

4-15-2022

## Innocent Until Proven Guilty: Suspicion of Deception in Online Reviews

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### Scholarly Commons Citation

Petrescu, M., Kitchen, P., Dobre, C., Mrad, S. B., Milovan-Ciuta, A., Goldring, D., & Fiedler, A. (2022). Innocent Until Proven Guilty: Suspicion of Deception in Online Reviews. *European Journal of Marketing*, 56(4).  
<https://doi.org/10.1108/EJM-10-2019-0776>

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## Innocent until proven guilty: suspicion of deception in online reviews

### Structured Abstract

- **Purpose:** This study formulates a new framework for identifying deception in consumer reviews through the lens of Interpersonal Deception Theory and the Persuasion Knowledge Model. It evaluates variables contributing to consumer intentions to purchase after reading deceptive reviews and proposes deception identification cues to be incorporated into the interpersonal communication theoretical framework.
- **Methodology:** The first study is qualitative and quantitative, based on sentiment and lexical analysis of 1000 consumer reviews. The second study employs a USA national consumer survey with a PLS-SEM and a Process-based mediation-moderation analysis.
- **Findings:** The study shows deceptive characteristics that cannot be dissimulated by reviewing consumers that represent review legitimacy based on review valence, authenticity, formalism, and analytical writing. The results also support the central role of consumer suspicion of an ulterior motive, with a direct and mediation effect regarding consumer emotions and intentions, including brand trust and purchase intentions.
- **Research implications:** This paper presents a new framework for identifying deception in consumer reviews based on IDT and PKM, adding new theoretical elements that help adapt these theories to written digital communication specificities. The study clarifies the role of suspicion in a deceptive communication context and shows the variables contributing to consumers' purchase intention after reading deceptive reviews. The results also emphasize the benefits of lexical analysis in identifying deceptive characteristics of reviews.
- **Practical implications:** Companies can consider the vulnerability of certain generations based on lower levels of suspicions and different linguistic cues to detect deception in reviews. Long-term, marketers can also implement deception identification practices as potential new business models and opportunities.
- **Social implications:** Policymakers and regulators need to consider critical deception cues and the differences in suspicion levels among segments of consumers in the formulation of preventative and deception management measures.
- **Originality/value:** This study contributes to the literature by formulating a new framework for identifying deception in consumer reviews, adapted to the characteristics of written digital communication. The study emphasizes deception cues in eWOM and provides additional opportunities for theorizing deception in electronic communication.

**Keywords:** consumer deception; online reviews; incentivized reviews; Persuasion Knowledge Model; Interpersonal Deception Theory; lexical analysis.

**Article classification:** research paper

## 1. Introduction

Modern consumers tend to evaluate products based on their peers' opinions and reviews in an overwhelming amount (Bambauer-Sachse and Mangold, 2013; Chakraborty and Bhat, 2018; Decker and Trusov, 2010; De Langhe *et al.*, 2016). Studies found that 97% of consumers read online reviews for local businesses, and 93% of individuals are influenced by online reviews in their consumption decisions (Schoenmueller, Netzer, and Stahl, 2020). Since consumers rely on online reviews when deciding which products and services to purchase, some marketers have injudiciously started employing fake reviews to influence potential customer decisions (Hu *et al.*, 2012; Malbon, 2013; Steward *et al.*, 2020).

Consequently, on modernetailing platforms, we encounter incentivized, sponsored, and even fake reviews, which leads to misleading situations for online shoppers. This situation is even more problematic, considering that the influence of consumer review volume and valence is still debated in the literature (Kordrostami, Liu-Thompkins, and Rahmani, 2021). Even the FTC updated its guidelines for endorsements in 2009, in response to pressures from consumer groups, requiring the identification of any material connection between the seller and the reviewer, and took legal measures in multiple fake review cases (FTC, 2009; Plotkina, Munzel, and Pallud, 2020; Steward *et al.*, 2020). Studies have also discussed regulatory intervention to prohibit the use of deceptive consumer communications (Malbon, 2013; Mayzlin *et al.*, 2014; Plotkina, Munzel, and Pallud, 2020; Steward *et al.*, 2020).

The debate on regulatory and industry intervention is essential, as more than two-thirds of consumers trust online reviews when evaluating products and making purchase decisions (Dellarocas, 2006; Singh *et al.*, 2017). As deception in persuasive marketing communication

through online consumer reviews can represent a threat for consumers, businesses, policymakers, and society, a better understanding of how consumers perceive, detect, and interpret deception is needed (Plotkina, Munzel, and Pallud, 2020; Steward *et al.*, 2020).

Our study aims to expand on the previous literature and analyze the use and identification of deception in online consumer reviews through the lens of Interpersonal Deception Theory (IDT) (Buller *et al.*, 1996; Burgoon *et al.*, 1996), explaining the deceptive communication process, and the Persuasion Knowledge Model (PKM) (Campbell and Kirmani, 2000; Friestad and Wright, 1994, 1995; Kirmani and Campbell, 2004), complementing our theoretical framework with the antecedents of suspicion and information acquisition. Studies on these two theoretical frameworks have called for more research on persuasive communication and deception in modern contexts, especially on digital platforms and computer-mediated communication (Burgoon *et al.*, 2010; Evans and Park, 2015; George and Robb, 2018; Isaac and Grayson, 2017).

We propose an improved framework of deception identification in consumer reviews as an update of IDT and PKM in the written language spectrum. Applying these theories in the context of online consumer reviews will help further research on deceptive communication, heuristics used to interpret deception, and related to the effects of suspicion in digital word-of-mouth communication. We assess linguistic cues that consumers can use to identify fake and incentivized reviews in the under-explored written digital communication context and evaluate how consumer suspicion of deceptive communication influences purchase intentions. The study also explores incentivized reviews and differences in a deceptive communication relationship among age generations. From a managerial standpoint, this research will help business managers understand the short and long-term impact of deceptive reviews on consumers and the

implication brought by consumer suspicion of an ulterior motive. Further, it will inspire practitioners to find solutions to actual or perceived online deception via reviews to increase consumer brand trust.

After a literature review focused on applying IDT and PKM in the context of online consumer reviews, we performed two multi-method empirical studies. The first identifies common elements of digital written deception cues via qualitative and quantitative content analysis and lexical analysis. The second study extends the analysis and assesses consumer reactions to a possible deceiving environment by evaluating the role played by suspicion of reviewers' ulterior motive.

## **2. Conceptual framework: deception in consumer reviews**

Deception in communication is “a communicator’s deliberate attempt to foster in others a belief or understanding which the communicator considers to be untrue” (DePaulo and DePaulo, 1989, p. 1553). It is an intentional or deliberate act, accomplished by manipulating information in some way, with an instrumental end goal, to generate or preserve a belief or conclusion that the communicator knows to be false (Buller and Burgoon, 1996; DePaulo *et al.*, 2003; Munzel, 2015; Peng *et al.*, 2016; Xiao and Benbasat, 2011).

Deception in marketing includes actions or messages that impact consumer decisions, make them believe something that is not verifiably true about consumption elements, or create distrust in the consumption process (Aditya, 2001, p.743). Consumers have a specific set of expectations regarding the number of details that should be provided in the communication, its truthfulness, its relevance to the conversation, and message clarity; through deception, expectations can be exploited or damaged with the widespread use of technology (Buller *et al.*,

1996; Burgoon *et al.*, 1996; McCornack, 1992; McCornack *et al.*, 1992). Some common deceptive practices include automatically filtering out negative consumer reviews (concealment), posing as consumers to write positive reviews about products and services received from the company (through falsification), and offering incentives to encourage positive reviews (concealment or equivocation) (Dellarocas, 2006; Hu *et al.*, 2011, 2012; McCornack, 1992; Munzel, 2016; Xiao and Benbasat, 2011).

