Degree program
International Management and Leadership
Code of the degree program: 0573

Master Thesis

To obtain the academic degree:
Master of Arts in Business (MA)

Title of the Master Thesis:

Impact of fake online reviews on brand attitude and consumer behaviour

Submitted by:

Matriculation Number:

Cohort:

Supervisor:

Awarding body:

[redacted]

[redacted]

Table of Contents

List of Figures

List of Tables

List of Abbreviations

eWOM	Electronic Word of Mouth
ML	Machine Learning
NLP	Natural Language Processing
UGC	User-generated content
ICT	Information and communications technology
TF	Term frequency
TF-IDF	Term frequency-inverse document frequency
LIWC	Language Inquiry and Word Count
ELM	Elaboration likelihood model

Abstract

Due to the rapid development of the e-commerce sector, an increase in fraudulent online reviews can also be detected (Tufail, Ashraf, Alsubhi, & Aljahdali, 2022, p. 25555). Since customers tend to base their buying decision on online reviews, marketers are willing to shed their products in a good light while being deceitful (Gesenhues, 2013, p. 1). Consequently, the purpose of the present study is to fill the research gap by assessing the impact of fake online reviews on consumer's attitude towards the brand, as well as on consumer behaviour elements, namely consumer trust and purchase intent. An in-depth literature review collects the findings from the existing research and provides a foundation for the empirical part. A between-subject experimental design was implemented in order to test the introduced hypotheses. The ultimate goal was to answer the research question, which was done through an examination of the influence of online review deception on brand attitude and consumer behaviour. The empirical findings of this paper reveal that while fake reviews negatively impact both brand and perceived quality of the product, there is no influence on the product attitude. In addition to that, consumer trust is significantly influenced by deceptive reviews, since they see the content of the reviews as insincere, undependable, and untruthful. These findings are strategically important since the relationship between untruthful reviews and trust associated with purchase intent is also established. Differently speaking, consumers do not consider returning to the platform with fake reviews for purchase. As for the intention to acquire the product, it is shown that it decreases as soon as the consumers become aware of the review deception. In light of the findings discovered in this paper, it could be stated that online review fraud significantly impacts brand attitude and consumer behaviour in a negative direction. As a result, it entails harmful effects on online sellers and e-platforms in the long run. It is important to consider that undesirable consequences of fake online reviews are present only if fake reviews are detected by the users, which is not always the case.

1 Introduction

According to Dimensional Research, as much as 90% of individuals claim to base their final buying decision on online reviews (Gesenhues, 2013). Consequently, marketers are interested in presenting their products and services in a good light, thus, the average number of weekly posted fake reviews increases substantially (He, Hollenbeck, & Proserpio, 2021, p. 23). By broadening already existing knowledge, this study theoretically contributes to the scientific community, more specifically to the topic of online buying behaviour. By responding to a call by Wu, Ngai, Wu, & Wu (2020) in the recently published article "Fake Online Reviews: Literature Review, Synthesis, and Directions for Future Research", the main objective of this master thesis is the examination of customers attitude towards the brand after being exposed to fake reviews online. Along with that, the study seeks to investigate the influence of fake reviews that are read during online shopping on customers' consequent decision-making process, namely consumer trust and buying behaviour.

1.1 Research problem

With the significant speed of growth of the e-commerce sector during the last decade, consumers dedicate a lot of time on investigating reviews on products and services online (Zhuang, Cui, & Peng, 2018, p. 25). Authors state that the vast number of decision-making processes are made based on online reviews, starting with the choice of a movie to watch, and finishing with the choice of a company to invest in. According to the results of a recent survey, as much as 86% of individuals' final buying decisions are impacted by negative reviews (Gesenhues, 2013, p. 1). Consequently, companies tend to manipulate the reviews in their favor (Hu, Bose, Koh, & Liu, 2012, p. 24). Fake online reviews are conceptualized as being manipulated by either the company or its competitors with the ultimate goal of either boosting or reducing sales of a good or service. However, the question arises whether this goal can be reached by such a tool as review deception? And, if so, how justified is that? As outlined by recent research, consumers establish a negative attitude towards fake online reviews (Peng, Cui, Zhuang, & Li, 2016, p. 276). On the other hand, it was found that the effect of adding more fake reviews increases the chances of the product being bought (Zhuang et al., 2018, p. 33).

Although existing knowledge on the given topic is limited since it is relatively recent, it can be observed that the topic is controversial. Previous research shows that consumers see online reviews as not only trustworthy but also a credible source of product or good

evaluation (Hu et al., 2012, p. 674). Along with that, other researchers demonstrate the positive influence of long reviews in terms of the word count on company sales (Chevalier & Mayzlin, 2006, p. 345; H. Park & Cho, 2012, p. 400). Mayzlin (2006) points out that if the company systematically increases the deception of online reviews with regard to product quality, they remain relatable and credible due to the high number of reviews (p. 161). In contrast, one of the research results outlines that due to the increasing number of review manipulation consumers may be less willing to finish their purchasing process (H. Li, Meng, & Pan, 2020, p. 3686). Since companies understand the importance of online word-of-mouth nowadays, manipulation of online reviews is commonly used to either increase company sales or decrease the revenues of their competitors.

Taking into consideration all the different streams of research, it is vital for companies to evaluate the impact of fake online reviews on online users. In other words, what is the influence of fake online reviews on the reputation of the company? Are consumers incentivized and buy more or discouraged and buy less if they encounter fake reviews? Since current literature remains silent regarding these questions (Y. Wu et al., 2020), the purpose of the paper is to provide an answer theoretically and empirically (p. 1).

After thorough research of the existing literature from numerous academic journals, it was deducted that online review manipulation has been investigated from various perspectives. On the one hand, scholars investigate the detection of fake online reviews through verbal and non-verbal communication behaviours (Zhang, Zhou, Kehoe, & Kilic, 2016, p. 457). The results reveal that detecting online review manipulation could be improved by implementing a non-verbal feature, such as reviewer's membership length, review count, photo count, and positive-to-negative ratio. Zhuang *et al.* (2018) took a demanded angle and investigated how sales are affected by online review manipulation (p. 25). The outcomes of the experiment show that review manipulation negatively affects the revenues of the product in the long run. Along with that, several studies examine the overall consumers' attitude towards fake online reviews (Peng et al., 2016, p. 270; Y. Wu et al., 2020, p. 3; Zhuang et al., 2018, p. 24). The main insight from the existing literature is that online users negatively perceive the deception of online reviews.

Although various studies have been published, the topic is very recent and has not been fully and deeply researched yet. Specifically, the influence of fake online reviews on the reputation of the brand has not been fully explored yet. Additionally, the buying behaviour after reading fake online reviews has not been examined broadly. Therefore, this paper aims

to bring new insights into brand perception and consumers buying behaviour after being exposed to online review manipulation.

All things considered, this paper serves as a crucial basis for small and medium-sized enterprises, as well as for large companies, especially their marketing and sales departments, due to the fact that vital and relatable questions are covered, such as brand attitude and buying behaviour, which directly impact revenues and sales. The outcomes of the study may support choosing marketing channels appropriately, which is a vital step in marketing. In addition to that, findings on the brand reputation may serve in building a strong brand image and establish desired brand perceptions by consumers. Furthermore, marketing agencies could benefit from the study by having a thorough comprehension of the brand reputation after implementing manipulations with online reviews and understanding customers' buying behaviour. Lastly, the study may be used as a source for future investigations on the evaluation of online review deception, since the topic is very timely and gains increasing popularity (Sahut, Laroche, & Braune, 2021, p. 1).

1.2 Purpose statement

According to the survey conducted by Gesenhues (2013), 90% of online users rely their final choice whether to buy a good or service on online reviews (p. 1). Figure 1 provides a visualization of the percentage of people who trust online reviews on the Amazon marketplace among US consumers (Tinuiti, 2020). It can be observed that the majority, namely 55.6% of the respondents somewhat trust reviews on Amazon. Other studies also state that over the past few years online reviews increased not only in their quantity but also in importance to the potential purchasers and prevalence (Martínez Otero, 2021, p. 2). As a consequence, a reasonable number of traders manipulate reviews in order to either improve or retain a beneficial reputation of their products or services or disparage the brand image of the competitors. Therefore, the purpose of the given quantitative research is to investigate the effect of fake online reviews on customer responses in terms of their consequent buying behaviour and brand perception in an online setting by manipulating fake online reviews experimentally and by applying a between-subjects design.

Figure 1 Share of Amazon users who trust online reviews in the United States

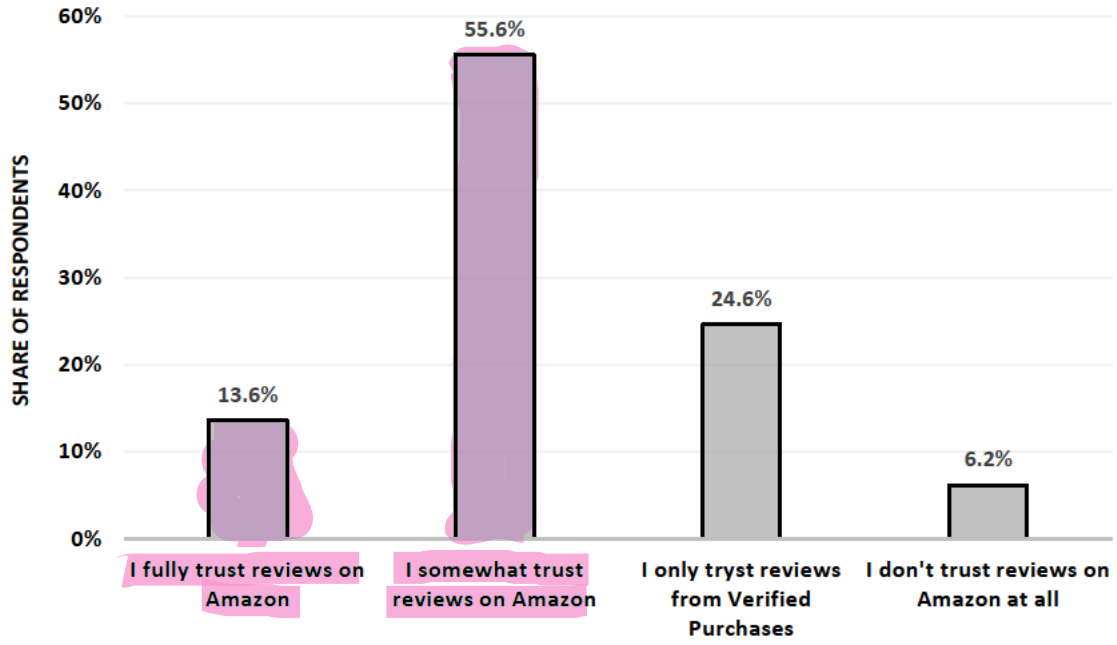

Figure 1. Percentage of US Amazon consumers who trust online reviews (Tinuiti, 2020).

The main focus of the study comprises a description and assessment of the impact of fake online reviews on both the purchase intent of the consumers, as well as their perception of the brand post-exposure. Therefore, it is crucial to determine all potential influencing variables taking place in the study. Considering a comparative quantitative research study, stimuli, namely different scenarios of real online reviews versus fake online reviews, are randomly assigned to study participants and thus serve as independent variables. A scenario of an online review is presented to the control group, whereas the manipulated fake online review is assigned to the experimental group. As far as dependent variables are concerned, the study investigates consumer behaviour and consumer brand attitude. Consequently, the overall final intent is to examine the impact of fake online reviews on the aforementioned dependent variables by comparing the control group to the results of the experimental group.

As mentioned above, study participants are randomly assigned to the stimuli. The sample comprises participants who are familiar with e-commerce shopping and buy on the internet on the regular basis. These criteria for participants were chosen since the determination of fake reviews directly impacts the outcomes of the study. Therefore, experienced users would contribute to the reliable outcomes of the experiment. Due to the study design, the experiment takes place online with participants from Austria.

Information Manipulation Theory serves as a theoretical underpinning in determining the research questions and hypotheses (McCornack, 1992, p. 3). The theory implies that while manipulating information, people change the relevant information within their discourage. As far as the variables for the research question are concerned, they have been identified and analyzed in the previous literature. For example, several findings reveal that fake online reviews have a harmful effect on brand attitude (Darke & Ritchie, 2007, p. 114; Xie, Madrigal, & Boush, 2015, p. 281). On the other hand, it is empirically demonstrated that the relationship between these variables is rather weak (Bahadur, 2020, p. 21). As for the consumer trust, multiple studies present the results that reveal an increase in consumer distrust after they encounter suspicious brand-related promotional activities, including online reviews (Ahmad & Sun, 2018, p. 86; Jin Ma & Lee, 2014, p. 238; Zhuang et al., 2018, p. 33). In contrast, the authors took a progressive approach and applied a three-factor trustworthiness model in order to assess the extent to which trust is affected by online review manipulation, which revealed that emotional reviews with positive valence have a stronger impact on consumer trust than factual reviews with the same valence, which in turn influences consumer attitudes (Dong, Li, & Sivakumar, 2019, p. 558). In addition to that, the correlation between deceptive reviews and purchase intent has been demonstrated to be significant (Fogel & Murphy, 2018, p. 59). However, some studies demonstrate a positive relationship (Petrescu, O'Leary, Goldring, & ben Mrad, 2018, p. 288), while others state that purchase intent decreases, especially in the long-term (Zhuang et al., 2018, p. 24). Therefore, considering contradictory findings in the existing literature, the central research question of the study is:

What is the impact of online review deception on the brand attitude of consumers and their buying behaviour?

In the following, the sub-questions were formulated to structure the study and provide detailed answers to each question.

Sub-questions of the study are:

What is the impact of fake online reviews on the attitude towards the brand?

What is the impact of fake online reviews on consumer trust?

How do fake online reviews impact the ultimate buying decision of the customer?

How does trust affect the purchase intention of the customer?

The main purpose of the given study is to investigate the impact of fake online reviews on customers' behaviour, as well as the brand perception by the customer after

exposure. Taking into consideration the fact that the impact of one variable on the other shall be measured, a quantitative research method was chosen. According to Sukamolson (2007), quantitative research is defined as a "numerical representation and manipulation of observations with the purpose of describing and explaining the phenomena that those observations reflect" (p. 2). An experimental design is applied to the research due to several factors. First of all, it fits the given research since its main purpose is to measure the impact of an independent variable, namely online reviews that serve as a stimulus, on dependent variables, namely consumer behaviour, and brand attitude. Secondly, an experimental design assists in drawing precise conclusions on the theoretically derived hypotheses under investigation, which is crucial for any quantitative study (Lundstedt et al., 1998, p. 5). The requirements for an experimental study are met since individuals are randomly assigned to at least two different treatments (Mehta, 2001), which are described in the following paragraphs (p. 2728). To be more precise, a between-subject design is chosen, which is defined as a type of experiment, where the participant is assigned to only one treatment condition (Charness, Gneezy, & Kuhn, 2012, p. 1). It is the best fit for the research in order to conduct the experiment in two different scenarios, having a control group that is exposed to real online review and an experimental group to fake online reviews. One variable is being manipulated (real versus fake online reviews), holding everything else constant, therefore it is a proper way to describe the impact of the independent variable on the dependent ones.

Concerning the structure of the paper, it consists of eight sections. Starting with the introduction, it provides a thorough overview of the research problem, as well as the problem statement. The following section yields conceptualizations of the core concepts, which is a necessary step for the reader to understand the investigated constructs. The section includes three sub-sections and each of them defines and determines three variables investigated in the study. A literature review is the next part of the master thesis. Not only does it include a literature review on the tested variables, which shed light on the previous knowledge regarding the given topic but also includes a sub-section that determines the criteria for fake reviews. The following is the unit of empirical research, which includes methods, stimulus, measurements and statistical analysis of the outcomes of the experiment. After that, the discussion section summarizes the results and describes the overall contribution to the existing literature. In the end, the conclusion is drawn, as well as the limitations and suggestions for future research as two sub-sections.

2 Conceptualization of Core Definitions

2.1 Online reviews

2.1.1 Online reviews as a concept

In order to fully understand the topic and perceive all the concepts accurately, definitions and dimensions are described in the following. Online reviews refer to the assessment of the product posted by peers either on the company or third-party websites (Lee & Choeh, 2014, p. 3041). It is also defined as a review that reflects a customer's opinion or previous experience with a product or service posted online (Mudambi & Schuff, 2010, p. 186). Taking into consideration the definitions, it could be said that perception and understanding of this relatively recent concept among researchers do not vary. However, modern scientific literature also uses other concepts such as user-generated content, online reviews, electronic word of mouth, and online recommendations interchangeably. An understanding of the difference between these terms is crucial for the accurate comprehension of the topic. User-generated content (UGC) is media content that is created by ordinary internet consumers and is shared quickly and easily in order to share their opinions or experience with other users (Christodoulides, Michaelidou, & Argyriou, 2012, p. 1689; Tang, Fang, & Wang, 2014, p. 41). It includes platforms such "blogs (e.g., MSN spaces), wikis (e.g., Wikipedia), virtual worlds (e.g., Second life), social networking sites (e.g., Facebook), podcasting (e.g. iTunes), and web sites allowing feedback (e.g. FanFiction.net)" (Christodoulides et al., 2012, p. 1689). Moving on, online word of mouth or electronic word of mouth, mainly abbreviated as eWOM, is believed to be the most common type of user-generated content (Kim, Naylor, Sivadas, & Sugumaran, 2016, p. 412). It is defined as any informal messages aimed at users via the internet about the experience or features of certain goods or services, or the suppliers of such goods and services (Litvin, Goldsmith, & Pan, 2008, p. 461). Opinions, comments, reviews, feedback, electronic ratings, and sharing of experiences on the Internet are all examples of eWOM (Mishra & Satish, 2016, p. 223). The authors continue that eWOM make use of various channels for communication available on the Internet, for instance blogs, forums or company's own websites. It can be deducted that since online reviews are part of eWOM, they are considered to transmit a much narrower scope of information online. Broadening the definition of online reviews, it is important to mention that online reviews could be positive, negative, or neutral. This topic is going to be elaborated on further in this section. Lastly, online recommendations are used as a guide for

online users. While it is also applicable to online reviews, the main difference is that recommendations do not contain the evaluation of the good or service (Ying, Feinberg, & Wedel, 2006, pp. 355–356). An additional difference is that online reviews are generated by peers on various platforms, while online recommendations mostly refer to the recommendation system. The software suggests content to the consumers that is related to their previous history search and product choice.

Figure 2 Hierarchical bond of user-generated content, electronic word of mount, online reviews, and online recommendations

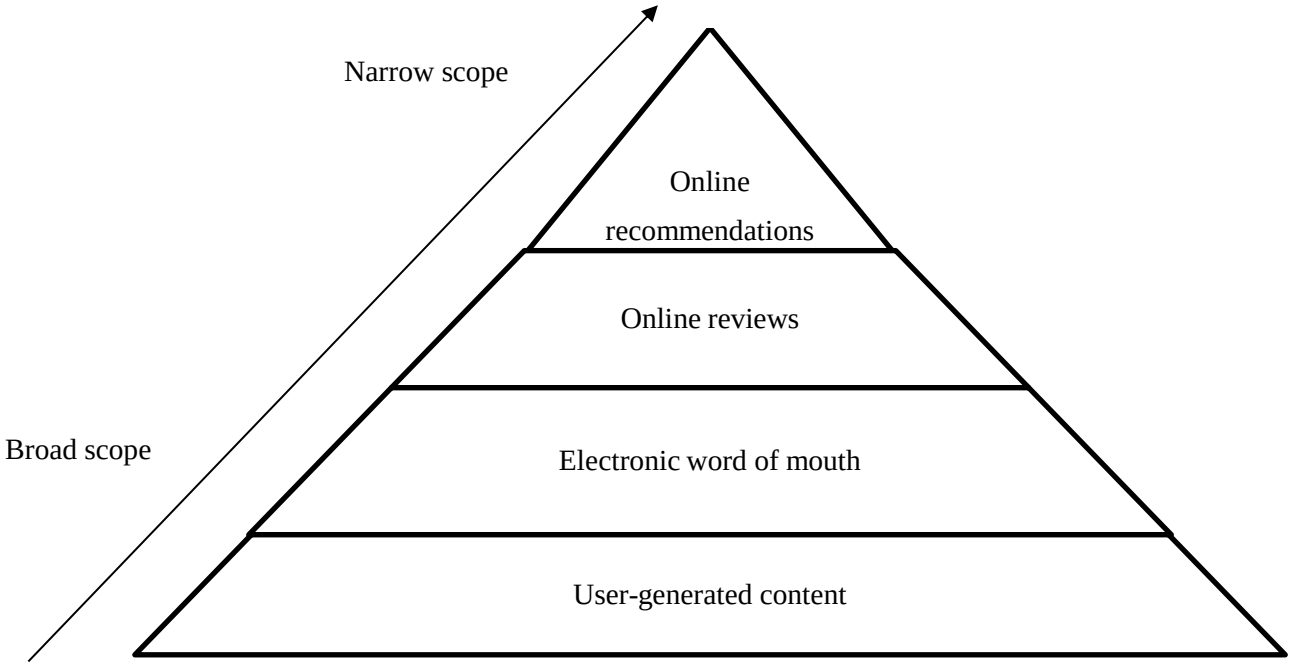

Figure 2. The figure illustrates interconnections between described concepts, namely UGC, eWOM, online reviews, and online recommendations (Zablocki, Schlegelmilch, & Houston, 2019, p. 63).

2.1.2 Metrics of online reviews

Researchers distinguish between three common metrics of online reviews, which are valence, volume, and variance (Rosario, Sotgiu, de Valck, & Bijmolt, 2016; Chintagunta, Gopinath, & Venkataraman, 2010; Liu, 2006). Valence refers to the tone of the review: it could be negative, neutral, or positive (Liu, 2006, p. 75). The author states that the valence of online reviews has persuasive nature, which impacts the attitude of the consumers towards the product. It may be apparent that positive reviews develop an attitude, while negative reviews reduce it. However, the interconnection between attitude and purchase intention is unclear yet. For instance, several studies show that negative reviews severely influence purchase intention

(Chang & Wu, 2014; Yoo, Sanders, & Moon, 2013). It happens due to the negativity bias, which suggests that negative has higher causal efficacy than positive (Corns, 2018, p. 607). Differently speaking, bad is stronger than good. As a result, the influence on the judgment process of a product or service is more powerful. In contrast, it is shown that online reviews with positive valence increase the number of purchases (Ye, Law, & Gu, 2009, p. 181). It could be associated with confirmatory bias, which implies that consumers need confirmation and support for the decision that was made. Regardless of the impact of valence on the purchase intention, according to the researchers, the valence of the review could be considered to be among the main predictors of future sales (Chintagunta et al., 2010, p. 946; Dellarocas, Zhang, & Awad, 2007, p. 24).

The volume of the reviews implies the number of reviews on one certain product or service. One main theoretical conclusion is that the purchase intention increases as the number of reviews rise (Chintagunta et al., 2010, p. 945). This is associated with the fact that a large number of people share the same opinion, therefore the level of trust in the correctness of content in the review increases. Liu (2006) in the results of the study describes that volume has significant explanatory power (p. 86). Similar findings were revealed by Rosario *et al*. (2016), who states that the impact of the volume of online reviews is stronger than the impact of valence (p. 297).

The least investigated metric of online reviews is variance. The term refers to the range of optimistic and pessimistic statements in online reviews (Rosario et al., 2016, p. 302). The authors point out that low variance implies that the vast majority of consumers agree on one opinion, which could be either good or bad. That would explain the positive or negative impact on the purchase intention. In contrast, high variance suggests that users have ambiguous experiences with the same good or service. Existing knowledge suggests that high variance negatively impacts sales (F. Wang, Liu, & Fang, 2015, p. 379). Due to the fact that consumers are afraid that the product or service would not fit their desires and preferences, they tend to exclude items with high variance in online reviews from their shopping list.

