safety (Coombs, 2007).

The **Contingency Theory**, proposed by Cameron et al. in 1997, is a framework for strategic conflict management in public relations and crisis communication (Cameron et al., 2010). The theory proposes that communication strategies are not universally applicable but should instead be adaptable, aligning with the specific crisis event (Cameron et al., 2010). The approach follows the situational awareness of the crisis, positioning the organization on a spectrum between advocacy (defending its position) and accommodation (addressing stakeholder demands) (Cameron et al., 2010). Although the theory acknowledges the complexities of crisis situations and provides a customized approach for managing public communication, its flexibility can lead to indecision, as organizations must constantly reevaluate their position, which could lead to delays in communication (Cameron et al., 2010).

Reactive Communication

Reactive communication is a strategy focused on responding to external pressures or crises as they arise, in contrast to proactive communication, which proactively manages information flow in advance (Claeys & Opgenhaffen, 2021). Rodriguez González et al. (2013) and Smith (2017) note that reactive communication is typically only used when it is absolutely necessary, often in response to external pressures like media influence or public criticism, with the aim of restoring brand trust and maintaining a positive image.

William L. Benoit's **Image Restoration Theory** (1997) is a widely used framework in crisis communication that offers five strategies for organizations to repair their brand reputation post-crisis, with the choice of strategy depending on the crisis nature, specific accusations, and target audience. The first strategy, denial, involves denying the occurrence of the crisis event or shifting the blame to another party. In evasion of responsibility, the organization admits the act but minimizes its fault by saying it was provoked, accidental, or done with good intentions. The strategy of reducing offensiveness aims to reduce the perceived harm of the act by highlighting positive traits, minimizing the impact, offering compensation, or comparing the act to more severe ones. Corrective action addresses the issue by promising to fix the problem and prevent future incidents, while mortification involves admitting full responsibility, apologizing, and seeking public forgiveness to restore trust. (Benoit, 1997; Benoit, 2015)

Smith (2017) describes various reactive communication strategies for managing crises, similar to those in Benoit's Image Restoration Theory, categorized into offensive, defensive, and rectifying behaviors tailored to a company's specific position and goals. Offensive strategies are

employed when a company feels confident and superior in its position and takes advantage of tactics like attacking accusers, shaming opponents, using shock tactics, or issuing threats. Defensive strategies, on the other hand, are less aggressive and focus on minimizing blame, using approaches such as denial, excuses, or justifications. Rectifying behavior involves taking proactive steps to resolve the crisis, such as investigating the issue, implementing corrective actions, compensating victims, or showing repentance. (Smith, 2017)

Reactive CSR is a defensive strategy that refers to corporate social responsibility practices initiated by a company in response to a crisis event in order to repair reputational damage and restore public trust (Rim & Ferguson, 2017). It helps companies repair their reputation by showing they are taking steps to address a crisis, manage its impact, and offer a short-term solution, especially for those who haven't previously engaged in CSR (Rim & Ferguson, 2017). However, reactive CSR can be perceived as insincere or selfish, leading to mistrust and skepticism among stakeholders if it appears to be a tool for short-term damage control rather than a genuine commitment to social responsibility (Vanhamme & Grobben, 2009; Rim & Ferguson, 2017). Furthermore, it is generally less effective than proactive CSR in creating positive outcomes that generate long-term impact (Groza et al., 2011; Rim & Ferguson, 2017).

In summary, reactive communication in crisis situations has both pros and cons. Positively, it can help companies avoid legal liability by not immediately accepting responsibility, potentially preserving favorable stakeholder reactions (Woldt & Prasad, 2022). In crises involving legal risks, such as product recalls or regulatory issues, it gives businesses time to gather facts, avoid early admissions of guilt, and minimize legal exposure (Woldt & Prasad, 2022). By responding cautiously and letting stakeholders or legal entities act first, companies can better control outcomes and prevent misinformation (Woldt & Prasad, 2022). On the other hand, delayed responses can damage an organization's reputation, especially in the fast-paced world of social media (Marsen, 2019), and a delayed reaction is often characterized by a lack of foresight and a disorganized messaging, which can lengthen crises and allow external media to control the narrative (Rodriguez González et al., 2013). This approach can make an organization seem defensive and unprepared, with social media intensifying public pressure and leading to more errors (Rodriguez González et al., 2013; Fernández, 2008). Additionally, denying responsibility for a situation may even worsen it, leading to a "double crisis" if further evidence comes up, making it crucial for organizations to address their role rather than shift blame onto others (Coombs, 2015; Coombs & Holladay, 2014).

The findings have shown that proactive communication has more benefits than reactive communication in regard to increasing brand trust amongst consumers. Proactive strategies, such as emphasizing transparency and honesty, closely align with stakeholder interests and foster trust during a crisis (Lee, 2020). In contrast, reactive communication can lead to suspicion and mistrust, especially when messages are perceived as defensive or insincere (Vanhamme & Grobben, 2009). Therefore, the following hypothesis has been developed:

> **Hypothesis 1 (H1)**: Proactive communication strategies during crises have a stronger positive effect on brand trust compared to reactive communication strategies.

In addition to building brand trust, proactive communication significantly impacts brand loyalty by enhancing consumers' perceptions of honesty and credibility, which in turn fosters stronger customer relationships and loyalty (Claeys, 2017). Therefore, the following hypothesis has been developed:

> **Hypothesis 2 (H2):** Proactive communication strategies during crises have a stronger positive effect on brand loyalty compared to reactive communication strategies.

2.2 Consumer Behavior During Crises: Essential and Non-Essential Goods

Supply chain crises create uncertainty that impacts consumer psychology, altering purchasing decisions and triggering emotions like anger and anxiety (Coombs, 2015; Cameron et al., 2010; Pathak & Warpade, 2020). During COVID-19, consumers turned to online shopping for essentials due to lockdowns (Pathak & Warpade, 2020; Roggeveen & Sethuraman, 2020). Globally, panic buying and hoarding of food and household items increased, driven by fear and uncertainty (Pathak & Warpade, 2020; Sodhi et al., 2023). This behavior was further influenced by psychological factors such as perceptions of scarcity, fear of the unknown, and social pressures (Yuan et al., 2020). The rising demand for essential goods, including household products, medical supplies, and shelf-stable foods, led to product shortages as supply chains struggled to keep up with rapid increases in demand, causing these items to become scarce (Sodhi et al., 2023).

Essential goods are defined as products necessary for maintaining life, health, and fundamental societal functions, including food, healthcare items, defense, and medical supplies - anything considered indispensable in the short term (Leibovici & Santacreu, 2020; Myran et al., 2021). Consumers were particularly worried about running out of essential products or being unable

to purchase them, which further fueled demand that retailers couldn't keep up with (Roggeveen & Sethuraman, 2020). This highlights the critical importance of these items to consumers and their heightened sensitivity to product shortages.

Non-essential goods refer to products and services that are not vital for meeting basic needs, such as furniture, electronics, clothing, and sporting goods (Myran et al., 2021). Sales of non-essential goods saw a significant decline, as they were not a priority for consumers during the crisis (Roggeveen & Sethuraman, 2020). The demand for luxury and premium goods diminished as consumers delayed purchases of high-status or branded products, focusing instead on essentials (Mensah et al., 2023; Nistorescu & Puiu, 2009). It is crucial for non-essential and luxury retailers to understand consumer perceptions of essential versus non-essential goods and to continue engaging with customers online to maintain brand presence during crises (Roggeveen & Sethuraman, 2020).

The findings demonstrate that product shortages of essential goods have had a bigger impact on consumers, who respond with increased, often unusual purchasing behavior as a means of self-protection triggered by fear and uncertainty. Clear crisis communication, corrective actions, and expressions of sympathy can moderate consumer anxiety and anger, thereby fostering brand trust and loyalty (Coombs, 2015). This highlights the important role of honest, proactive communication in reassuring consumers during product shortages, as they are more likely to feel relieved and maintain trust in the brand. Building on these insights and hypotheses 1 and 2 from Chapter 2.1, the following hypotheses have been developed:

> **Hypothesis 3 (H3)**: The effect of proactive communication strategies on brand trust is stronger for essential goods compared to non-essential goods during supply chain crises.
>
> **Hypothesis 4 (H4)**: The effect of proactive communication strategies on brand loyalty is stronger for essential goods compared to non-essential goods during supply chain crises.

2.3 Brand Trust and Loyalty

Crises can challenge both brand trust and loyalty, threatening the stability of these relationships between companies and their customers (Yuan et al., 2020). When supply chain disruptions occur, trust becomes a critical factor in reducing the negative effects on brand loyalty (Morgan & Hunt, 1994). Trust, along with reputation and loyalty, plays a key role in helping brands

withstand the impacts of crises (Cleeren et al., 2008; Siomkos & Kurzbard, 1994; Vassilikopoulou et al., 2018). In order to restore trust and regain customer forgiveness, companies must effectively communicate their challenges, take proactive steps, and prioritize customer needs (Holloway, 2024; Yuan et al., 2020). By showing commitment to their customer's well-being through transparent crisis management and support, brands can strengthen loyalty during turbulent times (Ulaga & Eggert, 2006).

Brand trust can be defined as the consumer's willingness to rely on a brand's ability to consistently fulfill its promises, even when it's facing potential risks (Chaudhuri & Holbrook, 2001). Trust plays a key role in consumer-brand relationships, rooted in the consumer's belief that the brand is reliable and capable of meeting their expectations and delivering its promised value (Ika & Kustini, 2011; Lien et al., 2015). This trust can be particularly gained during challenging times through consistent engagement, transparent communication, and reliability (Morgan & Hunt, 1994). As a result, trusted brands are purchased more frequently because the perceived risk for consumers is lower, giving these brands a competitive advantage over others (Chaudhuri & Holbrook, 2001).

Brand loyalty refers to the consumer's willingness to consistently choose or purchase from a specific brand over its competitors, even across different circumstances, demonstrating a long-term relationship with the brand (Atulkar, 2020; Mattison Thompson, 2014). It is composed of both attitude and behavior, where attitude represents a customer's overall perception of the brand, and behavior belongs to their repeated purchasing actions (Bernarto et al., 2020). Customers often show brand loyalty toward products that help express or enhance their personal identity (Bernarto et al., 2020). The advantages of brand loyalty include maintaining a competitive edge (Brexendorf et al., 2010; Chaudhuri & Holbrook, 2001), higher sales, and increased profitability (Aaker, 1992; Reichheld & Sasser, 1990). Brand loyalty is influenced by emotional attachment, perceived value, perceived quality, and trust in the brand (He et al., 2012; Mattison Thompson, 2014).

Several studies have shown that **brand trust** significantly **influences brand loyalty**, with increases in trust leading to stronger brand loyalty (Atulkar, 2020; Bernarto et al., 2020). Brand trust serves as the basis for establishing long-term customer relationships, especially during crises, and is essential in fostering brand loyalty (Mattison Thompson, 2014). This is because trust lowers customer concerns and reduces the perceived risks associated with purchasing decisions (Mattison Thompson, 2014). When companies adopt proactive and transparent

communication strategies, they will be perceived as reliable and credible, which in turn enhances brand trust (Coombs, 2015). This elevated trust encourages consumers to remain loyal to the brand even in difficult times, as they believe that the company can meet their needs and recover from challenges (Claeys, 2017). Therefore, the following hypothesis has been developed:

> **Hypothesis 5 (H5)**: Brand trust mediates the relationship between brand communication strategy and brand loyalty. Higher levels of brand trust resulting from proactive communication will translate into increased brand loyalty.

2.4 Conceptual Framework

The study's conceptual framework uses a moderator and mediator conceptual model to analyze the impact of brand communication strategies on brand loyalty. Specifically, the research seeks to determine the effect of proactive versus reactive communication strategies on brand loyalty during global crises resulting in product shortages. Brand trust serves as a mediator between brand communication strategies and brand loyalty, based on findings by Altukar (2020), who demonstrated that brand trust has a significant positive influence on brand loyalty. Additionally, the study differentiates between essential and non-essential products to explore how the relationship between brand communication strategies and brand trust and loyalty varies across these product categories.

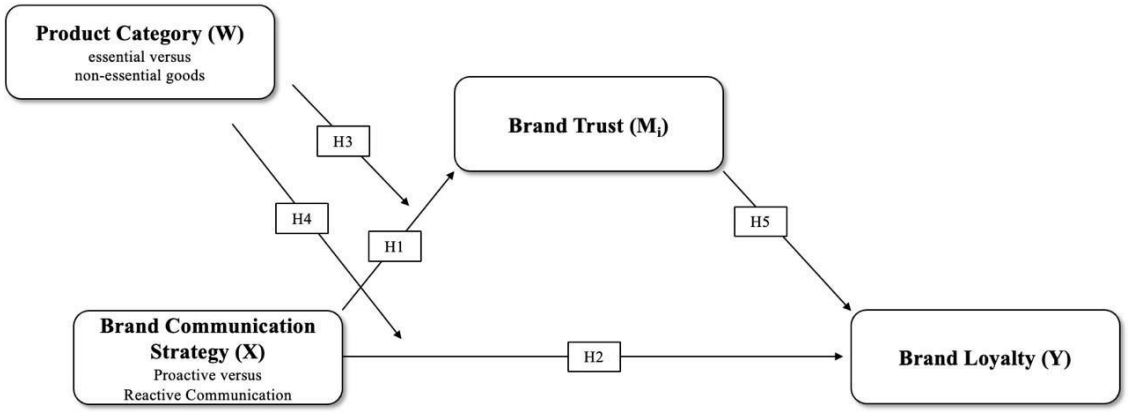

Figure 1: Conceptual Framework

CHAPTER 3: METHODOLOGY

The following chapter outlines the methodology used to address the research questions and aims to draw conclusions about the hypotheses. It starts with a description of the research approach and an overview of primary data sources, followed by a detailed discussion on the collection of primary data, including the data collection process, the development of stimuli, and the techniques for measurement and data analysis.

3.1 Research Approach

The thesis follows a **Confirmatory Research** that is designed to analyze how crisis communication strategies influence brand trust and loyalty across different product categories. The confirmatory, quantitative research follows a structured hypothesis-testing framework, aiming to measure the impact of these variables through a controlled experiment.

To conduct the controlled experiment, an online survey was designed using the Qualtrics platform and distributed to a diverse audience. The survey follows a 2x2 experimental design with four different stimuli, derived from the combination of two variations in the independent variable and two variations in the moderator variable. Each participant was exposed to only one stimulus, which described a fictional scenario of a well-known brand that represented either an essential or non-essential product category and communicated in either a proactive or reactive manner during a supply chain crisis.