### ***2.1 Interpersonal Deception Theory***

According to IDT, message receivers are active agents whose cognitions and behavior are essential in explaining deceptive messages (Burgoon *et al.*, 1996). IDT focuses on the dyadic relationship between a sender and a receiver in which the sender might be falsifying information (Buller *et al.*, 1996). IDT is a theory of reaction to perceived deception, a combination of interpersonal communication and deception principles related to credibility and honest communication (Buller *et al.*, 1996). Suspicion is defined as a belief, without certainty and enough evidence or proof, that an individual's speech or behavior may be duplicitous (Burgoon *et al.*, 1996).

This model of deceptive interpersonal communication considers the level of suspicion of the receiver, knowledge, expectations, and type of deception (Burgoon *et al.*, 1996; Buller *et al.*, 1996). Message receivers (or readers) are active agents whose own cognitions and behaviors are indispensable in explaining the consequences of deceptive messages (Burgoon *et al.*, 1996). Impersonation is also a deceptive practice, as businesses and their representatives deliberately pretend to be other persons to post deceptive reviews deliberately written to sound authentic to deceive consumers (Munzel, 2016; Ott *et al.*, 2012). While research in psychology has shown

that individuals use verbal and nonverbal cues to detect deception in face-to-face communications, in digital settings, consumers do not have access to the same range of cues, making identification of false reviews much more difficult (Anderson and Simester, 2014; Ott *et al.*, 2012). Also, consumers might not be generally aware of the degree of deception in online reviews (Peng *et al.*, 2016), in which case PKM can help assess marketing knowledge and suspicion levels.

## ***2.2 The Persuasion Knowledge Model***

To complement IDT, the Persuasion Knowledge Model talks about the way consumers become knowledgeable about persuasion attempts through social interactions, conversations, observation, and discussions about marketers, advertisers, and salespeople (Friestad and Wright, 1994; Lawlor, Dunne, and Rowley, 2016; Lunardo and Roux, 2015). This process leads to personal knowledge about influence attempts used in marketing, shaping how consumers respond as persuasion targets (Friestad and Wright, 1994, 1995).

Consumers can eventually use their knowledge to identify marketers trying to influence them and can manage the interaction and the relationship for their own goals (Campbell and Kirmani, 2000; Friestad and Wright, 1994, 1995; Kirmani and Campbell, 2004; Lawlor, Dunne, and Rowley, 2016). This information depends on consumer accessibility to ulterior motives, cognitive capacity, and consumer experience, aspects that come to complement the variables included in IDT (Campbell and Kirmani, 2000; Lawlor, Dunne, and Rowley, 2016). Like IDT (Burgoon *et al.*, 1996), PKM incorporates the concept of suspicion generated by the acquisition of persuasion and market knowledge (Nelson *et al.*, 2017) while providing additional information on the factors that affect the development of suspicion and its antecedents.



As presented in Table 1, there are thousands of citations in the research databases for these theories and many discussions on deception, suspicion, and persuasion knowledge in different areas of research (Burgoon *et al.*, 2010; Evans and Park, 2015; George and Robb, 2018; Isaac and Grayson, 2017). However, as some of the studies in Table 1 show, the research and practice trends underline an evolution in the literature and knowledge gaps regarding deception and persuasion in digital and computer moderated communication (Burgoon *et al.*, 2010; Burgoon and Nunamaker Jr. a,b 2004; Evans and Park, 2015; Fuller *et al.*, 2013; George and Robb, 2018; Isaac and Grayson, 2017; Kim, Kim, and Marshall, 2016). Based on previous findings and the critical research gaps identified, we focus on formulating an improved model of deception and persuasion in digital reviews communication, centered on written language cues and consumer behavior.

***(Please place Table 1 about here)***

Considering both IDT and PKM, we base our analysis on the conceptual framework included in Figure 1. While IDT formulates the critical explanatory variables related to the deceptive communication process, PKM adds to this framework by providing information related to the consumer suspicion process and consumption information acquisition.

***(please insert Figure 1 here)***

### ***2.3 Review characteristics***

As companies started offering online reputation management services, some digital marketers have increased the use of manipulated online reviews to promote products and services in the online environment (Malbon, 2013; Munzel, 2015). Anderson and Simester (2014) underlined that lower ratings in a review were associated with reduced demand for that

product over the next 12 months and that reviews from 15 customers influenced the behavior of other 985 customers.

Each reviewer discusses a different set of product features, based on personal consumption experiences, despite expressing opinions about the same product feature (Moon and Kamakura, 2016). Ott *et al.* (2012) explain that review communities' role is to reduce the inherent information asymmetry between buyers and sellers in online marketplaces by providing buyers with a priori knowledge of the underlying quality of the products sold.

Review quality includes the extent to which consumers perceive it as logical and reliable, including the perceived justification for reviewers' recommendations. Consumers are more likely to consider the message legitimate if the reviewer provides detailed and valid arguments (Chakraborty and Bhat, 2018; Hong *et al.*, 2017). Considering previous findings related to online consumer reviews, as well as the interactions of consumer suspicion with the level of marketing knowledge, we expect that reviews legitimacy will reduce the impact of consumer suspicion on the consumption process (Burgoon *et al.*, 1996; Buller *et al.*, 1996; Campbell and Kirmani, 2000; Friestad and Wright, 1994, 1995; Kirmani and Campbell, 2004; Lawlor, Dunne, and Rowley, 2016).

**H1a:** The level of review legitimacy reduces the effect of consumer suspicion on brand trust.

**H1b:** The level of review legitimacy reduces the effect of consumer suspicion on purchase intentions.

Consumer perceptions of reviewers' ability and willingness to tell the truth moderate the effectiveness of a comment that includes both positive and negative evaluations (De Langhe *et al.*, 2016; Lin and Xu, 2017). High variance in review valence represents uncertainty and

positively affects attitudes and intentions towards poorly rated products but negatively impacts highly rated products (Kordrostami, Liu-Thompkins, and Rahmani, 2021; Kostyra *et al.*, 2016). A study analyzing online consumer reviews using a sentiment mining approach found that their length and longevity positively influenced their readership and helpfulness (Salehan and Kim, 2016). Some reviewers have never purchased or tried the product and are providing fake reviews for self-gain, while others are incentivized to submit online posts (Steward *et al.*, 2020). In the case of incentivized word-of-mouth, the incentivization process can induce biased self-interest on the side of the recommender (Pongjit and Beise-Zee, 2015).

Large online retailers, such as Amazon, have issues with deceptive reviews, including incentivized reviews where the vendor or a reputation-management company offer free or discounted products to reviewers in exchange for recipients' "honest opinion" on the item in a review on Amazon (Perez, 2016; Soper, 2015). These reviewers are more likely to post positive reviews overall, with approximately 4.74 stars out of five, compared with an average rating of 4.36 for non-incentivized reviews (Perez, 2016).

**H2a:** Incentivized reviews have a more positive valence compared to other categories.

In the context of automated linguistic features analysis and classification models, researchers have explored different frameworks based on IDT and have called for a unification of the framework linguistic cues used to identify deception (Fuller *et al.*, 2013). Burgoon and Qin (2006) have developed a framework based on eight constructs, while Fuller *et al.* (2013) have retained seven constructs – quantity, specificity, affect, diversity, uncertainty, nonimmediacy, and activation. Other studies have focused on computer-mediated communication and cues specific to this type of modern linguistics (Carlson *et al.*, 2004; Zhou *et al.*, 2004).

The perceived level of manipulation and the degree of review authenticity are also reflected in consumer attitudes and the perceived helpfulness of online product reviews (Mayzlin *et al.*, 2014; Peng *et al.*, 2016; Steward *et al.*, 2020). Moreover, incentivized review experiences influence even review writers and their writing styles, motivating them to seek other rewards, such as impulsive buying (Motyka *et al.*, 2018).

Deceivers use less analytical information and less clear and complete messages to manipulate content, not adding much detail and relevant information to their responses (Burgoon *et al.*, 1996, Carlson *et al.*, 2004). There are significant differences in authentic communication, analytical writing style, and text formalism as a function of the type of review (Chakraborty and Bhat, 2018; Hong *et al.*, 2017).