Although valence, volume, and variance tend to be the most common metrics of online review evaluation, Moore (2015) criticizes previous research for ignoring an additional significant factor, which is the content of the review (pp. 30–31). According to the author, linguistic characteristics have an impact not only on the ratings of the review but also on the evaluation of the product or service itself, as well as on the eventual choice. Scholars distinguish between reviews that explain “actions” and “reactions” (Malle, 2004; Moore,

2015). The latter explains the reviewer's actions towards the product and answers the question "Why did I buy the product/service?", while the former justifies the emotions concerning the good that the reviewer experienced and answers the question "Why did I like the product/service?". Previous knowledge also focuses on various types of language that potentially have an influence on online users. For instance, the impact of the emotional aspect of the language has its weight. The research reveals that angry and negative reviews are much less helpful than anxious reviews (Yin, Bond, & Zhang, 2014, p. 554). Results of the study that investigates the extent of abstraction in the word of mouth revealed that the negative reviews tend to be more abstract and are associated with unfavorable brand attitudes (Schellekens, Verlegh, & Smidts, 2010, p. 214). Figurative language is considered to be one of the characteristics of the language that could influence consumers. It is drawn to the researchers' attention that the use of figurative elements maximizes the chance of choosing hedonic rather than utilitarian solutions (Kronrod & Danziger, 2013, p. 726). Hedonic solutions refer to helpful and practical products and services, while utilitarian imply experiencing excitement and joy. Another study shows that the negative bias could be reduced by the increase in perceived value, which is indicated by the words and phrases that refer to the temporal proximity between the use of the product and typing the review (Chen & Lurie, 2013, p. 463). Furthermore, explaining language is considered to be another important characteristic of the review content. According to Moore (2012), storytelling positively influences the understanding of the customer's previous experience with the item (p. 1140).

In light of the findings on the metrics of the online reviews, table 1 summarizes the definitions and outcomes associated with valence, variance, volume, and content of reviews.

Table 1 Definitions and results on valence, variance, volume, and content of reviews

	Valence	Variance	Volume	Content
Definitions	The tone of the review: could be negative, neutral, or positive (Liu, 2006, p. 75)	Range of positive and negative statements in the online reviews (Rosario et al., 2016, p. 302)	The number of reviews on one certain product or service (Chintagunta et al., 2010, p. 945)	Actions and reactions towards the product; linguistic characteristics (Moore, 2015, p. 32)
Results	Negative and positive reviews have a strong influence on revenue (Rosario et al., 2016, p. 314)	High variance negatively impacts sales (F. Wang et al., 2015, p. 379)	Purchase intention increases as the number of reviews rises (Chintagunta et al., 2010, p. 956)	Several language characteristics shall be considered; each impacts consumer differently (Moore, 2015, p. 42)

Note. Conceptualizations and findings on the metrics are summarized.

2.1.3 Fake online reviews

When it comes to fake online reviews, they are fabricated with the ultimate goal to mislead the consumers in decision-making (Wu et al., 2020, p. 1). Fake reviews are also known as “review fraud”, “deceptive reviews”, “review spam”, or “deceptive opinion spam” (Salminen, Kandpal, Kamel, Jung, & Jansen, 2022, p. 1). The authors mention that the "fake phenomenon" is sweeping the commercial world. With the rapid growth of fake reviews on platforms, their credibility is being jeopardized (E. Y. Wang, Fong, & Law, 2022, p. 185). Due to the fact that consumers highly rely on reviews, their deception may cause significant consequences (Martínez Otero, 2021, p. 2). Furthermore, not only the society may be affected by the deception, but the marketplace as well (Plotkina, Munzel, & Pallud, 2020, p. 511). After exploration of six popular platforms, namely Yelp, Expedia, Hotels.com, Priceline, TripAdvisor, and Orbitz, it was reported that they all share the same problem – an increasing number of fake reviews (Ott, Cardie, & Hancock, 2012, p. 201). The problem escalates further and has already taken legal responsibility. For example, Samsung was accused of hiring students to post unfavorable comments against HTC phones (Zhang et al., 2016, p. 457). In addition to this case, the author continues, as many as nineteen American companies had to pay severe penalties for flooding websites with fake reviews in September 2013. Indistinguishable cases were also reported by different sources on platforms such as iTunes,

Amazon, TripAdvisor, and others. As a result of numerous similar cases, in order to work properly, the platform needs to be transparent, credible, and trustworthy. Otherwise, the work of Consumer Protection Law on the Internet becomes challenging (Martínez Otero, 2021, p. 2). It becomes even harder because of services like SponsoredReviews.com, which is a professional service for writing fake online reviews (Zhang et al., 2016, p. 458).

Two main types of fake reviews are distinguished in the literature based on their type of creation, namely human-generated or computer-generated (Salminen et al., 2022, p. 1). A straightforward title suggests that the former is written by the person who was paid to do so. In the majority of the cases, a person writing the review did not even see the product or service in real life. The author continues that the latter type suggests using algorithms to generate text, which then would be automated to post the reviews. In the traditional market, human-generated reviews were treated as an ordinary service – one could order the needed quantity and the reviewer would complete the task. However, computer-generated reviews were incentivized by new technologies, for example, natural language processing, abbreviated to NLP, as well as machine learning, abbreviated to ML. Now, the advantages such as the scale and cost of computer-generated reviews rather outweigh human-generated reviews.

Even now the companies do not realize the consequences of generating and flooding fake online reviews (Plotkina et al., 2020, p. 511). As a result, the businesses jeopardize an efficient communication tool between consumers and sellers. In order to be effective and punish the intruders, as well as make full use of the reviews, both legal institutions and consumers need to be able to detect fake reviews. Section 3.1 is dedicated to this cause.

2.2 Consumer behaviour

2.2.1 Decision-making process

Consumer behaviour has been broadly researched and investigated for decades by scientists aiming to outline the process through the prism of psychology, as well as means to predict it (Myers & Scott, 1981, p. 160; Ryan & Bonfield, 1975, p. 131). It is defined as a process that consumers undergo while purchasing a good or service, and that is influenced by various factors (Stankevich, 2017, p. 9). The author states that being able to examine the behaviour of consumers allows marketers to improve a company's marketing strategies by following the needs and wants of the customers.

Traditionally, the economic paradigm is built on the assumption that consumers are perfectly rational (Kern, 2020, p. 269). Based on this assumption, the phenomenon of "homo economicus" implies that consumers are fully committed to their interests (Persky, 1995, p. 223). Therefore, the vast majority of the literature on consumer behaviour is based on the Stimulus-Organism-Response model (Mehrabian & Russell, 1974). However, it is being criticized for minimizing the aspect of emotional influence on the consumer decision process (Saintives, 2020, p. 1). In contrast, it is shown that emotions play a vital role in the functioning of humans and shall be considered when studying consumer behaviour (Jansson-Boyd, 2010, p. 117).

Murray (1951) proposes the idea that any decision made by the consumer is a reaction to a problem (p. 270). In other words, people are incentivized to purchase a product when there is an urge to meet their need or want. A similar idea was proposed by Solomon (2015), elaborating that the problem could be different in their scale or cause, ranging from the choice of the beverage to car purchase (p. 59). Based on this pattern, figure 3 outlines the process from the need occurrence to reaching the goal, namely need satisfaction, with the middle point of the drive.

Figure 3 Relationship between need, drive, and goal

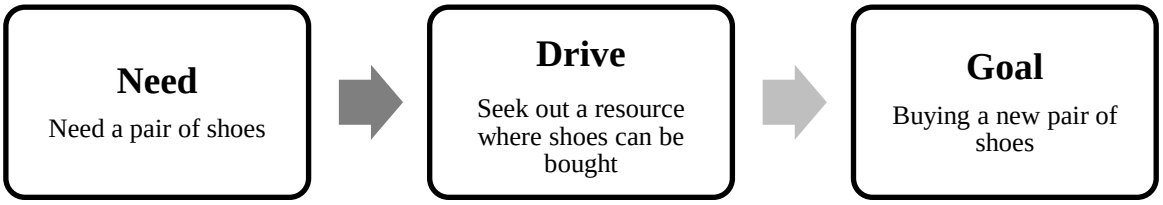

Figure 3. The process that describes a purchase intention motivated by the problem (Jansson-Boyd, 2010, p. 116).

Two major systems of human behaviour are distinguished: mind-one conscious and impulsive (or automated) (Kahneman, 2011, p. 20; Solomon, 2015, p.86). Mind-one conscious requires the analysis of the benefits and downsides of the product or service, and the thinking process may take weeks or even months. On the other hand, impulsive buying decisions are mostly influenced by emotions and require little or no information for a decision to be made.

The time and dedication level of a customer willing to spend on the product is described by Solomon (2015) as a concept of involvement (p. 61). It is formalized as the perceived relevance of a product, service, brand, or advertisement by the person, in accordance with their inner needs, interests, beliefs, and values (Zaichkowsky, 1985, p. 342). From the natural approach, involvement is defined as "the state of motivation or "excitation" of an individual derived from a perception of a stimulus as being of personal relevance" (Rodríguez-Santos, González-Fernández, & Cervantes-Blanco, 2013, p. 1107). Considering antecedents of involvement, Solomon (2015) outlines several factors that have an influence, namely personal factors, object (or stimulus) factors, and situational factors (p. 61).

As mentioned, the range of the problems that potentially motivate consumers to make the purchase decision varies significantly. Therefore, considering the sophistication of consumer behaviour, it is impossible to find one suitable explanation. That is the reason why Solomon (2015) presents the idea of three "buckets" of consumer decision making, which is discussed further and visualized in figure 4 (p. 60).

Figure 4 The three "buckets" of consumer decision making

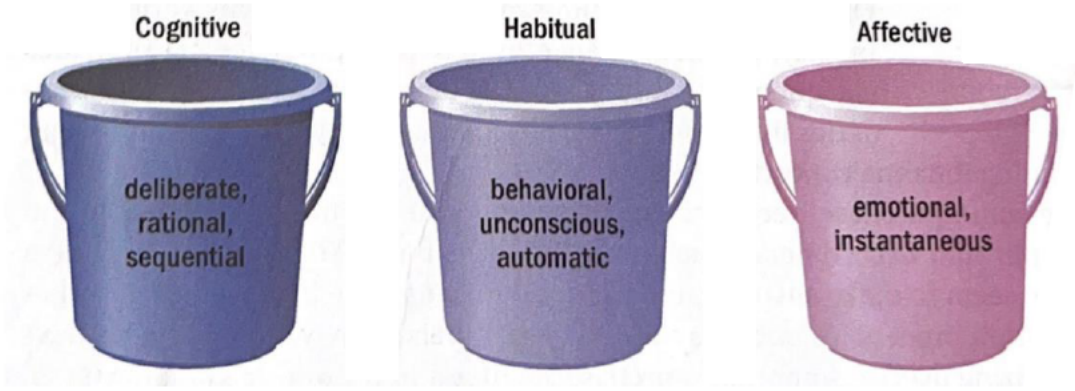

Figure 4. Cognitive, habitual, and affective "buckets" of decision making in consumer behaviour (Solomon, 2015, p. 60).

The first cognitive type is considered to be a traditional method of studying the consumer decision-making process since it is approached through an information-processing perspective (Solomon, 2015, p. 69). It is widely known as the five-step consumer decision-making process summarized in figure 5. Although it is described in detail, there is still an

assumption that consumers tend to simplify their choice and make the decision after almost no or little search for information (Simonson, Huber, & Payne, 1988, p. 568).

Figure 5 Steps in consumer decision making

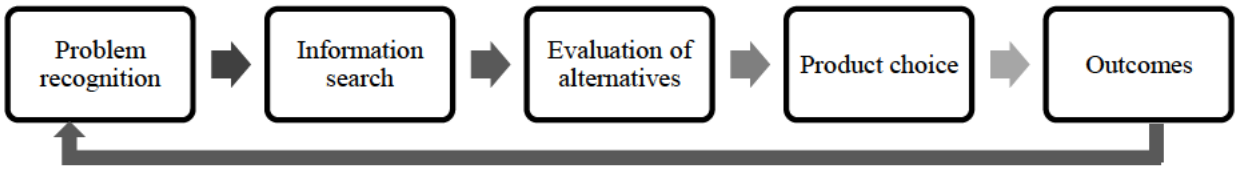

Figure 5. A process of the decision-making process in five steps (Panwar, Anand, Ali, & Singal, 2019, p. 42).

The process starts with the first step when the person becomes aware of the need or want that needs to be satisfied. In case it is a need recognition, a person is considered to be in his actual state, while in the case of opportunity recognition, a person is considered to be in his ideal state (Solomon, 2015, pp. 69–70). The next and necessary step is information search since consumers seek the most fitting, convenient, and affordable methods of acquiring a product or service. As for the evaluation of alternatives, people compare the possible options usually by analyzing advantages and disadvantages, as well as forming categories and further subcategories of the preferred options (Lajos, Katona, Chattopadhyay, & Sarvary, 2009, p. 129). The fourth step implies making the choice and purchasing the most appropriate good or service. The final step is the post-purchase phase, where the consumer is satisfied in case the acquired object met or exceeded one's expectations and dissatisfied in case it did not (Solomon, 2015, p. 80).

The habitual "bucket" implies that the decision of making a purchase was not as rational as described in a cognitive approach (Solomon, 2015, p. 81). The author states that a certain amount of product purchases become a habit and require little or no conscious effort. The human brain tends to simplify the processes, therefore turning some actions into habits to minimize the overload (Bernacer, Balderas, Martinez-Valbuena, Pastor, & Murillo, 2014, p. 21). As a consequence, those decisions require less time and effort in daily life.

The third perspective describes decision-making through the prism of emotions and their influence on the process (Solomon, 2015, p. 85). Until now, a growing stream of scientists investigate the influence of emotions on the decision-making process (So et al.,

2015, p. 359). It is shown that different types of emotions that occur as a response to an object affect the ultimate decision (Sambrano, Masip, & Blandón-Gitlin, 2021, p. 71). Therefore, it is the responsibility of marketers to evoke emotions that could not only speed up the process of purchase but even assist or direct the customer in choosing the right product.

Returning to the concept of involvement, it is now crucial to overview the relationship between this phenomenon and the three perspectives of the decision-making process, which is illustrated in figure 6.

Figure 6 Involvement and decision making

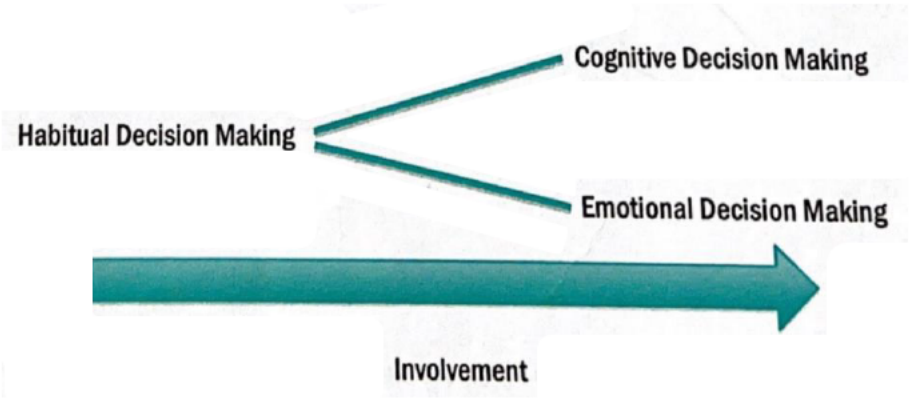

Figure 6. The relationship between consumer involvement and perspectives of decision-making (Solomon, 2015, p. 62).

As it can be observed, higher involvement implies the awakening of cognitive decision-making, since it is triggered by rational thinking. Emotional decision-making also evokes with high involvement, since the subconsciousness of consumers is drawn into the process (Solomon, 2015, p. 62). In contrast, habitual decision-making does not require any involvement considering the fact that people have no urge or motivation to acquire a product or service that is different from the usual.

2.2.2 Online buying behaviour

The number of people that visit the internet in a shopping context increases steadily (Demangeot & Broderick, 2007, p. 878). However, the ultimate goal is not always purchasing a product, but also gathering information about the product or even browsing websites for pleasure, enjoyment, and entertainment. Online buying behaviour is defined as a study of individuals or groups throughout the whole purchasing process that operates fully or partially

online, including the processes such as initiation of a process, information gathering, comparison of objects, decision-making, purchasing, receiving the product, evaluating based on its functional and additional value, and further elaborating post-purchase attitude and behaviour (Shareef, Dwivedi, & Kumar, 2016, p. 5). Scholars state that all these processes can potentially happen through different online media, such as business-to-customer settings, mobile commerce, mobile phone, or other devices. Furthermore, each step of the online purchase process is influenced by the person's knowledge, ability, skill, and experience in information and communications technology (ICT) (Shareef et al., 2016, p. 6).

After thorough research of the existing literature, researchers develop a conceptual framework and outline features that impact the possibility of online shopping (Pan & Zinkhan, 2005, p. 54). Four main factors are shopping motives, personality variables, shopping incentives, and internet knowledge and experiences. The illustration of the framework is presented in figure 7 below.

The first factor, namely online shopping motivations, consists of five attributes (Pan & Zinkhan, 2005, p. 55). Information seeking refers to the concept of the convenience of information search online. Relevant and needed information can be found in a few clicks. Not only the discovered information is organized but also related to consumers' preferences. The next attribute, which is convenience seeking, symbolizes the fact that online consumers do not tend to be experiential, but rather goal-oriented (Wolfinbarger & Gilly, 2001, p. 35). Therefore, people find it thrifty due to the simplified item comparison and fast discovery of the needed object. The following factor of shopping motives is interactive control. Online shopping implies a two-sided interaction, while offline typically includes a third party, which might be a salesperson. This bypasses consumers' association with freedom and control, which is one of the key influencing factors on the probability of online shopping. The next factor is experiential, which emphasizes that shopping motives could have an impact on the online setting as well. Information such as colors, sizes, prices, sounds, and models contribute to the experience. Furthermore, websites offer digital rooms, auctions, or other features that increase the level of satisfaction from online shopping (Pan & Zinkhan, 2005, p. 57). Authors also show that aesthetic cues of the website, such as its entertainment level, informativeness level, and its effectiveness level impact the experience and satisfaction level of a customer, as well as purchase intention (L. Gao & Bai, 2014, p. 661). Last but not least, the recreational motive refers to the fact that the higher a person's recreational level, the less probability that

he or she engages in internet shopping. This is due to the fact that the store environment intensifies the pleasure associated with shopping.

Figure 7 Proposal model of online patronage

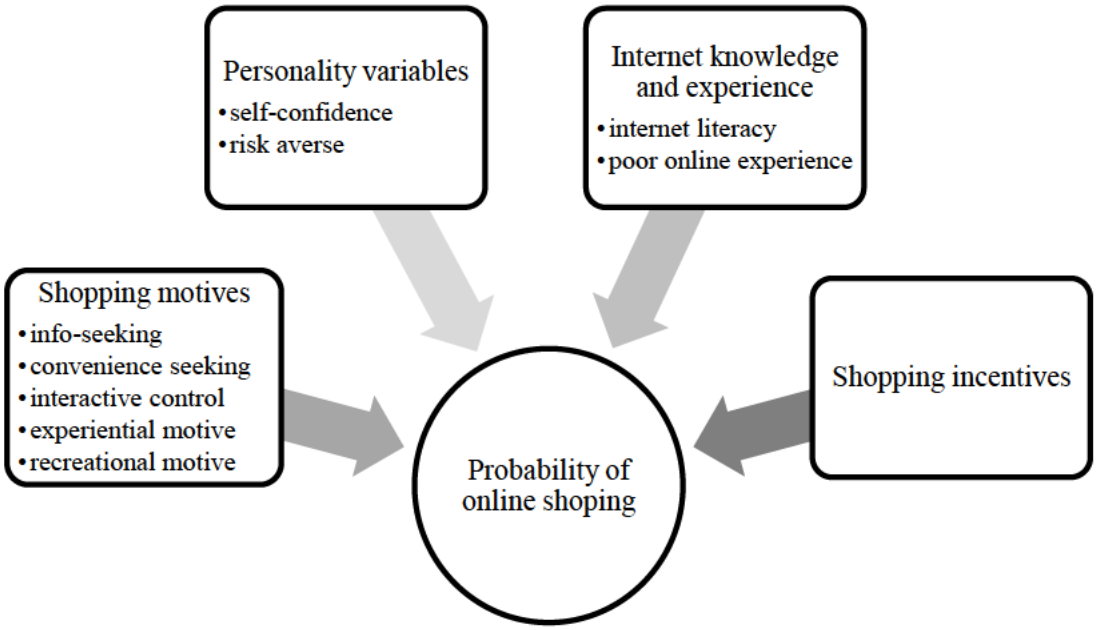

Figure 7. The model implies that consumers have internet access and experiences (Pan & Zinkhan, 2005, p. 55).

The second category influences the probability of online shopping through the perspective of psychographics. Self-confidence, which is the first metric, is believed to be correlated with a higher rate of internet shopping. It is caused by the fact that self-confidence increases as people travel, visit events, and participate in sports competitions. They overcome tech-related challenges quickly and easily (Pan & Zinkhan, 2005, pp. 57–58). The following factor is risk-aversion. Risk-averse people do not tend to shop online due to the possible challenges and issues that may arise throughout the process. Furthermore, as for the personality type of internet users, they are mostly risk-takers and innovators.

The third influencing factor is internet knowledge and experience. Internet literacy is referred to the degree of knowledge of the Web. Therefore, for the not acquainted user navigation through the websites may seem slow and frustrating, while it is only a matter of familiarity with the online channel such as communication, distribution, and transaction (Pan & Zinkhan, 2005, p. 58). The second part of personal traits that shape judgment towards internet shopping is prior experience. The concept of customer life-cycle presumes that people

are repeatedly having experiences with a good or service. In case a customer had a positive experience in an online setting, the probability of repurchasing increases significantly.

Finally, shopping incentives as an affecting factor refers to the monetary purchase motivations (Pan & Zinkhan, 2005, p. 58). In order to attract customers, e-tailers provide sales promotions and incentives for the acquisition. Additionally, sometimes online shopping avoids sales tax. As a result, people are willing to shop on the internet.

There are also key distinctive features that differentiate offline consumer behaviour from online consumer behaviour (Pachauri, 2002, p. 270). The first factor that is rather dissimilar is the way of collecting information. Users can simultaneously compare prices and features of the same product provided by different vendors, while traditional consumer behaviour requires significantly more time and effort in doing so (Shareef, 2013, p. 663). In addition to that, the decision-making phase also differs. In an online setting, the moment of making a decision regarding the purchase is affected by information and communications technology (Shareef et al., 2016, p. 6). The effect of ICT is significant since it can even reshape and streamline consumer behaviour. The third distinctive factor is the unbundled connection between a product's information and its receipt (Pachauri, 2002, p. 271). As a result, product evaluation happens after the product receipt and usage, while in pragmatic consumer behaviour this happens during the purchase (Shareef et al., 2016, p. 664).

2.2.3 Consumer trust

Trust itself implies respecting the other party and regarding the person as one with character and integrity, therefore behaving in a positive manner instead of a harmful one (Govier, 1993, p. 94). There are two core elements that trust depends on, namely competence and motivation. Consumer trust is defined as the consumer expectation of the good or service regarding the ability of the provider to deliver the promises (Sirdeshmukh, Singh, & Sabol, 2002, p. 17). It is one of the components of building a long-term relationship with the consumers, therefore previous literature actively investigates the link between brand trust and brand loyalty (Chaudhuri & Holbrook, 2001; Kocak Alan & Kabadayi, 2012; Matzler, Grabner-Kräuter, & Bidmon, 2008).

Since the paper discusses consumer behaviour in an online setting, it is crucial to discuss the influencing factors on consumer trust on the internet. Five main influencing factors are outlined in the according model developed by the researchers (Aslam, Hussain, Farhat, & Arif, 2020, p. 189). Influencing factors are e-commerce awareness, information

quality, perceived security risk, perceived privacy, and user interface quality. Starting with the user interface, it is an online alternative to the offline store atmosphere (Chang & Chen, 2009, p. 412). Consumer intentions are influenced by the interface of the website, which in turn affects sales (Aslam et al., 2020, pp. 189–190). Information quality of the website is directly associated with the information about the product or service that can be observed on the web page (Park & Kim, 2003, p. 19). It usually depends on several factors, such as the range of products that the website offers, the provider's service quality, design of the web page, ease of navigation, and quality of the product (Sharma & Lijuan, 2014, p. 420). Perceived privacy is the control of the consumer's access to information of third parties or sharing details or confidential personal information (Dinev, Xu, Smith, & Hart, 2013, p. 299). It is considered to be a key factor that contributes to the long-term relationship with existing customers and the acquisition of new consumers (Park & Kim, 2003, p. 20). The following influencing factor is perceived security, which refers to the safety of e-transaction that the consumer experiences while purchasing a product or service online (Chang & Chen, 2009, p. 412). Over the years, it has become a concern for retailers due to the fact that users hesitate to buy online due to the risk associated with their credit cards (Aslam et al., 2020, p. 190). E-commerce awareness refers to beliefs, knowledge, and experience that users hold toward services in e-commerce (Najafi, 2012, p. 1492). It is a crucial factor since cognitive factors such as absence or lack of awareness may reverse consumers from using services online, especially in underdeveloped countries (Kshetri, 2007, p. 445).