The survey consists of three parts. In the beginning, participants were asked a screening question to ensure they had experienced being unable to purchase a specific product due to a supply chain crisis, thereby collecting responses solely from the target population. Afterward, respondents were randomly assigned to one of four stimuli, each consisting of a short-written scenario and an image of the product involved. After being exposed to the stimulus, participants answered six questions assessing their perceptions of brand trust and brand loyalty in response to the scenario. This design allows for a comparison of the effects of different brand communication strategies and product categories on brand trust and loyalty.

3.2 Primary Data

To obtain the study results and draw conclusions necessary for answering the research question and addressing the hypotheses, primary data was collected through a quantitative survey.

3.2.1 Data Collection

The target population for this study consists of consumers aged 18 and older who regularly purchase goods from various sectors, and who have experienced product shortages due to supply chain disruption. A total of 204 valid responses have been collected, approximately 50 responses per stimulus, ensuring sufficient data for statistical analysis. To achieve a representative sample, a stratified random sampling technique has been used, ensuring demographic diversity among respondents. The sample includes a general consumer population across diverse demographics, such as age, gender, and occupation status.

3.2.2 Stimuli Development

The stimuli presented to participants depict realistic scenarios in which a well-known company faces a supply chain crisis, leading to product shortages. These scenarios illustrate how the company communicates with its customers - either proactively or reactively. In this study, the stimuli represent the independent variable: brand communication strategies (proactive versus reactive communication), demonstrated through fictional crisis communication scenarios for both essential and non-essential products. Each scenario is accompanied by a visual representation of the product and brand mentioned, enhancing the image of the stimuli.

As outlined previously, the study utilizes a 2x2 experimental design, resulting in four distinct scenarios: proactive communication for essential goods, proactive communication for non-essential goods, reactive communication for essential goods, and reactive communication for non-essential goods. The specific stimuli scenarios can be found in Appendix 1. The communication strategies depicted in these scenarios - whether proactive or reactive - are based on descriptions in the academic literature (see Chapter 2.1), which explores the characteristics of proactive and reactive communication strategies. In the scenarios, Bayer's Aspirin is used as a representative product for essential goods, while Lindt's premium chocolate is used as a representative for non-essential goods.

Bayer's Aspirin has been selected as the representative essential good, based on its classification as essential in the literature. Aspirin is a widely used medication, primarily known for its pain-relieving, anti-inflammatory, and fever-reducing properties, produced by Bayer, a globally recognized company (AspirinTM – Surprisingly Versatile | Bayer Global, 2024). Based on the literature, pain relievers are considered essential items due to their critical role in maintaining public health, providing necessary relief from pain and reducing fever, particularly

in situations where no adequate substitutes exist (Arcaro et al., 2021; Limbu & Huhmann, 2024). Leibovici & Santacreu (2020) classify medical goods as essential in their experiment, demonstrating the importance of these products during a crisis.

Lindt's premium chocolate serves as a representative non-essential item because it is usually purchased for indulgence rather than necessity, as highlighted in the academic literature. Consumers perceive premium chocolate as an easily accessible specialty item, purchased for personal delight and feeding a sense of guilty pleasure, thereby classifying it as a non-essential or superfluous product (Brown et al., 2020; Strahilevitz & Myers, 1998; Del Prete & Samoggia, 2020). Research by Mielmann et al. (2022) investigates emotional responses to chocolate consumption, highlighting its classification as a non-essential, pleasure-oriented product.

Globally recognized brands as representative products have been selected because prior research has shown that using real, well-known products enhances the realism and emotional impact of studies. For instance, Vassilikopoulou et al. (2018) demonstrate that using a familiar brand, rather than a fictional one, provides respondents with a more realistic scenario to analyze trust, blame, and purchase intentions during a product-harm crisis. This approach was crucial for capturing authentic consumer reactions in a crisis context. Similarly, Cleeren et al. (2008) use branded food products as essential goods to assess consumer responses in crisis situations involving essential items, while Chaudhuri and Holbrook (2001) incorporate actual brands in their study of consumer goods, further supporting the effectiveness of real brands over fictional ones in research methodology.

3.2.3 Measurement

Operational Model

Framework	Measure	Items	Scale	Reference	Cronbach α
Independent Variable	Brand Communication Strategies	Stimuli	N/A	N/A	N/A
Moderator	Product Category	Stimuli	N/A	N/A	N/A

Mediator	Brand Trust	3	5-point Likert Scale	Altukar (2020)	0.79
Dependent Variable	Brand Loyalty	3	5-point Likert Scale	Altukar (2020)	0.86

Table 1: Operational Model

Model Construction Questions

The data collection process for measuring brand trust and loyalty will utilize a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree), ensuring accurate feedback on each indicator (Atulkar, 2020; Bernarto et al., 2020). To assess brand trust, participants will respond to statements such as, "Product satisfaction always generates brand trust in me," "Emotional attachment towards the brand generates brand trust," and "Brand trust motivates me to continue purchasing the same brand in the future" (Atulkar, 2020). Similarly, brand loyalty will be evaluated using questions like, "I am always loyal to the brand when I receive the required values," "Positive perception and satisfaction influence my repurchase decisions," and "I am always loyal towards the brands which create emotional attachment (Atulkar, 2020).

3.3 Data Analysis

The data analysis for this study follows a structured approach to examine the relationships between the independent variables and assess how proactive and reactive communication strategies impact brand loyalty. This process aims to test the proposed hypotheses quantitatively, focusing on the mediating role of brand trust and the moderating effect of product categories on the relationship between communication strategies and brand loyalty. SPSS was used for data analysis as it is a suitable program for performing statistical tests.

The first step involved cleaning the dataset to ensure accuracy and consistency. Incomplete or invalid responses were removed, and a multivariate outlier analysis was conducted to identify potential outliers that could distort the statistical results. Likert scale data, used to measure brand trust and brand loyalty, was formatted for further analysis. The data was coded to prepare it for analysis by creating new variables, creating averages for core constructs, and categorizing participants based on stimuli and conditions, ensuring the data was structured for statistical testing. To ensure the reliability of the measurement scales, Cronbach’s Alpha was calculated for brand trust and brand loyalty, confirming the internal consistency of the data.

The statistical analysis began with descriptive statistics to provide a comprehensive overview of the sample and the variables. This included calculating mean values, standard deviations, and other relevant metrics to identify patterns, differences, or relationships between brand trust and brand loyalty. Next, a multicollinearity analysis was conducted to determine whether significant linear relationships exist among the independent variables. This step ensured that the regression-based analyses were valid and not affected by correlations between predictors.

Hypothesis testing was performed in two stages. For hypotheses 1 and 2 an independent Sample t-test was conducted to evaluate whether proactive and reactive communication strategies produced statistically significant differences in mean scores for brand trust and brand loyalty. To test hypotheses 3 to 5 the causal mediation effect of brand trust on the relationship between communication strategies and brand loyalty, as well as the moderating effect of product categories, was analyzed using the PROCESS MACRO regression analysis. This method is particularly suited for examining mediation and moderation effects, allowing for a deeper understanding of how communication strategies influence brand loyalty through brand trust and how this relationship differs between essential and non-essential products.

CHAPTER 4: RESULTS AND DISCUSSION

4.1 Results

4.1.1 Cleaning the data

A total of 297 survey responses were collected, with 35 excluded based on the screening question as they did not fit the target group. Furthermore, respondents were asked to categorize the presented product (Aspirin pain reliever or Lindt chocolate) from the stimuli as either essential or non-essential. Responses that falsely categorize the products were also excluded - 19 from Stimulus 1, 12 from Stimulus 2, 20 from Stimulus 3, and 7 from Stimulus 4. This ensures that only responses from participants who correctly perceived the presented products were analyzed, leading to 204 valid responses for the quantitative analysis, allowing for meaningful conclusions regarding the effects of these product categories.

Before starting the data analysis of the gathered survey results, a **multivariate outlier analysis** was conducted to identify potential outliers - cases with extreme values on two or more variables that could falsify the statistical results (Tabachnick & Fidell, 2012). A new variable for each participant was computed, representing the **Mahalanobis Distances** based on the selected combination of variables, which were compared to a chi-square distribution with the corresponding degrees of freedom (Statistics Solutions, 2020). No multivariate outliers were identified in the dataset, as the lowest p-value observed was 0.3570, well above the typical threshold of 0, indicating that the dataset is suitable for further analysis (Statistics Solutions, 2020).

	N	Minimum	Maximum	Mean	Std. Deviation
Probability_MAH	204	0.3570	1.000	0.983422	0.0712351
Valid N (listwise)	204				

Table 2: Descriptive Statistics for Mahalanobis Distance and Outlier Detection

Data Coding

In order to measure **brand trust** and **brand loyalty**, three questions were asked to assess the levels of the variables perceived by the respondents. These questions were answered using a five-point Likert scale with responses ranging from “Strongly Disagree” to “Strongly Agree”.

Value	Label
1	Strongly Disagree
2	Disagree
3	Neutral
4	Agree
5	Strongly Agree

Table 3: Likert Scale Coding Scheme

Afterward, new variables were created to calculate the average value for brand trust (BrandTrust_1 to BrandTrust_4) and brand loyalty (BrandLoyalty_1 to BrandLoyalty_4) for each stimulus. These averages were then combined into single variables, BrandTrust and BrandLoyalty.

Participants were systematically categorized based on the stimuli they were exposed to during the survey. Each survey question that followed one of the four stimuli, asking respondents to categorize the presented product, was mapped to a specific stimulus condition, resulting in a total of four stimulus conditions. Four dummy variables (DummyStimulus_1 to DummyStimulus_4) were created to indicate exposure to each stimulus condition (1 = exposure, 0 = no exposure). Afterward, these variables were merged into a composite variable, Stimulus, assigning unique codes to each participant: 1 = Proactive-Essential, 2 = Proactive-Non-Essential, 3 = Reactive-Essential, 4 = Reactive-Non-Essential. Value labels were added for clarity, ensuring accurate categorization and reliable data analysis.

Two additional variables were created to classify participants based on their exposure to different stimuli. The first variable, Communication, differentiates between participants exposed to stimuli with a proactive communication strategy (coded as 1) or reactive communication strategy (coded as 2). The second variable, Product, distinguishes between participants exposed to a stimulus with an essential product (coded as 1) or a non-essential product (coded as 2).

4.1.2 Descriptive Statistics

Sample Characterization

A total of 204 valid responses were collected for the study. The sample was predominantly female, accounting for 59.3% of participants, followed by 39.7% of male participants. In terms of age distribution, the majority of respondents were between 25 and 34 years old (39.7%) and 18 to 24 years old (35.3%). The most frequently mentioned countries of residence were Germany (18.1%), South Africa (11.8%), the USA (7.4%), and Portugal (6.9%). Regarding employment status, most respondents stated being employed full-time (40.2%), followed by students (34.8%), and part-time employees (12.7%).

Descriptive Analysis

A descriptive analysis of the data was conducted to identify reliable differences or relationships between the variables and to provide estimates of central tendency. The variables, brand trust and brand loyalty, each comprising three items, were measured on 5-point Likert scales to calculate mean scores and standard deviations for each stimulus within the same construct.

Stimulus 1 (Proactive-Essential) has the highest mean (4.05), indicating that proactive communication for essential goods fosters the strongest **brand trust**, while Stimulus 3 (Reactive-Essential) has the lowest mean (3.67), showing that reactive communication is less effective for essential goods. Stimulus 3 (Reactive-Essential) shows the highest standard deviation in brand trust, highlighting mixed reactions to reactive communication for essential goods. In contrast, the other stimuli, particularly Stimulus 2 (Proactive-Non-Essential), show lower variability, reflecting more consistent trust perceptions.

	Stimuli	N	Minimum	Maximum	Mean	Std- Deviation
Brand Trust (average)	1	47	2,33	5,00	4,0496	0,72890
	2	55	2,67	5,00	4,0000	0,48855
	3	45	1,33	5,00	3,6741	0,99618
	4	57	2,00	5,00	3,9532	0,64990
"Product satisfaction always generates brand trust in me"	1	47	2,00	5,00	4,09	0,830
	2	55	2,00	5,00	3,96	0,666
	3	45	1,00	5,00	3,69	1,062
	4	57	1,00	5,00	3,88	0,888

"Emotional attachment towards the brand generates brand trust"	1	47	1,00	5,00	3,74	1,073
	2	55	2,00	5,00	3,82	0,748
	3	45	1,00	5,00	3,60	1,009
	4	57	2,00	5,00	3,91	0,739
"Brand trust motivates me to continue purchasing the same brand in the future"	1	47	3,00	5,00	4,32	0,663
	2	55	2,00	5,00	4,22	0,686
	3	45	1,00	5,00	3,73	1,421
	4	57	1,00	5,00	4,07	0,904

Table 4: Descriptive Statistics for Brand Trust

Stimulus 1 (Proactive-Essential) has the highest mean (4.14), indicating that proactive communication for essential goods fosters the strongest **brand loyalty**, while Stimulus 3 (Reactive-Essential) has the lowest mean (3.41), showing that reactive communication is less effective for essential goods. Stimulus 3 (Reactive-Essential) shows the highest standard deviation in brand loyalty, highlighting mixed reactions to reactive communication for essential goods. In contrast, the other stimuli, particularly Stimulus 2 (Proactive-Non-Essential), show lower variability, reflecting more consistent loyalty perceptions.

	Stimuli	**N**	**Minimum**	**Maximum**	**Mean**	**Std- Deviation**
Brand Loyalty (average)	1	47	3,00	5,00	4,1418	0,67654
	2	55	2,67	5,00	3,8848	0,64540
	3	45	1,33	5,00	3,4148	0,94590
	4	57	1,67	5,00	3,7836	0,68571
"I am always loyal to the brand when I receive the required values"	1	47	2,00	5,00	4,21	0,750
	2	55	2,00	5,00	3,93	0,716
	3	45	1,00	5,00	3,47	1,140
	4	57	1,00	5,00	3,82	0,889
"Positive perception and satisfaction influence my repurchase decisions"	1	47	2,00	5,00	4,30	0,689
	2	55	2,00	5,00	4,11	0,712
	3	45	1,00	5,00	3,67	1,243
	4	57	1,00	5,00	3,96	0,963

"I am always loyal towards the brands which creates emotional attachment"	1 47	1,00	5,00	3,91	1,060
	2 55	1,00	5,00	3,62	1,009
	3 45	1,00	5,00	3,11	1,133
	4 57	1,00	5,00	3,56	0,846

Table 5: Descriptive Statistics for Brand Loyalty

The results for **brand trust** and **brand loyalty** show similar patterns and trends. Proactive communication consistently generates higher brand trust and loyalty scores than reactive communication, particularly for essential goods. The mean score for trust and loyalty from reactive communication falls in the middle, suggesting a smaller difference between proactive and reactive strategies for non-essential goods. These findings suggest that brand trust and loyalty are closely interlinked constructs, responding similarly to communication strategies.