**H2b:** The level of authenticity is lower for incentivized reviews.

Research on automated linguistic analysis has highlighted that deceiving individuals lack the support of real experiences and memory, so they tend to communicate in a language that lacks complexity, detail and omits specific, analytical language (Zhou *et al.*, 2004). The same study on deceptive language emphasized that deceptive senders employ more informality in their messages than their respective receivers, including more typographical errors in written messages (Zhou *et al.*, 2004).

Buller and Burgoon (1996) pointed out that a deceiving message is more likely vague and short, including words of withdrawal rather than involvement, and indicates a disassociation of the sender. Therefore, we hypothesize that, for digital consumer reviews, we should expect lower levels of formalism and analytical writing for text resulting from incentives.

**H2c:** The level of analytical writing is lower for incentivized reviews.

**H2d:** The level of text formalism is lower for incentivized reviews.

## **2.4 Attitude toward reviews**

Even though consumers are aware of the possibility of manipulation, they might only partially correct it as a function of their expected level of manipulation (Hu *et al.*, 2011). A generalized effect of consumer distrust created by misleading activities can activate a defensive stereotyping mechanism in the online environment, adversely affecting marketing communication strategies (Friestad and Wright, 1995; Riquelme and Roman, 2014).

As consumers become more aware that marketers can manipulate reviews, they are less likely to believe and trust them, especially when reviews are dissonant to consumers' initial evaluations of a particular product or service (Dellarocas, 2006; Hu *et al.*, 2011). Therefore, we expect that consumers who have a more positive attitude towards reviews will be more likely to have a positive attitude towards the reviewed brand.

**H3a:** Consumers' attitude toward reviews is positively related to consumers' brand trust in a reviewed brand.

According to IDT, deceivers use various control attempts when they negotiate the outcomes with their partner, and the message receiver responds with strategic moves based on the information received, various cues, and already formed attitudes. Considering these potential issues, as well as the emphasis that IDT places on consumer expectations and experience in a deception context (Burgoon *et al.*, 1996; Buller *et al.*, 1996), this study includes consumer attitudes toward reviews in the model to represent already formed views on this type of digital content (Khare, Labrecque, and Asare, 2011).

Moreover, PKM highlights the effect of previous experience, persuasive knowledge, and previously formed attitudes toward advertising and persuasive intent on consumer-level

suspicion and skepticism (Evans and Park, 2015; Friestad and Wright, 1994). A prerequisite for persuasion knowledge development is individuals' direct and indirect experiences with the marketing messages that helped them form attitudes toward this way of communication (Evans and Park, 2015).

Based on the two theories in our framework, we hypothesize that consumers' attitude toward reviews is likely to have a negative effect on consumers' level of suspicion of an ulterior motive from the reviewer. This is influenced by the information and experiences consumers previously acquired in the marketplace.

**H3b:** Consumers' attitude toward reviews is negatively related to their suspicion of an ulterior motive from the reviewer.

### ***2.5 Suspicion of an ulterior motive***

According to IDT and PKM, the correspondent of deception on the side of the message receiver is perceived suspicion, the belief, without enough specific evidence, that an individual's message may be deceiving, a knowledge that consumers learn through experience (Buller and Burgoon, 1996; Friestad and Wright, 1994; Kirmani and Campbell, 2004). When consumers start to doubt a reviewer's honesty based on acquired consumption knowledge, external influences, or intrinsic behavior, their suspicion becomes an essential catalyst in the transaction, as it may alter both their behaviors and those of the message communicators (Bambauer-Sachse and Mangold, 2013; Burgoon *et al.*, 1996; Friestad and Wright, 1994; Kirmani and Campbell, 2004).

Consumer suspicion of ulterior motives refers to questioning the reasons that inspire another person's behavior or doubting the authenticity of that conduct (DeCarlo, 2005; DeCarlo *et al.*, 2013; Friestad and Wright, 1994; Kirmani and Campbell, 2004). When consumers become

suspicious, their message acceptance levels are lower, and they pay more attention to the communicator's agenda (DeCarlo *et al.*, 2013). When consumers believe that a review was written with ulterior motives, they perceive a higher level of untrustworthiness in the review (Bambauer-Sachse and Mangold, 2013; Lin and Xu, 2017; Reimer and Benkenstein, 2016).

Suspicion makes individuals look for additional information, and it could negatively affect the attitude formation process and purchase intentions (DeCarlo, 2005; DeCarlo *et al.*, 2013; Friestad and Wright, 1994; Kirmani and Campbell, 2004). Studies on word-of-mouth communication have found that when consumers are suspicious of ulterior motives, the effectiveness of the message will decrease (Godes and Mayzlin, 2009; Mayzlin, 2006). The use of rewards for recommendations hurts the receiver's attitude toward the brand because the impression that a business has motivated friends to profit from a personal relationship (Pongjit and Beise-Zee, 2015).

Providing biased incentivized electronic word-of-mouth (eWOM) changes the communicator's brand evaluation. That individual is likely to remember the prejudiced recommendation and use it as a learning opportunity to acquire knowledge and update his attitude (Friestad and Wright, 1994, 1995; Kim *et al.*, 2016; Kirmani and Campbell, 2004). When consumers know that a business is offering rewards for engaging in WOM, they consider these reviewers as having lower source trustworthiness levels (Martin, 2014). Seeing the place of perceived suspicion in the IDT and PKM, we hypothesize that this variable will act as a mediator between consumers' attitudes toward reviews and their brand trust, as well as their purchase intentions.

**H4a:** Consumers' level of suspicion of an ulterior motive mediates the relationship between attitude toward reviews and brand trust.

**H4b:** Consumers' level of suspicion of an ulterior motive mediates the relationship between attitude toward reviews and purchase intentions.

## **2.6 Brand trust**

Perceived trustworthiness of the source mediates the impact of the cues that consumers use, including reviewer identity and persuasion knowledge, on these behavioral intentions (Ma and Lee, 2014; Munzel, 2016). Honest reviews affect purchase intentions in the same direction as review valence, while untrustworthy reviews lead to a “boomerang effect” that causes positive reviews to decrease and negative reviews to increase purchase intention (Reimer and Benkenstein, 2016).

Consumer reviews decrease brand trust's influence on purchase decisions and indicate a brand's online reputation while reducing the impact of a brand's general reputation once they are displayed together (Kostyra *et al.*, 2016). The impact of user-generated content, such as online reviews, is starting to significantly affect consumers (Decker and Trusov, 2010; De Langhe *et al.*, 2016). Considering these effects shown by the previous literature, we hypothesize that brand trust formed when reading an online review will mediate the relationship between suspicion of an ulterior motive and purchase intentions. We also test the relationship between brand trust and consumers' intentions to purchase the reviewed product as a replication.

**H5a:** Brand trust mediates the relationship between suspicion of an ulterior motive and purchase intentions.

**H5b:** Brand trust mediates the relationship between attitude toward reviews and purchase intentions.



## **2.7 Generational cohort**

Under the PKM lens, the results are mixed regarding the influence of age on persuasion knowledge and consumer use of cognitive and information processing ability (Campbell and Kirmani, 2000; Carlson, Bearden, and Hardesty, 2007; Kirmani and Campbell, 2004; Lunardo and Roux, 2015). Some studies have emphasized that a diminution of the cognitive and information processing ability in adults can interfere with their activation of persuasion knowledge (Carlson *et al.*, 2007; Kirmani and Campbell, 2004), while others have shown its application in the context of advertising for children (Lawlor, Dunne, and Rowley, 2016). Persuasion knowledge is based on consumers' direct and indirect experiences with the marketing content and platform of communication, which becomes even more critical in a digital context (Evans and Park, 2015).