2.3 Attitude towards the brand

Attitude is defined as the evaluation of individuals, items, as well as issues, and acts as an association between the object and its evaluation (Ajzen & Fishbein, 2000, p. 2). It serves as a form of indicator of whether a person, an object, or an action is positive or negative, which consequently impacts the behaviour (Katz, 1960, p. 164). Authors tend to outline three dimensions that constitute the attitude, namely affective, cognitive and conative components (Fishbein & Ajzen, 1974, p. 60, 1975, p. 223). It is referred to as a three-component model (Maio, Esses, Arnold, & Olson, 2004, p. 11). The affective component corresponds to the degree of influence on the consumer by emotions that are related to the attitude object. The next component is cognitive, which is rather rational. It is associated with beliefs, values, knowledge, and thoughts about the positive or negative experience that corresponds to the attitude object (Breckler & Wiggins, 1989, p. 254). Another component is conative, or

behavioural. It reflects how an individual's behaviour is influenced by the attitude object (Fishbein & Ajzen, 1974, p. 61).

It is believed that brand attitude stands as a starting point for many actions of the consumers (Shin, Kim, Lim, & Kim, 2014, p. 3). As for the definition, it is a learned propensity or a constant either a favorable or unfavorable reaction to a specific object (Naidu, 2016, p. 47). It is also conceptualized as an individual inner assessment of a product or service, released by a brand (Mitchell & Olson, 1981, p. 318).

Brand attitude comprises affective and cognitive components, differently speaking, emotional and rational (Percy & Rossiter, 1992, p. 266). When considering the affective component, emotions toward the brand can vary from excitement to sadness (See, Petty, & Fabrigar, 2008, p. 939). A consequence of affective components can possibly be decisions made on an emotional basis (Schaller & Malhotra, 2015, p. 682). Concerning the cognitive component, it relates both to brand awareness and brand knowledge (Duffett, 2015, p. 245). Consumer's knowledge about the brand can be product-related, which implies information based on functions and experience, as well as non-product-related, which implies symbolic and self-expressive information. As for decision-making, in the cognitive context it is made after a rational analysis on a logical basis (Schaller & Malhotra, 2015, p. 682). The studies of attitude are vital for scientists and marketers due to the fact that they influence brand considerations, which consequently impacts brand choice (Priester, Nayakankuppam, Fleming, & Godek, 2004, p. 575).

Authors distinguish between four types of brands, which are functional, emotional, symbolic, and lifestyle, which are derived from the customer needs (Park, Jaworski, & Maclnnis, 1986, p. 136). Since products of functional brands are evaluated on a rational basis, their benefits are assessed on the level of product features, quality, as well as the ability to satisfy the need (Orth & de Marchi, 2007, p. 219). In other words, they correspond to the intrinsic values of a product. In an online context, the exchange of information is part of functional branding (Bagozzi & Dholakia, 2002, p. 3). For emotional brands, connection with a customer on the emotional level is crucial (Roberts, 2005, p. 25). In order to create strong bonds with a customer, brands become part of their everyday lives and memories. Online communication within the context of emotional brands is pleasurable and enjoyable since they are based on the experience with a brand (Davis, Piven, & Breazeale, 2014, p. 489). Symbolic brands tend to focus on the attributes that are not associated with the product, but rather with society and personality (Orth & de Marchi, 2007, pp. 219–220). Such attributes are self-

image, individual experience, or need for social approval. In this context, symbolic and lifestyle brands overlap, since symbolic type relates to social identification and self-concept, while lifestyle brand is also relatable to self-concept and identity (Belk, 1988, p. 142; Park et al., 1986, p. 136). In the vast majority of the cases, the brand does not correspond to one specific type, but rather to the mixture (Park et al., 1986, p. 136).

The way consumers act towards the firm is directly linked with the power of consumption, the increase of which is one of the main goals of the corporation. According to prior research, a strong and positive brand attitude increases intention to purchase, brand consideration and brand choice, and purchase action itself (Petty, Haugtvedt, & Smith, 1995, p. 101; Priester et al., 2004, p. 576). Therefore, understanding the process of attitude formation is vital. It is demonstrated empirically, that brand attitude has a critical effect on consumer choice (Jung & Seock, 2016, p. 9). The premise "beliefs cause attitude" is widely accepted by researchers (Fishbein & Ajzen, 1975, p. 5). As a result, there is a relationship between hypothesized belief and attitude, in which the former impacts the latter, and then attitude impacts the behaviour hierarchy of the customer. It is widely believed that advertisement is the main source impacting the formation of brand attitude (Shimp, 1981, p. 11). The author states that the goal of an advertisement is to establish a favorable attitude towards the brand, and this approach is named the "attitude towards the brand" strategy. After a positive reaction to the advertisement is settled, theoretically it transfers to the attitude to the brand, which then impacts consumer choice behaviour (Gresham, Bush, & Davis, 1984, p. 354). This paper replaces the initial stimuli, which is an ad, with fake online reviews and aims to measure their influence on brand attitude.

Scholars tend to distinguish among implicit and explicit brand attitudes (Wennekers, Vandeberg, Zoon, & van Reijmersdal, 2016, p. 253). Not only because those are the result of various processes of evaluation, but also because their way of measurement differs. Explicit attitude is the result of rational rule-based patterns (Wennekers et al., 2016, p. 253). In contrast, implicit attitude is the outcome of an associative process in the mind of the consumer. As for the measurement of implicit attitudes, those are indirect assessments, implying that in order to infer attitude, responses to a task are utilized. As an example, the measures of reaction time may serve, which originate from the categorization principles, or priming techniques (Fazio, Sanbonmatsu, Powell, & Kardes, 1986, p. 230). On the other hand, measuring the explicit attitude implies a direct assessment of attitudes with the assistance of introspection, as well as self-report (Nosek, Hawkins, & Frazier, 2011, p. 155).

Another vital reason to distinguish attitudes is because they tend to predict dissimilar types of behaviours. Deliberate behaviours which are considered carefully by the people are guided by explicit attitudes, whereas impulsive and spontaneous decisions are impacted by implicit attitudes (Dovidio, Kawakami, & Gaertner, 2002, p. 67). In the context of consumer behaviour, deliberative choice of product is distinguished from the choice made under distractive circumstances, while careful purchase intention is separated from impulsive product or service acquisitions (Gibson, 2008, p. 179). While the knowledge of implicit attitude assists in studying impulsive behaviour, extrinsic provides a bigger picture of the individual's behaviour and it is helpful in the long run (Friese, Hofmann, & Wänke, 2008, pp. 416–417).

Although it is complex to measure brand attitude, it is utmost for understanding the effect caused by one or other actions of the company on the brand. Rossiter (2014, p. 539) suggests measuring brand attitude with an efficient methodology, which is also considered meaningful from the managerial point of view. Table 2 provides an overview of the measurement. Max Sutherland who invented TNS, which is a continuous brand tracking system, suggests that the method originated in one of the largest companies of packaged food (Rossiter, 2014, p. 539).

Table 2 Brand attitude measured

Best measure of overall brand attitude:		
Attitude level		*Suggested scoring*
☐	My single preferred brand	+5
☐	One of my preferred brands	+3
☐	An acceptable brand if 'on special'	+1
☐	Would not buy this brand under any circumstance	−3
☐	Really do not know enough about this brand to rate it	0

Note. The table provides a method for measuring consumer's attitudes toward the brand (Rossiter, 2014, p. 537).

The respondent is asked to choose one of the five options, which are clearly stated and easily comprehended. The question consists of the options whether a brand is a single choice of a customer, one of the choices, preferred only on sale, not acceptable at all, and hardly familiar with the brand. In addition to the brand attitude, the last option enhances the benefit of this measurement and allows the researchers to track brand awareness as well (Rossiter, 2014, p. 539). Despite the fact that the approach is rather straightforward, the author outlines two important rules while using it. Firstly, it is important to consider situational motive when

proceeding with the measure. Secondly, it is vital not to score the responses on a rating scale. Although researchers tend to focus on the quantitative aspect of the table, managers are advised to consider the shift of the answers, comparing them before and after an ad, online review flooding, new product launch, or any other campaign (Rossiter, 2014, p. 540).

Establishing a brand attitude offline is different from an online setting. In particular, the authors state that the electronic environment for buying and selling, namely marketplaces significantly differ from traditional ones (Chiang, Lin, & Wang, 2008, p. 610). Reasearchers continue that internet users have established perceptions of each brand that has an online presence.

3 Literature Review

3.1 Detection of fake online reviews

3.1.1 Human-driven approach

Despite the fact that nowadays different types of forces and approaches aim to detect and eliminate the deception of reviews on the internet, a significant amount is still present on the marketplaces and platforms online (Munzel, 2016, p. 97). For instance, almost 10 years ago Yelp made a statement that 25% of the reviews on its website are suspicious (D. Roberts, 2013, p. 1). Due to the development of the number of reviews overall, the percentage nowadays is expected to be even higher. Researchers outline two main motivations for writing online reviews, namely social or monetary (Plotkina et al., 2020, p. 512). Social refers to posting fake reviews with the ultimate goal to either increase reputation for one company or decrease for another, while monetary motivation follows the goal to earn money.

Before presenting different approaches for posting fake reviews and their criteria for detection, it is crucial to understand the reasons why it became a problem both for marketing representatives and e-commerce channels (Salminen et al., 2022, p. 1). First of all, fake reviews considerably compromise the trustworthiness of real online reviews, which may consequently negatively impact the market profitability as a whole. This is due to the fact that reviews serve as a quality indicator for the readers, therefore providing a significant value to the marketplace (Munzel & Kunz, 2014, p. 51). As soon as the trust is eroded, irreversible damage to the reputation and the profitability of the company can be caused. Secondly, the review directly impacts the product or service rate. Due to the algorithms on the platforms, reviews are used in the formation of the rating of the product among its category (Gobi & Rathinavelu, 2019, p. 6978). As a result, not only reviews are fake, but also the rating of the product is unfair and does not correspond to its actual quality and features. It is crucial to detect and prevent online review deception in order to keep fair competition between the companies on the marketplaces (Salminen et al., 2022, p. 2). The third issue involves not only social and reputational concerns but also monetary problems. According to the estimation of Luca (2011), only a one-star increase in the company rating of Yelp may result in up to nine percent revenue upstream (p. 13). Therefore, ratings are correlated with the revenues and may backfire.

Taking into consideration the fact that the quality of reviews has a significant influence on brands, their social presence, e-commerce channel, and even stakeholders, fake online reviews are referred as a "dangerous prospect for online users" (Ahmed, Traore, & Saad, 2018, p. 1). Therefore, being able to detect them, either manually or automatically, is essential.

Regardless of the fact whether the detection method is human-driven or machine-driven, methods researched so far could be classified into two main approaches, which are linguistic and behavioural (Shukla, Wang, Gao, & Agarwal, 2019, p. 3).

The linguistic approach implies focusing on language patterns, nuances, and details of the reviews in order to determine whether it is credible or not. While researching cues for finding fake reviews, authors alternatively refer to linguistic attributes as review-centric (Abedin, Mendoza, & Karunasekera, 2020, p. 8; Xu, 2013, pp. 33–34). The first linguistic attribute outlined is argument quality. It is defined as the degree of persuasiveness of the argument provided in the review (Abedin, Mendoza, & Karunasekera, 2021, p. 3407). The number of arguments, their justifications, and relevancy impact the credibility. Previous research shows that higher quality of the arguments leads to their trustworthiness in the customer's eyes (Cheung, Sia, & Kuan, 2012, p. 620; Tran & Can, 2020, p. 116). The following attribute is review length, which is counted in the number of characters, words, and paragraphs. It is believed that long reviews tend to be credible since shorter texts have fewer cues for evaluation (Ketron, 2017, p. 53). Review extremity is the fourth criterion and refers to considerably emotional reviews, either highly positive or highly negative (Abedin et al., 2020, p. 9). Unless arguments for their emotions are provided, extreme reviews tend to be considered fake since overwhelmed feelings should be backed by a qualified reason. The following attribute is review framing (or valence), which is the positive or negative assessment of the product in the review. Some authors argue that it does not impact the review credibility rate, while others present that negative valence is considered to be more credible (Abedin, Mendoza, & Karunasekera, 2019, p. 702; Filieri, 2016, p. 49). This is due to the fact that consumers are more willing to leave a review in case the experience with a product or service was unpleasant. Review sidedness is the next criterion that implies which aspects are highlighted in the review – only positive or negative is one-sided, while both positive and negative are two-sided. Since two-sided reviews comprise arguments for and against the product or service, they tend to be more trustworthy than one-sided reviews (Abedin et al., 2019, p. 702) The sixth attribute of review credibility suggested by the authors is external

consistency, which refers to the extent of the consistency of the review with the others on the e-commerce website (Aghakhani, Oh, & Gregg, 2017, p. 14). Therefore, the larger the number of reviews that are consistent with the evaluated one, the more likely it is to be credible. The following presented attitude demonstrated by the authors is internal consistency (Abedin & Mendoza, 2020, p. 10). It implies that the internal valence of the review, specifically its rating, should be coordinated with the content itself. In case these two variables are not consistent with each other, the consumer is confused and the level of credibility falls considerably (Li, Li, Min, & Liu, 2018, p. 3). Last but not least, the writing style is also one of the linguistic attributes of online reviews. It is defined as the way chosen to express the message, including language itself, terms used, syntactic and semantic (Hernández-Ortega, 2018, p. 35). For example, reviews that include marketing or promotional terms, as well as reviews with mistakes and lack of education are considered to be not trustworthy by the consumers (Filieri, 2016, p. 49; Ketron, 2017, p. 54).

The behavioural approach includes investigating and detecting anomalies in the review ratings, as well as finding inconsistencies in the metadata of the reviews (Shukla et al., 2019, p. 3). The behavioural approach is more popular than the linguistic due to the fact that reported accuracy is significantly higher. Authors alternatively recall behavioural attributes as reviewer-centric, since they are interconnected with the behaviour of the reviewer (Abedin et al., 2020, p. 10; Xu, 2013, p. 34). Reviewer-centric attributes compile of reviewer involvement, reviewer reputation, and sociability. Reviewer involvement refers to the extent to which a user is dedicated to the process, in particular the number of evaluative comments on the product or service that have been posted. On the one hand, the number of submitted reviews is not considered to affect credibility due to the fact that quality matters more than quantity (Chen, Yen, & Tran, 2015, p. 19). However, it is shown that the number of reviews posted by one user increases the trustworthiness of the review. In addition to that, a reviewer that posted several product assessment comments is believed to be more credible than a reviewer that posted one or two comments (Filieri, 2016, p. 51). The second attribute is reviewer reputation. The vast majority of the marketplaces and online platforms impose ratings for the reviewers in order to incentivize users to leave comments, which could be presented in form of titles or badges (Abedin et al., 2019, p. 705). As a result, a higher rating of the reviewer correlates with a higher credibility of the review since it indicates quality. Sociability, which is the third attribute, refers to the number of followers or friends

(depending on the platform) the reviewer has. Higher numbers indicate that the user is sociable and a significant number of people trust the reviews (Cheng & Ho, 2015, p. 885).

Besides review-centric and reviewer-centric, authors outline environmental attributes of fake online reviews determination (Abedin & Mendoza, 2020, p. 11; Xu, 2013, p. 34). They consist of review recency and review rating. Review recency corresponds to the novelty of the review. Scholars outline that new and recent reviews are perceived by the consumers as more credible due to the currency and validity of the provided information (Thomas, Wirtz, & Weyerer, 2019, p. 11). The second aspect corresponds to the rating of the review, precisely its endorsement. The rating of the review is one of the few criteria based on which users make their decision regarding the trustworthiness of the review. Therefore, authors indicate that users tend to adopt highly rated reviews as they indicated the quality (M. Y. Cheung, Luo, Sia, & Chen, 2009, p. 23).

Figure 8 Human-driven approach

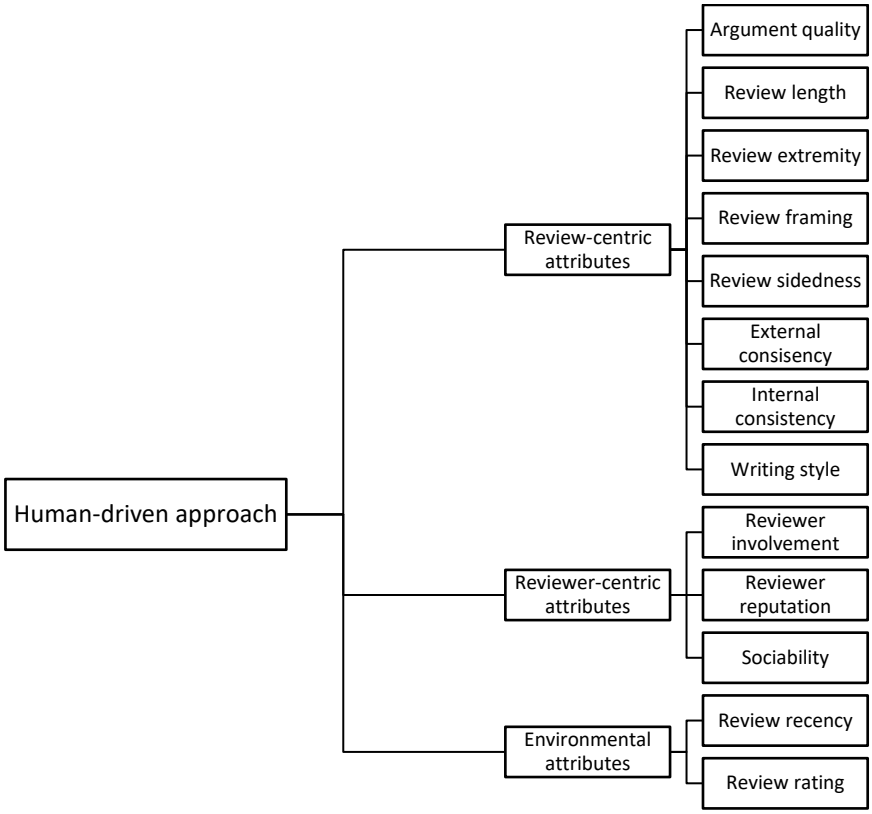

Figure 8. Summary of the human-driven approach attributes described in the chapter (Abedin & Mendoza, 2020).

3.1.2 Challenges with a manual approach

Despite the fact that the criteria for differentiation of fake reviews from real reviews are described in detail and may seem apparent, the list of challenges with manual detection format is presented in the following.

First of all, the issue lies in the ability of deceptive reviewers to adapt to the online environment. In other words, as soon as criteria for detection of fake become evident, spammers eliminate those attributes from the reviews (Salminen et al., 2022, p. 3). Additionally, the criteria for detection are criticized as well. For example, previous research argues that considering only a high volume of reviews as spam is misleading due to the fact that singleton spammers constitute a large proportion of fake reviews (Sandulescu & Ester, 2015, p. 971). As a result, numerous fake reviews are left undetected. Another massive challenge is the intensive growth rate of online reviews, which increases the number of fake reviews accordingly (Costa, Guerreiro, Moro, & Henriques, 2019, p. 272). Taking into consideration the number of products, services, objects, and brands that are being reviewed on the internet, as well as the number of reviews under each item, it is apparent that the scale of a user's ability to detect fake reviews is incomparable to the scale of the available information that needs to be assessed (Salminen et al., 2022, p. 3).

As a result of the aforementioned challenge, the accuracy of fake review detection by a user is approximately 57%, even if the participants were informed regarding the cues of deceptive reviews (Plotkina et al., 2020, pp. 516–517). In contrast, the automated review detection tool accounted for 81% accuracy in finding fake reviews. Some investigations even reached a figure of 90.1% of accuracy, which is a comparatively high figure and may lead to innovative solutions when confronting fake reviews (Feng & Hirst, 2013, p. 344). For this reason, a brief overview of the data-driven approach for finding deceptive reviews is provided in the next section.

3.1.3 Data-driven approach

The technologies used for detecting online reviews are based on Artificial Intelligence, which is defined as intelligence displayed by computers or machines in contrast to human abilities (M. Lee, Song, Li, Lee, & Yang, 2022, p. 2). Machine Learning (ML) is one of the umbrella terms for Artificial Intelligence, which is widely used in scientific literature. Such Machine Learning techniques as sentiment analysis, web-scaping, and text-mining are widely used with the purpose of detecting fake reviews.

Scholars differentiate between textual and non-textual features, which are a basis for the machine-based approach (Salminen et al., 2022, p. 3). Textual features refer to the linguistic elements of the review, which are extremely different from linguistic features of human-based detection. Authors also refer to them as review-centric attributes (Abedin et al., 2020, p. 4). The most common features are keywords or phrases, also referred to as bag of words, as well as n-grams (Abedin & Mendoza, 2020, p. 4; Ott, Choi, Cardie, & Hancock, 2011, p. 311; Salminen et al., 2022, p. 3). N-gram implies a certain number of contiguous words, mainly from one to three, in a specific sequence. Although it is a widely-used approach, researchers suggest using more than one feature in order to receive significant results (Fei et al., 2021, p. 175). Term frequency (TF) and term frequency-inverse document frequency (TF-IDF) are the next attributes, which refer to the number of times a certain term occurs in the reviews, and to the traditional scheme for weighting the words, accordingly (Ouyang, Li, Li, & Lu, 2011, p. 229). There are also programs such as Language Inquiry and Word Count (LIWC) and Coherence Metrix Analysis that are used to count the words in different categories and areas, as well as to characterize the review at different layers (Graesser, McNamara, Louwerse, & Cai, 2004, p. 194). Authors differentiate many more textual features, such as redundancy ratio, writing style, lexical validity and diversity, and repetitiveness, which could all be part of the detection tools (Abedin et al., 2020, pp. 7–8; Shukla et al., 2019, p. 30).

The second category is non-textual features, which are also addressed as behavioural or reviewer-centric (Abedin et al., 2020, p. 4; Mukherjee, Venkataraman, Liu, & Glance, 2021, p. 410). Those could be the usernames of the reviewer, IP locations, and the number of reviews submitted or posted by the user (Abedin et al., 2020, p. 7; Salminen et al., 2022, p. 3). One of the most crucial behavioural attributes is the time pause between the reviews left by one user and reviewer tenure. Time gaps may assist ML in identifying certain patterns in the frequency of the reviews (Kumar, Venugopal, Qiu, & Kumar, 2018, p. 350). Researchers refer to user tenure as the period spent online on the platform. The suggested assumption implies that reviews that are submitted in a limited amount of time tend to be more suspicious than those left over a longer period. Review bursts also contribute to the list of attributes that automotive detection methods search for. It refers to the phenomenon when the number of reviews for a certain product significantly increases in a specific area or within a short period (Fei et al., 2021, p. 175). This is considered suspicious behaviour and could signal review deception either computer- or human-generated. When the data is analyzed by algorithms,

additional attributes such as registration dates, review similarity, and the ratio of verified purchase can also serve as a feature of investigation. Considering textual and non-textual features, it is shown that non-textual, namely, behavioural attributes tend to outperform textual in automotive detection of fake reviews (Mukherjee et al., 2021, p. 410).

Brand-related attributes could also be a tool for identifying fraud reviews, which would be a part of environmental attributes. They refer to characteristics that are common for specific goods or services, for instance, sales rank or price (Zhang et al., 2016, p. 461).

Taking into consideration manual and automotive-based approaches, they are rarely combined, however, some scholars used the hybrid method in their investigations (Harris, 2019; Munzel, 2016). Furthermore, a crucial fact is that each data-driven attribute is based on human labor, since people are always part of the training model for the machines (Salminen et al., 2022, p. 3).