Scale Reliability

Cronbach's alpha coefficient was calculated to estimate the internal consistency reliability of the Likert-type scales used for measuring brand trust and loyalty (Gliem & Gliem, 2003). This coefficient ranges from 0 to 1, with values closer to 1 indicating greater internal consistency (Gliem & Gliem, 2003). Cronbach's alpha for brand trust is 0.727 and for brand loyalty it is 0.726. Both scales exhibit **acceptable reliability** ($\alpha > 0.7$), meaning the items within each scale are consistent in measuring their respective constructs.

	Cronbach's Alpha	**Cronbach's Alpha Based on Standardized Items**	**Number of Items**
Brand Trust	0,727	0,726	3
Brand Loyalty	0,726	0,729	3

Table 6: Results of Scale Reliability for Brand Trust and Brand Loyalty

4.1.3 Multicollinearity Analysis

A multicollinearity analysis was conducted to examine if linear relationships among the independent variables exist, which can compromise the accuracy of the regression model (Shrestha, 2020). The analysis focused on evaluating whether three sets of independent variables exhibit almost perfect linear combinations of one another: the four stimuli, proactive versus reactive communication, and essential versus non-essential products. The aim is to assess whether the variables were sufficiently distinct to allow for a meaningful interpretation of their effects on brand trust and brand loyalty.

The **Variance Inflation Factor (VIF)** helps determine how much the relationship between independent variables increases the variability of the regression coefficients (Shrestha, 2020). Lower VIF values (ideally below 2.5) are preferred as they indicate low multicollinearity and distinguish the individual effects of each stimulus on brand trust and loyalty (Shrestha, 2020). For the **stimuli**, the Tolerance values are all above 0.2, and VIF values are below 2.5, suggesting no significant multicollinearity between the four stimuli variables. For the **communication variables**, a Tolerance of 1.000 and a VIF of 1.000 indicate no multicollinearity, confirming that proactive and reactive communication is fully independent. Similarly, the Tolerance and VIF values for the **product types** also confirm the absence of multicollinearity.

The eigenvalue indicates the proportion of total variation explained by each independent variable, with very small values (near 0.05) suggesting multicollinearity, which implies that variables are closely related and reduce model reliability (Shrestha, 2020). The **Condition Index**, derived from eigenvalues, suggests that values above 15 may indicate multicollinearity. However, the index values for all four stimuli are below this threshold, indicating low multicollinearity. Both the condition index and eigenvalue thresholds indicate no multicollinearity issues for all **stimuli** or **proactive** and **reactive communication**, with low condition index values and eigenvalues meeting the threshold. Similarly, **essential** and **non-essential products** show low Condition Index values and meet eigenvalue criteria, confirming that these variables are distinct and suitable for independent analysis.

	Brand Trust				Brand Loyalty			
	Collinearity Statistics		Collinearity Diagnostics		Collinearity Statistics		Collinearity Diagnostics	
Independent Variables	Tolerance	**VIF**	**Eigen-value**	**Condition Index**	Tolerance	**VIF**	**Eigen-value**	**Condition Index**
Stimulus 1	0,701	1,427	1,855	1	0,701	1,427	1,855	1
Stimulus 2	0,000	.	1,000	1,362	0,000	.	1,000	1,362
Stimulus 3	0,706	1,417	1,000	1,362	0,706	1,417	1,000	1,362
Stimulus 4	0,681	1,467	0,145	3,572	0,681	1,467	0,145	3,572
Proactive Communication	0,000	.	1,707	1	0,000	.	1,707	1
Reactive Communication	1,000	1,000	0,293	2,414	1,000	1,000	0,293	2,414
Essential Products	0,000	.	1,741	1	0,000	.	1,741	1
Non-Essential Products	1,000	1,000	0,259	2,592	1,000	1,000	0,259	2,592

Table 7: Results of multicollinearity analysis

Overall, the analysis reveals no significant multicollinearity among the independent variables in relation to brand trust and brand loyalty. Even the lowest eigenvalues and condition indices, particularly for Stimulus 4, remain within acceptable limits, suggesting the regression models will produce reliable and interpretable results.

4.1.4 Hypothesis Testing

4.1.4.1 The Impact of Crisis Communication on Brand Trust and Loyalty

An independent sample t-test was conducted to test the first and second hypotheses, determining whether there was a statistically significant difference in the mean scores between the two groups (Gerald, 2018). This test has been chosen to compare the means of two unrelated groups to see if there is a significant difference between proactive and reactive communication (Ross & Willson, 2017). The following formula describes the calculation of the independent sample t-test:

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{\sum_{i=1}^{n} x_{i1}^2 - \frac{(\sum_{i=1}^{n} x_{i1})^2}{n_1} + \sum_{i=1}^{n} x_{i2}^2 - \frac{(\sum_{i=1}^{n} x_{i2})^2}{n_2}}{n_1 n_2 \left(1 - \frac{2}{n_1 + n_2}\right)}}}$$

Figure 2: Formula of independent sample t-test

n_1 represents the sample size of the first group and n_2 the sample size of the second group. $\bar{X}_1$ represents the sample mean of the first group, and $\bar{X}_2$ the sample mean of the second group. The groups are considered independent if the values from one group are not connected or matched with the values from the other group (Gerald, 2018). The multicollinearity analysis revealed that there is no multicollinearity between the two communication types (see Chapter 4.1.3).

Hypothesis 1 (H1): Proactive communication strategies during crises have a stronger positive effect on brand trust compared to reactive communication strategies.

The first step was to formulate the hypothesis since the null hypothesis (H_0) was tested against the alternate hypothesis (H1) (Gerald,2018).

> Null Hypothesis (H_0): The mean brand trust for proactive communication is equal to the mean brand trust for reactive communication.
>
> $$H0: \mu Proactive = \mu Reactive$$
>
> Alternative Hypothesis (H_1): The mean brand trust for proactive communication is greater than the mean brand trust for reactive communication.
>
> $$H1: \mu Proactive > \mu Reactive$$

Proactive communication has a **mean** brand trust score of 4.0229 (SD = 0.60845), while reactive communication has a mean score of 3.8301 (SD = 0.82820), indicating that brand trust is higher for proactive communication compared to reactive communication.

	Communication	N	Mean	Std. Deviation
Brand Trust	Proactive Communication	102	4,0229	0,60845
	Reactive Communication	102	3,8301	0,8282

Table 8: Group Statistics for Brand Trust

When considering the **one-tailed p-value** to test the specified direction of the difference (e.g., higher trust for proactive communication), the p-value is 0.030. Since this is below the significance level of 5% (p-value < 0.05), we can reject the null hypothesis and conclude that there is a significant difference in the specified direction.

		t-test for Equality of Means			
		Significance			
		One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference
Brand Trust	Equal variances assumed	0,030	0,060	0,19281	0,10176
	Equal variances not assumed	0,030	0,060	0,19281	0,10176

Table 9: Results of the Independent Samples Test for Brand Trust

The effect size (**Cohen's d** = 0.265) suggests a small effect (Bhandari, 2023). However, all effect sizes suggest that the magnitude of this difference is small. While the difference is statistically significant (p = 0.030), suggesting a meaningful distinction, the practical impact may be limited due to the small magnitude of the effect. Furthermore, the confidence intervals for all three metrics include 0, indicating that the observed effect is not statistically robust.

				9 % Confidenc Interval	
		Standardizer	Point Estimate	Lower	Upper
Brand Trust	Cohen's d	0,72668	0,265	-0,11	0,541
	Hedges' correlation	0,72939	0,264	-0,11	0,539
	Glass's delta	0,82820	0,233	-0,44	0,509

Table 10: Results of the Independent Samples Effect Size for Brand Trust

Accordingly, **Hypothesis 1 (H1) is confirmed.** The null hypothesis stating that the mean brand trust is equal for proactive communication and reactive communication has been rejected.

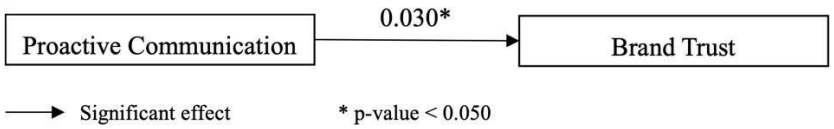

Figure 3: Results of the independent sample t-test on the impact of Proactive Communication on Brand Trust

Hypothesis 2 (H2): Proactive communication strategies during crises have a stronger positive effect on brand loyalty compared to reactive communication strategies.

The goal is to compare the means of two communication strategies to determine if there is a significant difference between them, specifically in relation to the dependent variable, brand loyalty. The null hypothesis (H_0) is tested against the alternate hypothesis (H1) (Gerald,2018).

> Null Hypothesis (H_0): The mean brand loyalty for proactive communication is equal to the mean brand loyalty for reactive communication.
>
> $$H0: \mu Proactive = \mu Reactive$$
>
> Alternative Hypothesis (H_1): The mean brand loyalty for proactive communication is greater than the mean brand loyalty for reactive communication.
>
> $$H1: \mu Proactive > \mu Reactive$$

Proactive communication has a **mean** brand trust score of 4.0033 with a standard deviation of 0.66913, while reactive communication has a mean score of 3.6209 with a standard deviation of 0.82726, indicating that proactive communication strategies have a stronger and more consistent positive impact on brand loyalty compared to reactive strategies.

	Communication	**N**	**Mean**	**Std. Deviation**
Brand Loyalty	Proactive Communication	102	4,0033	0,66913
	Reactive Communication	102	3,6209	0,82726

Table 11: Group Statistics for Brand Loyalty

Both the **one-sided p-value** and **two-sided p-value** are less than 0.001, which is far below the commonly used significance threshold of 0.05. This indicates a statistically significant difference in brand loyalty scores between proactive and reactive communication strategies. The statistically significant p-values strongly support that proactive communication strategies result in significantly higher brand loyalty compared to reactive communication strategies.

		t-test for Equality of Means			
		Significance			
		One-Sided p	**Two-Sided p**	**Mean Difference**	**Std. Error Difference**
Brand Loyalty	Equal variances assumed	< 0,001	< 0,001	0,38235	0,10535
	Equal variances not assumed	< 0,001	< 0,001	0,38235	0,10535

Table 12: Results of the Independent Samples Test for Brand Loyalty

Cohen's d (0.508) indicates a medium effect, demonstrating that proactive communication significantly enhances brand loyalty compared to reactive communication, with confidence intervals excluding zero to confirm significance and robustness (Bhandari, 2023). All effect size measures support a consistent positive impact, ranging from medium to small-to-medium, underscoring the practical impact of proactive communication on brand loyalty.

				9 % Confidenc	Interval
		Standardizer	**Point Estimate**	Lower	Upper
Brand Loyalty	Cohen's d	0,75236	0,508	0,229	0,786
	Hedges' correlation	0,75517	0,506	0,228	0,784
	Glass's delta	0,82726	0,264	0,179	0,743

Table 13: Results of the Independent Samples Effect Size for Brand Loyalty

Accordingly, **Hypothesis 2 (H2) is confirmed.** The null hypothesis stating that the mean brand loyalty is equal for proactive communication and reactive communication has been rejected.

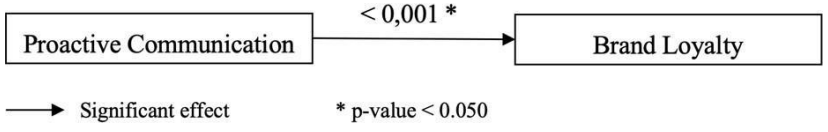

Figure 4: Results from independent sample t-test on the impact of Proactive Communication on Brand Loyalty

4.1.4.1 Moderation and Mediation Effects: The Role of Product Type and Brand Trust on Brand Loyalty

PROCESS MACRO is the most suitable tool for this analysis to investigate the causal mediation between communication strategy and brand loyalty through brand trust, as well as the moderating effect of product categories on the relationship between brand communication strategies and brand loyalty. Model 8 is designed to test **moderated mediation**, allowing to examine whether the indirect effect of the independent variable on the dependent variable through the mediator depends on the levels of the moderator (Stride et al., 2015). This is essential for testing three of the five hypotheses proposed in this study. Specifically, it tests whether the product category moderates both the relationship between brand communication strategy and brand trust, as well as the relationship between brand trust and loyalty. Additionally, it examines the mediating role of brand trust in the relationship between communication strategies and brand loyalty. This model will also provide the results of the full model test by analyzing how each variable interacts with each other.

Hypothesis 3 (H3): The effect of proactive communication strategies on brand trust is stronger for essential goods compared to non-essential goods during supply chain crises.

> Null Hypothesis (H_0): The effect of proactive communication strategies on brand trust does not differ significantly between essential goods and non-essential goods during supply chain crises.
>
> $$H0: \beta Interaction = 0$$
>
> Alternative Hypothesis (H_1): The effect of proactive communication strategies on brand trust is stronger for essential goods compared to non-essential goods during supply chain crises.
>
> $$H1: \beta Interaction > 0$$

The first output of the PROCESS Macro regression analysis labeled “Outcome Variable: Brand Trust” explains how product categories influence the relationship between brand communication strategies and brand trust. The proportion of variance explained by the model ($R^2 = 0.0361$) indicates that only 3.61% of the variation in brand trust is accounted for by the

predictors. Since the p-value for the overall model (p = 0.0610) is greater than the significance threshold of 0.05, the model is not statistically significant.

A detailed examination of the key predictors offers statistical insights into their effects on the variables. The coefficient for **brand communication strategies** (b = -0.7044) shows that brand trust decreases by 0.7044 units when shifting from proactive to reactive communication. The negative coefficient indicates that proactive communication is associated with higher levels of brand trust compared to reactive communication. This effect is statistically significant, as the p-value (p = 0.0347) is below the 0.05 threshold.

The coefficient for **product categories** (b = -0.3784) suggests that the predicted value of brand trust decreases by 0.3784 units when moving from essential to non-essential products, assuming other variables remain constant. The negative sign implies that non-essential products are linked to lower levels of brand trust than essential products. However, this result is not statistically significant, as the p-value (p = 0.2406) is greater than the significance threshold of 0.05.