Regarding online reviews, our attention focuses on differences in the deception model as a function of the generational cohort. Various age groups have different experience levels with consumer reviews, online shopping, and exposure to deceptive circumstances. The Millennial generation is a distinct age group, including confident and better-educated members, with frequent and extended social contact with peer groups and digital interactions (Doster, 2013; Hübner Barcelos and Vargas Rossi, 2014). Less than half of Baby Boomers (48%) and retirees (45%) read online reviews before making a purchase, while 76% of Millennials and 63% of Gen X members do (Vantiv, 2018). Moreover, the younger generations also emphasize online reviews in their decision-making process (Vantiv, 2018).

As generational cohorts have different attitudes and perceptions regarding online reviews, we hypothesize a moderation position for this variable in the deception model. As the younger generational cohorts have greater market experience on the digital platform in the environment

of online reviews and more persuasive knowledge in this regard, we expect their suspicion levels to have a more significant negative impact on their brand trust levels and purchase intentions.

**H6a:** Younger generational cohorts enhance the effect of consumer suspicion of an ulterior motive on brand trust.

**H6b:** Younger generational cohorts enhance the effect of consumer suspicion of an ulterior motive on purchase intentions.

### **3. Methodology**

We employ a multi-method approach, using the insight advantages of qualitative studies and the benefits that mining social commerce sites like Amazon represent for word-of-mouth communication (Humphreys and Wang, 2018; Kirmani and Campbell, 2004). We first use an automated text analysis method, sometimes used by researchers to make discoveries, find patterns in positive vs. negative consumer reviews, and evaluate differences between expert and consumer discourse in product-related comments (Lee and Bradlow, 2011; Netzer *et al.*, 2012; Situmeang, de Boer, and Zhang, 2020). This method also allows us to measure differences in language among groups and types of reviews (Humphreys and Wang, 2018).

#### *3.1 Study 1: Identifying deception in online reviews*

Researchers have tried to find algorithms and markers that help consumers assess the degree of deception in reviews by leveraging their textual characteristics (Banerjee and Chua, 2017; Ott *et al.*, 2012). Previous analyses have focused on review comprehensibility (readability), specificity (informativeness and relevance), exaggeration (sentiment), and

negligence (Banerjee and Chua, 2017). Researchers have analyzed deceptive messages' writing style and linguistic characteristics, including deceptive travel reviews, deceptive emails, and online dating profiles (Anderson and Simester, 2014; Hu *et al.*, 2012; Markowitz and Hancock, 2016; Ott *et al.*, 2011). Our analysis in Study 1 has exploratory and empirical purposes of testing the hypotheses related to the critical linguistic cues that can be used to identify deception.

### *3.1.1 Analysis*

Approximately 1000 reviews for a scented spray product were downloaded from Amazon from January 2014 to January 2018 to perform an exploratory study. During this period, the branding company also ran an incentivized consumer review campaign through a third-party online reputation company by offering the product for free, making it possible for us to identify incentivized reviews that mentioned: "I received the product for free." Our analysis included 105 incentivized reviews, 620 verified reviews (Amazon verifies as product purchasers), and 150 unverified reviews.

This study used a content analysis approach based on sentiment and lexical analysis of a text. We first performed sentiment analysis of the three types of reviews using NVivo (Tang and Guo, 2015). This type of analysis focuses on sentiment strength detection to classify text for the overall strength of positive and negative sentiment and its polarity (Thelwall, 2016). The helpfulness of sentiment classification is shown by analyzing consumer reviews and assigning them to appropriate sentiment categories (Bai, 2011; Salehan and Kim, 2016). NVivo searches for expressions of sentiment in the text content, based on a sentiment dictionary and an algorithmic method, where each word containing sentiment has a predefined score, with a range on a scale from very negative to very positive; neutral words are not coded (Tang and Guo, 2015).

Then we performed a content and semantic analysis using LIWC, based on existing psychometrically tested scales and algorithms that include analytical thinking (Pennebaker *et al.*, 2014) and authenticity (Newman *et al.*, 2003). Studies have called for more unstructured textual content and semantic analysis of online reviews (Büschken and Allenby, 2016; Tirunillai and Tellis, 2014). LIWC2015 is based on three internal dictionary systems, with a master dictionary composed of almost 6,400 words, word stems, selected emoticons, and a corresponding dictionary entry that defines word categories (Pennebaker *et al.*, 2015). In the context of deception, LIWC was used successfully in analyzing five independent samples, where it correctly classified liars and truth-tellers at a rate of 67% when the topic was constant and a rate of 61% overall (Newman *et al.*, 2003). Some of the indices included in our analysis are analytical thinking (Pennebaker *et al.*, 2014) and authenticity (Newman *et al.*, 2003), based on the findings of previous literature (Chakraborty and Bhat, 2018; Hong *et al.*, 2017). These were derived from previously published findings and converted to percentiles based on standardized scores from large comparison samples. The analytical thinking index is measured by identifying formal, logical, and hierarchical thinking patterns in text based on function words and grammar words (Pennebaker *et al.*, 2014; Plotkina *et al.*, 2020). Authenticity analyzes whether individuals communicate honestly, based on research showing that consumers are more personal, disclosed, and vulnerable when authentic (Pennebaker *et al.*, 2015; Plotkina *et al.*, 2020). Informality is measured with a language dictionary that contains 380 words, including such categories as swear words, netspeak, nonfluencies, and fillers. For the LIWC 2015 version, the corrected alphas for the indices used range from 0.55 to 0.84, computed on a sample of about 181,000 text files from several language corpora (blogs, natural language, media), based on the Spearman Brown method (Pennebaker *et al.*, 2015).

### 3.1.2 Results

We first explored in automated content analysis in NVivo, as shown in Figure 2, the most critical themes in the consumer comments downloaded. The incentivized reviews emphasize a positive focus on the product, on different scent options, “good,” “nice,” “strong,” and “great,” without concrete and practical references regarding the purchase or the consumption experience, and with very few negative mentions. As discussed in our conceptual framework, the main aspects emphasized in the incentivized reviews category confirm a focus on general, non-specific, non-descriptive elements, with positive inclinations.

*(please insert Figure 2 here)*

The themes in the category of unverified reviews (which can also be incentivized or fake) reveal more positive elements, the benefits of low price, and a good smell. As expected through our theoretical framework, they show an inclination towards positive word-of-mouth. Consumers in the verified category focus more on their overall experience with the product, favorite scent, duration of the scent, and its freshness, in a more concrete and specific way of informing their peers. All three categories of reviews showed elements from the themes “scent” and “smell,” but their focus was different: for incentivized comments, the discussions were centered on product lines and scents, while for the verified reviews, the text exhibited a more emotional presentation, with sub-themes including “favorite scent,” “calming scent,” and “perfumy.”

All these findings have made it necessary to assess whether deception can be identified from the tone and sentiment of reviews; therefore, we performed a sentiment analysis in NVivo. The results show that incentivized reviews have a significantly more optimistic tone than unverified and verified reviews, with lower negative content and a higher level of very positive

content. Their text shows a significantly more extreme positive sentiment (44%) than unverified (32%) and verified (27.95%) reviews, including stealth incentivized or fake reviews. `

Some examples of verified reviews include “Weak to nonexistent smell. Had 3 going on in one room and still virtually no smell. All were set on the highest setting”, “It works! I keep one by the laundry and another by the shoes. Generally, I keep them dialed a bit low, the scent can get intense if you turn it up.”. At the same time, the incentivized reviews state the reward part, as in the following: “Great scent, long lasting. I received to sample from (...) for free for an honest review. I am very pleased with this product. I tried the clean linen scent in my son’s room which has a tendency of having a strong musty smell. This has kept room smelling clean and fresh for at least two weeks. I totally recommend”.

Our findings underline that consumers who write reviews intending to manipulate are more likely to use sentiments to influence a potential reader’s purchase behavior (Hu *et al.*, 2012). The lexical analysis performed in LIWC looks at differences in writing style and cues that can signal deceptive practices to test hypotheses 2 a-d and provide exploratory information about other variables. The results obtained in LIWC show the differences among verified, unverified, and incentivized reviews, emphasizing the formal character of incentivized reviews and the more personal tone of verified reviews. Incentivized reviews received a higher score for the authenticity index compared to the other two, which is fascinating and surprising, especially considering the purpose of this index; nevertheless, this can be justified by the number of details and further explanations provided by consumers who received rewards, as shown by the word/sentence count.