3.2 Influence of fake reviews on brand attitude

Consumer's attitude toward the brand after the exposure to fake online reviews has not been studied widely in the scientific community. However, some articles provide insights on the given topic. For example, the authors suggest that advertisement deception causes negativity bias towards consequent advertising, which directly impacts the brand (Darke & Ritchie, 2007, p. 114). In line with these findings, the authors reached a similar outcome in their investigation and concluded that advertising deception harms both brand attitude and purchase intention (Xie et al., 2015, p. 281). Therefore, actions undertaken by a specific company establish associations with the brand. As for the reviews specifically, empirical outcomes of another research suggest that well-managed reviews are rather beneficial for the brand that is behind the product (Baur & Nyström, 2017, p. 77). Consequently, it is assumed that there is an impact of fake reviews on the brand (Wadsworth, 2021, p. 1). A statistically significant relationship between deceptive reviews and brand attitude was also found when making use of an Implicit Association Test as a method, however, it is not sufficiently strong (Bahadur, 2020, p. 21). Taking into consideration initial findings published in the existing literature on the present topic the first hypothesis is formulated as follows:

H1: Fake online reviews negatively impact consumers' attitudes toward the brand

3.3 Influence of fake reviews on consumer behaviour

Despite the fact that the topic of fake online reviews is relatively recent, due to the disruption it causes in the marketing world and also due to the significant influence power of this phenomenon it has been researched intensively.

One of the researched independent variables is the distortion of the consumers caused by fake reviews, namely the extent to which users are misled by them. For instance, the study shows that it is not necessary to detect fake reviews, but rather to find ways to avoid them (Song, Park, & Ryu, 2017, p. 7). Weighted-average aggregation method was chosen by the authors of this research despite the fact that inaccurate data from newly submitted reviews is assigned to more weights since it is considerably more efficient than the simple average method. The results reveal that the vast majority of frauds are low-quality reviews, and their elimination barely causes any information loss. In addition to that, the disruption caused by fake reviews is significant (Song et al., 2017, p. 28). By eliminating low-quality reviews, which are fake in the majority of the cases, disruption is successfully avoided. Another study investigates the impact of reviews not only from the perspective of the buyers, but also from the sellers (Zhang, Li, Cheng, & Lai, 2017, p. 69). According to the results with regard to social welfare, it is positively influenced by the highly precise information quality and match informativeness. Therefore, the more information is shared by the reviewers, the more possibility for consumers to detect dissimilarities in the quality of the products and the extent of mismatch (Zhang et al., 2017, p. 76). However, these two mechanisms do not influence welfare identically. As far as information quality is concerned, it reduces the profits of the seller, while increasing consumers' well-being. In contrast, sellers benefit from the similarity in informativeness, while consumers are in a disadvantageous position. Consequently, in case there is a significant number of differences in quality within the reviews, consumers are misled and it causes disruption in their decisions (Zhang et al., 2017, p. 76). It is also suggested that consumers' overall social trust in the information improves the recommendation's accuracy and, as a consequence, decreases disruption and minimizes misleading of the consumers (Vindhya & Dharnesh, 2019, p. 221).

An additional variable researched by scholars within the context of consumer behaviour is the uncertainty of the consumers. For instance, authors suggest looking at the review of deception through the legal perspective due to the significance of the influencing power on the economy (Mathews Hunt, 2015, p. 3). Due to the fact that the problem is reaching a tipping point, as well as the fact that consumers are being misled, this issue should

not be tolerated by law. Since consumer rights are protected, any potential issue that puts their uncertainty at risk is not accepted (Hunt, 2015, pp. 19–20). Another study aimed to model a consumer learning path from reading online reviews (Zhao, Yang, Narayan, & Zhao, 2013, p. 153). One of the findings of the study reveals that fake online reviews critically increase consumer uncertainty (Zhao et al., 2013, p. 167). In case an online marketplace or retailing platform has review fakery, the effect of positive reviews and their high quantity is diminished. According to the consumer's learning pattern, in order to cope with uncertainty, they tend to rely on their own previous experience with a similar product type or the experience of others with the same product, which is learned from online reviews (Zhao et al., 2013, p. 153). Therefore, fake reviews increase uncertainty, which in turn negatively influences purchase decisions. An additional study investigated the effect of fraudulent reviews on the risk perceived by the consumers (Wu, Wingate, Wang, & Liu, 2019, p. 133). Authors examine the influence of four different types of fake reviews, namely non-review content and advertising content, which are part of useless reviews, and shameless promotion and malicious slander, which are part of false reviews (Wu et al., 2019, p. 136). According to the outcomes, all of them have a significant influence on risk perception. However, the specific effect varies depending on which type of risk is perceived by the consumer, namely whether it is functional or time risk (Wu et al., 2019, p. 141). Another perspective was examined through the question of whether showing or hiding fake reviews on the website causes a favorable consumer response (Ananthakrishnan, Li, & Smith, 2020, p. 950). The results demonstrate that consumer uncertainty is reduced in case real and fraudulent reviews are displayed together instead of censoring suspicious low-quality reviews since the website is perceived as more transparent. In case uncertainty in the product quality evaluation initially is increased, the power of influence of fake reviews on consumer decision-making rises as well (Ananthakrishnan et al., 2020, p. 968).

As mentioned, consumer trust as an influenced factor by fake online reviews has also been researched by scholars due to the fact that it is a basis for the consequent behaviour towards the product, service, or even a brand itself. For instance, a study examined consumers' trust after marketing misbehaviour on online platforms within the reviews using the exploratory research approach (Jin Ma & Lee, 2014, p. 224). The outcomes show that as soon as consumers become aware of the review manipulation by the company, the level of trust falls immediately (Jin Ma & Lee, 2014, p. 238). Furthermore, while investigating the helpfulness of online reviews, the authors suggest that consumer trust is influenced by the role

of the experience of the reviewer (Agnihotri & Bhattacharya, 2016, p. 1006). Additionally, in case the review was written in a difficult manner, especially by the new user, consumer trust also decreases even if the review was real (Agnihotri & Bhattacharya, 2016, p. 1014). Another support for the argument is provided by the authors who applied the hierarchical-influence model in order to assess the distrust of the consumers (Ahmad & Sun, 2018, p. 77). Attributes of the reviewer that signal fakery directly determines the level of user's distrust (Ahmad & Sun, 2018, p. 86). Since consumer trust lies within the scope of consumer behaviour, the authors investigated this variable while researching the overall evaluation of online reviews by consumers (DeAndrea, van der Heide, Vendemia, & Vang, 2018, p. 719). According to the results, trust in reviews decreases as the confidence in the fact that they were submitted by independent third parties. An additional article that empirically evaluated the effect of deception on online reviews supports the statement that the quantity of the reviews does not mean their quality (Huang et al., 2015, p. 19; Zhuang et al., 2018, p. 24). Authors demonstrate that flooding fake online reviews, namely massively manipulating them, leads to a negative effect towards product evaluation, simply increases customer suspicion, and results in a lack of trust (Zhuang et al., 2018, p. 33). Based on the existing results of the previous literature, the following hypothesis is formulated:

H2: Fake online reviews have a negative effect on consumers' trust towards online reviews

Purchase intention is the pre-last step in the process of decision-making, which generates profit for the company. Therefore, it is crucial to understand how it is influenced by online review deception. For example, the authors of the proposed study explain the willingness to post unrealistic online reviews by the increased consumer interest (Petrescu, O'Leary, Goldring, & Mrad, 2018, p. 288). As a consequence, the purchase potential of the users increases. Additionally, the study also examined the influence of online review manipulation on purchase intention. According to the results of an experimental study using a scenario method, the valence of the review affects the decision whether to buy the product or not (Jin Ma & Lee, 2014, pp. 236–238). To be more precise, in case potential buyers face reviews with an overall positive valence, the intent to buy the product is significantly higher. On the other hand, if the valence that consumers encounter is negative, purchase intention decreases. Additionally, users who are either able to detect fraud among the reviews or wrote

them previously are also associated with increased purchase intentions. In relation to this topic, scholars revealed similar findings and suggest that previous experience with online reviews and proper knowledge on their deception increases intentions to purchase an item or use a service (Fogel & Murphy, 2018, p. 59). Finally, the authors suggest that it is information helpfulness within the context of online review that predicts the purchase intention of the consumer (Filieri, McLeay, Tsui, & Lin, 2018, p. 966). Based on the insights gained from the previous study, the following hypothesis is proposed:

H3: Fake online reviews negatively influence consumers' purchase intention

Moving on, the authors examined purchase intention as not directly influenced by the online review deception, but with consumer trustworthiness as a mediator (Munzel, 2016, p. 104). The results reveal significant influence not only on the purchase intent at the moment, but also on future-oriented willingness to avoid the vendor. Similar findings reveal that it is brand trust and a massive number of reviews that influence buying intentions and purchase behaviour (Fogel & Zachariah, 2017, p. 53). The results of the next study on purchase intentions reveal the following chain of consequences (Ahmad & Sun, 2018, p. 77). It was mentioned earlier that the results of their study show that fake reviews lead to consumer distrust. In turn, it causes psychological discomfort to consumers, and consequently their repeated purchase increases. However, in this case, the relationship between consumer trust and purchase intent is not direct. Taking into consideration the presented findings, the following hypothesis is proposed:

H4: Consumer trust in the online reviews indicates purchase intention

4 Theoretical Framework

This section provides a structured and systematic overview of the variables under investigation and outlines their interconnection with the theories from existing literature described further. The following theoretical framework serves as a guideline for a clear understanding of the tested relationships. In addition to that, it outlines the overall contribution of the master thesis to the scientific literature.

Figure 9 Theoretical framework

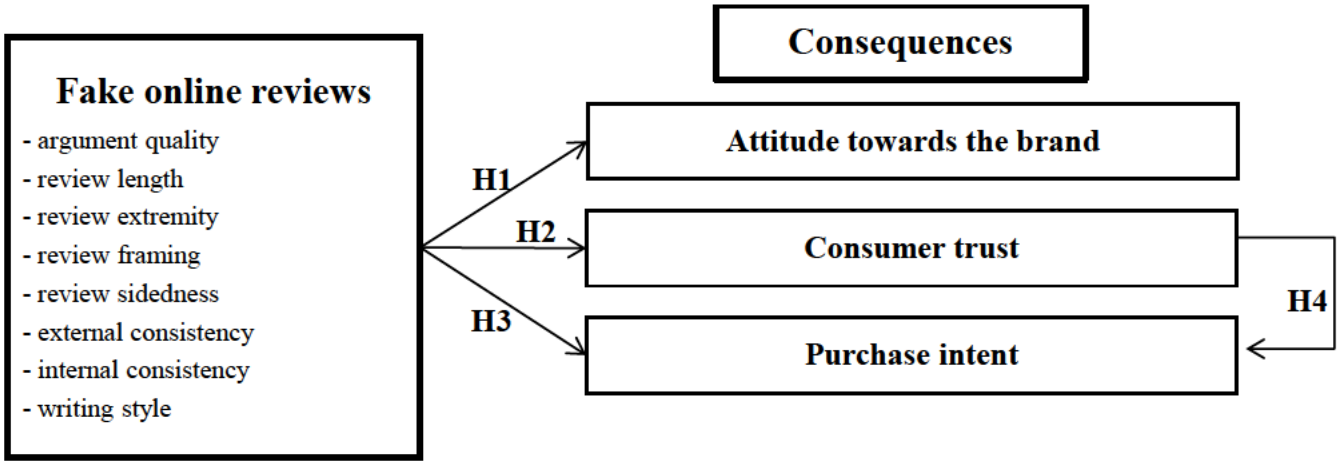

Figure 9. Figure visually summarizes variables explained in the following paragraphs (adapted from Abedin et al., 2020; Bartlett, 1932; Crowley & Hoyer, 1994; Feldman & Lynch, 1988; Jager, 2000; Kumar et al., 2018; Mehrabian & Russell, 1974; Petty & Cacioppo, 1981).

The following conceptual framework is presented in order to provide a clear direction for the research at hand. Figure 9 provides an overview of the relationship between independent and dependent variables under investigation. The former are either real or fake online reviews, while the latter are consumer trust, consumer behaviour, more precisely the intention to purchase a good or service, and attitude towards a particular brand. The main purpose of the following section is to provide a thorough description of the concepts, as well as their interconnection to existing theories in order to comprehend the basis of the researched phenomena.

With regard to this specific research, the independent variable is concerned with fake online reviews. The definition states that it is a specious review that intends to mislead the consumer in their decision-making process (Zhang et al., 2016, p. 457). It is vital to determine

the criteria for the determination of fake reviews. Previous studies outline several crucial points that could be used to evaluate the review. Cues of fake reviews are divided into three groups, namely review-centric, reviewer-centric and environmental (Abedin et al., 2020, p. 8). Given the nature of the research, only review-centric cues are used in the experiment in order to eliminate the decentralization of the participant's attention and emphasize the concentration of the fake attributes within the text of the review itself.

With regard to the previous literature, the impact of fake reviews has been researched on various variables. For instance, consumer trust is not only negatively influenced by manipulated reviews, but also serves as a predictor of purchase intent (Ma & Lee, 2014, p. 224). In case manipulation was detected by the user and the review has a positive valence, purchase intent decreases, however, when considering reviews with negative valence, buying behaviour increases. Although findings outlined by Zhuang, Cui, and Peng also show the purchase intent increases, it also leads to rising suspicion, which has a long-term negative effect (2018, p. 24). Another perspective on purchase behaviour shows that the number of reviews and brand trust increase in line with the buying behaviour (Fogel & Zachariah, 2017, p. 53). With regard to e-loyalty, it is shown intrinsic motives, such as that the willingness to help others have more impact on the online behaviour of the customers than extrinsic ones, such as monetary incentives (Yoo et al., 2013, p. 669). Brand attitude, as one of the investigated variables in this master thesis, was also researched by Bahadur (2020, p. 1). The results indicate that although there is a negative effect, it is weak. Table 3 summarizes previous literature on the effect of fake and real reviews on various dependent variables, which are of importance in marketing.

Conceptually, in order to explain the relationship between the stated variables in the current experimental investigation, the stimulus-organism-response model is used (Mehrabian & Russell, 1974). It implies that the scenario provided (either real or fake online review) stimulates the individual which in turn impacts the purchase intention and behaviour (Mo, Li, & Fan, 2015, p. 421).

Table 3 Findings from the literature regarding the effect of fake and real online reviews on customer responses

Authors	Year	Dependent variable	Theoretical foundation	Key findings	Design/Sample size
Ma and Lee	2013	Consumer response	Theory of ethics and impression formation theory	Consumer trust decreased significantly; purchase intent increased as participants revealed the manipulation in case manipulated reviews were negative (p. 224)	An experimental study with scenario method/2080 online shoppers
Park and Kim	2003	Purchase intent	Theory of user information satisfaction and consumer purchase behaviour	User interface and information quality, as well as the perception of security affect satisfaction with information level and connected benefit, which significantly impact purchase intent (p. 16)	Online survey/602 online bookstore consumers
Yoo, Sanders, and Moon	2012	e-Loyalty within e-commerce	Motivation theory and identification theory	Loyalty online is impacted greater by personal rather than social site identification (p.669)	Online survey/257 respondents
Zhuang, Cui, Peng	2018	Purchase intent	Self-correcting «natural law»	Although purchase intention increases so did the suspicion, which has a negative effect (p. 24)	Field experiment/167 hotel observations and laboratory experiment/209 participants
Peng, Cui, Zhuang, and Li	2016	Consumer perception and purchase intent	Information Manipulation Theory	The perception is negative; purchase intent depends on the ease of fake reviews detection (p. 269)	In-depth interviews/16 online shoppers, survey/199 respondents
Fogel and Zachariah	2015	Intention to read reviews and purchase behaviour	Theory of planned behaviour	Increased intentions and behaviour are antecedents of consumer trust and the number of reviews read (p. 53)	Survey/617 college students
Li, Meng, Pan	2020	Online review writing behaviour	Expectancy disconfirmation theory; and social influence theory	The reviews are getting longer; positive disconfirmation of reviews is less strong than negative ones (p. 1)	Online secondary big data modeling and experimental design/ 600,686 reviews

(Continued on next page)

(Continued.)

Authors	Year	Dependent variable	Theoretical foundation	Key findings	Design/Sample size
Rosario, Sotgiu, Valck, Bijmolt	2006	Sales	Cue diagnosticity theory and the theory of interpersonal influence	The relationship between online reviews and sales is established, however, vary depending on platforms, items sold, and review metrics (p. 297)	Meta-analysis/1532 sizes
Mo, Li, Fan	2015	Consumer purchase behaviour	Stimulus-Organism-Response Model	Reviews with positive valence, pictures, and describing ratings have an effect on purchase intention (p. 419)	Analysis of 218 954 reviews
Bahadur	2020	Implicit brand attitude	Limited capacity model of message processing and the prominence-interpretation theory of Web credibility	There is a weak negative effect of fake reviews on brand attitude (p. 2)	The descriptive survey, Implicit Association Test

Note. Previous literature about the impact of fake reviews is summarized in a tabular format.

One of the dependent variables examined in the given study is brand attitude. It is defined as an associative network, which compiles brand attitudes, attributes, and benefits and is presented in memory nodes (Dzyabura & Peres, 2021, p. 44). The brand attitude variable in the present study is grounded on the schema theory (Bartlett, 1932). It implies that new experiences are perceived through the knowledge, that was formed previously (Aslam, Ham, & Farhat, 2018, p. 89). Applying the theory to the context of the paper, fake online reviews are an additional piece of information towards the brand perception, which could either retain the existing image or change it radically.

With regards to the relationship between the variables, the formation of attitude toward the brand can be explained by the elaboration likelihood model (ELM) developed in 1981 (Petty & Cacioppo, 1981). Referring to the model, the attitude could be formed through the central route, namely direct, or peripheral route, namely indirect (Sicilia, Ruiz, & Reynolds, 2006, p. 141). The authors describe the former route as when the attitude towards the brand is formed through thinking about the brand. The latter route occurs when the attitude towards a related thing, for instance, online reviews, is a bridge to create an attitude towards the brand. The goal of the present study is to shed the light on the given topic and examine how review manipulation affects consumers' attitudes towards the brand.

Another dependent variable is consumer trust. It refers to the confidence of one party in exchange for the integrity of the second (Morgan & Hunt, 1994, p. 23). According to the existing literature, there are three types of antecedents of trust (Beldad, de Jong, & Steehouder, 2010, p. 867). Customer-based antecedents, which is the user's willingness to trust the technology, website-based, which implies the quality level of the website, and organization-based, which is associated with the previous experience between the user and the company. Theoretical implication is based on the study that individuals may hold symptoms of exaggerated distrust, which in turn causes stress and anxiety and leads to according behaviour (Kramer, 1998, p. 267). It is also suggested that after experiencing deceit consumers tend to develop a distrustful attitude towards online companies as a protection mechanism (Darke & Ritchie, 2007, p. 124). Additionally, consumer distrust indirectly negatively affects consumer behaviour and reverts active consumers to passive (Elbeltagi & Agag, 2016, p. 302).

The following dependent variable under investigation is consumer behaviour, more specifically the consumer buying decision after reading fake online reviews. According to Solomon (2010, p. 27), consumer behaviour is a process performed by an individual or a

group that involves identifying, selecting, purchasing, and possessing a good, service, or idea with the ultimate goal of need or want satisfaction. In contribution to that definition, authors define consumer behaviour as the pattern of behaviour that consists of searching, evaluating, purchasing, and disposing of good or service that meets their expectations (Schiffman & Kanuk, 2007, p. 3). As it can be noted, the scope of both definitions is similar, and the common understanding is generally accepted. Despite the fact that the impact of online review manipulation on consumer behaviour has been researched recently (Lester, 2020, p. 1; H. Li et al., 2020, p. 3685; Peng et al., 2016, p. 276), the industry is evolving rapidly and online consumers adapt to changes quickly (Coppola, 2022, p. 1). In addition to that, articles mostly focus on the overall consumers' perception, not on their behaviour in particular (Peng et al., 2016, p. 276; Zhuang et al., 2018, p. 25). Therefore, it is crucial to provide recent studies on the topic of fake online reviews and their impact on consumer behaviour, which underlines the research gap of the current study. In addition to that, the paper focuses on the specific point of consumer behaviour, namely the intention to buy.

The theoretical support for the relationship between online reviews and consumer behaviour can be explained by the conceptual meta-framework developed by Jager (2000, p. 53). According to the author, three main determinants of consumer behaviour lie at different levels. The first driving factor of consumer behaviour on the micro-level is personal needs, opportunities, abilities, and uncertainty (Jager, 2000, p. 58). The second aspect is considered to be the heart of the meta-model, which is cognitive processing. Last but not least, opportunity consumption refers to the changes on the macro level. Furthermore, the accessibility-diagnosticity theory developed by Feldman and Lynch (1988) is used to explain the use of consumer behaviour in the conceptual model. It falls under the scope of information processing theories (Alzate, Arce-Urriza, & Cebollada, 2021, p. 639). The theory implies that accessibility and diagnosticity are the main criteria on which the likelihood of making a decision considering a piece of information is based. Transmitting the theory to the consumer behaviour variable, it implies that the extent to which the fake online reviews are both accessible and visible to the users influences their consumer behaviour. For instance, the easier the access to the reviews, as well as their clarity, the higher level of the impact of the reviews on the consumers. Consumer behaviour is a dependent variable and has been researched before (Lafferty & Goldsmith, 1999; Sallam, 2011). However, the authors are inconsistent regarding the direct impact of fake online reviews on consumer behaviour. Some reveal that consumers tend to buy poor-quality products based on fake reviews more often

(Lester, 2020, p. 1). Other studies outline that the overall attitude towards the product is negative after the manipulation of online reviews (Peng et al., 2016, p. 270). Therefore, the given study aims to assess whether and how fake online reviews impact consumer behaviour.

5 Empirical Research

5.1 Method

Taking into consideration that the ultimate purpose of the paper is to measure the influence of fraudulent reviews on four different variables, a quantitative methodological approach was chosen. As for the design, true experiment implies the manipulation of an independent variable in order to measure its impact on the dependent variable, which could be a cognitive process or behaviour (True Experimental Design, 2022, p. 1). Additionally, it implies randomization when assigning the treatments and control for any other external variables. Considering the objectives of the research, it is an appropriate fit for the given paper. To be more precise, a between-subject experimental design was selected, since subjects are assigned to only one treatment condition (Charness et al., 2012, p. 1). In the current research, the fake online reviews variable is defined as independent, while brand attitude, consumer trust, purchase intent, and consumer trust in relation to purchase intent are dependent variables. The experiment was conducted in an online setting through the Qualtrics survey tool. As for the analysis, descriptive statistics was used to analyze the demographical and geographical aspects of the respondents. To test the hypotheses, an ANCOVA test was conducted, which implies assessing data through ANOVA, including control variables. This specific test was chosen not only to measure the impact of the variables on one another but also to introduce control variables (or covariates) that have an impact on the dependent variables and therefore adjust the results of the testing (Tabachnick & Fidell, 2013, p. 1).

5.2 Stimulus

The hypotheses were tested through the experiment with a between-subject design. All participants were asked in the protocol to imagine the situation of browsing through the internet looking for headphones to acquire. After that, the participants were equally and randomly assigned to either fake or real reviews on the product, precisely headphones from the Samsung brand. In addition to the reviews, subjects also encountered press release that assisted them in acknowledging whether the reviews were fake or real. After that, participants were asked to evaluate the suggested statements.

To reach a transparent and clear conclusion, only one variable was being manipulated within the stimuli. Therefore, the average valence of the reviews for both treatments was 4.2. The criteria for a determination of whether the review is fake or real were adopted from the

literature review of this master thesis. Additionally, each of the five reviews for the control group who got real reviews contain an equal number of criteria per review as the experimental group who got fake reviews. Furthermore, every criterion of the deceptive review is the exact opposite of the criterion of the real review. All of them are outlined in table 6. Stimuli received by the experimental group are visualized in Appendix A, while Appendix B contains the visualization of stimuli encountered by the control group.

Table 4 Criteria for determination of fake and real reviews

	Fake	**Real**
Review 1	No argument, short, extreme, old, one-sided	Two-sided, argument quality, average extremity, recent, long
Review 2	No argument, short, extreme, old, one-sided	Two-sided, argument quality, average extremity, recent, long
Review 3	No argument, extreme, old, poor grammar and vocabulary, promotional terms	Argument quality, average extremity, recent, good grammar and vocabulary, no promotional terms
Review 4	No argument, short, old, one-sided	Argument quality, long, recent, two-sided
Review 5	No argument, poor grammar and vocabulary, extreme, old, promotional terms, one-sided, internally inconsistent	Argument quality, good grammar and vocabulary, average extremity, recent, no promotional terms, two-sided, internal consistency

Note. The table comprises the criteria used in the determination of review nature for both treatments.