The **Interaction** between communication and product category increases brand trust as the Coefficient (b = 0.3288) is positive but not statistically significant (p = 0.1079).

Outcome Variable: Brand Trust

Model Summary

R	R-sq	MSE	F	df1	df2	p
0,1900	0,0361	0,5232	2,4960	3,0000	200,0000	0,0610

Model

	coeff	se	t	p	LLCI	ULCI
constant	4,8036	0,5214	9,2129	0,0000	3,7755	5,8318
Communication	-0,7044	0,3313	-2,1263	0,0327	-1,3576	-0,0512
Product	-0,3784	0,3215	-1,1769	0,2406	-1,0125	0,2556
Int_1	0,3288	0,2036	1,6149	0,1079	-0,0727	0,7030

Product terms key:

Int_1: Communication x Product

Test(s) of highest order unconditional interaction(s):

	R2-chng	F	df1	df2	p
X*W	0,0126	2,6078	1,0000	200,0000	0,1079

Table 14: Results of the PROCESS Macro analysis for Brand Trust (Output 1)

In summary, although proactive communication significantly enhances brand trust, the product category shows a directional but non-significant effect on the hypothesized stronger effect of proactive communication for essential goods compared to non-essential goods, due to the insignificant interaction effect between communication and product type on brand trust.

Accordingly, **Hypothesis 3 (H3) is not confirmed.** The null hypothesis stating that the effect of proactive communication strategies on brand trust does not differ significantly between essential goods and non-essential goods during supply chain crises has not been rejected.

Hypothesis 4 (H4): The effect of proactive communication strategies on brand loyalty is stronger for essential goods compared to non-essential goods during supply chain crises.

> Null Hypothesis (H_0): The effect of proactive communication strategies on brand loyalty does not differ significantly between essential goods and non-essential goods during supply chain crises.
>
> $$H0: \beta Interaction = 0$$
>
> Alternative Hypothesis (H_1): The effect of proactive communication strategies on brand loyalty is stronger for essential goods compared to non-essential goods during supply chain crises.
>
> $$H1: \beta Interaction > 0$$

The second and third outputs of the PROCESS Macro regression analysis, "Outcome Variable: Brand Loyalty" and "Conditional Direct Effects of Brand Communication on Brand Loyalty", show how product categories moderate the impact of brand communication strategies on brand loyalty. The model, explains 51.68% of the variance in brand loyalty ($R^2 = 0.5168$) and is significant with $p < 0.001$, indicating a strong fit. The key predictors reveal insights into their impact on brand loyalty:

The coefficient of **brand communication strategies** ($b = -0.8640$) indicates that brand loyalty decreases by 0.8640 units when shifting from proactive communication to reactive communication. The negative coefficient shows that proactive communication is associated with higher levels of brand loyalty compared to reactive communication. This result is statistically significant ($p = 0.0007$) since it is below the 0.05 threshold.

The coefficient of **product categories** (b = -0.6202) suggests that brand loyalty decreases by 0.6202 units when moving from essential products to non-essential products, while holding other variables constant. The negative coefficient indicates that non-essential products result in lower brand loyalty than essential products. This effect is statistically significant (p = 0.0113) since it is below the 0.05 threshold.

The **Interaction** between communication and product category is positive (b = 0.3976), indicating that the effect of brand communication strategy on brand loyalty depends on the product category. This interaction is statistically significant (p = 0.0106) since it is below the 0.05 threshold.

Outcome Variable: Brand Loyalty

Model Summary

R	R-sq	MSE	F	df1	df2	p
0,7189	0,5168	0,2957	253,2122	4,0000	199,0000	0,0000

Model	coeff	se	t	p	LLCI	ULCI
constant	2,4181	0,4678	5,1687	0,0000	1,4956	3,3407
Communication	-0,8640	0,2518	-3,4309	0,0007	-1,3607	-0,3674
Brand Trust	0,6940	0,0532	13,0542	0,000	0,5891	0,7988
Product	-0,6202	0,2426	-2,5567	0,0113	-1,0985	-0,1418
Int_1	0,3976	0,1541	2,5811	0,0106	0,0938	0,7014

Product terms key:

Int_1: Communication x Product

Test(s) of highest order unconditional interaction(s):

	R2-chng	F	df1	df2	p
X*W	0,0162	6,6619	1,0000	199,0000	0,0106

Table 15: Results of the PROCESS Macro analysis for Brand Loyalty (Output 2)

For **essential products** the conditional direct effect is -0.4664 and statistically significant (p = 0.0001), meaning that when moving from proactive to reactive communication, brand loyalty decreases by 0.4664 units.

For **non-essential products** the effect is -0.0688, meaning that when moving from proactive to reactive communication, brand loyalty decreases by 0.0688 units. This effect is not statistically significant (p = 0.5044).

Conditional direct effects of X on Y						
Product	**Effect**	**se**	**t**	**p**	**LLCI**	**ULCI**
1,0000	-0,4664	0,1152	-4,0499	0,0010	-0,6935	-0,2393
2,0000	-0,0688	0,1028	-0,6687	0,5044	-0,2715	0,1340

Table 16: Results of the PROCESS Macro analysis for Brand Loyalty (Output 3)

Product category significantly impacts brand loyalty, with essential products causing stronger loyalty compared to non-essential ones. The interaction between communication strategy and product type is also significant, indicating that the effectiveness of communication strategies on brand loyalty varies depending on the product type. The negative coefficient means that reactive communication is associated with lower brand loyalty for both product types.

Accordingly, **Hypothesis 4 (H4) is confirmed.** The null hypothesis stating that the effect of proactive communication on brand loyalty does not differ significantly between essential goods and non-essential goods during supply chain crises has been rejected.

Hypothesis 5 (H5): Brand trust mediates the relationship between brand communication strategy and brand loyalty. Higher levels of brand trust resulting from proactive communication will translate into increased brand loyalty.

> Null Hypothesis (H_0): The effect of brand communication strategy on brand loyalty is not mediated by brand trust.
>
> $$H0: \beta Mediation = 0$$
>
> Alternative Hypothesis (H_1): The effect of brand communication strategy on brand loyalty is mediated by brand trust.
>
> $$H1: \beta Mediation > 0$$

The mediating effect of brand trust on the relationship between brand communication strategies and brand loyalty can be analyzed using the second and third outputs of the PROCESS Macro regression analysis.

The coefficient of 0.6904 for **brand trust** indicates that a one-unit increase in brand trust increases brand loyalty by approximately 0.6904 units, assuming other factors remain constant (see Table 15). This highlights a positive and statistically significant relationship between brand trust and brand loyalty, as evidenced by a p-value of less than 0.001 and a 95% confidence interval ranging from 0.1831 to 1.0978, excluding zero.

Output 3 illustrates the **moderated mediation** by showing the conditional indirect effects of Brand Communication on brand loyalty through the mediator, brand trust, across two product categories. For **essential products,** the coefficient of -0.2606 indicates that shifting from proactive to reactive communication decreases brand loyalty by 0.2606 units through reduced brand trust. The statistically significant effect is confirmed by a confidence interval from -0.5340 to -0.0175, which excludes zero.

For **non-essential products,** the negative coefficient (b = -0.0325) suggests a minor decrease in brand loyalty via brand trust as communication shifts from proactive to reactive. However, with a confidence interval ranging from -0.1817 to 0.1125 that includes zero, this effect is not statistically significant, suggesting a limited impact on brand trust or loyalty.

The **Index of Moderated Mediation**, at 0.2282, measures the stronger mediation effect for essential products compared to non-essential products. However, with a confidence interval from -0.0528 to 0.5415 that includes zero, the difference in indirect effects across product categories is not statistically significant.

Conditional indirect effects of X on Y

Indirect Effect:

Communication > Brand Trust > Brand Loyalty

Product	Effect	BootSE	BootLLCI	BootULCI
1,0000	-0,2606	0,1308	-0,5340	-0,0175
2,0000	-0,0325	0,0747	-0,1817	0,1125

Index of moderated mediation (difference between conditional indirect effects):

	Index	BootSE	BootLLCI	BootULCI
Product	0,2282	0,1497	-0,0528	0,5415

Table 17: Results of the PROCESS Macro analysis for moderated mediation (Output 3)

Across all product categories, an increase in brand trust leads to an increase in brand loyalty, highlighting a positive and significant relationship between the variables. For essential

products, brand trust significantly mediates the relationship between brand communication and loyalty, emphasizing the efficacy of proactive communication strategies. In contrast, for non-essential products, brand trust does not significantly mediate this relationship.

Accordingly, **Hypothesis 5 (H5) is partially confirmed.** The mediation effect of brand trust is significant for essential products, confirming the hypothesis in this context. However, the mediation effect is not significant for non-essential products.

4.1.5 Full Model Test

To conclude, the results of the full model test conducted using the PROCESS macro model 8 illustrate the estimated model coefficients and capture the interactions between variables.

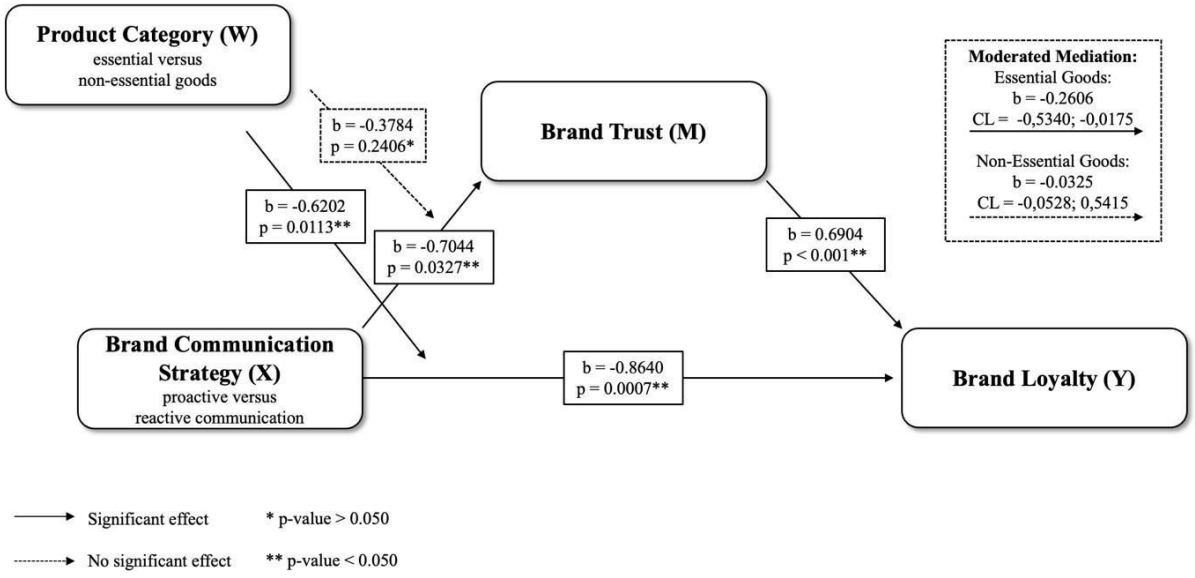

Figure 5: Full Model 8 Test - Estimated Model Coefficients

4.2 Discussion

Proactive communication strategies significantly impact brand loyalty and trust, with a more pronounced practical effect on brand loyalty. The results underscore the advantages of **proactive strategies** in **maintaining brand trust and loyalty** during crises, aligning well with the existing literature. Research highlights that proactive communication fosters trust and loyalty through transparency, credibility, and alignment with stakeholder expectations (Lee, 2020; Claeys, 2017). In contrast, reactive strategies may damage trust by appearing insincere or overly defensive (Vanhamme & Grobben, 2009). Combined, the findings and literature

emphasize the critical role of proactive communication in preserving and strengthening brand trust and loyalty during crises.

Across both product categories, a proactive approach significantly enhances brand trust and loyalty. However, the advantage of **proactive communication** is notably smaller for non-essential goods, where the distinction between proactive and reactive strategies is less pronounced. Meanwhile, **reactive communication** is relatively more beneficial for non-essential products compared to essential ones. Proactive communication significantly enhances **brand trust** overall, but the type of product does not notably influence this effect; the anticipated stronger impact on essential goods compared to non-essential goods was not statistically significant. On the other hand, proactive communication had a significantly stronger positive impact on **brand loyalty** for essential goods compared to non-essential goods. These findings align with the literature, which emphasizes heightened consumer sensitivity to shortages of essential goods. Research by Roggeveen and Sethuraman (2020) highlights that consumers place critical importance on essential items and react strongly to their unavailability due to fear and uncertainty. This explains why proactive communication strategies are particularly impactful for essential goods in preserving trust and loyalty during crises.

Brand trust and loyalty share a positive and significant relationship, as evidenced by the finding that an increase in brand trust leads to a rise in brand loyalty across both product types. The **mediation effect of brand trust** on the relationship between brand communication strategies and brand loyalty is significant only for essential products, not for non-essential products. While differences in mediation effects between the two product categories are observed, they are not statistically significant, indicating that the effect of brand trust is not meaningfully different between essential and non-essential products. This finding is similar to the observation that while proactive communication boosts brand trust across all product categories, the product category does not significantly impact brand trust. This explains why the enhanced mediation effect for essential products does not substantially change the overall influence of brand trust on brand loyalty. These findings align with existing literature, which emphasizes that brand trust is a critical driver of loyalty (Atulkar, 2020; Bernarto et al., 2020). This elevated trust, especially important for essential goods, sustains loyalty as consumers depend on these brands to meet their needs during challenging times (Claeys, 2017).

The findings support the study's objectives and underscore the effectiveness of proactive communication, especially for essential products, where it significantly enhances brand trust and loyalty. This underscores the need for tailored communication strategies across different product categories to foster trust and loyalty effectively.

CHAPTER 5: CONCLUSIONS AND LIMITATIONS

The final chapter will provide a comprehensive summary of the key findings, derived from the current literature and the results of the survey. It begins by presenting the conclusions, followed by a discussion of the managerial and academic implications derived from the findings. Lastly, the chapter will discuss the limitations of the research approach and methodology and propose directions for future research on the topic.

5.1 Main Findings & Conclusions

Overall, the anticipated stronger positive impact of proactive communication on consumers during challenging times has been confirmed by the survey results. These findings align with existing literature on crisis communication, which emphasizes the importance of transparent and proactive communication and engagement with stakeholders. The results provide a robust basis for addressing the research questions formulated at the beginning of this study, offering insights into the role of communication strategies, brand trust and loyalty, and product categories during supply chain crises.