The index measuring the use of negations and the employment of numbers for each of the three categories of reviews confirms the NVivo results related to review valence. It underscores a

focus on information in verified reviews, and much more positive sentiment and lack of numerical information in incentivized reviews. LIWC also provides an index of words related to affective processes and feelings (such as happiness, satisfaction...) and perceptions related to seeing, hearing, and feeling. The linguistic analysis results reflect a more objective and descriptive approach than an experiential style for receiving rewards. To test these findings, we performed a t-test analysis in Table 2 using the indices obtained in LIWC for each group, confirming the differences hypothesized in H2a-d.

*(please insert Table 2 here)*

Our findings in the qualitative analysis emphasize that incentivized consumers are less likely to exhibit affective processes, concrete perceptions, and feelings related to their experience with the product reviewed than actual product buyers. An analysis of the amount of informal language used shows that incentivized reviews are more likely to incorporate this type of content. The results highlight significant differences among the three types of reviews and show deceptive characteristics that consumers cannot dissimulate, enriching the potential repertoire of cues that marketers and consumers can use in deception identification.

### *3.2 Study 2: Consumers as review evaluators*

The second study considers variables included in the conceptual framework based on IDT and PKM, such as the level of suspicion of the reader, consumer expectations, and the type of deception in the context of online consumer reviews. To test the model discussed, an online survey was used to collect data from a national sample of U.S. consumers through Qualtrics.

### 3.2.1 Analysis

The final sample includes 505 consumers with heterogeneous demographic characteristics, 47% male, similar distributions in each age group and income level, and the majority have a college degree. Consumers were randomly distributed into three groups and shown an actual Amazon consumer review about a fictional room deodorizer brand from one of the three categories: incentivized, verified, and unverified, as shown in the example in Figure A1 in the Appendix. A fictional brand was used to eliminate attitudes toward the brand potentially formed before seeing the review; however, the advertisement used was very similar to the image of an existing product, while genuine reviews from Amazon for a similar brand were used in the three experimental groups to ensure they are realistic.

We employed product images and text already analyzed in Study 1 to assess their level of legitimacy and text characteristics. To perform a post-hoc manipulation check and to assess confounding effects, we performed an ANOVA test. The results of the analysis show the success of the manipulation, with significant differences in consumer level of suspicion based on the three experimental groups, while the confounding effects, based on the social desirability bias scale (Crowne and Marlowe, 1960), show no significance (Hauser and Gonzalez, 2018; Perdue and Summers, 1986).

The constructs in the model were measured based on established scales of measurement, as shown in Table A1 in the Appendix. Unless the scale developers noted specific recommendations, a 7-item Likert rating option was used. Information on the rigor of the model is further provided in Table 3, which presents data on reliability, validity, and common method bias. To increase reliability and minimize bias, we included some reverse-coded items and a few attention filters that removed inattentive respondents from the survey (Podsakoff *et al.*, 2003).



*(please insert Table 3 here)*

All factor loadings for the measures in the PLS-SEM analysis were above the recommended value of 0.60, as shown in Table A1 in the Appendix (Hair, Ringle, and Sarstedt, 2013). An analysis of the reliability of the measurement scales shows that Cronbach's alpha coefficients and the composite reliability of each construct are higher than the minimal accepted value of 0.70 (Bagozzi and Yi, 1988; Nunnally, 1978). The Fornell-Larcker criterion in Table 3 shows that the AVE values for each construct are all above the recommended 0.50 level (Bagozzi and Yi, 1988; Fornell and Larcker, 1981), concluding discriminant validity between all constructs. The heterotrait-monotrait (HTMT) ratio shows values lower than 0.85 for conceptually distinct constructs.

### *3.2.2 Results*

To test the hypotheses presented in the conceptual model, we employed a PLS-SEM procedure using SmartPLS 3. The results of the overall model are presented in Figure 3 and Table 4. The output of the PLS-SEM analysis produced an SRMR of 0.074 for the model, which is at the recommended cutoff of equal or less than 0.08 (Hu and Bentler, 1999).

*(please insert Figure 3 here)*

The rms Theta is 0.207, slightly higher than the accepted limits presented by the current literature for SmartPLS (Henseler *et al.*, 2014). The Q<sup>2</sup> value also shows levels above 0, with good predictive relevance for the selected endogenous construct, especially purchase intentions. Figure 3 presents the significance for each hypothesized relationship and the R-square for the endogenous variables included in the model, emphasizing good predictive power. The effect-

power presented by f-square shows a value of 0.13 for the influence of attitude toward reviews on brand trust, and 0.061 for the influence of suspicion on purchase intentions.

*(please insert Table 4 here)*

All the hypothesized relationships were significant at the  $p < 0.001$  level. Also, the R-square level showed an excellent explanation for brand trust and an excellent percentage of explaining consumer purchase intentions at R-square 0.509. The specific and total indirect effects support the hypothesized role of consumer-level suspicion of an ulterior motive as a mediator in the relationship between attitude toward reviews and brand trust and between attitude toward reviews and purchase intentions. Brand trust is a mediator in the relationship between suspicion of an ulterior motive and purchase intentions.

We also performed a PLS-MGA group analysis procedure in SmartPLS using the model presented in Figure 1 for the three experimental groups: consumers who viewed verified, unverified, and incentivized reviews before answering the survey questions. The effect of consumer suspicion of an ulterior motive on brand trust is different for consumers who saw an incentivized review vs. a verified review at  $p < 0.05$  level and for incentivized and unverified reviews at  $p < 0.01$  level. While there are no differences regarding purchase intentions, the group analysis does confirm the mediation effect of the review type and the significant differences between the reviews with the highest vs. lowest level of legitimacy, verified vs. incentivized.

To test hypothesis 6, related to the moderation effects of the generational cohort, we performed a PLS-MGA group analysis procedure in SmartPLS for four age groups: Generations Z (65 consumers), Y (90), and X (167), as well as Baby Boomers (165). The multigroup analysis emphasizes differences in the effects of suspicion of an ulterior motive on brand trust and purchase intentions. The effect of brand trust on purchase intention is also different for

consumers from different generations. Regarding the effects of suspicion, the most significant differences appear at the extremes of the age spectrum between Baby Boomers and Generation Z. However, there are also significant differences between Generations X and Z. In the case of brand trust and its impact on purchase intentions, differences are also appearing between Millennials and Gen. Z, providing support for our expectations regarding a higher level of market knowledge and suspicion from younger consumers, which also impacts the way they interpret online reviews.

We also employed a conditional moderation-mediation regression analysis based on the Process method (Hayes, 2017, 2018). We tested the model presented in Figure 1 and focused on the moderation and mediation results and the unconditional and conditional effects. The results show that the effects of suspicion of ulterior motive on brand trust and purchase intentions are moderated by the type of review consumers read and the generational cohort. The findings summarized in Table 5 show that consumers have various levels of consumption and deception knowledge as a function of their experience and exposure.

*(please insert Table 5 here)*

Overall, the results of our quantitative analysis provide support for our proposed improved framework of deception identification in consumer reviews and emphasize the complementary role of IDT and PKM in the online written language context. The findings emphasize the role of consumer knowledge and experience in the framework of online deception and show the effects of review characteristics and consumer generational cohort on the impact of online peer-to-peer communications.

#### **4. Discussion and conclusions**

The essential steppingstone that can be used by future research is represented by our new framework of deception identification in the persuasive context of digital written reviews. The legitimacy of online reviews can be identified based on our study's four significant dimensions: valence, authenticity level, analytical writing, and formal expressions. An integrative element of interpersonal and computer-mediated communication in a persuasive context is represented by suspicion, at the center of our framework, exhibited even in the asynchronous, written environment of online reviews. This new framework represents a significant step forward for the literature on identifying the main characteristics of deceptive messages among online consumer reviews based on linguistic cues and lexical analysis. Also, the newly emphasized elements of deception identification have a role in the previously formulated theories on interpersonal deception and help adapt the theoretical agenda to the current digital circumstances. Theories like IDT and PKM need to incorporate these elements of deception in digital language to account for the specifics of electronic communication and to theorize information concealment, falsification, and equivocation aspects in online consumer reviews based on different types of deceptive cues.