The time that subjects spent on reading the reviews and studying the stimuli was measured to assess their involvement in the survey and understanding of the topic. For fake reviews, the average time individual spent on the stimuli page is 44 seconds, while for real reviews the value is 66 seconds. The reason is that real reviews are more lengthy than deceptive ones due to their criteria of determination their deceptive nature. According to Brysbaert (2019), most adults read from 175 to 300 words per minute in English (p. 1). Considering the number of words of each stimulus, it could be concluded that the subjects spent enough time on their investigation.

The whole survey occupied on average 501 seconds of the respondents' time, or 8.3 minutes. The mode value is 222 seconds, namely 3.7 minutes.

In addition to that, an attention check was introduced to evaluate whether the subjects were attentive during the survey. Attention check not only helps in eliminating careless respondents, but also ensures the validity of the survey (Kung, Kwok, & Brown, 2018, p.

265). The question asked to name the brand evaluated in the survey and 100% of the respondents filled in the field correctly.

5.3 Sampling and participants

The sample size for this online experiment was comprised of 100 participants, and the stimuli were randomly and equally assigned to two groups of 50 respondents. According to Delice (2010), the range from 20 to 50 respondents is sufficient for experimental research design, therefore the sample size is justified (p. 2008). As for the sampling method, quota sampling was applied which implies dividing the population into sub-groups based on different characteristics, which are called quota controls (Acharya, Prakash, Saxena, & Nigam, 2013, p. 332). This study used age and gender as the determinants for the division of the groups. Cumming (2010) empirically demonstrated that a quota sampling method that uses age and gender as quota controls may be a satisfactory alternative to probability sampling (p. 136). Using the data of the Austrian Federal Economic Chamber, the Austrian population was firstly divided into two groups by gender, male and female, and seven groups by age, which are 15-24; 25-34; 35-44; 45-54; 55-64; 65-74 and more than 75 (2019). Secondly, the number of men and women required for the sample for each age group was derived proportionally to the population by dividing the number of people of one age group by the whole population and multiplied by 100. The third step was converting seven age categories into three by grouping them which is visualized in table 5.

Table 5 Quota sampling results

	Male	Female	**Total**
15-34	15	14	29
35-54	17	17	34
55 and older	17	20	37
Total	49	51	100

Note. The final count of the sample grouped by gender and age.

It can be observed that 49% of the participants were male, while 51% were female. The age ranges from 16 to 66, with a mean of 43 years and a mode of 60. The standard deviation from the mean is 15.

Potential respondents were approached both in an online and offline mode. 37% of the participants were notified via email, while 63% were contacted personally offline. People were chosen independently and randomly during the weekend at three Viennese busy locations, namely Stephansplatz, Stadtpark, and Wien Mitte Landstrasse. None of the subjects was compensated or incentivized in any way.

Since the sample represents the structure of the Austrian population, the survey was designed both in English and German. For the German version back translation was performed, which implies translating the text back to the source language (Yanti, Syarif, & Hamzah, 2020, p. 102). Its purpose is to eliminate any misunderstandings that come along with differences in vocabulary of English and German languages. 36% of the surveys were submitted in German, while 64% were undertaken in English. There are several reasons why the majority of the surveys were conducted in English rather than German, despite the fact that all respondents were Austrians. First of all, one of the places where the survey link was distributed is a company with English being cultural language, therefore, it might have been convenient to answer the questions without switching to German. In addition to that, the author approached people on the streets in English and talked with the respondents while they filled in the survey, therefore it was easier to concentrate on one language. Furthermore, the language could have been switched throughout the survey, therefore, even if the subject answered all the questions in German, and switched to English on the last page, the platform recorded the answers in English.

With regard to the occupation, 17% of the respondents are students, 33% are white-collar workers, 7% are blue-collar workers, 20% are self-employed, 22% are retired, and only 1% are unemployed.

Since individuals were contacted personally, the response rate is 100%. As a result, one hundred anonymized surveys were available for analysis.

5.4 Measurements

Established scales from the marketing literature were used for the current investigation. Attitude towards the brand and the product was measured by the scale adopted by Holbrook and Batra (1987). It comprises four items that consist of bi-polar adjectives which are aimed to identify the subject's attitude towards the product or brand. Cronbach's alpha was measured to identify the reliability of the scales. Both brand pre- and post-exposure have the value α=.89, while product attitude is reported to have α=.92. In order to measure the

perceived quality of the product and purchase intent, scales developed by Grewal, Monroe and Krishnan were implemented (1998). The quality of the product scale comprises three items and a seven-point response format (1=Strongly disagree, 7=Strongly agree). Reliability is reported to be α=.91. As for the purchase intent, three items were used, among which two used "1 = Strongly disagree", "7 = Strongly agree" as anchors, while the third one used "1 = Very low", "7 = Very high". The purchase intent scale reported a reliability of α=.95. A semantic differential scale was introduced to measure consumers' trust variable towards the reviews, which was introduced by Ohanian (1990). It consists of five items and Cronbach's alpha is α=.95. To measure the impact of consumer trust on purchase intent, a seven-point semantic differential scale was used, previously adopted by Hong and Cho (2011). It comprises four items with a seven-point answer format, while Cronbach's alpha score is 0.95.

Although the current study aims to measure the impact of fake reviews on brand attitude, trust towards reviews, purchase intent, and trust associated with purchase intent, some studies imply that other variables may impact consumers' judgment. Therefore, three control variables were added to the research. Product or advertisement likeability is reported to have an impact on consumer behaviour; therefore, it was included as a control variable (Rimoldi, 2008, p. 6). For its measurement, a semantic differential scale was used, previously introduced by Chandrashekaran (2004). It consists of three seven-point differentials, one of which is coded reversely. Cronbach's alpha of this scale has a value of α=.71. In turn, brand familiarity was implemented as a control variable since it impacts both brand attitude and purchase intent of the customers (Baker, Hutchinson, Moore, & Nedungadi, 1986, p. 640). To analyze how familiar the respondents were with the Samsung brand, the scale adopted by Becker-Olsen was used (2003). It is composed of three, seven-point differential items and has a reliability of 0.71. Since internet usage experience impacts the online behaviour of the consumers, it was added as a third control variable (Jarvenpaa, Tractinsky, & Vitale, 2000, p. 51). With the intent to measure the online experience of the subjects, a scale with four Likert-type items was introduced, which was invented by Mathwick and Rigdon (2004). Cronbach's alpha of the given scale is reported to be 0.8. Taking into consideration the fact that each scale within the survey has a reliability score of $\alpha > 0.7$, it could be concluded that all of them are reliable and fit for the purpose of the study (Taber, 2018, p. 1273).

In order to control for common method bias, the study followed several techniques suggested by Podsakoff *et al.* (2003, p. 887). As for the procedural remedies, the subjects were notified that the questionnaire is anonymous, therefore their identity is protected. In

addition to that, the protocol contained the information that no right or wrong answer could be selected, but rather respondent's personal opinion matters. The purpose of this statement was to reduce evaluation apprehension. Secondly, items were chosen carefully by ensuring that they do not contain vague concepts or terms, as well as by using specific and simple words for the questions. Two statistical techniques suggested by the authors were used in the current research (Podsakoff et al., 2003, p. 888). More precisely, a pre-test and a manipulation-check were conducted in order to ensure that stimuli manipulation worked out. Two-sample t-test on the consumer trust variable revealed that p-value < .05, namely $p = .02$, which is a statistically significant result (Leo & Sardanelli, 2020, p. 1). Therefore, by rejecting H_0 it could be concluded that the means of the two groups differ significantly, the manipulation worked properly and the author may proceed with the main research. Besides that, Harman's Single-Factor Test, which is one of the most commonly used in the research, was applied in order to refer to the common method bias issue (Aguirre-Urreta & Hu, 2019, p. 47). The outcome showed a value of 33.9%, which is considerably less than 50%. Therefore, it could be concluded that there is no track of common method bias and it does not affect the relationships suggested by the hypothesis. Table 6 provides an overview of the scales used in the study, as well as their items and reliability scores.

Table 6 Measurements

Measure	Items	Cronbach' s α	Reference
Attitude toward the brand and product	Dislike-Like Negative-Positive Bad-Good Unfavorable-Favorable	brand = 0.89 product = 0.92	Holbrook and Batra (1987)
Quality of the product	The headphones appear to be a good quality The headphones appear to be durable The headphones appear to be reliable	0.91	Grewal, Monroe and Krishnan (1998)
Trustworthiness	Undependable-Dependable Dishonest-Honest Unreliable-Reliable Insincere-Sincere Not trustworthy-Trustworthy	0.95	Ohanian (1990)
Purchase intent	I would purchase this product I would consider buying this product The probability that I would consider buying this product is:	0.95	Grewal, Monroe and Krishnan (1998)
Trust relation with purchase intent	I would return to this e-marketplace' s Website I would consider purchasing from this e-marketplace in the next three months I would consider purchasing from this e-marketplace in the next year For this purchase I will buy from this e-marketplace	0.95	Hong and Cho (2011)
Likeability of the product	I am particularly interested in the shown product Given my personal interests, this product is not very relevant to me Overall, I am quite involved when I am purchasing headphones for personal use	0.71	Chandrashekaran (2004)
Familiarity of the object	Unfamiliar-Familiar Definitely do not recognize-Definitely recognize Definitely have not heard of it before- Definitely have heard of it before	0.71	Becker-Olsen (2003)
Internet usage	I spend several hours a week on the Web Compared with most Austrians, I think I spend a lot of time on the Web Outside of the time I spend with e-mail, I consider myself to be a " heavy user" of the Web In a typical week, I visit dozens of sites	0.8	Mathwick and Rigdon (2004)

Note. Measurements summarized in a tabular format.

5.5 Results

In order to test H_1 of the study, several scales were analyzed. The first statistical test compares the means of the brand attitude scale before the participants read the reviews and press release and after. In order to conduct the ANOVA test, the first step was to calculate the difference between the values of brand attitude before exposure and values of brand attitude after exposure. This value is further used as a dependent variable in order to measure the difference in means between the control (real reviews) and experimental (fake reviews) groups. Table 8 demonstrates that the means in the difference between the two groups vary significantly with $\mu_{fake} =$,665, while $\mu_{real} =$ -,17.

Table 7 Means of the difference between pre- and post-exposure

Group	Mean	Std. D	N
Fake	,6650	1,01218	50
Real	-,1700	,83672	50
Total	,2475	1,01472	100

Note. Means, standard deviation, and number of responses in a tabular format.

After that, a one-way ANOVA test was conducted, which is visualized in table 9, having either the control (real reviews) or experimental (fake reviews) group as an independent variable and the means of the difference between the pre- and post-exposure brand attitude as the dependent variable. The total value of the sum of squares is 101,9, which indicates a high deviation within the observations. Taking into consideration that F = 20,2 and p < ,001, it could be stated that the results of the test are highly significant. Therefore, one-way ANOVA demonstrates that H_0, which assumes that the means of two groups are equal, could be rejected.

Table 8 One-way ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	17,431	1	17,431	20,214	<,001
Within Groups	84,506	98	,862		
Total	101,937	99			

Note. One-way ANOVA for comparison brand attitude pre- and post-exposure.

For the demonstrational purposes, brand attitude pre-exposure was tested in order to ensure that the means of the fake vs. real condition are not statistically different. Table 9 shows that the variable has F = 2,72, and p-value = 0,102. Therefore, it is assumed that the means of the two groups do not differ drastically and the results are statistically insignificant.

Table 9 Brand attitude pre-exposure

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	8,434[a]	4	2,109	1,860	,124
Intercept	21,715	1	21,715	19,156	<,001
BrandFamiliarity	,979	1	,979	,864	,355
Internetusage	1,532	1	1,532	1,352	,248
ProductInterest	3,349	1	3,349	2,954	,089
Group	3,085	1	3,085	2,721	,102
Error	107,691	95	1,134		
Total	2517,125	100			
Corrected Total	116,125	99			

a. R Squared = ,073 (Adjusted R Squared = ,034)

Note. The table summarized ANCOVA test results for the brand attitude prior to reviews exposure.

As can be observed in the following table, the difference between the means of brand attitude pre-exposure is 0,29. Interestingly, the mean, as well as standard deviation, for fake reviews is higher than for real ones.

Table 10 Difference in means for brand attitude before exposure

Group	Mean	Std. Deviation	N
Fake	5,0450	1,16572	50
Real	4,7550	,98391	50
Total	4,9000	1,08304	100

Note. Average and standard deviation values in a tabular format.

Additionally, the results of the p-value with and without control variables are described further for comparison. Although with control variables such as product interest, brand familiarity, and internet usage, the significance level is lower than without them, namely p-value = ,102 compared to p-value = ,182 respectively, their inclusion did not change the outcome of the test, as they remain statistically insignificant.

The next independent variable to be tested within the H_1 is a brand attitude after the subjects were exposed to the reviews, as well as the press release, either real or fake. The results of the ANCOVA indicate that F = 7.12, which is the result of a ratio of 5.299/0.743, and p-value = .009. Since F-statistic is far from 1, and the p-value < 0.05, precisely p = ,009, this indicates a statistically significant result. Consequently, it is assumed that the means of the control and experimental groups differ significantly. Adjusted R^2 indicates that 18% of the variation of brand attitude after exposure can be explained by the independent variables, namely deceptive or truthful reviews.

Table 11 Brand attitude post-exposure

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	19,144[a]	4	4,786	6,441	<,001
Intercept	18,775	1	18,775	25,266	<,001
BrandFamiliarity	3,437	1	3,437	4,626	,034
Internetusage	4,875	1	4,875	6,560	,012
ProductInterest	3,484	1	3,484	4,688	,033
Group	5,299	1	5,299	7,131	,009
Error	70,593	95	,743		
Total	2254,313	100			
Corrected Total	89,737	99			

a. R Squared = ,213 (Adjusted R Squared = ,180)

Note. The table summarized ANCOVA test results for the brand attitude after the exposure to reviews.

The following table demonstrates that the mean value of the results for the dependent variable brand attitude after exposure of the control group who encountered real reviews is 4,925, while being 4,38 for the experimental group (fake ones). Therefore, the difference is 0,545, with control group having higher result.

Table 12 Difference in means for brand attitude after exposure

Group	Mean	Std. Deviation	N
Fake	4,3800	1,00031	50
Real	4,9250	,82414	50
Total	4,6525	,95207	100

Note. Average and standard deviation values in a tabular format.

With regard to the influence of control variables, their absence decreases the *p*-value by ,005 as opposed to their inclusion. In other words, the *p*-value without control variables is ,004, while their inclusion demonstrates the result of ,009. Regardless of this fact, the result remains statistically significant in both cases. Levene's test of equality of error variance has a significance level of 0,491. Therefore, it could be assumed that the homogeneity of variance was met.

The following measured dependent variable was an attitude towards the product after the reviews and press release were read by the subject, which also falls under the umbrella of H_1. The ANCOVA results indicate that the *p*-value = ,160, which is more than the accepted statistical significance level of 0,05, while the *F*-statistic = 2. Taking into consideration the outcome, it is presumed that H_0 for the variable product attitude cannot be rejected since the *p*-value is statistically insignificant.

Despite the statistically insignificant results, the mean value for the group who encountered fake online reviews is 4,535, while the average value of the control group (real ones) is 4,94, which makes up a difference of 0,405, with the experimental group having a lower value. It could be observed that the direction goes in line with the results of testing of other hypotheses within this study.

Table 13 Difference in means for product attitude

Group	Mean	Std. Deviation	N
Fake	4,5350	1,14844	50
Real	4,9400	,58152	50
Total	4,7375	,92822	100

Note. Average and standard deviation values in a tabular format.

The impact inclusion of control variables was checked; however, the results did not reveal any significant findings.

The final dependent variable measuring H_1 is the perceived quality of the product. The results of ANCOVA reveal a significance level of < ,001, which is statistically highly significant. Antecedently, the *F*-statistic has a large value of 115,2. It could be assumed that the difference in means between the group that read fake reviews and the group that was exposed to real reviews varies extensively, with the mean of 3,2267 and 5,2733 respectively. Test of equality of error variances indicates a significance level of 0,102, hence equal

variances within the observations are assumed. According to the adjusted R^2 results, as much as 58,5% of the variance of the perceived quality can be explained by the independent variables fake or real online reviews.

Table 14 Perceived quality of the product

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	111,880[a]	4	27,970	35,916	<,001
Intercept	9,611	1	9,611	12,342	<,001
BrandFamiliarity	1,563	1	1,563	2,007	,160
Internetusage	2,307	1	2,307	2,962	,088
ProductInterest	,345	1	,345	,443	,507
Group	89,732	1	89,732	115,225	<,001
Error	73,981	95	,779		
Total	1992,111	100			
Corrected Total	185,861	99			

a. R Squared = ,602 (Adjusted R Squared = ,585)

Note. The table demonstrates ANCOVA test results for the perceived quality of the product.

Table 15 shows the severe difference in means between the control and experimental groups, that is 2,04. Furthermore, subjects who encountered fake reviews rated the perceived quality much lower than the other group.

Table 15 Difference in means for perceived product quality

Group	Mean	Std. Deviation	N
Fake	3,2267	,99532	50
Real	5,2733	,81564	50
Total	4,2500	1,37018	100

Note. Average and standard deviation values in a tabular format.

ANOVA results without control variables still indicate a *p*-value < ,001. However, the *F*-statistic increases to 126,481. Despite this fact, for the perceived quality measurement the introduction of product interest, brand familiarity, and internet usage as control variables did not contribute to the statistical significance level and consequently to the results of this particular test.

The following dependent variable, which is consumer trust, falls under the scope of the testing H_2. The results of the ANCOVA test reveal the *p*-value < ,001, which is considered to be a highly significant result, while *F* = 154,2. Levene's test identifies the significance level of 0,537, consequently, it could be stated that the assumption of the homogeneity of variance was not violated. Adjusted R^2 indicates that 66,3% of the variance of the dependent variable consumer trust within the sample could be explained by the independent variables, which are deceptive and real reviews. Table 16 summarized the results of the test.

Table 16 Consumer trust

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	164,807[a]	4	41,202	49,759	<,001
Intercept	6,370	1	6,370	7,693	,007
BrandFamiliarity	,066	1	,066	,079	,779
Internetusage	,746	1	,746	,902	,345
ProductInterest	3,484	1	3,484	4,208	,043
Group	126,891	1	126,891	153,245	<,001
Error	78,663	95	,828		
Total	1772,280	100			
Corrected Total	243,470	99			

a. R Squared = ,677 (Adjusted R Squared = ,663)

Note. The table outlines ANCOVA test outcomes for the consumer trust toward reviews.

Although standard deviation is approximately similar, with only 0,034 difference in values, the difference in means for consumer trust is 2,516, with the experimental group having lower results, which could be observed in table 17.

Table 17 Difference in means for consumer trust towards reviews

Group	Mean	Std. Deviation	N
Fake	2,6520	,91501	50
Real	5,1680	,94964	50
Total	3,9100	1,56821	100

Note. Average and standard deviation values in a tabular format.

Similar to the results of the perceived quality, the ANOVA test also results in the highly significant results, namely *p*-value < ,001, while *F*-statistic increased to 182. Regardless, it could be stated that for the measurement of consumer trust towards online

reviews the control variables of the study do not contribute significantly to the outcome of the test.

To measure the scale aimed at testing H_3, ANCOVA test was also applied. It could be observed in table 18 that the results also indicate highly significant results with a *p*-value < ,001 and *F*-statistic = 51,2, which indicates considerable variation between the means of the two groups when it comes to purchase intention. The equality test of error variances has a significance level of 0,406, which indicates that the results are not statistically significant, thus it is assumed that homogeneity of variance was reached. Adjusted R^2 outlines that 49,8% of the dependent variable, that is purchase intent, variance can be explained by the independent variables, that is fake and truthful reviews.

Table 18 Purchase intent

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	118,497[a]	4	29,624	25,555	<,001
Intercept	,025	1	,025	,022	,882
BrandFamiliarity	1,407	1	1,407	1,213	,273
Internetusage	,005	1	,005	,004	,950
ProductInterest	18,937	1	18,937	16,335	<,001
Group	59,435	1	59,435	51,270	<,001
Error	110,129	95	1,159		
Total	1844,667	100			
Corrected Total	228,627	99			

a. R Squared = ,518 (Adjusted R Squared = ,498)

Note. The table outlines ANCOVA test results for the purchase intent variable.

Even though the difference in means for purchase intent is not as high as for consumer trust, it is still enough to indicate highly significant results. While standard deviation does not vary from group to group in this test crucially, the average values demonstrate the difference of 1,89, which is demonstrated in table 19.

Table 19 Difference in means for purchase intent

Group	Mean	Std. Deviation	N
Fake	3,0733	1,09687	50
Real	4,9667	1,27820	50
Total	4,0200	1,51966	100

Note. Average and standard deviation values in a tabular format.

To assess the influence of control variables, the *p*-value and *F*-statistic of the tests both including and excluding the variables are compared. The results indicate that no significant findings were encountered.

The variable tested by the following scale is the consumer trust associated with purchase intent, which falls under the umbrella of testing H_4. The results demonstrate the significance level of < ,001, while *F*-statistic = 34,487. Thus, it could be stated that the outcome is statistically significant and H_0 can be rejected. Levene's test of equality of error variances indicates a level of significance of ,003, which means that equal variances are not presumed. Adjusted R^2 implies that 42,1% of the variance of an independent variable (consumer trust associated with purchase intent) could be explained by the dependent variables (fake or real online reviews).

Table 20 Consumer trust associated with purchase intent

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	107,276[a]	4	26,819	18,405	<,001
Intercept	,108	1	,108	,074	,786
BrandFamiliarity	,107	1	,107	,073	,787
Internetusage	5,932	1	5,932	4,071	,046
ProductInterest	13,370	1	13,370	9,176	,003
Group	50,254	1	50,254	34,487	<,001
Error	138,431	95	1,457		
Total	2131,438	100			
Corrected Total	245,707	99			

a. R Squared = ,437 (Adjusted R Squared = ,413)

Note. The table outlines ANCOVA test results for consumer trust effect on purchase intent.

Table 21 demonstrates that the difference between the average values of the two groups for this dependent variable is 1,765, with the experimental group having lower results. Additionally, variation from the mean is slightly higher for the experimental group compared to the control one.

Table 21 Difference in means for consumer trust associated with purchase intent

Group	Mean	Std. Deviation	N
Fake	3,4600	1,53394	50

Real	5,2250	1,03541	50
Total	4,3425	1,57540	100

Note. Average and standard deviation values in a tabular format.

The results of the comparison of *p*-value including and excluding control variables are presented further. Although the impact cannot be observed on the *p*-value since it is highly significant in both cases, the *F*-statistic decreases from 45,477 to 34,487 with the introduction of control variables.

Taking into consideration all the scales and their results, table 22 provides a summary of the outcomes for each scale that were described in detail above.

Table 22 Summary of the results of each scale

№	**Dependent variable**	***F*-statistic**	***p*-value**
1	Brand attitude pre-exposure	2,721	,102
2	Comparison of brand attitude pre- and post-exposure	20,214	<,001
3	Brand attitude	7,131	,009
4	Product attitude	2,003	,160
5	Perceived quality	115,225	<,001
6	Consumer trust towards reviews	153,245	<,001
7	Purchase intention	51,270	<,001
8	Consumer trust relation with purchase intention	34,487	<,001

Note. The table provides an overview of the results of significance level and F-statistic for each scale.

Considering the previous table, table 23 groups the finding of each scale under the umbrella of hypothesis and outlines the summary of the results of hypothesis testing.

Table 23 Summary of the hypothesis testing

Hypotheses	**Result**
H1: Fake online reviews negatively impact consumers' attitudes toward the brand	Accepted

H2: Fake online reviews have a negative effect on consumers' trust in online platforms and reviews	Accepted
H3: Fake online reviews negatively influence consumers' purchase intention	Accepted
H4: Consumer trust in the online reviews increases purchase intention	Accepted

Note. Summary of the hypotheses testing in a tabular format.

5.6 Discussion

The purpose of this Master Thesis was to measure the impact of fake reviews on brand attitude and consumer behaviour, more precisely consumer trust towards reviews and their purchase intention. The following section describes the results of the study and discusses their interrelation with the existing literature.