RQ 1: What is the effect of proactive versus reactive communication strategies on brand trust and brand loyalty during supply chain crises?

Proactive communication has a consistently stronger and more positive impact on both brand trust and brand loyalty during supply chain crises compared to reactive communication. The effect on brand trust is less pronounced, as the analysis shows that proactive strategies result in higher trust levels compared to reactive ones, but with only a moderate effect size. In contrast, for brand loyalty, proactive communication has a stronger and more consistent impact, with a significant decline in loyalty observed when shifting to reactive strategies, suggesting that loyalty is more responsive to communication strategies during crises. The results show that proactive strategies, which emphasize transparency and credibility, significantly foster consumer trust and loyalty, for brands experiencing product shortages. Reactive communication, on the other hand, is less effective and may even diminish consumer trust and loyalty when perceived as defensive or insincere, underscoring the importance of proactive strategies.

RQ 2: To what extent does brand trust influence the relationship between brand communication strategies and brand loyalty during supply chain crises?

Brand trust partially mediates the relationship between communication strategies and brand loyalty. The mediation effect is significant for essential goods, where brand trust helps strengthen the relationship between proactive communication and brand loyalty. This indicates that higher levels of brand trust resulting from proactive communication strengthen customer loyalty during times of crisis. These findings align with the notion that, in challenging times, consumers are more likely to remain loyal to brands they trust, particularly when those brands communicate proactively. In contrast, for non-essential goods, brand trust does not significantly mediate this relationship between communication strategies and brand loyalty. While proactive communication still increases brand trust, the indirect effect on brand loyalty is minimal and not statistically significant for non-essential goods. This suggests that, for non-essential products, the role of brand trust in fostering loyalty is less pronounced, likely due to the lower emotional and functional dependency consumers place on these non-essential products during a crisis.

RQ 3: Does the effectiveness of communication strategies in maintaining brand trust and loyalty vary between essential and non-essential goods during supply chain crises?

The effectiveness of communication strategies in maintaining brand trust and loyalty does vary between essential and non-essential goods during supply chain crises, but the variation is more pronounced for brand loyalty than for brand trust. This suggests that during supply chain crises, proactive strategies are particularly effective for essential goods, likely due to the heightened consumer sensitivity and urgency associated with these items. However, the advantage of proactive communication is notably smaller for non-essential goods. This indicates that while proactive communication is beneficial for all types of goods, its relative impact is less distinct for non-essential goods during crises. For brand trust, the findings indicate that proactive communication strategies seem more effective at maintaining trust for essential goods than for non-essential goods, although the variation in impact between the product categories is not very strong. For brand loyalty, there is a notable difference between essential and non-essential goods. Proactive communication significantly increases loyalty for essential goods, with a substantial decline in loyalty observed when switching to reactive strategies. On the other hand, the influence of communication strategies on loyalty for non-essential goods appears less impactful.

5.2 Academic and Managerial Implications

Academic Implications

From an academic perspective, this research advances the understanding of crisis communication theory by providing empirical evidence of the effectiveness of proactive communication strategies. The results demonstrate that the right approach to communication strategies significantly mitigates the negative impacts of global disruptions on consumer behavior, especially for essential goods. These findings fill a critical gap identified by Woldt & Prasad (2020), who emphasized the limited focus on the role of corporate communication during supply chain disruptions. By showing how proactive communication fosters consumer trust and loyalty, this study highlights the central role of communication in alleviating consumer concerns and maintaining reliability during crises.

Furthermore, the research connects supply chain management with consumer behavior, differentiating between consumers of essential and non-essential products. It highlights that consumers are particularly sensitive to shortages of essential goods, necessitating consistent and reliable communication from brands to maintain their trust. Consequently, for essential goods, proactive communication is crucial in fostering both trust and loyalty, as the results have shown a strong tendency for proactive strategies to elicit higher levels of trust and loyalty compared to non-essential goods. Consumers of non-essential goods are less sensitive to product shortages, and thus, the impact of the communication approach is less pronounced. This distinction offers a more detailed view of how crises affect consumer-brand dynamics based on the type of product involved.

Managerial Implications

The study provides valuable insights for brand managers navigating product shortages, emphasizing the importance of proactive communication strategies in protecting a company's reputation. The findings demonstrate that **proactive communication** is generally perceived more positively by consumers, delivering a stronger impact on both brand trust and brand loyalty compared to reactive communication. Proactive communication is an essential strategy during crises to minimize negative impacts, maintain its brand image, and rebuild trust with stakeholders while sustaining credibility. It is particularly effective in enhancing **brand loyalty**, as consumers are likely to respond positively to transparent and timely messaging that reassures them during uncertain times. Although proactive communication also improves **brand trust**,

its impact is smaller and less immediately perceptible to consumers. This suggests that, in addition to communication efforts, other supporting factors may be necessary to achieve a more substantial improvement in consumer trust. This highlights the importance of managers focusing on **clear and timely communication** to address consumer concerns and maintain loyalty. Effective communication plays a key role in reducing consumer anxiety during crises. By adopting empathetic and factual communication that showcases their efforts to resolve shortages and prioritize customer needs, companies can not only reduce consumer uncertainty but also reinforce trust and loyalty during challenging periods.

For companies selling **essential goods** such as food, medication, and household supplies, proactive communication is particularly crucial. Consumers are highly sensitive to shortages of these items, often reacting with fear and uncertainty. Proactive strategies, such as providing clear updates on product availability and explaining the causes of shortages, can alleviate these concerns and reinforce consumer trust. The findings demonstrate that proactive communication significantly strengthens brand loyalty for essential goods and sustains consumer relationships, whereas reactive communication carries the risk of driving consumers to seek alternatives and turn away from the brand.

In contrast, companies selling **non-essential goods**, such as luxury items and hobbies, face distinct challenges. While these goods are often deprioritized during crises, relying solely on brand communication is not advisable. Instead, maintaining engagement with consumers is crucial for preserving long-term loyalty. A proactive communication approach still enhances brand presence and credibility, although the impact is less pronounced compared to essential goods. Therefore, managers in this sector should implement measures to maintain brand visibility during periods of reduced consumer spending. Such measures could include leveraging digital platforms to connect with their audience, emphasizing brand values, engaging in personalized marketing, or adopting flexible pricing strategies.

It's also important to emphasize the need to tailor communication strategies to the specific circumstances of a crisis. Although proactive communication often yields better outcomes, reactive communication might be necessary in scenarios with legal implications, where early disclosure could damage the company's reputation. Managers need to balance between transparency and strategy, ensuring their communication builds trust without exposing the organization to undue risks. By implementing customized strategies that address consumer

concerns and are aligned with the products they sell, businesses can reduce reputational risks, build trust, and maintain long-term loyalty.

5.3 Limitations and Further Research

Overall, the methodology and data collection techniques were effective in addressing the research objectives, providing a solid understanding of the relationships and effects among the studied variables. However, challenges in measuring **brand trust** reveal opportunities for methodological improvements and deeper exploration in future studies. The outcomes for brand trust in hypotheses H1, H3, and H5 were weaker than expected, in contrast to the clear and robust results for brand loyalty. This suggests that the measurement approach for trust might have issues, as the items used might not have fully captured the construct. Trust can also be influenced by a variety of factors that were not included in this study. Future research could benefit from exploring additional measures and factors to gain more definitive insights into brand trust. Compared to loyalty, trust is a deeper and more slowly changing aspect of consumer-brand relationships that may not immediately respond to crisis communication strategies.

To enhance research on the complex construct of trust during crises, incorporating qualitative methods could provide a deeper understanding of trust dynamics, which could then be integrated into quantitative measurements. Furthermore, including additional variables such as the perceived severity of the crisis, product substitutability, personal impact, or prior experiences with the brand may help to explain how these factors influence the relationship between communication strategies and brand perceptions, thereby offering a more accurate explanation of the dynamics between trust and loyalty.

Crises develop over a long time, often spanning several years. During this period, consumer perceptions towards companies can change. Changing life situations and the evolving impacts of the crisis can have significant effects on consumer behavior. It is advisable to conduct longitudinal studies to observe how trust and loyalty develop over time and through different phases of a crisis. This could help understand how initial reactions to crisis communication have long-term effects.

REFERENCE LIST

Aaker, D. A. (1992). The Value of Brand Equity. Journal of Business Strategy, 13(4), 27–32. https://doi.org/10.1108/EB039503/FULL/XML

Anderson, M., & Caumont, A. (2014). How social media is reshaping news. In Pew Research Center. https://www.pewresearch.org/short-reads/2014/09/24/how-social-media-is-reshaping-news/

Arcaro, R., da Veiga, C. R. P., da Silva, W. V., & da Veiga, C. P. (2021). Attitude and Purchase Intention to Generic Drugs. International Journal of Environmental Research and Public Health 2021, Vol. 18, Page 4579, 18(9), 4579. https://doi.org/10.3390/IJERPH18094579

Arpan, L. M., & Roskos-Ewoldsen, D. R. (2005). Stealing thunder: Analysis of the effects of proactive disclosure of crisis information. Public Relations Review, 31(3), 425–433. https://doi.org/10.1016/J.PUBREV.2005.05.003

AspirinTM – Surprisingly Versatile | Bayer Global. (2024, October 18). Bayer.Com. https://www.bayer.com/en/products/aspirin

Atulkar, S. (2020). Brand trust and brand loyalty in mall shoppers. Marketing Intelligence and Planning, 38(5), 559–572. https://doi.org/10.1108/MIP-02-2019-0095/FULL/XML

Benoit, W. L. (1997). Image repair discourse and crisis communication. Public Relations Review, 23(2), 177–186. https://doi.org/10.1016/S0363-8111(97)90023-0

Benoit, W. L. (2015). Image Restoration Theory. The International Encyclopedia of Communication. https://doi.org/10.1002/9781405186407.WBIECI009.PUB2

Bernarto, I., Pink Berlianto, M., Cahya, Y. F., Meilani, P., Masman, R. R., & Suryawan, I. N. (2020). The Influence Of Brand Awareness, Brand Image, And Brand Trust On Brand Loyalty. Jurnal Manajemen, 24(3), 412–426. https://doi.org/10.24912/JM.V24I3.676

Bhandari, P. (2023, June 22). What is Effect Size and Why Does It Matter? (Examples). Scribbr. https://www.scribbr.com/statistics/effect-size/

Brexendorf, T. O., Mühlmeier, S., Tomczak, T., & Eisend, M. (2010). The impact of sales encounters on brand loyalty. Journal of Business Research, 63(11), 1148–1155. https://doi.org/10.1016/J.JBUSRES.2009.10.011

Brown, A. L., Bakke, A. J., & Hopfer, H. (2020). Understanding American premium chocolate consumer perception of craft chocolate and desirable product attributes using focus groups and projective mapping. PLOS ONE, 15(11), e0240177. https://doi.org/10.1371/JOURNAL.PONE.0240177

Cameron, G. T., Pang, A., & Jin, Y. (2010). Contingency Theory of Strategic Conflict Management: Directions for the Practice of Crisis Communication from a Decade of Theory Development, Discovery, and Dialogue. https://www.researchgate.net/publication/271214520_Contingency_Theory_of_Strategic_Conflict_Management_Directions_for_the_Practice_of_Crisis_Communication_from_a_Decade_of_Theory_Development_Discovery_and_Dialogue?channel=doi&linkId=54c29b870cf219bbe4e8dc35&showFulltext=true

Chaudhuri, A., & Holbrook, M. B. (2001). The Chain of Effects from Brand Trust and Brand Affect to Brand Performance: The Role of Brand Loyalty. Https://Doi.Org/10.1509/Jmkg.65.2.81.18255, 65(2), 81–93. https://doi.org/10.1509/JMKG.65.2.81.18255

Civelek, M. E., Çemberci, M., & Eralp, N. E. (2016). The Role of Social Media in Crisis Communication and Crisis Management. International Journal of Research in Business & Social Science, 5(3), 111–120. https://papers.ssrn.com/abstract=3338292

Claeys, A. S. (2017). Better safe than sorry: Why organizations in crisis should never hesitate to steal thunder. Business Horizons, 60(3), 305–311. https://doi.org/10.1016/j.bushor.2017.01.003

Claeys, A. S., & Opgenhaffen, M. (2016). Why practitioners do (not) apply crisis communication theory in practice. Journal of Public Relations Research, 28(5–6), 232–247. https://doi.org/10.1080/1062726X.2016.1261703

Claeys, A. S., & Opgenhaffen, M. (2021). Changing Perspectives: Managerial and Legal Considerations Regarding Crisis Communication. Public Relations Review, 47(4), 102080. https://doi.org/10.1016/J.PUBREV.2021.102080

Cleeren, K., Dekimpe, M. G., & Helsen, K. (2008). Weathering product-harm crises. Journal of the Academy of Marketing Science, 36(2), 262–270. https://doi.org/10.1007/S11747-007-0022-8

Coombs, W. T. (2007). Protecting Organization Reputations During a Crisis: The Development and Application of Situational Crisis Communication Theory. Corporate Reputation Review, 10(3), 163–176. https://doi.org/10.1057/PALGRAVE.CRR.1550049

Coombs, W. T. (2010). Handbook of Risk and Crisis Communication. In Handbook of Risk and Crisis Communication (Vol. 1). Routledge. https://doi.org/10.4324/9781003070726-6

Coombs, W. T. (2015). The value of communication during a crisis: Insights from strategic communication research. Business Horizons, 58(2), 141–148. https://doi.org/10.1016/J.BUSHOR.2014.10.003

Coombs, W. T., & Holladay, S. J. (1996). Communication and Attributions in a Crisis: An Experimental Study in Crisis Communication. Journal of Public Relations Research, 8(4), 279–295. https://doi.org/10.1207/S1532754XJPRR0804_04

Coombs, W. T., & Holladay, S. J. (2014). Corporate tweets: Social or parasocial interaction? Paper Presented at the 17th Annual International Public Relations Research Con- Ference, Miami, FL.

Dawar, N., & Pillutla, M. M. (2000). Impact of product-harm crises on brand equity: The moderating role of consumer expectations. Journal of Marketing Research, 37(2), 215–226. https://doi.org/10.1509/JMKR.37.2.215.18729

Del Prete, M., & Samoggia, A. (2020). Chocolate Consumption and Purchasing Behaviour Review: Research Issues and Insights for Future Research. Sustainability 2020, Vol. 12, Page 5586, 12(14), 5586. https://doi.org/10.3390/SU12145586

Desai, R. J., Sarpatwari, A., Dejene, S., Khan, N. F., Lii, J., Rogers, J. R., Dutcher, S. K., Raofi, S., Bohn, J., Connolly, J., Fischer, M. A., Kesselheim, A. S., & Gagne, J. J. (2018). Differences in rates of switchbacks after switching from branded to authorized generic and branded to generic drug products: cohort study. BMJ, 361. https://doi.org/10.1136/BMJ.K1180

Fernández, M. (2008). Las nuevas tecnologías de la información. Revista Hologramática, 9.