##### *4.1 Theoretical contributions*

We evaluated consumer reaction to a possibly deceptive environment by assessing the role played by suspicion of an ulterior motive of the reviewer in the deception model in an integrative theoretical framework based on IDT and PKM. The results show the applicability of the PKM and IDT model in deception in digital consumer reviews, especially in asynchronous digital communication among consumers. The findings reiterate the importance of consumer expectations and experience in a deception context (Burgoon *et al.*, 1996; Buller *et al.*, 1996) by

showing the importance of consumer attitudes toward reviews in the model in direct and mediated relationships (Khare, Labrecque, and Asare, 2011). Therefore, applying this framework in the context of online consumer reviews will help further research on deceptive communication, heuristics used to interpret deception, and related to the effects of suspicion in digital word-of-mouth communication.

We also assessed linguistic cues that consumers can use to identify fake and incentivized reviews written digital communication context and evaluate how consumer suspicion of deceptive communication influences their purchase intentions. We found that incentivized reviews have a significantly more positive valence than both unverified and verified reviews, with a significantly more extreme positive sentiment than even unverified reviews. This confirms previous findings and underlines the effect of incentives in generating extreme positive valence in reviews (Perez, 2016). Further, the qualitative and quantitative results highlight the formal character of incentivized reviews and the more personal tone of verified reviews. The analysis performed in LIWC also exhibits a higher level of details and extra-explanations provided by consumers who received rewards, as shown by the authenticity index and the word/sentence count. These cues are in tune with previous discussions on deception, noting that deceptive communicators use fewer self-references and individual formulations (Buller *et al.*, 1996; Zhou *et al.*, 2004). The indices also confirm the objective and detached styles on affective processes and feelings (such as satisfaction) and perceptions of seeing, hearing, and feeling. Communicators in incentivized reviews use a more objective and descriptive approach rather than an experiential style in their comments. They do not describe their affective processes, perceptions, and feelings related to their experience with the product reviewed. These results

represent potential cues that marketers and consumers can use in assessing deception in online consumer comments.

Finally, the conclusions support the central role of consumer suspicion of an ulterior motive from the reviewer and show the impact of incentivized consumer reviews. Our findings show that consumer suspicion can negatively affect the attitude formation process and purchase intentions in the context of online reviews (DeCarlo, 2005; DeCarlo, Laczniak, and Leigh, 2013). Consumer suspicion regarding the reviewer is also a mediator for the effects of attitude toward online reviews on consumer emotions and intentions, including brand trust and intentions to purchase the product. The moderation role of review type as review legitimacy expresses the adverse effects of suspicion on attitudinal and behavioral variables, as well as the potential that the characteristics of one review for a fictitious brand have on the formation of consumer intentions (DeCarlo, 2005; DeCarlo, Laczniak, and Leigh, 2013). The moderator effects shown by the generational cohort also exhibit the role played by experience and skills in the deception detection process (Buller and Burgoon, 1996).

#### *4.2 Practical contributions*

From a practical standpoint, companies need to consider the vulnerability of specific generations based on lower levels of suspicion and distrust and formulate their short and long-term marketing communication strategies accordingly. This analysis also provides businesses with different cues to detect deception in online comments. Our results show the main difficulties in dissimulating deception and emphasize deceptive characteristics of incentivized reviews, which marketers can use to identify attempts of deception through concealment, falsification, and equivocation from their competitors.

It is now easier for marketing practitioners to identify potentially deceptive online reviews for their brand and their competitors based on the framework we propose, and the four main characteristics analyzed: valence, authenticity, formalism, and analytical writing. Moreover, by evaluating the essential cues in persuasive communication and the role played by suspicion when interpreting consumer reviews, marketers can now more easily formulate a digital reputation management campaign, manage their digital content, provide, and request feedback from their consumers. In the short run, marketers can also improve their content marketing strategies by promoting consumer reviews that attenuate consumer suspicion based on the essential characteristics emphasized in this study.

In the long and medium-term, entrepreneurs also have business opportunities to create services for organizations interested in increasing their level of legitimate reviews and their feedback relation with consumers. These deception identification cues can create new long-term opportunities for marketing communicators to adapt and change their business model and integrate more proactive deception management measures. Also, long-term, marketers can reduce the overall level of consumer suspicion and skepticism and increase brand trust by promoting reviews that have lower levels of deceptive characteristics and by providing consumers access to constructive market knowledge. Considering the exponential growth of digital communication, policymakers and regulators also need to reflect on the role of suspicion, consumer skepticism, the potential for market knowledge to help consumers deal with deception, and the role of policies and education campaigns in reducing deceptive communication and decreasing overall consumer suspicion levels.

### *4.3 Future research*

This study has some limitations, mainly related to its sample focused on the U.S. market and reviews posted on Amazon. Therefore, it would be interesting to see the differences in results when examining reviews for other types of products, such as high-value products and services, and in a cross-cultural context, especially in a high/low context cultural framework. Nevertheless, there is also potential interest in studying this topic on different review platforms, including etailers, retailers, as well as review aggregators.

Moreover, thanks to big data mining and natural language processing (NLP), we can now perform larger scale, cross-cultural, integrative, and comprehensive machine-learning-based analyses on a text to identify the critical markers of deception. In practice, we have some review checker software options, and in research, we have attempts of studies on deception. However, we need more thorough studies that can provide comprehensive frameworks based on theory and data, allowing businesses and consumers to identify deception in various eWOM circumstances, especially in computer-mediated communication and based on automated lexical analysis.

Finally, numerous topics stem from the widespread use of incentivized and deceptive reviews that need additional attention. As mentioned, there are numerous options now of using a review deception checker, usually integrated into the browser, which calculates the authenticity score of a particular online seller. It would be interesting to analyze consumer attitudes towards deceptive reviews and their intentions of using these aids and behavioral outcomes. Moreover, as online reputation management companies and review influencers are becoming more common and accepted on the market, research will also need to focus on differences within incentivized reviews and consumer attitudes and behaviors towards this new type of marketing content.