To measure the influence of fake reviews on the brand attitude, which is the first hypothesis, several tests based on different scales were conducted. The first test compared the results of attitude towards brand before and after exposure to the stimuli. The results indicate statistical significance; hence, it could be stated that H_0 is rejected for this particular test. Differently speaking, an attitude towards the brand became worse, less likable, less positive, and less favorable for the respondents who encountered fake reviews, as compared to their attitude before the stimuli exposure. Along with the results of the researchers, who identify significant changes in brand attitude before and after showing the stimuli, the results demonstrate that fake online reviews influence brand attitude (Machleit, Allen, & Madden, 1993, p. 76; Walsh, Winterich, & Mittal, 2010, p. 81). It is vital to mention that brand attitude before stimuli exposure outlines statistically insignificant results, therefore the means of the two groups did not indicate severe differences, and the ground for the comparison of pre- and post-exposure was transparently justified. The following test compared the means of the control and experimental group of the brand attitude dependent variable. Equivalently to the outcome of the first test, the *p*-value is statistically significant, meaning that the difference in the average value between two groups varies substantially. In other words, subjects who read fake online reviews identify the brand as less likable, less positive, and less favorable than those who read real reviews. These findings go in line with the results of Wadsworth, who suggests that brand reputation is highly affected by fake reviews (2021, p. 1). Furthermore, the findings comply with other research that describes the influence of deception by the brand on the consumer's attitude toward it and their purchase intention (Xie et al., 2015, p. 281). In

addition to that, Bahadur (2020) also identified the influence of fake news on the brand attitude, although it was weak (p. 21). The following scale measured the attitude towards the product, that is wireless headphones from the Samsung brand. According to the *p*-value, the results are not significant, however, a comparison of the mean values between the two groups indicates a clear direction in favor of the control group, namely those who encountered real reviews and press release. The findings support the outcome of the research that shows that the reviews with a generally positive valence of 4.5 do not impact the attitude towards the product (Karabas, Kareklas, Weber, & Muehling, 2021, p. 695). Since for the current study valence of the reviews was set to be identical, which is 4.2, between the control and experimental group, the absence of the difference in average values could be justified. Another reason for having insignificant results for attitude towards the product variable, while resulting with statistical significance for brand attitude could be the fact that consumer attitude towards the product is not based solely on the brand attitude. The product image is institutionalized on consumer biases, for example, from word of mouth. Thus, a consumer hears about the quality of a product from a trusted source, and in case the brand image related to that product is damaged, it might not influence proportionally the consumers' attitude towards the product. The results of the testing perceived quality as an independent variable indicate statistical significance. Differently speaking, because the variance between the means of the two groups is significant, it could be assumed that fake online reviews impact the perception of the product quality by the consumers. Existing literature suggests that fraudulent reviews impact consumers differently, based on their initial perception of the product quality (Ananthakrishnan et al., 2020, p. 965). Specifically, in case the product was perceived as medium-quality, fake reviews had a more significant impact on the subjects compared to the high-quality product. The results of another study outline that there is a strong correlation between the positive shill reviews and quality perception of the product (Ong, Mannino, & Gregg, 2013), which goes along with the findings outlined in the current study (p. 7).

The following scale measured the impact of fake reviews on consumer trust in online reviews, and the results reveal the acceptance of the second hypothesis. Therefore, the difference in average values between the group with fake reviews and the group with real reviews points out that fake online reviews negatively influence consumer trust in reviews. These results comply with the findings revealed by Jin and Lee (2014), who show that unfair deception of the postings by the brand diminishes consumer trust (p. 224). Similar to the

findings of the current research, authors reveal that not only deceptive reviews but also their manipulation (for instance deletion of negative reviews) lead to suspicion from the consumers, which then results in a lack of trust (Zhuang et al., 2018, p. 34). Another study that goes in line with the results of this thesis is revealed by Dong *et al*. (2019), who conclude that reviews have an impact on consumer trust; however, it differs. Specifically, hedonic reviews have a greater impact than utilitarian ones (p. 558).

The significance level of the scale measuring purchase intent was less than ,05. Thus, the results of the study suggest that purchase intention, which is the pre-last step of the decision-making process, is highly influenced by fake online reviews. This outcome goes in line with a previous study that suggests that fake reviews impact risk perception, and consequently consumers' purchase intention (Wu et al., 2019, p. 133). Another study indicates that it is the level of satisfaction with online reviews that impact purchase intent (Zhu, Li, Wang, He, & Tian, 2020, p. 463). Considering the fact that fake reviews undermined the level of customer satisfaction, these results comply with the findings of the current Master Thesis.

The last but not least, in order to test H_4 the scale on consumer trust associated with the purchase intent was examined. The results indicate a statistically highly significant value. Interpreting the statistics, it could be concluded that since the average values of control and experimental groups vary significantly, people who encountered fake reviews have less trust in the platform and the reviews, therefore the purchase intention decreases. The results correspond to the findings revealed by the researchers that suggest that perceived trust influenced the consumers' intention to acquire the product (Carbonell, Barbu, Vorgerd, & Brand, 2019, p. 10). Identically, the results outlined by Fogel and Zachariah (2017) support the findings of the current study by stating that increased trust associated with consumer intentions and behaviour is higher for individuals who did not encounter fake reviews (p. 53).

6 Conclusion

Fake reviews increase their prevalence on review websites, internet shopping platforms, and the internet in general (Wu et al., 2020, p. 1). The problem became even more severe when it started entailing legal responsibility, such as fines and court procedures. On the other side, consumers' general attitude toward a given product and their behaviour when encountered on the market, may be impacted by the fake online reviews. The purpose of this paper was to expand the understanding of the effect of deceptive reviews on several aspects, such as attitude towards the brand, consumer trust towards reviews, their purchase intent, and the consumer trust in relation to purchase intent. Additionally, product attitude and perceived quality were tested.

Firstly, it was revealed that fake online reviews have a negative impact on brand attitude. That has been tested by having the participants react to the fake reviews and consequent press releases, which leads to the belief that the consumers are significantly influenced by media outlets, that in turn brings a negative connotation to the brand. Interestingly, treatment of the product did not change, most probably since the respondents did not correlate the reviews with their feelings towards the product, even if they learned about deception; however, the difference in means still indicates that the experimental group, who encountered deceptive reviews, see the product as worse, more negative, and more unfavorable. On the other hand, according to the results of the study, the perceived quality of a product is severely impacted by the veracity of the reviews. The study showed that similar to the brand attitude, which is negatively impacted and suffers considerably, the perceived quality is also much affected. Hence, there is a clear connection between fake online reviews and perceived quality. Participants from the sample did not express a lower interest in the product presented because of the nature of reviews, nor negative or positive press releases. In this vein, it is important to mention the consumer trust level, which was as well measured during the empirical research. The finding outlines that if consumers encounter fake reviews, their trust level towards the company diminishes drastically. This is also then reflected in the overall attitude towards the brand. Thus, when presented with fake reviews, consumers are shown to have a decreased attitude toward the brand and trust level towards reviews. Furthermore, consumer trust associated with the purchase intent is also impacted by review deception, which accentuates the responsibility that the selling platforms have in providing a reliable platform for a brand to sell its product. Differently speaking, people would not be willing to return to a platform that contains fake reviews in order to acquire a product. Hence,

the purchase intent is still there, just not on the platform that tried to deceive its clients. This finding highlights the importance of creating and choosing, from a brand's perspective, a reliable medium to sell its products since the compound efforts and resources that the companies allocate to creating, building, and maintaining a brand are harmed by the desire to appear perfect in the dealer portals.

In light of the findings mentioned above, it could be stated that the findings of the paper contribute to the existing literature by extending the knowledge about the effect of fake reviews on consumers, as well as go in line with the findings of other authors (Carbonell et al., 2019, p. 10; Dong et al., 2019, p. 558; Ong et al., 2013, p. 7; Zhu et al., 2020, p. 463).

6.1 Limitations

Although the current study is informative and reliable in terms of measurement, as well as its findings are of wide interest, several limitations are going to be addressed in this section.

Firstly, participants may have been influenced by the circumstances in which the survey was filled out, therefore human error may have occurred. The collection of offline answers implied approaching people on the streets, thus they may have been in a hurry or simply unwilling to spend time on the survey. As a result, uncareful reading of both stimuli and the questions may lead to untruthful or uncareful answers.

In addition to that, the experiment considered only one product of one specific brand, which might have already created a biased approach to the study. That is because there is an already established public opinion regarding the product and brand. In reality, however, generalizing the results of the current study to other product categories, other brands and services may result in an error, hence one should be cautious in case of application of the current results to other products or services.

Although the sample size for this study is justified, 100 respondents are still a relatively small number to represent the Austrian population. Especially when measuring such dependent variables as brand or product attitude, larger sample size is required for a careful and precise recommendation. A bigger sample would allow measuring more accurately and precisely the brand and product attitude, since a broader range of consumer behaviours would be analyzed, evaluated, and tested.

Additionally, subjects might have had difficulties forming their mind and decisions on such short notice, especially aspects such as brand attitude, which requires more input factors, as well as more time for the attitude to change genuinely.

For the current study, all characteristics attributable to fake online review detection were considered concurrently, which could also be considered a limitation. In other words, each of the reviews contained from four to eight review-centric elements of fraud, which creates a contained environment for the sample. This limits the study from assessing which of those attributes contributed to the detection of fake reviews. That in turn led to certain consequences that define the outcome of the study.

Furthermore, consideration of solely one nationality, namely Austrians, can also be seen as a limitation. One culture is grouped by certain mentality, values, and beliefs. Hence, cultural bias may be present, which directly affects the pattern of the subjects' responses.

6.2 Implications and future research

The outcomes of the current study have vital implications for sellers, online platforms, and customers. Fake online reviews not only decrease buying intentions of the customer but also spoil brand reputation and decrease consumer trust in reviews and online platforms. Therefore, in combination, these factors lead to events that are undesirable to all three parties. In order to avoid the detrimental effect, agreeing with the recommendations of other researchers, it is advised to control the review postings in order to eliminate the presence of fake reviews (H. Li et al., 2020, p. 3689). Moreover, it could be beneficial to underline the authenticity of the reviews and ensure online users the truthfulness of their source. In general, implementation of preventive measures from flooding fake reviews increases the chances of consumer satisfaction, which in turn affects purchase intent, and therefore revenues of the company in a positive direction.

As for future research, it could be tangled from two sides – antecedents of fake reviews and their consequences. Since the current study focused solely on the consequences, it would be interesting to research the main motivations for posting reviews, especially by individuals rather than companies. In addition to that, the main factors influencing their motivation could be studied. Also, the ways how it is performed can be reviewed, with the focus on computer-generated ones. The findings may be extremely beneficial for parties, who are willing to eliminate the effect of fake reviews on their platforms. From the consequences

point of view, it is recommended to examine the effect of fake reviews not only on consumers but other stakeholders, such as the online platform, the company, and even society overall.

Taking into consideration the limitations, it is also recommended to assess consumer behaviour after the subjects encounter each of the attributes of fakery in isolation rather than all together. This approach not only sheds light on which elements are better detected and viewed as fake but also outlines the ones that have the biggest impact on the user. Thus, future studies could focus on researching in-depth the effect of every component of fake reviews on its own on brand and product image, as well as consumer behaviour.

Additionally, performing a cross-cultural study on the given topic broadens the understanding of human behaviour from culture to culture by providing a perspective that does not depend on the local setting. Alternatively, simply including different nationalities in the sample (only using random sampling) may lead to new insights and findings in the field of consumer behaviour in relation to fake online reviews.

7 References

Abedin, E., Mendoza, A., & Karunasekera, S. (2019). What Makes a Review Credible? Heuristic and Systematic Factors for the Credibility of Online Reviews. *Australasian Conferences on Information Systems Proceedings*, *75*, 701–711.

Abedin, E., Mendoza, A., & Karunasekera, S. (2020). Credible vs Fake: A Literature Review on Differentiating Online Reviews based on Credibility. *International Conference on Information Systems*, *2*, 1–19. Retrieved from https://www.researchgate.net/publication/347517042

Abedin, E., Mendoza, A., & Karunasekera, S. (2021). Exploring the Moderating Role of Readers' Perspective in Evaluations of Online Consumer Reviews. *Journal of Theoretical and Applied Electronic Commerce Research*, *16*(7), 3406–3424. https://doi.org/10.3390/jtaer16070184

Acharya, A. S., Prakash, A., Saxena, P., & Nigam, A. (2013). Sampling: why and how of it? *Indian Journal of Medical Specialities*, *4*(2), 330–333. https://doi.org/10.7713/ijms.2013.0032

Aghakhani, N., Oh, O., & Gregg, D. (2017). Beyond the Review Sentiment: The Effect of Review Accuracy and Review Consistency on Review Usefulness. *International Conference on Information Systems Proceedings*, *13*, 1–17.

Agnihotri, A., & Bhattacharya, S. (2016). Online Review Helpfulness: Role of Qualitative Factors. *Psychology & Marketing*, *33*(11), 1006–1017. https://doi.org/10.1002/mar.20934

Aguirre-Urreta, M. I., & Hu, J. (2019). Detecting Common Method Bias. *The Database for Advances in Information Systems*, *50*(2), 45–70. https://doi.org/10.1145/3330472.3330477

Ahmad, W., & Sun, J. (2018). Modeling consumer distrust of online hotel reviews. *International Journal of Hospitality Management*, *71*, 77–90. https://doi.org/10.1016/j.ijhm.2017.12.005

Ahmed, H., Traore, I., & Saad, S. (2018). Detecting opinion spams and fake news using text classification. *Security and Privacy*, *1*(1), 1–15. https://doi.org/10.1002/spy2.9

Ajzen, I., & Fishbein, M. (2000). Attitudes and the Attitude-Behaviour Relation: Reasoned and Automatic Processes. *European Review of Social Psychology*, *11*(1), 1–33. https://doi.org/10.1080/14792779943000116

Alzate, M., Arce-Urriza, M., & Cebollada, J. (2021). Online Reviews and Product Sales: The Role of Review Visibility. *Journal of Theoretical and Applied Electronic Commerce Research*, *16*(4), 638–669. https://doi.org/10.3390/jtaer16040038

Ananthakrishnan, U. M., Li, B., & Smith, M. D. (2020). A Tangled Web: Should Online Review Portals Display Fraudulent Reviews? *Information Systems Research*, *31*(3), 950–971. https://doi.org/10.1287/isre.2020.0925

Aslam, W., Ham, M., & Farhat, K. (2018). Influencing factors of brand perception on consumers' repurchase intention: An examination of online apparel shopping. *Management: Journal of Contemporary Management Issues*, *23*(2), 87–102. https://doi.org/10.30924/mjcmi/2018.23.2.87

Aslam, W., Hussain, A., Farhat, K., & Arif, I. (2020). Underlying Factors Influencing Consumers' Trust and Loyalty in E-commerce. *Business Perspectives and Research*, *8*(2), 186–204. https://doi.org/10.1177/2278533719887451

Bagozzi, R. P., & Dholakia, U. M. (2002). Intentional social action in virtual communities. *Journal of Interactive Marketing*, *16*(2), 2–21. https://doi.org/10.1002/dir.10006

Bahadur, F.-K. (2020). *Fake it till you break it?! Impact of fake news on implicit brand attitudes of social media users* (Master Thesis). University of Twente, Enschede. Retrieved from https://essay.utwente.nl/81352/

Baker, W., Hutchinson, J. W., Moore, D., & Nedungadi, P. (1986). Brand Familiarity and Advertising: Effects on the Evoked Set and Brand Preference. In J. R. Lutz (Ed.), *Advances in Consumer Research* (Vol. 13, pp. 637–642). Provo: Association for Consumer Research.

Bartlett, F. (1932). *Remembering*. Cambridge, England: Cambridge University Press.

Baur, T., & Nyström, B. (2017). *The effect of eWOM components on brand attitude and purchase intention: A cross country study between Germany and Sweden* (Bachelor Thesis). Luleå University of Technology, Luleå. Retrieved from https://www.diva-portal.org/smash/get/diva2:1111539/FULLTEXT01.pdf

Becker-Olsen, K. L. (2003). And Now, A Word from Our Sponsor--A Look at the Effects of Sponsored Content and Banner Advertising. *Journal of Advertising*, *32*(2), 17–32. https://doi.org/10.1080/00913367.2003.10639130

Beldad, A., de Jong, M., & Steehouder, M. (2010). How shall I trust the faceless and the intangible? A literature review on the antecedents of online trust. *Computers in Human Behaviour*, *26*(5), 857–869. https://doi.org/10.1016/j.chb.2010.03.013

Belk, R. W. (1988). Possessions and the Extended Self. *Journal of Consumer Research*, *15*(2), 139–168. https://doi.org/10.1086/209154

Bernacer, J., Balderas, G., Martinez-Valbuena, I., Pastor, M. A., & Murillo, J. I. (2014). The problem of consciousness in habitual decision making. *Behavioural and Brain Sciences*, *37*(1), 21–22. https://doi.org/10.1017/S0140525X13000642

Breckler, S. J., & Wiggins, E. C. (1989). Affect versus evaluation in the structure of attitudes. *Journal of Experimental Social Psychology*, *25*(3), 253–271. https://doi.org/10.1016/0022-1031(89)90022-X

Brysbaert, M. (2019). How many words do we read per minute? A review and meta-analysis of reading rate. *Department of Experimental Psychology*, *109*, 1–94. https://doi.org/https://doi.org/10.1016/j.jml.2019.104047

Carbonell, G., Barbu, C.-M., Vorgerd, L., & Brand, M. (2019). The impact of emotionality and trust cues on the perceived trustworthiness of online reviews. *Cogent Business & Management*, *6*(1), 1–14. https://doi.org/10.1080/23311975.2019.1586062

Chandrashekaran, R. (2004). The influence of redundant comparison prices and other price presentation formats on consumers' evaluations and purchase intentions. *Journal of Retailing*, *80*(1), 53–66. https://doi.org/10.1016/j.jretai.2004.01.004

Chang, H. H., & Chen, S. W. (2009). Consumer perception of interface quality, security, and loyalty in electronic commerce. *Information & Management*, *46*(7), 411–417. https://doi.org/10.1016/j.im.2009.08.002

Chang, H. H., & Wu, L. H. (2014). An examination of negative e-WOM adoption: Brand commitment as a moderator. *Decision Support Systems*, *59*, 206–218. https://doi.org/10.1016/j.dss.2013.11.008

Charness, G., Gneezy, U., & Kuhn, M. A. (2012). Experimental methods: Between-subject and within-subject design. *Journal of Economic Behaviour & Organization*, *81*(1), 1–8. https://doi.org/10.1016/j.jebo.2011.08.009

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

Chen, Z., & Lurie, N. H. (2013). Temporal Contiguity and Negativity Bias in the Impact of Online Word of Mouth. *Journal of Marketing Research*, *50*(4), 463–476. https://doi.org/10.1509/jmr.12.0063

Cheng, Y.-H., & Ho, H.-Y. (2015). Social influence's impact on reader perceptions of online reviews. *Journal of Business Research*, *68*(4), 883–887. https://doi.org/10.1016/j.jbusres.2014.11.046

Cheung, C., Sia, C.-L., & Kuan, K. (2012). Is This Review Believable? A Study of Factors Affecting the Credibility of Online Consumer Reviews from an ELM Perspective. *Journal of the Association for Information Systems*, *13*(8), 618–635. https://doi.org/10.17705/1jais.00305

Cheung, M. Y., Luo, C., Sia, C. L., & Chen, H. (2009). Credibility of Electronic Word-of-Mouth: Informational and Normative Determinants of On-line Consumer Recommendations. *International Journal of Electronic Commerce*, *13*(4), 9–38. https://doi.org/10.2753/JEC1086-4415130402

Chevalier, J. A., & Mayzlin, D. (2006). The Effect of Word of Mouth on Sales: Online Book Reviews. *Journal of Marketing Research*, *43*(3), 345–354. https://doi.org/10.1509/jmkr.43.3.345

Chiang, I.-P., Lin, C.-Y., & Wang, K. M. (2008). Building Online Brand Perceptual Map. *CyberPsychology & Behaviour*, *11*(5), 607–610. https://doi.org/10.1089/cpb.2007.0182

Chintagunta, P. K., Gopinath, S., & Venkataraman, S. (2010). The Effects of Online User Reviews on Movie Box Office Performance: Accounting for Sequential Rollout and Aggregation Across Local Markets. *Marketing Science*, *29*(5), 944–957. https://doi.org/10.1287/mksc.1100.0572

Christodoulides, G., Michaelidou, N., & Argyriou, E. (2012). Cross-national differences in e-WOM influence. *European Journal of Marketing*, *46*(11/12), 1689–1707. https://doi.org/10.1108/03090561211260040

Coppola, D. (2022, February 23). E-commerce worldwide - statistics & facts. Retrieved from Statista website: https://www.statista.com/topics/871/online-shopping/

Corns, J. (2018). Rethinking the Negativity Bias. *Review of Philosophy and Psychology*, *9*(3), 607–625. https://doi.org/10.1007/s13164-018-0382-7

Costa, A., Guerreiro, J., Moro, S., & Henriques, R. (2019). Unfolding the characteristics of incentivized online reviews. *Journal of Retailing and Consumer Services*, *47*, 272–281. https://doi.org/10.1016/j.jretconser.2018.12.006

Crowley, A. E., & Hoyer, W. D. (1994). An Integrative Framework for Understanding Two-Sided Persuasion. *Journal of Consumer Research*, *20*(4), 561–574. https://doi.org/10.1086/209370

Cumming, R. G. (2010). Is probability sampling always better? A comparison of results from a quota and a probability sample survey. *Community Health Studies*, *14*(2), 132–137. https://doi.org/10.1111/j.1753-6405.1990.tb00033.x

Darke, P. R., & Ritchie, R. J. B. (2007). The Defensive Consumer: Advertising Deception, Defensive Processing, and Distrust. *Journal of Marketing Research*, *44*(1), 114–127. https://doi.org/10.1509/jmkr.44.1.114

Davis, R., Piven, I., & Breazeale, M. (2014). Conceptualizing the brand in social media community: The five sources model. *Journal of Retailing and Consumer Services*, *21*(4), 468–481. https://doi.org/10.1016/j.jretconser.2014.03.006

DeAndrea, D. C., van der Heide, B., Vendemia, M. A., & Vang, M. H. (2018). How People Evaluate Online Reviews. *Communication Research*, *45*(5), 719–736. https://doi.org/10.1177/0093650215573862

Delice, A. (2010). The Sampling Issues in Quantitative Research. *Educational Sciences: Theory and Practice*, *10*(4), 2001–2018.

Dellarocas, C., Zhang, X. (Michael), & Awad, N. F. (2007). Exploring the value of online product reviews in forecasting sales: The case of motion pictures. *Journal of Interactive Marketing*, *21*(4), 23–45. https://doi.org/10.1002/dir.20087

Demangeot, C., & Broderick, A. J. (2007). Conceptualising consumer behaviour in online shopping environments. *International Journal of Retail & Distribution Management*, *35*(11), 878–894. https://doi.org/10.1108/09590550710828218

di Leo, G., & Sardanelli, F. (2020). Statistical significance: p value, 0.05 threshold, and applications to radiomics—reasons for a conservative approach. *European Radiology Experimental*, *4*(1), 1–8. https://doi.org/10.1186/s41747-020-0145-y

Dinev, T., Xu, H., Smith, J. H., & Hart, P. (2013). Information privacy and correlates: an empirical attempt to bridge and distinguish privacy-related concepts. *European Journal of Information Systems*, *22*(3), 295–316. https://doi.org/10.1057/ejis.2012.23

Dong, B., Li, M., & Sivakumar, K. (2019). Online Review Characteristics and Trust: A Cross-Country Examination. *Decision Sciences*, *50*(3), 537–566. https://doi.org/10.1111/deci.12339

Dovidio, J. F., Kawakami, K., & Gaertner, S. L. (2002). Implicit and explicit prejudice and interracial interaction. *Journal of Personality and Social Psychology*, *82*(1), 62–68. https://doi.org/10.1037/0022-3514.82.1.62

Duffett, R. G. (2015). The influence of Facebook advertising on cognitive attitudes amid Generation Y. *Electronic Commerce Research*, *15*(2), 243–267. https://doi.org/10.1007/s10660-015-9177-4

Dzyabura, D., & Peres, R. (2021). Visual Elicitation of Brand Perception. *Journal of Marketing*, *85*(4), 1–51. https://doi.org/10.1177/0022242921996661

Elbeltagi, I., & Agag, G. (2016). E-retailing ethics and its impact on customer satisfaction and repurchase intention. *Internet Research*, *26*(1), 288–310. https://doi.org/10.1108/IntR-10-2014-0244

Fazio, R. H., Sanbonmatsu, D. M., Powell, M. C., & Kardes, F. R. (1986). On the automatic activation of attitudes. *Journal of Personality and Social Psychology*, *50*(2), 229–238. https://doi.org/10.1037/0022-3514.50.2.229

Fei, G., Mukherjee, A., Liu, B., Hsu, M., Castellanos, M., & Ghosh, R. (2021). Exploiting Burstiness in Reviews for Review Spammer Detection. *Proceedings of the International AAAI Conference on Web and Social Media*, *7*(1), 175–184.