Gerald, B. (2018). A Brief Review of Independent, Dependent and One Sample t-test. International Journal of Applied Mathematics and Theoretical Physics 2024, Volume 9, Page 50, 9(4), 50–54. https://doi.org/10.11648/J.IJAMTP.20180402.13

Gliem, J. A., & Gliem, R. R. (2003, October). Calculating, Interpreting, and Reporting Cronbach's Alpha Reliability Coefficient for Likert-Type Scales. 2003 Midwest Research to Practice Conference in Adult, Continuing, and Community Education. http://pioneer.chula.ac.th/~ppongsa/2900600/LMRM08.pdf

Groza, M. D., Pronschinske, M. R., & Walker, M. (2011). Perceived Organizational Motives and Consumer Responses to Proactive and Reactive CSR. Journal of Business Ethics, 102(4), 639–652. https://doi.org/10.1007/S10551-011-0834-9

He, H., Li, Y., & Harris, L. (2012). Social identity perspective on brand loyalty. Journal of Business Research, 65(5), 648–657. https://doi.org/10.1016/j.jbusres.2011.03.007

Holloway, S. (2024). How Supply Chain Disruptions Affect Brand Loyalty: A Qualitative Analysis of Consumer Experiences During Crises. https://doi.org/10.20944/PREPRINTS202406.1515.V1

Ika, N., & Kustini. (2011). EXPERIENTIAL MARKETING, EMOTIONAL BRANDING, AND BRAND TRUST AND THEIR EFFECT ON LOYALTY ON HONDA MOTORCYCLE PRODUCT. Journal of Economics, Business, and Accountancy | Ventura, 14(1). https://doi.org/10.14414/JEBAV.V14I1.12

Ivanov, D. (2020). Predicting the impacts of epidemic outbreaks on global supply chains: A simulation-based analysis on the coronavirus outbreak (COVID-19/SARS-CoV-2) case. Transportation Research Part E: Logistics and Transportation Review, 136. https://doi.org/10.1016/J.TRE.2020.101922

Lee, S. Y. (2016). Weathering the crisis: Effects of stealing thunder in crisis communication. Public Relations Review, 42(2), 336–344. https://doi.org/10.1016/J.PUBREV.2016.02.005

Lee, S. Y. (2020). Stealing thunder as a crisis communication strategy in the digital age. Business Horizons, 63(6), 801–810. https://doi.org/10.1016/J.BUSHOR.2020.07.006

Lee, S. Y., Lee, J. Y., & Cho, Y.-S. (2018). Framing corporate social responsibility for a controversial product. Faculty & Staff Scholarship. https://researchrepository.wvu.edu/faculty_publications/1174

Leibovici, F., & Santacreu, A. M. (2020). International trade of essential goods during a pandemic. CovidEconomics, 21, 59–99.

Lien, C. H., Wen, M. J., Huang, L. C., & Wu, K. L. (2015). Online hotel booking: The effects of brand image, price, trust and value on purchase intentions. Asia Pacific Management Review, 20(4), 210–218. https://doi.org/10.1016/J.APMRV.2015.03.005

Limbu, Y. B., & Huhmann, B. A. (2024). What influences consumers' online medication purchase intentions and behavior? A scoping review. Frontiers in Pharmacology, 15, 1356059. https://doi.org/10.3389/FPHAR.2024.1356059/BIBTEX

Marsen, S. (2019). Navigating Crisis: The Role of Communication in Organizational Crisis. Https://Doi.Org/10.1177/2329488419882981, 57(2), 163–175. https://doi.org/10.1177/2329488419882981

Mattison Thompson, F., Newman, A., & Liu, M. (2014). The moderating effect of individual level collectivist values on brand loyalty. Journal of Business Research, 67(11), 2437–2446. https://doi.org/10.1016/J.JBUSRES.2014.02.011

Mensah, K., Madichie, N., & Mensah, G. (2023). Consumer Buying Behaviour in Crisis Times: Uncertainty and Panic Buying Mediation Analysis. https://doi.org/10.20944/PREPRINTS202302.0403.V1

Mielmann, A., Le Roux, N., & Taljaard, I. (2022). The Impact of Mood, Familiarity, Acceptability, Sensory Characteristics and Attitude on Consumers' Emotional Responses to Chocolates. Foods 2022, Vol. 11, Page 1621, 11(11), 1621. https://doi.org/10.3390/FOODS11111621

Mitroff, I. I. ., & Anagnos, Gus. (2001). Managing Crises Before They Happen: What Every Executive and Manager Needs to know about Crisis Management. NY: American Management Association.

Morgan, R. M., & Hunt, S. D. (1994). The Commitment-Trust Theory of Relationship Marketing. Journal of Marketing, 58(3), 20. https://doi.org/10.2307/1252308

Myran, D. T., Smith, B. T., Cantor, N., Li, L., Saha, S., Paradis, C., Jesseman, R., Tanuseputro, P., & Hobin, E. (2021). Changes in the dollar value of per capita alcohol, essential, and non-essential retail sales in Canada during COVID-19. BMC Public Health, 21(1), 1–9. https://doi.org/10.1186/S12889-021-12226-1/TABLES/1

Nistorescu, T., & Puiu, S. (2009). Marketing strategies used in crisis - study case. MPRA Paper 17743. https://www.researchgate.net/publication/46445902_Marketing_strategies_used_in_crisis_-_study_case

OECD. (2015). The Changing Face of Strategic Crisis Management (OECD Reviews of Risk Management Policies). OECD. https://doi.org/10.1787/9789264249127-EN

Patel, A., & Reinsch, L. (2003). Companies Can Apologize: Corporate Apologies and Legal Liability. Business Communication Quarterly, 66(1), 9–25. https://doi.org/10.1177/108056990306600103

Pathak, G., & Warpade, S. (2020). Impact of Lockdown Due to COVID-19 on Consumer Behaviour While Selecting Retailer for Essential Goods. Journal of Business Research, 116, 209–213. https://doi.org/10.1016/J.JBUSRES.2020.05.036

Rahman, M. A., Khan, T., Hasan Emon, M. M., Nath, A., & Bukari, Z. (2024). The New Marketing Paradigm: From Traditional to Digital | Request PDF. https://www.researchgate.net/publication/382047349_The_New_Marketing_Paradigm_From_Traditional_to_Digital

Reichheld, F., & Sasser; W. Earl. (1990). Zero Defections: Quality Comes to Services. Harvard Business Review (September-October). https://hbr.org/1990/09/zero-defections-quality-comes-to-services

Rim, H., & Ferguson, M. A. T. (2017). Proactive Versus Reactive CSR in a Crisis: An Impression Management Perspective. Https://Doi.Org/10.1177/2329488417719835, 57(4), 545–568. https://doi.org/10.1177/2329488417719835

Rodríguez González, M. M., Marauri Castillo, I., & Cantalapiedra González, M. J. (2013). Proactive crisis communications in public institutions. Revista Latina de Comunicacion Social, 68, 457–484. https://doi.org/10.4185/RLCS-2013-985EN

Roggeveen, A. L., & Sethuraman, R. (2020). How the COVID-19 Pandemic May Change the World of Retailing. Journal of Retailing, 96(2), 169. https://doi.org/10.1016/J.JRETAI.2020.04.002

Ross, A., & Willson, V. L. (2017). Independent Samples T-Test. Basic and Advanced Statistical Tests, 13–16. https://doi.org/10.1007/978-94-6351-086-8_3

Savin, P. S., Rusu, G., & Orzan, G. (2022). Online Consumer Behavior Influenced by Rising Prices and Shortage of Goods after COVID-19 and During Wartime. Journal of Emerging Trends in Marketing and Management, I(1), 100–107. www.etimm.ase.ro

Sellnow, T. L. ., & Seeger, M. W. . (2020). Theorizing crisis communication (2nd ed.). John Wiley & Sons, Inc. https://www.wiley.com/en-us/Theorizing+Crisis+Communication%2C+2nd+Edition-p-9781119615989

Shrestha, N. (2020). Detecting Multicollinearity in Regression Analysis. American Journal of Applied Mathematics and Statistics, 8(2), 39–42. https://doi.org/10.12691/AJAMS-8-2-1

Siomkos, G. J., & Kurzbard, G. (1994). The Hidden Crisis in Product-harm Crisis Management. European Journal of Marketing, 28(2), 30–41. https://doi.org/10.1108/03090569410055265/FULL/PDF

Smith, R. D. (2017). Strategic planning for public relations. In Strategic Planning for Public Relations: Fifth Edition. Taylor and Francis Inc. https://doi.org/10.4324/9781315270876/STRATEGIC-PLANNING-PUBLIC-RELATIONS-RONALD-SMITH

Sodhi, M. M. S., Tang, C. S., & Willenson, E. T. (2023). Research opportunities in preparing supply chains of essential goods for future pandemics. International Journal of Production Research, 61(8), 2416–2431. https://doi.org/10.1080/00207543.2021.1884310

Statistics Solutions. (2020, November 5). Identifying Multivariate Outliers in SPSS S. Statistics Solutions. https://www.statisticssolutions.com/identifying-multivariate-outliers-in-spss/

Strahilevitz, M., & Myers, J. G. (1998). Donations to charity as purchase incentives: How well they work may depend on what you are trying to sell. Journal of Consumer Research, 24(4), 434–446. https://doi.org/10.1086/209519

Stride, C. B., Gardner, S., Catley, N., & Thomas, F. (2015). Mplus code for the mediation, moderation, and moderated mediation model templates from Andrew Hayes' PROCESS analysis examples. http://www.figureitout.org.uk

Sturges, D. L. (1994). Communicating through Crisis. Http://Dx.Doi.Org/10.1177/0893318994007003004, 7(3), 297–316. https://doi.org/10.1177/0893318994007003004

Sun, Q., Ma, J., Lu, Q., Gao, Y., & Xu, W. (2024). System dynamics analysis of Retailer's emergency strategies when facing irrational demand and supply disruption. International Journal of Production Economics, 271, 109223. https://doi.org/10.1016/J.IJPE.2024.109223

Tabachnick, B. G., & Fidell, L. S. (2012). Using Multivariate Statistics (6th Edition). In Pearson (Vol. 6). https://www.amazon.com/Using-Multivariate-Statistics-Barbara-Tabachnick/dp/0205849571

Ulaga, W., & Eggert, A. (2006). Value-Based Differentiation in Business Relationships: Gaining and Sustaining Key Supplier Status. Https://Doi.Org/10.1509/Jmkg.70.1.119.Qxd, 70(1), 119–136. https://doi.org/10.1509/JMKG.70.1.119.QXD

Vanhamme, J., & Grobben, B. (2009). "Too Good to be True!". The Effectiveness of CSR history in countering negative publicity. Journal of Business Ethics, 85(SUPPL. 2), 273–283. https://doi.org/10.1007/S10551-008-9731-2/METRICS

Vassilikopoulou, A., Lepetsos, A., & Siomkos, G. (2018). Crises through the consumer lens: the role of trust, blame and risk. Journal of Consumer Marketing, 35(5), 502–511. https://doi.org/10.1108/JCM-02-2016-1721/FULL/PDF

Woldt, J. J., & Prasad, S. (2022). Crises in global supply chains: The role of impression management communications. International Journal of Production Economics, 252, 108562. https://doi.org/10.1016/J.IJPE.2022.108562

Yuan, D., Lin, Z., Filieri, R., Liu, R., & Zheng, M. (2020). Managing the product-harm crisis in the digital era: The role of consumer online brand community engagement. Journal of Business Research, 115, 38–47. https://doi.org/10.1016/J.JBUSRES.2020.04.044

APPENDICES

Appendix 1: Survey Questionnaire and Stimuli Scenarios

Section 1: Introduction

Dear Participant,
Thank you for taking part in my research study for my Master Thesis.
The survey is quick and easy - it will only take 5 minutes to complete!
Thank you for your time and input!

Confidentiality: Your responses will be anonymous. The data will be used strictly for academic purposes and treated with the highest level of confidentiality. Your participation is entirely voluntary, and you are free to withdraw at any time.

Section 2: Screening Audience

Have you ever experienced a situation where a product you wanted to purchase was unavailable due to a supply chain issue?

- Yes
- No

→ If "No" is selected: Thank you for your interest in participating, but based on your responses, it appears that you do not meet the criteria for this survey, and unfortunately, your input would not be applicable to the study's objectives.

→ If "Yes" is selected: Survey continues.

Section 3: Stimuli Intro

Stimulus Scenarios of Brand Communication in a Supply Chain Crisis

In this section, you will be presented with a scenario that describes how a company communicates during a supply chain crisis. Please carefully read the scenario and respond to the following questions based on your perception of the brand.

Section 4: Stimuli

The participants were randomly assigned to one of four stimuli scenarios.

Stimuli 1: Proactive Essential Goods

You regularly purchase Bayer's Aspirin pain reliever at your local pharmacy whenever you need medications for pain relief or fever reduction. Due to a recent crisis, Bayer has proactively informed its customers about potential supply chain disruptions that may temporarily affect the availability of certain products, including Aspirin. Bayer has initiated this communication through its online platforms, including its official website, social media channels, and a newsletter sent to regular customers, pharmacies, and you. Additionally, Bayer has coordinated with major pharmacy chains, including your local pharmacy, to display informational posters that reassure customers of the ongoing efforts to maintain availability. These posters include a QR code linking to Bayer's website for live updates and further information.

In this proactive message, Bayer emphasizes its commitment to public health and assures customers that it has increased production efforts to maintain a steady supply. The company explains that it is working closely with suppliers to prevent any interruptions, prioritizing distribution to pharmacies and healthcare facilities to ensure that those in need have access to Aspirin. The statement is clear and detailed, emphasizing Bayer's proactive efforts and dedication to transparency.

Do you consider **Bayer's Aspirin** pain relievers to be an essential or non-essential item?