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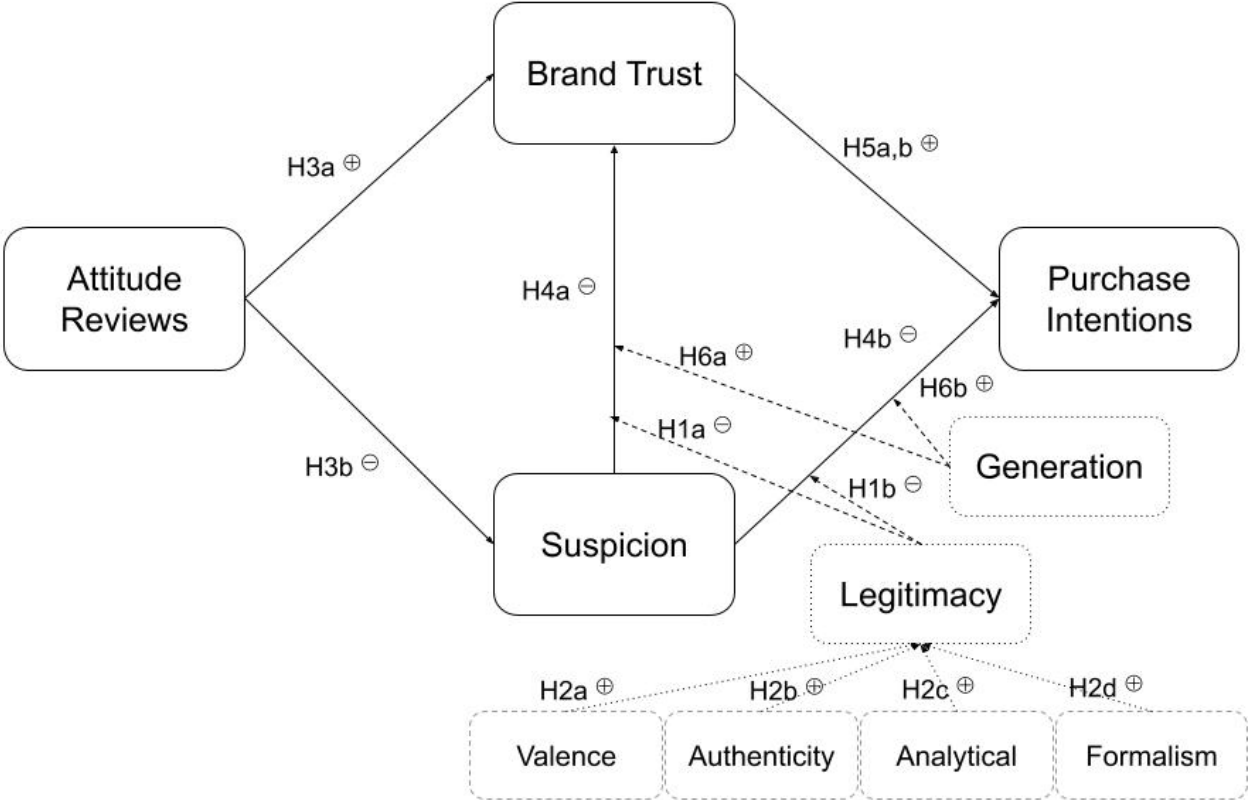
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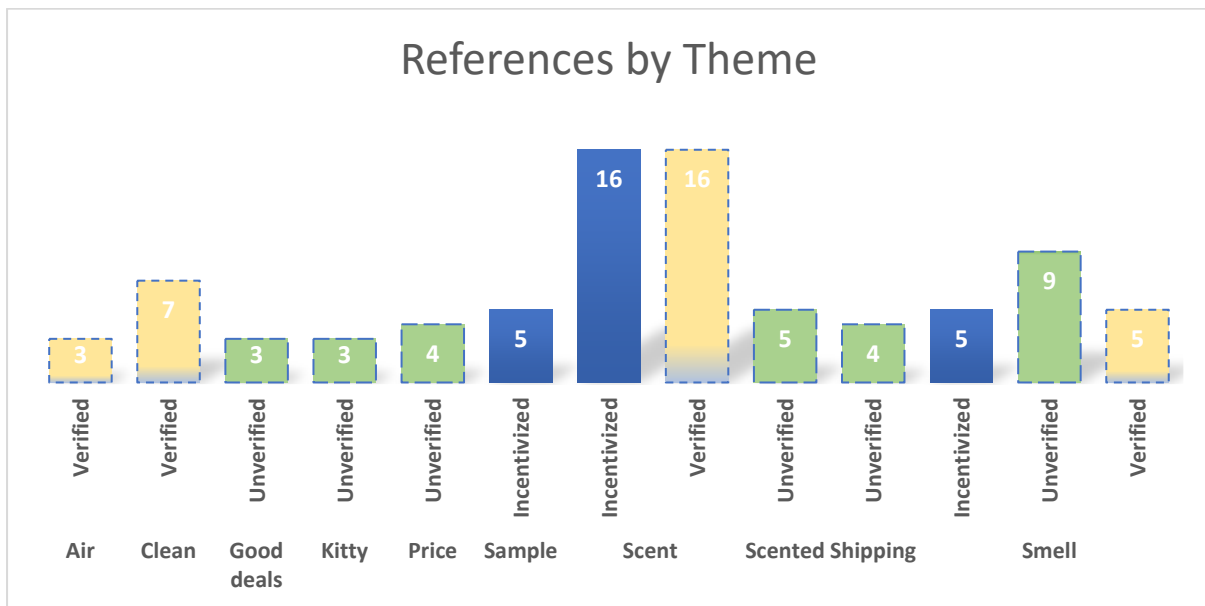
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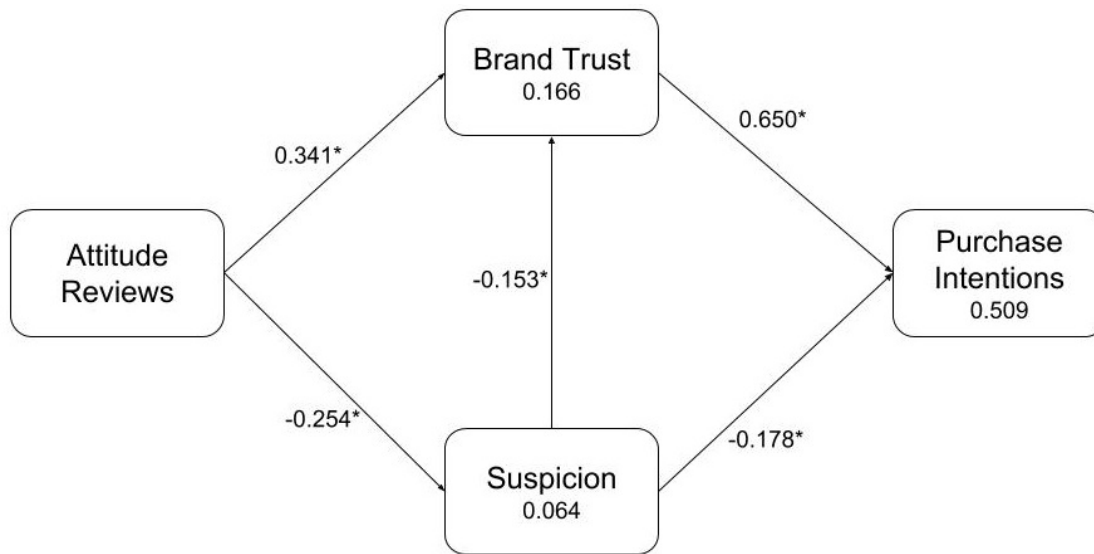
**Figure 1:** Conceptual framework



**Figure 2:** Themes in consumer reviews: incentivized, unverified, verified



**Figure 3:** Consumer reviews PLS model results



**Table 1:** The IDT and PKM framework

Theory	Core Theory	Domains	Takeaway	Gaps
<b>IDT</b>	Deception is “a message knowingly transmitted by a sender to foster a false belief or conclusion by the receiver,” including the interactive process of monitoring and adjusting communication based on verbal and non-verbal cues and mutual responses (Buller and Burgoon, 1996)	<p>decision sciences (Burgoon <i>et al.</i>, 2010)</p> <p>decision sciences (Carlson <i>et al.</i>, 2004)</p> <p>decision sciences (Zhou <i>et al.</i>, 2004)</p> <p>decision sciences (Fuller <i>et al.</i>, 2013)</p> <p>communication (George and Robb, 2018)</p>	<ul style="list-style-type: none"> <li>• participants in synchronous communication are more involved, perceive more mutuality and more credibility</li> <li>• success in detecting deception depends on the medium used</li> <li>• linguistic constructs and LBC components are helpful in detecting deception</li> <li>• linguistic-based cues effectiveness: quantity, specificity, affect, diversity, uncertainty, nonimmediacy, activation</li> <li>• deception is common in communication, for 22% to 25% of social interactions</li> </ul>	<ul style="list-style-type: none"> <li>- Scarcity of empirical and theoretical work at the intersection of computer-mediated communication and deception;</li> <li>- The need for more research on automated linguistics-based cues</li> </ul>
<b>PKM</b>	When consumers are exposed to persuasion attempts, they activate strategies to defend against these messages based on experience and knowledge of the market, leading to increased skepticism (Friestad and Wright, 1994, 1995)	<p>advertising (Evans and Park, 2015)</p> <p>consumer research (Campbell and Kirmani, 2000; Kirmani and Campbell, 2004)</p> <p>consumer research (Isaac and Grayson, 2017)</p> <p>IMC (Kim <i>et al.</i>, 2016)</p> <p>marketing (Artz and Tybout, 1999)</p>	<ul style="list-style-type: none"> <li>• alternative outcomes to attitude formation even when P.K. is activated</li> <li>• the accessibility of persuasion motives and the cognitive capacity of the consumer affect the use of P.K.</li> <li>• P.K. access can lead to a higher level of credibility, trust, and belief in persuasive messages</li> <li>• reduced synergistic effects of advertising and publicity when consumers activate P.K.</li> <li>• source-message incongruity and source bias lead to negative inferences about the manipulative intent of the source</li> </ul>	<ul style="list-style-type: none"> <li>- The process of persuasion acceptance; managing the explicit recognition of advertising or persuasive intent;</li> <li>- Conditions under which consumers use P.K. in digital communication;</li> <li>- Assess circumstances with traditional, skepticism-focused manipulations of P.K. access</li> </ul>