Feldman, J. M., & Lynch, J. G. (1988). Self-generated validity and other effects of measurement on belief, attitude, intention, and behaviour. *Journal of Applied Psychology*, *73*(3), 421–435. https://doi.org/10.1037/0021-9010.73.3.421

Feng, V. W., & Hirst, G. (2013). Detecting deceptive opinions with profile compatibility. *International Joint Conference on Natural Language Processing*, *6*, 338–346. Asian Federation of Natural Language Processing.

Filieri, R. (2016). What makes an online consumer review trustworthy? *Annals of Tourism Research*, *58*, 46–64. https://doi.org/10.1016/j.annals.2015.12.019

Filieri, R., McLeay, F., Tsui, B., & Lin, Z. (2018). Consumer perceptions of information helpfulness and determinants of purchase intention in online consumer reviews of services. *Information & Management*, *55*(8), 956–970. https://doi.org/10.1016/j.im.2018.04.010

Fishbein, M., & Ajzen, I. (1974). Attitudes towards objects as predictors of single and multiple behavioural criteria. *Psychological Review*, *81*(1), 59–74. https://doi.org/10.1037/h0035872

Fogel, J., & Murphy, K. (2018). Intentions to Use the TripAdvisor Review Website and Purchase Behaviour After Reading Reviews. *Human IT: Journal for Information Technology Studies as a Human Science*, *14*, 59–100.

Fogel, J., & Zachariah, S. (2017). Intentions to Use the Yelp Review Website and Purchase Behaviour after Reading Reviews. *Journal of Theoretical and Applied Electronic Commerce Research*, *12*(1), 53–67. https://doi.org/10.4067/S0718-18762017000100005

Friese, M., Hofmann, W., & Wänke, M. (2008). When impulses take over: Moderated predictive validity of explicit and implicit attitude measures in predicting food choice and consumption behaviour. *British Journal of Social Psychology*, *47*(3), 397–419. https://doi.org/10.1348/014466607X241540

Gao, L., & Bai, X. (2014). Online consumer behaviour and its relationship to website atmospheric induced flow: Insights into online travel agencies in China. *Journal of Retailing and Consumer Services*, *21*(4), 653–665. https://doi.org/10.1016/j.jretconser.2014.01.001

Gesenhues, A. (2013, April 9). Survey: 90% Of Customers Say Buying Decisions Are Influenced By Online Reviews. Retrieved September 25, 2021, from MarTech website: https://martech.org/survey-customers-more-frustrated-by-how-long-it-takes-to-resolve-a-customer-service-issue-than-the-resolution/

Gibson, B. (2008). Can Evaluative Conditioning Change Attitudes toward Mature Brands? New Evidence from the Implicit Association Test. *Journal of Consumer Research*, *35*(1), 178–188. https://doi.org/10.1086/527341

Gobi, N., & Rathinavelu, A. (2019). Analyzing cloud based reviews for product ranking using feature based clustering algorithm. *Cluster Computing*, *22*(3), 6977–6984. https://doi.org/10.1007/s10586-018-1996-3

Govier, T. (1993). When Logic Meets Politics: Testimony, Distrust, and Rhetorical Disadvantage. *Informal Logic*, *15*(2), 93–104. https://doi.org/10.22329/il.v15i2.2476

Graesser, A. C., McNamara, D. S., Louwerse, M. M., & Cai, Z. (2004). Coh-Metrix: Analysis of text on cohesion and language. *Behaviour Research Methods, Instruments, & Computers*, *36*(2), 193–202. https://doi.org/10.3758/BF03195564

Gresham, L. G., Bush, A. J., & Davis, R. A. (1984). Measures of brand attitude: Are cognitive structure approaches really needed? *Journal of Business Research*, *12*(3), 353–361. https://doi.org/10.1016/0148-2963(84)90017-1

Grewal, D., Monroe, K. B., & Krishnan, R. (1998). The Effects of Price-Comparison Advertising on Buyers' Perceptions of Acquisition Value, Transaction Value, and Behavioural Intentions. *Journal of Marketing*, *62*(2), 46–59. https://doi.org/10.1177/002224299806200204

Harris, C. G. (2019). Comparing Human Computation, Machine, and Hybrid Methods for Detecting Hotel Review Spam. *Conference on E-Business, e-Services, and e-Society, Proceedings*, 75–86. Springer-Verlag. https://doi.org/https://doi.org/10.1007/978-3-030-29374-1_7

He, S., Hollenbeck, B., & Proserpio, D. (2021). The Market for Fake Reviews. *Munich Personal RePEc Archive*, 1–50. Retrieved from https://mpra.ub.uni-muenchen.de/105507/

Hernández-Ortega, B. (2018). Don't believe strangers: Online consumer reviews and the role of social psychological distance. *Information & Management*, *55*(1), 31–50. https://doi.org/10.1016/j.im.2017.03.007

Holbrook, M. B., & Batra, R. (1987). Assessing the Role of Emotions as Mediators of Consumer Responses to Advertising. *Journal of Consumer Research*, *14*(3), 404–420. https://doi.org/10.1086/209123

Hong, I. B., & Cho, H. (2011). The impact of consumer trust on attitudinal loyalty and purchase intentions in B2C e-marketplaces: Intermediary trust vs. seller trust. *International Journal of Information Management*, *31*(5), 469–479. https://doi.org/10.1016/j.ijinfomgt.2011.02.001

Hu, N., Bose, I., Koh, N. S., & Liu, L. (2012). Manipulation of online reviews: An analysis of ratings, readability, and sentiments. *Decision Support Systems*, *52*(3), 674–684. https://doi.org/10.1016/j.dss.2011.11.002

Huang, A. H., Chen, K., Yen, D. C., & Tran, T. P. (2015). A study of factors that contribute to online review helpfulness. *Computers in Human Behaviour*, *48*, 17–27. https://doi.org/10.1016/j.chb.2015.01.010

Hunt, K. M. (2015). Gaming the system: Fake online reviews v. consumer law. *Computer Law & Security Review*, *31*(1), 3–25. https://doi.org/10.1016/j.clsr.2014.11.003

Jager, W. (2000). *Modeling consumer behaviour* (Doctoral Dissertation). University of Groningen, Groningen. Retrieved from https://pure.rug.nl/ws/portalfiles/portal/9914467/thesis.pdf

Jansson-Boyd, C. (2010). *Consumer psychology*. New York, United States of America: Open University Press.

Jarvenpaa, S. L., Tractinsky, N., & Vitale, M. (2000). Consumer trust in an Internet Store. *Information Technology and Internet*, *1*(2), 45–71. https://doi.org/10.1023/A:1019104520776

Jin Ma, Y., & Lee, H.-H. (2014). Consumer responses toward online review manipulation. *Journal of Research in Interactive Marketing*, *8*(3), 224–244. https://doi.org/10.1108/JRIM-04-2013-0022

Jung, N. Y., & Seock, Y.-K. (2016). The impact of corporate reputation on brand attitude and purchase intention. *Fashion and Textiles*, *3*(1), 1–15. https://doi.org/10.1186/s40691-016-0072-y

Kahneman, D. (2011). *Thinking, Fast and Slow* (1st ed.). New York, United States of America: Farrar, Straus and Giroux.

Karabas, I., Kareklas, I., Weber, T. J., & Muehling, D. D. (2021). The impact of review valence and awareness of deceptive practices on consumers' responses to online product ratings and reviews. *Journal of Marketing Communications*, *27*(7), 685–715. https://doi.org/10.1080/13527266.2020.1759120

Katz, D. (1960). The Functional Approach to the Study of Attitudes. *Public Opinion Quarterly*, *24*(2), 163–204. https://doi.org/10.1086/266945

Kern, A. (2020). Human Life, Rationality and Education. *Journal of Philosophy of Education*, *54*(2), 268–289. https://doi.org/10.1111/1467-9752.12412

Ketron, S. (2017). Investigating the effect of quality of grammar and mechanics (QGAM) in online reviews: The mediating role of reviewer crediblity. *Journal of Business Research*, *81*, 51–59. https://doi.org/10.1016/j.jbusres.2017.08.008

Kim, J., Naylor, G., Sivadas, E., & Sugumaran, V. (2016). The unrealized value of incentivized eWOM recommendations. *Marketing Letters*, *27*(3), 411–421. https://doi.org/10.1007/s11002-015-9360-3

Kocak Alan, A., & Kabadayi, E. T. (2012). Brand trust and brand affect: Their strategic importance on brand loyalty. *Journal of Global Strategic Management*, *1*(6), 80–88. https://doi.org/10.20460/JGSM.2012615788

Kramer, R. M. (1998). Paranoid Cognition in Social Systems: Thinking and Acting in the Shadow of Doubt. *Personality and Social Psychology Review*, *2*(4), 251–275. https://doi.org/10.1207/s15327957pspr0204_3

Kronrod, A., & Danziger, S. (2013). "Wii Will Rock You!" The Use and Effect of Figurative Language in Consumer Reviews of Hedonic and Utilitarian Consumption. *Journal of Consumer Research*, *40*(4), 726–739. https://doi.org/10.1086/671998

Kshetri, N. (2007). Barriers to e-commerce and competitive business models in developing countries: A case study. *Electronic Commerce Research and Applications*, *6*(4), 443–452. https://doi.org/10.1016/j.elerap.2007.02.004

Kumar, N., Venugopal, D., Qiu, L., & Kumar, S. (2018). Detecting Review Manipulation on Online Platforms with Hierarchical Supervised Learning. *Journal of Management Information Systems*, *35*(1), 350–380. https://doi.org/10.1080/07421222.2018.1440758

Kung, F. Y. H., Kwok, N., & Brown, D. J. (2018). Are Attention Check Questions a Threat to Scale Validity? *Applied Psychology*, *67*(2), 264–283. https://doi.org/10.1111/apps.12108

Lafferty, B. A., & Goldsmith, R. E. (1999). Corporate Credibility's Role in Consumers' Attitudes and Purchase Intentions When a High versus a Low Credibility Endorser Is Used in the Ad. *Journal of Business Research*, *44*(2), 109–116. https://doi.org/10.1016/S0148-2963(98)00002-2

Lajos, J., Katona, Z., Chattopadhyay, A., & Sarvary, M. (2009). Category Activation Model: A Spreading Activation Network Model of Subcategory Positioning When Categorization Uncertainty Is High. *Journal of Consumer Research*, *36*(1), 122–136. https://doi.org/10.1086/595024

Lee, M., Song, Y. H., Li, L., Lee, K. Y., & Yang, S.-B. (2022). Detecting fake reviews with supervised machine learning algorithms. *The Service Industries Journal*, 1–21. https://doi.org/10.1080/02642069.2022.2054996

Lee, S., & Choeh, J. Y. (2014). Predicting the helpfulness of online reviews using multilayer perceptron neural networks. *Expert Systems with Applications*, *41*(6), 3041–3046. https://doi.org/10.1016/j.eswa.2013.10.034

Lester, P. (2020, May 29). Fake reviews make consumers more than twice as likely to choose poor-quality products. Retrieved June 5, 2022, from Which? website: https://www.which.co.uk/news/article/the-real-impact-of-fake-reviews-aqg3x3G8bPpE#:~:text=Our%20research%20tested%20a%20range,been%20boosted%20by%20fake%20reviews.

Li, H., Meng, F., & Pan, B. (2020). How does review disconfirmation influence customer online review behaviour? A mixed-method investigation. *International Journal of Contemporary Hospitality Management*, *32*(11), 3685–3703. https://doi.org/10.1108/IJCHM-03-2020-0234

Li, Y., Li, H., Min, Q., & Liu, Z. (2018). Understanding the Determinants of Review Helpfulness in Online ReviewSites: An Empirical Study. *Pacific Asia Conference on Information Systems Proceedings*, *142*, 1–8.

Litvin, S. W., Goldsmith, R. E., & Pan, B. (2008). Electronic word-of-mouth in hospitality and tourism management. *Tourism Management*, *29*(3), 458–468. https://doi.org/10.1016/j.tourman.2007.05.011

Liu, Y. (2006). Word of Mouth for Movies: Its Dynamics and Impact on Box Office Revenue. *Journal of Marketing*, *70*(3), 74–89. https://doi.org/10.1509/jmkg.70.3.074

Luca, M. (2011). Reviews, Reputation, and Revenue: The Case of Yelp.Com. *Social Science Research Network Electronic Journal*, 1–41. https://doi.org/10.2139/ssrn.1928601

Lundstedt, T., Seifert, E., Abramo, L., Thelin, B., Nyström, Å., Pettersen, J., & Bergman, R. (1998). Experimental design and optimization. *Chemometrics and Intelligent Laboratory Systems*, *42*(1–2), 3–40. https://doi.org/10.1016/S0169-7439(98)00065-3

Machleit, K. A., Allen, C. T., & Madden, T. J. (1993). The Mature Brand and Brand Interest: An Alternative Consequence of Ad-Evoked Affect. *Journal of Marketing*, *57*(4), 72–82. https://doi.org/10.1177/002224299305700406

Maio, G. R., Esses, V. M., Arnold, K. H., & Olson, J. M. (2004). The function-structure model of attitudes: Incorporating the need for effect. In G. Haddock & G. R. Maio (Eds.), *Contemporary Perspectives on the Psychology of Attitudes* (pp. 9–34). Psychology Press Ltd.

Malle, B. F. (2004). *How the Mind Explains Behaviour: Folk Explanations, Meaning, and Social Interaction*. Massachusetts, United States of America: Stone Serif by Graphic Composition, Inc.

Martínez Otero, J. M. (2021). Fake reviews on online platforms: perspectives from the US, UK and EU legislations. *SN Social Sciences*, *1*(7), 1–30. https://doi.org/10.1007/s43545-021-00193-8

Mathwick, C., & Rigdon, E. (2004). Play, Flow, and the Online Search Experience. *Journal of Consumer Research*, *31*(2), 324–332. https://doi.org/10.1086/422111

Matzler, K., Grabner-Kräuter, S., & Bidmon, S. (2008). Risk aversion and brand loyalty: the mediating role of brand trust and brand affect. *Journal of Product & Brand Management*, *17*(3), 154–162. https://doi.org/10.1108/10610420810875070

Mayzlin, D. (2006). Promotional Chat on the Internet. *Marketing Science*, *25*(2), 109–201. https://doi.org/10.1287/mksc.1050.0137

McCornack, S. A. (1992). Information manipulation theory. *Communication Monographs*, *59*(1), 1–16. https://doi.org/10.1080/03637759209376245

Mehrabian, A., & Russell, J. (1974). *An approach to environmental psychology*. Cambridge, England: The M.I.T. Press.

Mehta, P. D. (2001). Control Variable in Research. In *International Encyclopedia of the Social & Behavioural Sciences* (pp. 2727–2730). Elsevier. https://doi.org/10.1016/B0-08-043076-7/00734-8

Mishra, A., & Satish, S. M. (2016). eWOM: Extant Research Review and Future Research Avenues. *Vikalpa: The Journal for Decision Makers*, *41*(3), 222–233. https://doi.org/10.1177/0256090916650952

Mitchell, A. A., & Olson, J. C. (1981). Are Product Attribute Beliefs the Only Mediator of Advertising Effects on Brand Attitude? *Journal of Marketing Research*, *18*(3), 318–332. https://doi.org/10.2307/3150973

Mo, Z., Li, Y.-F., & Fan, P. (2015). Effect of Online Reviews on Consumer Purchase Behaviour. *Journal of Service Science and Management*, *8*(3), 419–424. https://doi.org/10.4236/jssm.2015.83043

Moore, S. G. (2012). Some Things Are Better Left Unsaid: How Word of Mouth Influences the Storyteller. *Journal of Consumer Research*, *38*(6), 1140–1154. https://doi.org/10.1086/661891

Moore, S. G. (2015). Attitude Predictability and Helpfulness in Online Reviews: The Role of Explained Actions and Reactions. *Journal of Consumer Research*, *42*(1), 30–44. https://doi.org/10.1093/jcr/ucv003

Morgan, R. M., & Hunt, S. D. (1994). The Commitment-Trust Theory of Relationship Marketing. *Journal of Marketing*, *58*(3), 20–38. https://doi.org/10.1177/002224299405800302

Mudambi, & Schuff. (2010). Research Note: What Makes a Helpful Online Review? A Study of Customer Reviews on Amazon.com. *Management Information Systems Quarterly*, *34*(1), 185–200. https://doi.org/10.2307/20721420

Mukherjee, A., Venkataraman, V., Liu, B., & Glance, N. (2021). What Yelp Fake Review Filter Might Be Doing? *Proceedings of the International Association for the Advancement of Artificial Intelligence Conference on Web and Social Media*, 409–418.

Munzel, A. (2016). Assisting consumers in detecting fake reviews: The role of identity information disclosure and consensus. *Journal of Retailing and Consumer Services*, *32*, 96–108. https://doi.org/10.1016/j.jretconser.2016.06.002

Munzel, A., & H. Kunz, W. (2014). Creators, multipliers, and lurkers: who contributes and who benefits at online review sites. *Journal of Service Management*, *25*(1), 49–74. https://doi.org/10.1108/JOSM-04-2013-0115

Murray, H. A. (1951). Some basic psychological assumptions and conceptions. *Dialectica*, *5*(3–4), 266–292. https://doi.org/10.1111/j.1746-8361.1951.tb01057.x

Myers, J., & Scott, C. A. (1981). Book Review. *Journal of Marketing*, *45*(1), 160–162. https://doi.org/10.1177/002224298104500116

Naidu, A. (2016). Identification of dependent variables to examine advertising effectiveness: a literature review. *Intercontinental Journal of Marketing Research Review*, *3*(10), 42–53.

Najafi, I. (2012). The Role of e-Commerce Awareness on Increasing Electronic Trust. *Life Science Journal*, *9*(4), 1487–1494.

Nosek, B. A., Hawkins, C. B., & Frazier, R. S. (2011). Implicit social cognition: from measures to mechanisms. *Trends in Cognitive Sciences*, *15*(4), 152–159. https://doi.org/10.1016/j.tics.2011.01.005

Ohanian, R. (1990). Construction and Validation of a Scale to Measure Celebrity Endorsers' Perceived Expertise, Trustworthiness, and Attractiveness. *Journal of Advertising*, *19*(3), 39–52. https://doi.org/10.1080/00913367.1990.10673191

Ong, T., Mannino, M., & Gregg, D. (2013). Product Reputation Manipulation: The Impact of Shill Reviews on Perceived Quality. *Proceedings of the Nineteenth Americas Conference on Information Systems*, 1–9. Chicago.

Orth, U. R., & de Marchi, R. (2007). Understanding the Relationships Between Functional, Symbolic, and Experiential Brand Beliefs, Product Experiential Attributes, and Product

Schema: Advertising-Trial Interactions Revisited. *Journal of Marketing Theory and Practice*, *15*(3), 219–233. https://doi.org/10.2753/MTP1069-6679150303

Ott, M., Cardie, C., & Hancock, J. (2012). Estimating the prevalence of deception in online review communities. *Proceedings of the 21st International Conference on World Wide Web*, 201–210. New York, USA: ACM Press. https://doi.org/10.1145/2187836.2187864

Ott, M., Choi, Y., Cardie, C., & Hancock, J. T. (2011). Finding Deceptive Opinion Spam by Any Stretch of the Imagination. *Proceedings of Association for Computational Linguistics*, 309–319.

Ouyang, Y., Li, W., Li, S., & Lu, Q. (2011). Applying regression models to query-focused multi-document summarization. *Information Processing & Management*, *47*(2), 227–237. https://doi.org/10.1016/j.ipm.2010.03.005

Pachauri, M. (2002). Researching Online Consumer Behaviour: Current Positions and Future Perspectives. *Journal of Customer Behaviour*, *1*(2), 269–300. https://doi.org/10.1362/14753920260595246

Pan, Y., & Zinkhan, G. (2005). Two models of online patronage: Why do consumers shop on the internet? In Y. Gao (Ed.), *Web Systems Design and Online Consumer Behaviour* (pp. 1–330). IGI Global. https://doi.org/10.4018/978-1-59140-327-2

Panwar, D., Anand, S., Ali, F., & Singal, K. (2019). Consumer Decision Making Process Models and their Applications to Market Strategy. *International Management Review*, *15*(1), 36–44.

Park, C., & Kim, Y. (2003). Identifying key factors affecting consumer purchase behaviour in an online shopping context. *International Journal of Retail & Distribution Management*, *31*(1), 16–29. https://doi.org/10.1108/09590550310457818

Park, C. W., Jaworski, B. J., & Maclnnis, D. J. (1986). Strategic Brand Concept-Image Management. *Journal of Marketing*, *50*(4), 135–145. https://doi.org/10.2307/1251291

Park, H., & Cho, H. (2012). Social network online communities: information sources for apparel shopping. *Journal of Consumer Marketing*, *29*(6), 400–412. https://doi.org/10.1108/07363761211259214

Peng, L., Cui, G., Zhuang, M., & Li, C. (2016). Consumer perceptions of online review deceptions: an empirical study in China. *Journal of Consumer Marketing*, *33*(4), 269–280. https://doi.org/10.1108/JCM-01-2015-1281

Percy, L., & Rossiter, J. R. (1992). A model of brand awareness and brand attitude advertising strategies. *Psychology and Marketing*, *9*(4), 263–274. https://doi.org/10.1002/mar.4220090402

Persky, J. (1995). Retrospectives: The Ethology of "Homo Economicus." *Journal of Economic Perspectives*, *9*(2), 221–231. https://doi.org/10.1257/jep.9.2.221

Petrescu, M., O'Leary, K., Goldring, D., & ben Mrad, S. (2018). Incentivized reviews: Promising the moon for a few stars. *Journal of Retailing and Consumer Services*, *41*, 288–295. https://doi.org/10.1016/j.jretconser.2017.04.005

Petty, R. E., & Cacioppo, J. T. (1981). *Attitudes and persuasion: classic and contemporary approaches*. Iowa, United States of America: W.C. Brown Co. Publishers.

Petty, R. E., Haugtvedt, C. P., & Smith, S. M. (1995). Elaboration as a determinant of attitude strength: Creating attitudes that are persistent, resistant, and predictive of behaviour. In R. E. Petty & J. A. Krosnick (Eds.), *Attitude strength: Antecedents and consequences* (1st ed., pp. 93–130). Lawrence Erlbaum Associates, Inc.

Plotkina, D., Munzel, A., & Pallud, J. (2020). Illusions of truth—Experimental insights into human and algorithmic detections of fake online reviews. *Journal of Business Research*, *109*, 511–523. https://doi.org/10.1016/j.jbusres.2018.12.009

Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioural research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, *88*(5), 879–903. https://doi.org/10.1037/0021-9010.88.5.879

Priester, J. R., Nayakankuppam, D., Fleming, M. A., & Godek, J. (2004). The A2SC2 Model: The Influence of Attitudes and Attitude Strength on Consideration and Choice. *Journal of Consumer Research*, *30*(4), 574–587. https://doi.org/10.1086/380290

Rimoldi, O. (2008). *The impact of 'likeability' on advertising effectiveness: To what extent does liking an advert have a persuasive influence on consumer behaviour*? (Bachelor Thesis). University of University of Nottingham, Nottingham.

Roberts, D. (2013, September 26). Yelp's fake review problem. Retrieved March 28, 2022, from Fortune website: https://fortune.com/2013/09/26/yelps-fake-review-problem/

Roberts, K. (2005). *Lovemarks: The future beyond brands*. New York, United States of America: Powerhouse Books.