- Essential Good
- Non-Essential Good

Stimuli 2: Proactive Non-Essential Goods

You are a loyal customer of **Lindt's premium chocolate,** regularly purchasing them at your local supermarket or directly from the Lindt online shop. Before any noticeable delays in Lindt's chocolates occur, Lindt proactively reaches out to customers regarding potential product shortages due to recent global supply chain issues. Through its website, social media platforms, and newsletters, Lindt provides an update outlining the steps it is taking to ensure that customers can continue to enjoy their favorite chocolates. Additionally, Lindt places signs in partner stores, explaining that while some flavors may experience delays, the brand is

committed to returning to full stock levels as soon as possible. These signs direct customers to Lindt's website, where they can sign up for notifications on restocks.

Lindt's messaging is clear and transparent, focusing on its commitment to quality and availability while addressing possible delays in specific product lines. The brand also includes a special offer for loyal customers, inviting them to pre-order chocolates and access exclusive updates on stock availability.

Do you consider **Bayer's Aspirin** pain relievers to be an essential or non-essential item?

- Essential Good
- Non-Essential Good

Stimuli 3: Reactive Essential Goods

You regularly purchase **Bayer's Aspirin** pain reliever at your local pharmacy for managing pain relief and fever reduction. Recently, you notice that several essential items, including Aspirin, are out of stock both in stores and online. Despite the shortages, Bayer remains silent on the issue, with no immediate public statement addressing the situation.

After several days of growing media coverage and customer complaints, Bayer finally releases a statement. The update, posted on its website and social media channels, explains that a recent crisis has disrupted the supply chain, leading to temporary shortages. Bayer's message emphasizes the company's commitment to restoring supply as quickly as possible. However, the statement remains brief and somewhat defensive, noting that the shortages are primarily due to external factors beyond Bayer's control.

At your local pharmacy, there is no information visibly displayed about the shortage. To understand why Aspirin is unavailable and when it might be restocked, you have to ask the pharmacist directly and actively seek information rather than finding it readily available.

Do you consider **Bayer's Aspirin** pain relievers to be an essential or non-essential item?

- Essential Good
- Non-Essential Good

Stimuli 4: Reactive Non-Essential Goods

You are a loyal customer of Lindt's premium chocolate, regularly purchasing them at your local supermarket or through the Lindt online shop. For several weeks, Lindt chocolates have been out of stock both in stores and online. After a rise in negative media coverage and growing customer dissatisfaction, Lindt finally issues a communication statement.

In this statement, Lindt addresses the supply challenges affecting some of its popular chocolate lines. The message, posted on its website and social media, explains that global supply chain disruptions have temporarily impacted certain flavors and product lines. Lindt assures customers that it is working diligently to resolve these issues and thanks them for their patience. Instead of offering any solutions or compensation, the company shifts the blame to external factors and their suppliers and asks customers to remain patient.

At your local supermarket, there is no information visibly displayed about the shortage. To understand why Lindt's chocolate is unavailable and when it might be restocked, you have to ask the sales assistant directly and actively seek information rather than finding it readily available.

Do you consider **Bayer's Aspirin** pain relievers to be an essential or non-essential item?

- Essential Good
- Non-Essential Good

Section 5: Brand Trust and Brand Loyalty evaluation

Please rate the following statements about Bayer/Aspirin based on the scenario you just read.

Participants were required to rate all statements on a 5-point Likert Scale from "Strongly Agree" to "Strongly Disagree".

1. Product satisfaction always generates brand trust in me.
2. Emotional attachment towards the brand generates brand trust.
3. Brand trust motivates me to continue purchasing the same brand in the future.

Please rate the following statements about Bayer/Aspirin based on the scenario you just read.

Participants were required to rate all statements on a 5-point Likert Scale from “Strongly Agree” to “Strongly Disagree”.

1. I am always loyal to the brand when I receive the required values.
2. Positive perception and satisfaction influence my repurchase decisions.
3. I am always loyal towards the brands which creates emotional attachment.

Section 6: Demographics

How old are you?

- 18-24
- 25-34
- 35-44
- 45-54
- 55+

What is your nationality?

Participants were required to select their nationalities from a list of countries.

To which gender do you identify the most?

- Male
- Female
- Non-binary/Third gender
- Prefer not to say
- Others. Please specify:

What is your current occupation or status? Please select the option that best describes your situation.

- Employed full-time
- Employed part-time
- Self-employed
- Unemployed
- Student
- Retiree

- Other. Please specify:

Appendix 2: Stimuli pictures

Figure 6: Aspirin pain reliever used as a essential good in stimulus 1 and 3

Figure 7: Lindt chocolate used as a non-essential good in stimulus 2 and 4

Appendix 3: SPSS Outputs

Appendix 3.1: Mahalanobis Distance

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	19-NOV-20...	03-DEC-20...	26-NOV-20...	3 00:48:05,...	57
Std. Predicted Value	-2,327	2,291	,000	1,000	57
Standard Error of Predicted Value	116577,836	482001,375	248558,208	94621,915	57
Adjusted Predicted Value	16-NOV-20...	05-DEC-20...	26-NOV-20...	3 10:06:50,...	57
Residual	-19 03:00:...	11 19:27:4...	00:00:00,000	8 06:58:48,...	57
Std. Residual	-2,180	1,346	,000	,945	57
Stud. Residual	-2,363	1,546	,006	1,004	57
Deleted Residual	-22 11:17:...	15 13:48:4...	03:02:00,139	9 09:19:19,...	57
Stud. Deleted Residual	-2,482	1,568	-,001	1,017	57
Mahal. Distance	,342	21,656	5,895	5,058	57
Cook's Distance	,000	,139	,019	,030	57
Centered Leverage Value	,006	,387	,105	,090	57

a. Dependent Variable: Start Date

Figure 8: SPSS Output of Mahalanobis Distance

Descriptives

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Probability_MAH	204	,3570	1,0000	,983422	,0712351
Valid N (listwise)	204				

Figure 9: SPSS Outputs of Mahalanobis Distance

Appendix 3.2: Descriptive Statistics

Descriptives

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
BrandLoyalty_1	47	3,00	5,00	4,1418	,67654
Please rate the following statements about Bayer based on the scenario you just read. – I am always loyal to the brand when I receive the required values.	47	2	5	4,21	,750
Please rate the following statements about Bayer based on the scenario you just read. – Positive perception and satisfaction influence my repurchase decisions.	47	2	5	4,30	,689
Please rate the following statements about Bayer based on the scenario you just read. – I am always loyal towards the brands which creates emotional attachment.	47	1	5	3,91	1,060
Valid N (listwise)	47				

Figure 10: SPSS Output of Descriptive Statistics (BrandLoyalty_1)

Descriptives

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
BrandTrust_1	47	2,33	5,00	4,0496	,72890
Please rate the following statements about Bayer based on the scenario you just read. – Product satisfaction always generates brand trust in me.	47	2	5	4,09	,830
Please rate the following statements about Bayer based on the scenario you just read. – Emotional attachment towards the brand generates brand trust.	47	1	5	3,74	1,073
Please rate the following statements about Bayer based on the scenario you just read. – Brand trust motivates me to continue purchasing the same brand in the future.	47	3	5	4,32	,663
Valid N (listwise)	47				

Figure 11: SPSS Output of Descriptive Statistics (BrandTrust_1)

Descriptives

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
BrandLoyalty_2	55	2,67	5,00	3,8848	,64540
Please rate the following statements about Lindt based on the scenario you just read. – I am always loyal to the brand when I receive the required values.	55	2	5	3,93	,716
Please rate the following statements about Lindt based on the scenario you just read. – Positive perception and satisfaction influence my repurchase decisions.	55	2	5	4,11	,712
Please rate the following statements about Lindt based on the scenario you just read. – I am always loyal towards the brands which creates emotional attachment.	55	1	5	3,62	1,009
Valid N (listwise)	55				

Figure 12: SPSS Output of Descriptive Statistics (BrandLoyalty_2)

Descriptives

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
BrandTrust_2	55	2,67	5,00	4,0000	,48855
Please rate the following statements about Lindt based on the scenario you just read. – Product satisfaction always generates brand trust in me.	55	2	5	3,96	,666
Please rate the following statements about Lindt based on the scenario you just read. – Emotional attachment towards the brand generates brand trust.	55	2	5	3,82	,748
Please rate the following statements about Lindt based on the scenario you just read. – Brand trust motivates me to continue purchasing the same brand in the future.	55	2	5	4,22	,686
Valid N (listwise)	55				

Figure 13: SPSS Output of Descriptive Statistics (BrandTrust_2)

Descriptives

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
BrandLoyalty_3	45	1,33	5,00	3,4148	,94590
Please rate the following statements about Bayer based on the scenario you just read. – I am always loyal to the brand when I receive the required values.	45	1	5	3,47	1,140
Please rate the following statements about Bayer based on the scenario you just read. – Positive perception and satisfaction influence my repurchase decisions.	45	1	5	3,67	1,243
Please rate the following statements about Bayer based on the scenario you just read. – I am always loyal towards the brands which creates emotional attachment.	45	1	5	3,11	1,133
Valid N (listwise)	45				

Figure 14: SPSS Output of Descriptive Statistics (BrandLoyalty_3)

Descriptives

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
BrandTrust_3	45	1,33	5,00	3,6741	,99618
Please rate the following statements about Bayer based on the scenario you just read. – Product satisfaction always generates brand trust in me.	45	1	5	3,69	1,062
Please rate the following statements about Bayer based on the scenario you just read. – Emotional attachment towards the brand generates brand trust.	45	1	5	3,60	1,009
Please rate the following statements about Bayer based on the scenario you just read. – Brand trust motivates me to continue purchasing the same brand in the future.	45	1	5	3,73	1,421
Valid N (listwise)	45				

Figure 15: SPSS Output of Descriptive Statistics (BrandTrust_3)

Descriptives

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
BrandLoyalty_4	57	1,67	5,00	3,7836	,68571
Please rate the following statements about Lindt based on the scenario you just read. – I am always loyal to the brand when I receive the required values.	57	1	5	3,82	,889
Please rate the following statements about Lindt based on the scenario you just read. – Positive perception and satisfaction influence my repurchase decisions.	57	1	5	3,96	,963
Please rate the following statements about Lindt based on the scenario you just read. – I am always loyal towards the brands which creates emotional attachment.	57	1	5	3,56	,846
Valid N (listwise)	57				

Figure 16: SPSS Output of Descriptive Statistics (BrandLoyalty_4)

Descriptives

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
BrandTrust_4	57	2,00	5,00	3,9532	,64990
Please rate the following statements about Lindt based on the scenario you just read. – Product satisfaction always generates brand trust in me.	57	1	5	3,88	,888
Please rate the following statements about Lindt based on the scenario you just read. – Emotional attachment towards the brand generates brand trust.	57	2	5	3,91	,739
Please rate the following statements about Lindt based on the scenario you just read. – Brand trust motivates me to continue purchasing the same brand in the future.	57	1	5	4,07	,904
Valid N (listwise)	57				

Figure 17: SPSS Output of Descriptive Statistics (BrandTrust_4)

Appendix 3.3: Samples Characterization

Frequencies

Statistics

		To which gender do you identify the most? – Selected Choice	How old are you?	List of Countries	What is your current occupation or status? Please select the option that best describes your situation – Selected Choice	What is your current occupation or status? Please select the option that best describes your situation – Other. Please specify – Text	To which gender do you identify the most? – Other. Please specify – Text
N	Valid	204	204	204	204	204	204
	Missing	0	0	0	0	0	0

Frequency Table

To which gender do you identify the most? – Selected Choice

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	81	39,7	39,7	39,7
	Female	121	59,3	59,3	99,0
	Non-binary / third gender	1	,5	,5	99,5
	Prefer not to say	1	,5	,5	100,0
	Total	204	100,0	100,0	

How old are you?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-24	72	35,3	35,3	35,3
	25-34	81	39,7	39,7	75,0
	35-44	25	12,3	12,3	87,3
	45-54	13	6,4	6,4	93,6
	55+	13	6,4	6,4	100,0
	Total	204	100,0	100,0	

Figure 18: SPSS Outputs of Samples Characterization (Gender and Age)

What is your current occupation or status? Please select the option that best describes your situation – Selected Choice

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Employed full-time	82	40,2	40,2	40,2
	Employed part-time	26	12,7	12,7	52,9
	Self-employed	12	5,9	5,9	58,8
	Unemployed	7	3,4	3,4	62,3
	Student	71	34,8	34,8	97,1
	Retiree	1	,5	,5	97,5
	Other. Please specify	5	2,5	2,5	100,0
	Total	204	100,0	100,0	

What is your current occupation or status? Please select the option that best describes your situation – Other. Please specify – Text

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		200	98,0	98,0	98,0
	Employed full-time and Student	1	,5	,5	98,5
	PhD student	1	,5	,5	99,0
	Student & Part time worker	1	,5	,5	99,5
	Student/Internship	1	,5	,5	100,0
	Total	204	100,0	100,0	

Figure 19: SPSS Outputs of Samples Characterization (Occupation)

List of Countries

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Algeria	1	,5	,5	,5
	Argentina	1	,5	,5	1,0
	Australia	3	1,5	1,5	2,5
	Austria	9	4,4	4,4	6,9
	Bahrain	1	,5	,5	7,4
	Brazil	1	,5	,5	7,8
	Bulgaria	1	,5	,5	8,3
	Canada	9	4,4	4,4	12,7
	China	1	,5	,5	13,2
	Croatia	1	,5	,5	13,7
	Cuba	1	,5	,5	14,2
	Denmark	3	1,5	1,5	15,7
	Finland	1	,5	,5	16,2
	France	2	1,0	1,0	17,2
	Germany	37	18,1	18,1	35,3
	Greece	4	2,0	2,0	37,3
	Hong Kong (S.A.R.)	1	,5	,5	37,7
	Hungary	3	1,5	1,5	39,2
	India	5	2,5	2,5	41,7
	Indonesia	1	,5	,5	42,2
	Ireland	1	,5	,5	42,6
	Italy	13	6,4	6,4	49,0
	Jordan	1	,5	,5	49,5
	Latvia	1	,5	,5	50,0
	Lithuania	1	,5	,5	50,5
	Maldives	1	,5	,5	51,0
	Mexico	3	1,5	1,5	52,5
	Netherlands	3	1,5	1,5	53,9
	Nigeria	1	,5	,5	54,4
	Norway	1	,5	,5	54,9
	Pakistan	1	,5	,5	55,4
	Philippines	1	,5	,5	55,9
	Poland	6	2,9	2,9	58,8
	Portugal	14	6,9	6,9	65,7
	Russian Federation	1	,5	,5	66,2
	Singapore	1	,5	,5	66,7
	Slovenia	1	,5	,5	67,2
	South Africa	24	11,8	11,8	78,9
	Spain	4	2,0	2,0	80,9
	Thailand	1	,5	,5	81,4
	Turkey	3	1,5	1,5	82,8
	United Kingdom of Great Britain and Northern Ireland	13	6,4	6,4	89,2
	United States of America	15	7,4	7,4	96,6
	Viet Nam	2	1,0	1,0	97,5
	Zimbabwe	5	2,5	2,5	100,0
	Total	204	100,0	100,0	