**Table 2:** T-test results

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	<b>t</b>	<b>df</b>	<b>Sig. (2-tailed)</b>	<b>Mean Dif.</b>	<b>95% Conf. Int.</b>	
					<b>Lower</b>	<b>Upper</b>
<b>H2a:Negations</b>	<b>10.674</b>	<b>2</b>	<b>0.009</b>	<b>1.783</b>	<b>1.065</b>	<b>2.502</b>
<b>H2b:Authentic</b>	<b>7.430</b>	<b>2</b>	<b>0.018</b>	<b>60.267</b>	<b>25.365</b>	<b>95.169</b>
<b>H2c:Analytical Thinking</b>	<b>27.314</b>	<b>2</b>	<b>0.001</b>	<b>57.483</b>	<b>48.428</b>	<b>66.538</b>
<b>H2d:Informal language</b>	<b>7.874</b>	<b>2</b>	<b>0.016</b>	<b>0.593</b>	<b>0.269</b>	<b>0.918</b>
WPS	12.418	2	0.006	13.130	8.581	17.679
Numbers	3.079	2	0.091	2.307	-0.917	5.530
Affective processes	11.754	2	0.007	8.367	5.304	11.429
Perceptual processes	13.360	2	0.006	7.103	4.816	9.391

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**Table 3:** Construct reliability and validity

	<b>Att. Reviews</b>	<b>Brand Trust</b>	<b>Purchase Intentions</b>	<b>Suspicion</b>	<b>Cronbach's Alpha</b>	<b>Comp. Reliab.</b>	<b>AVE</b>
<b>Att. Reviews</b>	0.840				0.863	0.905	0.705
<b>Brand Trust</b>	-0.380	0.917			0.905	0.940	0.840
<b>Purchase Intentions</b>	-0.431	0.692	0.906		0.890	0.932	0.820
<b>Suspicion</b>	-0.254	0.240	0.333	0.877	0.861	0.909	0.769

**Table 4:** Consumer reviews model results

	<b>Path Coef.</b>	<b>t value</b>	<b>p-value</b>
<i>Direct effects</i>			
<b>Att. Reviews -&gt; Brand trust</b>	0.341	7.488	0.001
<b>Att. Reviews -&gt; Suspicion</b>	-0.254	6.713	0.001
<b>Brand trust -&gt; Purchase</b>	0.650	19.279	0.001
<b>Suspicion -&gt; Brand trust</b>	-0.153	3.580	0.001
<b>Suspicion -&gt; Purchase</b>	-0.178	4.939	0.001
<i>Specific and total indirect effects</i>			
<b>Att. Reviews -&gt; Brand trust</b>	0.039	2.955	0.003
<b>Att. Reviews -&gt; Purchase</b>	0.292	8.078	0.001
<b>Att. Reviews -&gt; Suspicion -&gt; Brand trust</b>	0.039	2.955	0.003
<b>Att. Reviews -&gt; Brand trust -&gt; Purchase</b>	0.221	6.375	0.001
<b>Att. Reviews -&gt; Suspicion -&gt; Brand trust -&gt; Purchase</b>	0.025	2.968	0.003
<b>Att. Reviews -&gt; Suspicion -&gt; Purchase</b>	0.045	3.576	0.001
<b>Suspicion -&gt; Purchase</b>	-0.100	3.576	0.001

**Table 5: Overall results**

	Hypothesis	Study/ analysis	t value	p- value	Result	
H1a	The level of review legitimacy reduces the effect of consumer suspicion on brand trust.	Study 2, PLS- MGA	2.307	0.360	partially supported*	
H1b	The level of review legitimacy reduces the effect of consumer suspicion on purchase intentions.				<i>not supported</i>	
H2a	Incentivized reviews have a more positive valence compared to other categories.	Study 1, LIWC, t- test	10.674	0.009	supported	
H2b	The level of authenticity is lower for incentivized reviews.		7.430	0.018	supported	
H2c	The level of analytical writing is lower for incentivized reviews.		27.314	0.001	supported	
H2d	The level of text formalism is lower for incentivized reviews.		7.874	0.016	supported	
H3a	Consumers' attitude toward reviews is positively related to consumers' brand trust in a reviewed brand.	Study 2, PLS-SEM, Process	7.488	0.001	supported	
H3b	Consumers' attitude toward reviews is negatively related to their level of suspicion of an ulterior motive from the reviewer.		6.713	0.001	supported	
H4a	Consumers' level of suspicion of an ulterior motive mediates the relationship between attitude toward reviews and brand trust		2.955	0.003	supported	
H4b	Consumers' level of suspicion of an ulterior motive mediates the relationship between attitude toward reviews and purchase intentions		3.576	0.001	supported	
H5a	Brand trust mediates the relationship between suspicion of an ulterior motive and purchase intentions		2.968	0.004	supported	
H5b	Brand trust mediates the relationship between attitude toward reviews and purchase intentions		6.375	0.001	supported	
H6a	Younger generational cohorts enhance the effect of consumer suspicion of an ulterior motive on brand trust.		Study 2, PLS- MGA	2.306	0.036	partially supported**
H6b	Younger generational cohorts enhance the effect of consumer suspicion of an ulterior motive on purchase intentions.			1.816	0.961	partially supported**

\**Incentivized vs. verified*

\*\**Millennials vs. Baby Boomers*

## Appendix

**Figure A1:** Survey set-up example

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Please read the following consumer review about the product below from an online retailers' website and be prepared to answer a few questions about it:

**\*\*\*\*\* 5 stars**

yes.. you can buy clean air

ByStephanie M.on December 28, 2016

one of my favorite plug in scents... it smells clean and crisp. i get it here on amazon for a great price. they can be a tad strong and trigger my allergies so i keep the caps they come with and only use them when we have guests. i live in a small apartment where you can smell my cooking for days!! and this does the trick to get rid of those odors. i get tons of compliments of how good my home smells.



**Table A1:** Measurement model

<b>Att. Reviews</b> (Khare, Labrecque, and Asare, 2011)	I am comfortable with reading online reviews.	0.848
	I have used online reviews to help me make a decision about a product or service.	0.853
	In the past, my decisions have been influenced by reviews that I read online.	0.804
	I like to learn about others' product and service experiences.	0.854
<b>Brand Trust</b> (Goldsmith, Lafferty and Newell 2001; MacKenzie and Lutz 1989)	I trust this brand:	0.931
	This brand is safe	0.897
	This is an honest brand	0.922
<b>Purchase Intentions</b> (Lepkowska-White, Brashear, and Weinberger, 2003; Lepkowska-White, 2005)	If I were looking for this type of product my likelihood of purchasing this product would be high.	0.863
	If I were to buy this type of product, the probability that I would consider buying this product...	0.927
	If I had to buy this type of product, my willingness to buy this product would be high.	0.925
<b>Suspicion</b> (DeCarlo, Laczniaak, and Leigh, 2013)	The reviewer of the product has an ulterior motive.	0.804
	The reviewer's comments are suspicious.	0.932
	The reviewer is motivated to exaggerate the benefits of the product.	0.891