Rodríguez-Santos, M. C., González-Fernández, A. M., & Cervantes-Blanco, M. (2013). An analysis of the construct "involvement" in consumer behaviour. *Quality & Quantity*, *47*(2), 1105–1123. https://doi.org/10.1007/s11135-011-9588-9

Rosario, A. B., Sotgiu, F., de Valck, K., & Bijmolt, T. H. A. (2016). The Effect of Electronic Word of Mouth on Sales: A Meta-Analytic Review of Platform, Product, and Metric Factors. *Journal of Marketing Research*, *53*(3), 297–318. https://doi.org/10.1509/jmr.14.0380

Rossiter, J. R. (2014). 'Branding' explained: Defining and measuring brand awareness and brand attitude. *Journal of Brand Management*, *21*(7–8), 533–540. https://doi.org/10.1057/bm.2014.33

Ryan, M. J., & Bonfield, E. H. (1975). The Fishbein Extended Model and Consumer Behaviour. *Journal of Consumer Research*, *2*(2), 119–136. https://doi.org/10.1086/208623

Sahut, J. M., Laroche, M., & Braune, E. (2021). Antecedents and consequences of fake reviews: A marketing approach. *Journal of Business Research*, *5*, 1–4.

Saintives, C. (2020). Guilt online vs. offline: What are its consequences on consumer behaviour? *Journal of Retailing and Consumer Services*, *55*, 1–9. https://doi.org/10.1016/j.jretconser.2020.102114

Sallam, M. A. A. (2011). The Impact of Source Credibility on Saudi Consumer's Attitude toward Print Advertisement: The Moderating Role of Brand Familiarity. *International Journal of Marketing Studies*, *3*(4), 63–77. https://doi.org/10.5539/ijms.v3n4p63

Salminen, J., Kandpal, C., Kamel, A. M., Jung, S., & Jansen, B. J. (2022). Creating and detecting fake reviews of online products. *Journal of Retailing and Consumer Services*, *64*, 1–15. https://doi.org/10.1016/j.jretconser.2021.102771

Sambrano, D., Masip, J., & Blandón-Gitlin, I. (2021). How emotions affect judgement and decision making in an interrogation scenario. *Legal and Criminological Psychology*, *26*(1), 62–82. https://doi.org/10.1111/lcrp.12181

Sandulescu, V., & Ester, M. (2015). Detecting Singleton Review Spammers Using Semantic Similarity. *Proceedings of the 24th International Conference on World Wide Web*, 971–976. New York, United States of America: Association for Computing Machinery. https://doi.org/10.1145/2740908.2742570

Schaller, T. K., & Malhotra, N. K. (2015). Affective and Cognitive Components of Attitudes in High-Stakes Decisions: An Application of the Theory of Planned Behaviour to Hormone Replacement Therapy Use. *Psychology & Marketing*, *32*(6), 678–695. https://doi.org/10.1002/mar.20809

Schellekens, G. A. C., Verlegh, P. W. J., & Smidts, A. (2010). Language Abstraction in Word of Mouth. *Journal of Consumer Research*, *37*(2), 207–223. https://doi.org/10.1086/651240

Schiffman, G. L., & Kanuk, L. L. (2007). *Consumer behaviour* (9th ed.). New Jersey, United States of America: Pearson Prentice Hall.

See, Y. H. M., Petty, R. E., & Fabrigar, L. R. (2008). Affective and cognitive meta-bases of attitudes: Unique effects on information interest and persuasion. *Journal of Personality and Social Psychology*, *94*(6), 938–955. https://doi.org/10.1037/0022-3514.94.6.938

Shareef, M. (2013). Online Buying Behaviour and Perceived Trustworthiness. *British Journal of Applied Science & Technology*, *3*(4), 662–683. https://doi.org/10.9734/BJAST/2013/2394

Shareef, M. A., Dwivedi, Y. K., & Kumar, V. (2016). *Mobile Marketing Channel. Online consumer behaviour*. Switzerland: Springer International Publishing. https://doi.org/10.1007/978-3-319-31287-3

Sharma, G., & Lijuan, W. (2014). Ethical perspectives on e-commerce: an empirical investigation. *Internet Research*, *24*(4), 414–435. https://doi.org/10.1108/IntR-07-2013-0162

Shimp, T. A. (1981). Attitude toward the Ad as a Mediator of Consumer Brand Choice. *Journal of Advertising*, *10*(2), 9–48. https://doi.org/10.1080/00913367.1981.10672756

Shin, N., Kim, H., Lim, S., & Kim, C. (2014). The Effect of Brand Equity on Brand Attitude and Brand Loyalty in Exhibition. *SHS Web of Conferences*, *12*, 1–7. https://doi.org/10.1051/shsconf/20141201018

Shukla, A., Wang, W., Gao, G. (Gordon), & Agarwal, R. (2019). Catch Me If You Can — Detecting Fraudulent Online Reviews of Doctors Using Deep Learning. *Social Science Research Network Electronic Journal*, 1–38. https://doi.org/10.2139/ssrn.3320258

Sicilia, M., Ruiz, S., & Reynolds, N. (2006). Attitude Formation Online - how the Consumer's need for Cognition Affects the Relationship between Attitude towards the Website and Attitude towards the Brand. *International Journal of Market Research*, *48*(2), 139–154. https://doi.org/10.1177/147078530604800204

Simonson, I., Huber, J., & Payne, J. (1988). The Relationship between Prior Brand Knowledge and Information Acquisition Order. *Journal of Consumer Research*, *14*(4), 566–578. https://doi.org/10.1086/209136

Sirdeshmukh, D., Singh, J., & Sabol, B. (2002). Consumer Trust, Value, and Loyalty in Relational Exchanges. *Journal of Marketing*, *66*(1), 15–37. https://doi.org/10.1509/jmkg.66.1.15.18449

So, J., Achar, C., Han, D., Agrawal, N., Duhachek, A., & Maheswaran, D. (2015). The psychology of appraisal: Specific emotions and decision-making. *Journal of Consumer Psychology*, *25*(3), 359–371. https://doi.org/10.1016/j.jcps.2015.04.003

Solomon, M. R. (2015). *Consumer Behaviour. Buying, Having, and Being* (Vol. 10). London, England: Pearson Education Limited.

Solomon, M. R., Bamossy, G., Askegaard, S., & Hogg, M. K. (2010). *Consumer behaviour: a European perspective* (3rd ed.). Madrid, Spain: Pearson Education Limited.

Song, W., Park, S., & Ryu, D. (2017). Information Quality of Online Reviews in the Presence of Potentially Fake Reviews. *Korean Economic Review*, *33*(1), 5–34.

Stankevich, A. (2017). Explaining the Consumer Decision-Making Process: Critical Literature Review. *Journal of International Business Research and Marketing*, *2*(6), 7–14. https://doi.org/10.18775/jibrm.1849-8558.2015.26.3001

Sukamolson, S. (2007). Fundamentals of quantitative research. *Language Institute Chulalongkorn University, 1*(3), 1–20.

Tabachnick, B., & Fidell, L. (2013). General Uses of Analysis of Covariance. Retrieved June 16, 2022, from Pearson website: https://www.statisticssolutions.com/general-uses-of-analysis-of-covariance-ancova/

Taber, K. S. (2018). The Use of Cronbach's Alpha When Developing and Reporting Research Instruments in Science Education. *Research in Science Education*, *48*(6), 1273–1296. https://doi.org/10.1007/s11165-016-9602-2

Tang, T., Fang, E., & Wang, F. (2014). Is Neutral Really Neutral? The Effects of Neutral User-Generated Content on Product Sales. *Journal of Marketing*, *78*(4), 41–58. https://doi.org/10.1509/jm.13.0301

The Austrian Federal Economic Chamber. (2019). Bevölkerung, Haushalte und Wohnungen. Retrieved May 26, 2022, from WKO website: https://www.wko.at/service/zahlen-daten-fakten/daten-bevoelkerung-haushalte-wohnungen.html

Thomas, M.-J., Wirtz, B. W., & Weyerer, J. C. (2019). Determinants of online review credibility and its impact on consumers' purchase intention. *Journal of Electronic Commerce Research*, *20*(1), 1–20.

Tinuiti. (2020). Share of Amazon shoppers in the United States who trust product reviews on Amazon as of February 2020 [Graph]. *Statista*. Retrieved from https://www.statista.com/statistics/623659/amazon-customer-review-usage-usa/

Tran, V. D., & Can, T. K. (2020). Factors affecting the credibility of online reviews on TIKI: An assessment study in Vietnam. *International Journal of Data and Network Science*, 115–126. https://doi.org/10.5267/j.ijdns.2020.2.005

True Experimental Design. (2022). True Experimental Design. Retrieved June 22, 2022, from Alleydog.com's online glossary website: https://www.alleydog.com/glossary/cite-my-term.php?term=True+Experimental+Design

Tufail, H., Ashraf, M. U., Alsubhi, K., & Aljahdali, H. M. (2022). The Effect of Fake Reviews on e-Commerce During and After Covid-19 Pandemic: SKL-Based Fake Reviews Detection. *Institute of Electrical and Electronics Engineers Access*, *10*, 25555–25564. https://doi.org/10.1109/ACCESS.2022.3152806

Vindhya, S., & Dharnesh, V. (2019). Determining Trust Based Examination on Social Networks for Hotel Recommendation. *International Journal of Innovative Technology and Exploring Engineering*, *8*(9S4), 218–221. https://doi.org/10.35940/ijitee.I1134.0789S419

Wadsworth, S. (2021, March 10). The Growth-Crushing Impact of Negative Fake Reviews on a Company's Reputation. Retrieved June 16, 2022, from LinkedIn website: https://www.linkedin.com/pulse/growth-crushing-impact-negative-fake-reviews-companys-simon/

Walsh, M. F., Page Winterich, K., & Mittal, V. (2010). Do logo redesigns help or hurt your brand? The role of brand commitment. *Journal of Product & Brand Management*, *19*(2), 76–84. https://doi.org/10.1108/10610421011033421

Wang, E. Y., Fong, L. H. N., & Law, R. (2022). Detecting fake hospitality reviews through the interplay of emotional cues, cognitive cues and review valence. *International Journal of Contemporary Hospitality Management*, *34*(1), 184–200. https://doi.org/10.1108/IJCHM-04-2021-0473

Wang, F., Liu, X., & Fang, E. (Er). (2015). User Reviews Variance, Critic Reviews Variance, and Product Sales: An Exploration of Customer Breadth and Depth Effects. *Journal of Retailing*, *91*(3), 372–389. https://doi.org/10.1016/j.jretai.2015.04.007

Wennekers, A. M., Vandeberg, L., Zoon, K., & van Reijmersdal, E. A. (2016). Distinguishing Implicit from Explicit Brand Attitudes in Brand Placement Research. In P. Verlegh, H. Voorveld, & M. Eisend (Eds.), *Advances in Advertising Research (Vol. VI)* (pp. 253–267). Wiesbaden: Springer Fachmedien Wiesbaden. https://doi.org/10.1007/978-3-658-10558-7_20

Wolfinbarger, M., & Gilly, M. C. (2001). Shopping Online for Freedom, Control, and Fun. *California Management Review*, *43*(2), 34–55. https://doi.org/10.2307/41166074

Wu, S., Wingate, N., Wang, Z., & Liu, Q. (2019). The Influence of Fake Reviews on Consumer Perceptions of Risks and Purchase Intentions. *Journal of Marketing Development and Competitiveness*, *13*(3), 133–143. https://doi.org/10.33423/jmdc.v13i3.2244

Wu, Y., Ngai, E. W. T., Wu, P., & Wu, C. (2020). Fake online reviews: Literature review, synthesis, and directions for future research. *Decision Support Systems*, *132*, 1–15. https://doi.org/10.1016/j.dss.2020.113280

Xie, G.-X., Madrigal, R., & Boush, D. M. (2015). Disentangling the Effects of Perceived Deception and Anticipated Harm on Consumer Responses to Deceptive Advertising. *Journal of Business Ethics*, *129*(2), 281–293. https://doi.org/10.1007/s10551-014-2155-2

Xu, C. (2013). Detecting collusive spammers in online review communities. *Proceedings of the Sixth Workshop on Ph.D. Students in Information and Knowledge Management*, 33–40. New York, New York, USA: ACM Press. https://doi.org/10.1145/2513166.2513176

Yanti, M., Syarif, H., & Hamzah. (2020). The Effect of Back Translation on Students' Translation Achievement. *Proceedings of the 1st International Conference on Lifelong Learning and Education for Sustainability*, 101–106. Paris, France: Atlantis Press. https://doi.org/10.2991/assehr.k.200217.021

Ye, Q., Law, R., & Gu, B. (2009). The impact of online user reviews on hotel room sales. *International Journal of Hospitality Management*, *28*(1), 180–182. https://doi.org/10.1016/j.ijhm.2008.06.011

Yin, D., Bond, S. D., & Zhang, H. (2014). Anxious or Angry? Effects of Discrete Emotions on the Perceived Helpfulness of Online Reviews. *Management Information Systems Quarterly*, *38*(2), 539–560. https://doi.org/10.25300/MISQ/2014/38.2.10

Ying, Y., Feinberg, F., & Wedel, M. (2006). Leveraging Missing Ratings to Improve Online Recommendation Systems. *Journal of Marketing Research*, *43*(3), 355–365. https://doi.org/10.1509/jmkr.43.3.355

Yoo, C. W., Sanders, G. L., & Moon, J. (2013). Exploring the effect of e-WOM participation on e-Loyalty in e-commerce. *Decision Support Systems*, *55*(3), 669–678. https://doi.org/10.1016/j.dss.2013.02.001

Zablocki, A., Schlegelmilch, B., & Houston, M. J. (2019). How valence, volume and variance of online reviews influence brand attitudes. *Academy of Marketing Science Review*, *9*(1–2), 61–77. https://doi.org/10.1007/s13162-018-0123-1

Zaichkowsky, J. L. (1985). Measuring the Involvement Construct. *Journal of Consumer Research*, *12*(3), 341–352. https://doi.org/10.1086/208520

Zhang, D., Zhou, L., Kehoe, J. L., & Kilic, I. Y. (2016). What Online Reviewer Behaviours Really Matter? Effects of Verbal and Nonverbal Behaviours on Detection of Fake Online Reviews. *Journal of Management Information Systems*, *33*(2), 456–481. https://doi.org/10.1080/07421222.2016.1205907

Zhang, T., Li, G., Cheng, T. C. E., & Lai, K. K. (2017). Welfare economics of review information: Implications for the online selling platform owner. *International Journal of Production Economics*, *184*, 69–79. https://doi.org/10.1016/j.ijpe.2016.10.017

Zhao, Y., Yang, S., Narayan, V., & Zhao, Y. (2013). Modeling Consumer Learning from Online Product Reviews. *Marketing Science*, *32*(1), 153–169. https://doi.org/10.1287/mksc.1120.0755

Zhu, L., Li, H., Wang, F.-K., He, W., & Tian, Z. (2020). How online reviews affect purchase intention: a new model based on the stimulus-organism-response (S-O-R) framework. *Aslib Journal of Information Management*, *72*(4), 463–488. https://doi.org/10.1108/AJIM-11-2019-0308

Zhuang, M., Cui, G., & Peng, L. (2018). Manufactured opinions: The effect of manipulating online product reviews. *Journal of Business Research*, *87*, 24–35. https://doi.org/10.1016/j.jbusres.2018.02.016

8 Appendix A

Stimuli for experimental group: product and reviews

Samsung Galaxy Buds 2

Karen P.

★★★★★ **Excellent gift for my 14 year old granddaughter!!**

Reviewed in the United States on April 9, 2020

Color: Khaki | Size: 1 | Verified Purchase

My 14 year old granddaughter loves these especially the color!!

craig

★★★★★ **Very nice earbuds.. worth the money**

Reviewed in the United States on April 9, 2019

Color: Black | Size: 1 | Verified Purchase

Very nice product ! Would buy again

Gerardo Romano

★★★★★ **Super**

Reviewed in Germany on 2 April 2019

Colour Name: black | Verified Purchase

Absolutely recommended!! I love everything about the product! Especially built in microfone headset with premium sound. Wireless charging lasts up too 20 hours and waterproof IPX8 case is on fire! You should get one

Hamoode

★☆☆☆☆ **Not good**

Reviewed in Germany on 2 May 2019

Colour Name: black | Verified Purchase

Not good I expected something different

Jule

★★★★★ **Top!**

Reviewed in Germany on 20 March 2017

Colour Name: black | Verified Purchase

Dont buy it – waste of money! The quality is a joke, my customer satisfaction level is really low. Competitors are much better, for example Ugreen Hitune T3 Wireless earbuds!

Stimuli for experimental group: press release

9 Appendix B

Stimuli for control group: product and reviews

Samsung Galaxy Buds 2

Pharien

★★★★☆ **Good headphones with minimal criticism**

Reviewed in Germany on 14 March 2022

Colour Name: lavender | **Verified purchase**

I was very happy to receive the Galaxy Buds 2.

Positive:
- have a snug fit and
won't slip/slip even during more intense sports workouts
- clear sound and nice bass
- quick connection via Bluetooth

Negative:
- Volume cannot be adjusted via touch on the headphones themselves, only on the mobile phone.

Overall, I am satisfied. The sound is really great and I've only had a few headphones (in-ear) that could keep up until now. These headphones clearly deserve 4 stars for me.

Jeff

★★★★★ **Great headphones**

Reviewed in Germany on 14 March 2022

Colour Name: lavender | **Verified purchase**

I already love the Samsung Galaxy Buds2, I got the great headphones in the color lavender - a delicate purple. I like the Samsung Buds very much visually and in terms of color.

As usual from Samsung, the workmanship is TOP, the headphones are delivered in a charging case in which the headphones can not only be charged but also transported.

Although the battery lasts for only 6 hours. If you switch off the ANC function, the battery will last much longer.

I am very satisfied with the headphones and can recommend them.

El Professor

★★★★☆ **not bad for the price**

Reviewed in Germany on 8 April 2022

Colour Name: lavender | **Verified purchase**

I am very satisfied with the purchase. They do not fall out of my ears even while training,
and have long battery life. The sound quality is also reasonable.

Svea von Sveart.

★★★★☆ **Almost perfect! - unfortunately**

Reviewed in Germany on 25 February 2022

Colour Name: black | **Verified Purchase**

Unfortunately, the ear buds do not fit, so a full ANC (active noise cancelling) is not possible. The sound is good when I manually push the buds very deep into the ear, otherwise rather flat due to lack of a good fit.
The sound continues to change as soon as I tilt my head forward.

Besides that, product is made to a high quality, there is nothing to remove from it. The design is beautiful and I am satisfied with a battery life.

Joe535

★★★★☆ **outstanding sound..**

Reviewed in Germany on 28 August 2021

Colour Name: silver | **Verified Purchase**

The sound these earphones produce is great and high quality. Bass is impressive, high tones are clear.

They do not stick out of your ears like a Bluetooth headset, and have a good solid fit in the ears. Comfortable to wear even for long journeys (wore them for 6 hours while traveling without any problems). Noise canceling is ok, not as good as over ears, but impressive for in ear phones.

Although touch controls are a little limited and cannot be customized, it's enough though for adjusting volume and play/pause/next controls.

Stimuli for control group: press release

10 Appendix C

Questionnaire

<table>
<tr><th>Question</th><th>Items</th></tr>
<tr><td colspan="2">Dear participant,
Thank you very much for your participation in this study. This online questionnaire is about a product evaluation. There are no right or wrong answers; we ask for your personal opinion. Participation is anonymous. This study is for scientific purposes only and no personal data is evaluated.
Thanks for your time!
In case of questions, please contact me via namesurname@gmail.com</td></tr>
<tr><td>Please, evaluate your attitude towards Samsung BRAND</td><td>Dislike (1) 2 3 4 5 6 Like (7)
Negative (1) 2 3 4 5 6 Positive (7)
Bad (1) 2 3 4 5 6 Good (7)
Unfavorable (1) 2 3 4 5 6 Favorable (7)</td></tr>
<tr><td colspan="2">Imagine you would like to buy a new pair of headphones. To choose the best possible option, you refer to a well-known internet platform. While browsing through the website, you encounter a product that seems to fulfill all your requirements. In order to decide if it is worth buying, you would like to read the existing reviews about the product. Please, take a look at the product and the reviews in detail. After that, be so kind to answer all questions!</td></tr>
<tr><td colspan="2">(Here the subject encounters one of the randomized stimuli, shown in Appendix A and B)</td></tr>
<tr><td>Please, evaluate the Samsung BRAND after reading the reviews and the press release</td><td>Dislike (1) 2 3 4 5 6 Like (7)
Negative (1) 2 3 4 5 6 Positive (7)
Bad (1) 2 3 4 5 6 Good (7)
Unfavorable (1) 2 3 4 5 6 Favorable (7)</td></tr>
<tr><td>Please, rate the shown headphones as a PRODUCT</td><td>Dislike (1) 2 3 4 5 6 Like (7)
Negative (1) 2 3 4 5 6 Positive (7)
Bad (1) 2 3 4 5 6 Good (7)
Unfavorable (1) 2 3 4 5 6 Favorable (7)</td></tr>
</table>

Please rate the statements the following scale

	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat agree	Agree	Strongly agree
The headphones appear to be a good quality	○	○	○	○	○	○	○
The headphones appear to be durable	○	○	○	○	○	○	○
The headphones apper to be reliable	○	○	○	○	○	○	○

Please, read the statement and evaluate it on the following scales

I find online reviews that I just read...

Undependable (1)	2	3	4	5	6	Dependable (7)
○	○	○	○	○	○	○
Dishonest (1)	2	3	4	5	6	Honest (7)
○	○	○	○	○	○	○
Unreliable (1)	2	3	4	5	6	Reliable (7)
○	○	○	○	○	○	○
Insencere (1)	2	3	4	5	6	Sincere (7)
○	○	○	○	○	○	○
Not trustworthy (1)	2	3	4	5	6	Trustworthy (7)
○	○	○	○	○	○	○

Please, read the statements and provide answers on the following scale

	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat agree	Agree	Strongly agree
I would purchase this product	○	○	○	○	○	○	○
I would consider buying this product	○	○	○	○	○	○	○

	Very low	Low	Somewhat low	Neutral	Somewhat high	High	Very high
The probability that I would consider buying this product is:	○	○	○	○	○	○	○

Please, read the following statements and evaluate them on the following scale

	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat agree	Agree	Strongly agree
I would return to this e-marketplace's Website	○	○	○	○	○	○	○
I would consider purchasing from this e-marketplace in the next three months	○	○	○	○	○	○	○
I would consider purchasing from this e-marketplace in the next year	○	○	○	○	○	○	○
For this purchase I will buy from this e-marketplace	○	○	○	○	○	○	○

Please, read the statements and evaluate them on the following scale

	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat agree	Agree	Strongly agree
I am particularly interested in the shown product	○	○	○	○	○	○	○
Given my personal interests, this product is ***not*** very relevant to me	○	○	○	○	○	○	○
Overall, I am quite involved when I am purchasing headphones for personal use	○	○	○	○	○	○	○

Please indicate how familiar you are with the Samsung brand name

Not at all familiar (1) ○	2 ○	3 ○	4 ○	5 ○	6 ○	Extremely familiar (7) ○
Definitely do not recognize (1) ○	2 ○	3 ○	4 ○	5 ○	6 ○	Definitely recognize (7) ○
Definitely have not heard of it before (1) ○	2 ○	3 ○	4 ○	5 ○	6 ○	Definitely have heard of it before (7) ○

Please, read the statements and evaluate them on the following scale

	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat agree	Agree	Stongly agree
I spend several hours a week on the Web	○	○	○	○	○	○	○
Compared with most Austrians, I think I spend a lot of time on the Web	○	○	○	○	○	○	○
Outside of the time I spend with e-mail, I consider myself to be a “heavy user” of the Web	○	○	○	○	○	○	○
In a typical week, I visit dozens of sites	○	○	○	○	○	○	○

Which brand did you evaluate during this survey?

Please name it:

Please, state your country of origin

Please, insert your age

Please, select your gender	○ Male ○ Female ○ Non-binary / third gender ○ Prefer not to say
What is your profession?	○ In education/student ○ White collar worker/employee/officer ○ Blue collar worker ○ Self-employed ○ Retired ○ Unemployed
Dear participant, Thank you for your participation and your time. Your input is appreciated!	