Figure 20: SPSS Output of Samples Characterization (Nationality)

Appendix 3.4: Frequencies

Frequencies

Statistics

Stimulus

N	Valid	204
	Missing	0

Stimulus

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Proactive-Essential	47	23,0	23,0	23,0
	Proactive-Non-Essential	55	27,0	27,0	50,0
	Reactive-Essential	45	22,1	22,1	72,1
	Reactive-Non-Essential	57	27,9	27,9	100,0
	Total	204	100,0	100,0	

Figure 21: SPSS Output of Frequencies

Appendix 3.5: Scale Reliability

Reliability

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	204	100,0
	Excluded[a]	0	,0
	Total	204	100,0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,727	,726	3

Inter-Item Correlation Matrix

	Item1_BT	Item2_BT	Item3_BT
Item1_BT	1,000	,349	,615
Item2_BT	,349	1,000	,442
Item3_BT	,615	,442	1,000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Item1_BT	7,8725	2,486	,574	,386	,612
Item2_BT	8,0000	2,719	,443	,205	,759
Item3_BT	7,6863	2,088	,642	,437	,517

Figure 22: SPSS Output of Scale Reliability (BrandTrust)

Reliability

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	204	100,0
	Excluded[a]	0	,0
	Total	204	100,0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,726	,729	3

Inter-Item Correlation Matrix

	Item1_BL	Item2_BL	Item3_BL
Item1_BL	1,000	,510	,468
Item2_BL	,510	1,000	,442
Item3_BL	,468	,442	1,000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Item1_BL	7,5735	2,817	,574	,333	,611
Item2_BL	7,4216	2,787	,552	,313	,634
Item3_BL	7,8775	2,581	,523	,275	,675

Figure 23: SPSS Output of Scale Reliability (BrandLoyalty)

Appendix 3.6: Multicollinearity Diagnostics

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1,896	1	1,896	3,590	,060[b]
	Residual	106,668	202	,528		
	Total	108,564	203			

a. Dependent Variable: BrandTrust

b. Predictors: (Constant), DummyReactive

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	Collinearity Statistics Tolerance	Collinearity Statistics VIF
1	(Constant)	4,023	,072		55,911	<,001		
	DummyReactive	-,193	,102	-,132	-1,895	,060	1,000	1,000

a. Dependent Variable: BrandTrust

Excluded Variables[a]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics Tolerance	Collinearity Statistics VIF	Collinearity Statistics Minimum Tolerance
1	DummyProactive	.[b]	.	.	.	,000	.	,000

a. Dependent Variable: BrandTrust

b. Predictors in the Model: (Constant), DummyReactive

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions (Constant)	Variance Proportions DummyReactive
1	1	1,707	1,000	,15	,15
	2	,293	2,414	,85	,85

a. Dependent Variable: BrandTrust

Figure 24: SPSS Output of Collinearity Diagnostics (Communciation on Brand Trust)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7,456	1	7,456	13,172	<,001[b]
	Residual	114,341	202	,566		
	Total	121,797	203			

a. Dependent Variable: BrandLoyalty

b. Predictors: (Constant), DummyReactive

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	4,003	,074		53,739	<,001		
	DummyReactive	-,382	,105	-,247	-3,629	<,001	1,000	1,000

a. Dependent Variable: BrandLoyalty

Excluded Variables[a]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics		
						Tolerance	VIF	Minimum Tolerance
1	DummyProactive	.[b]	.	.	.	,000	.	,000

a. Dependent Variable: BrandLoyalty

b. Predictors in the Model: (Constant), DummyReactive

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions	
				(Constant)	DummyReactive
1	1	1,707	1,000	,15	,15
	2	,293	2,414	,85	,85

a. Dependent Variable: BrandLoyalty

Figure 25: SPSS Output of Collinearity Diagnostics (Communciation on Brand Loyalty)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	,614	1	,614	1,149	,285[b]
	Residual	107,950	202	,534		
	Total	108,564	203			

a. Dependent Variable: BrandTrust

b. Predictors: (Constant), DummyNonEssential

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3,866	,076		50,724	<,001		
	DummyNonEssential	,110	,103	,075	1,072	,285	1,000	1,000

a. Dependent Variable: BrandTrust

Excluded Variables[a]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics		
						Tolerance	VIF	Minimum Tolerance
1	DummyEssential	.[b]	.	.	.	,000	.	,000

a. Dependent Variable: BrandTrust

b. Predictors in the Model: (Constant), DummyNonEssential

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions	
				(Constant)	DummyNonEssential
1	1	1,741	1,000	,13	,13
	2	,259	2,592	,87	,87

a. Dependent Variable: BrandTrust

Figure 26: SPSS Output of Collinearity Diagnostics (Product on Brand Trust)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	,112	1	,112	,186	,667[b]
	Residual	121,685	202	,602		
	Total	121,797	203			

a. Dependent Variable: BrandLoyalty

b. Predictors: (Constant), DummyNonEssential

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3,786	,081		46,791	<,001		
	DummyNonEssential	,047	,109	,030	,431	,667	1,000	1,000

a. Dependent Variable: BrandLoyalty

Excluded Variables[a]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics		
						Tolerance	VIF	Minimum Tolerance
1	DummyEssential	.[b]	.	.	.	,000	.	,000

a. Dependent Variable: BrandLoyalty

b. Predictors in the Model: (Constant), DummyNonEssential

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions	
				(Constant)	DummyNonEssential
1	1	1,741	1,000	,13	,13
	2	,259	2,592	,87	,87

a. Dependent Variable: BrandLoyalty

Figure 27: SPSS Output of Collinearity Diagnostics (Product on Brand Loyalty)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	4,000	,098		41,011	<,001		
	DummyStimulus_1	,050	,144	,029	,346	,730	,701	1,427
	DummyStimulus_3	-,326	,145	-,185	-2,242	,026	,706	1,417
	DummyStimulus_4	-,047	,137	-,029	-,342	,733	,681	1,467

a. Dependent Variable: BrandTrust

Excluded Variables[a]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics		
						Tolerance	VIF	Minimum Tolerance
1	DummyStimulus_2	.[b]	.	.	.	,000	.	,000

a. Dependent Variable: BrandTrust

b. Predictors in the Model: (Constant), DummyStimulus_4, DummyStimulus_3, DummyStimulus_1

Figure 28: SPSS Output of Variance Inflation Factor (VIF) (Brand Trust)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3,885	,100		38,982	<,001		
	DummyStimulus_1	,257	,147	,140	1,751	,082	,701	1,427
	DummyStimulus_3	-,470	,149	-,252	-3,164	,002	,706	1,417
	DummyStimulus_4	-,101	,140	-,059	-,725	,470	,681	1,467

a. Dependent Variable: BrandLoyalty

Excluded Variables[a]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics		
						Tolerance	VIF	Minimum Tolerance
1	DummyStimulus_2	.[b]	.	.	.	,000	.	,000

a. Dependent Variable: BrandLoyalty

b. Predictors in the Model: (Constant), DummyStimulus_4, DummyStimulus_3, DummyStimulus_1

Figure 29: SPSS Output of Variance Inflation Factor (VIF) (Brand Loyalty)

Appendix 3.7: Hypothesis Testing (H1 and H2)

T-Test

Group Statistics

	Communication	N	Mean	Std. Deviation	Std. Error Mean
BrandTrust	Proactive Communication	102	4,0229	,60845	,06025
	Reactive Communication	102	3,8301	,82820	,08200

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
BrandTrust	Equal variances assumed	5,724	,018	1,895	202	,030	,060	,19281	,10176	-,00783	,39345
	Equal variances not assumed			1,895	185,431	,030	,060	,19281	,10176	-,00794	,39356

Independent Samples Effect Sizes

		Standardizer[a]	Point Estimate	95% Confidence Interval	
				Lower	Upper
BrandTrust	Cohen's d	,72668	,265	-,011	,541
	Hedges' correction	,72939	,264	-,011	,539
	Glass's delta	,82820	,233	-,044	,509

a. The denominator used in estimating the effect sizes.
Cohen's d uses the pooled standard deviation.
Hedges' correction uses the pooled standard deviation, plus a correction factor.
Glass's delta uses the sample standard deviation of the control (i.e., the second) group.

Figure 30: SPSS Output of Independent sample t-test for Hypothesis 1

T-Test

Group Statistics

	Communication	N	Mean	Std. Deviation	Std. Error Mean
BrandLoyalty	Proactive Communication	102	4,0033	,66913	,06625
	Reactive Communication	102	3,6209	,82726	,08191

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
BrandLoyalty	Equal variances assumed	2,513	,114	3,629	202	<,001	<,001	,38235	,10535	,17462	,59008
	Equal variances not assumed			3,629	193,545	<,001	<,001	,38235	,10535	,17457	,59014

Independent Samples Effect Sizes

		Standardizer[a]	Point Estimate	95% Confidence Interval	
				Lower	Upper
BrandLoyalty	Cohen's d	,75236	,508	,229	,786
	Hedges' correction	,75517	,506	,228	,784
	Glass's delta	,82726	,462	,179	,743

a. The denominator used in estimating the effect sizes.
Cohen's d uses the pooled standard deviation.
Hedges' correction uses the pooled standard deviation, plus a correction factor.
Glass's delta uses the sample standard deviation of the control (i.e., the second) group.

Figure 31: SPSS Output of Independent sample t-test for Hypothesis 2

Appendix 3.8: MACRO Process Model 8

```
**************************************************************************
Model  : 8
    Y  : BLoyalty
    X  : Comm
    M  : BTrust
    W  : Product

Sample
Size:  204

**************************************************************************
OUTCOME VARIABLE:
 BTrust

Model Summary
          R       R-sq        MSE          F        df1        df2          p
      ,1900      ,0361      ,5232     2,4960     3,0000   200,0000      ,0610

Model
              coeff         se          t          p       LLCI       ULCI
constant     4,8036      ,5214     9,2129      ,0000     3,7755     5,8318
Comm         -,7044      ,3313    -2,1263      ,0347    -1,3576     -,0512
Product      -,3784      ,3215    -1,1769      ,2406    -1,0125      ,2556
Int_1         ,3288      ,2036     1,6149      ,1079     -,0727      ,7303

Product terms key:
 Int_1    :        Comm     x        Product

Test(s) of highest order unconditional interaction(s):
       R2-chng          F        df1        df2          p
X*W      ,0126     2,6078     1,0000   200,0000      ,1079
```

Figure 32: SPSS Output of regression analysis (MACRO Process Model 8) (Outcome Variable: Brand Trust)

```
OUTCOME VARIABLE:
 BLoyalty

Model Summary
          R       R-sq        MSE          F        df1        df2          p
      ,7189      ,5168      ,2957    53,2122     4,0000   199,0000      ,0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     2,4181      ,4678     5,1687      ,0000     1,4956     3,3407
Comm         -,8640      ,2518    -3,4309      ,0007    -1,3607     -,3674
BTrust        ,6940      ,0532    13,0542      ,0000      ,5891      ,7988
Product      -,6202      ,2426    -2,5567      ,0113    -1,0985     -,1418
Int_1         ,3976      ,1541     2,5811      ,0106      ,0938      ,7014

Product terms key:
 Int_1    :        Comm     x        Product

Test(s) of highest order unconditional interaction(s):
       R2-chng          F        df1        df2          p
X*W      ,0162     6,6619     1,0000   199,0000      ,0106
----------
    Focal predict: Comm     (X)
          Mod var: Product  (W)

Conditional effects of the focal predictor at values of the moderator(s):

    Product     Effect         se          t          p       LLCI       ULCI
     1,0000     -,4664      ,1152    -4,0499      ,0001     -,6935     -,2393
     2,0000     -,0688      ,1028     -,6687      ,5044     -,2715      ,1340
```

Figure 33: SPSS Output of regression analysis (MACRO Process Model 8) (Outcome Variable: Brand Loyalty)

```
****************** DIRECT AND INDIRECT EFFECTS OF X ON Y *****************

Conditional direct effects of X on Y
    Product     Effect         se          t          p       LLCI       ULCI
     1,0000     -,4664      ,1152    -4,0499      ,0001     -,6935     -,2393
     2,0000     -,0688      ,1028     -,6687      ,5044     -,2715      ,1340

Conditional indirect effects of X on Y:

INDIRECT EFFECT:
 Comm        ->    BTrust      ->    BLoyalty

    Product     Effect     BootSE   BootLLCI   BootULCI
     1,0000     -,2606      ,1308     -,5340     -,0175
     2,0000     -,0325      ,0747     -,1817      ,1125

Index of moderated mediation (difference between conditional indirect effects):
            Index     BootSE   BootLLCI   BootULCI
Product      ,2282      ,1497     -,0528      ,5415
```

Figure 34: SPSS Output of regression analysis (MACRO Process Model 8) (Direct and Indirect Effects of X on Y)

```
*********** BOOTSTRAP RESULTS FOR REGRESSION MODEL PARAMETERS ************

OUTCOME VARIABLE:
 BTrust

              Coeff   BootMean     BootSE   BootLLCI   BootULCI
constant     4,8036     4,8124      ,5389     3,7679     5,8948
Comm         -,7044     -,7113      ,3790    -1,4774      ,0188
Product      -,3784     -,3823      ,3013     -,9822      ,2036
Int_1         ,3288      ,3320      ,2114     -,0797      ,7500

----------

OUTCOME VARIABLE:
 BLoyalty

              Coeff   BootMean     BootSE   BootLLCI   BootULCI
constant     2,4181     2,4249      ,4762     1,4901     3,3472
Comm         -,8640     -,8654      ,2547    -1,3563     -,3639
BTrust        ,6940      ,6924      ,0556      ,5810      ,7996
Product      -,6202     -,6204      ,2432    -1,0895     -,1484
Int_1         ,3976      ,3985      ,1546      ,0998      ,7022

************************ ANALYSIS NOTES AND ERRORS ************************

Level of confidence for all confidence intervals in output:
  95,0000

Number of bootstrap samples for percentile bootstrap confidence intervals:
  5000

------ END MATRIX -----
```

Figure 35: SPSS Output of regression analysis (MACRO Process Model 8) (Bootstrap results)