



Ecommerce chatbots: The effects of humor and the role of brand familiarity on brand attitude, purchase intentions, and patronage intentions.

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Abstract

Nowadays, more and more brands integrate eCommerce chatbots in their websites to guide users efficiently to the shopping cart or persuade them to return for more purchases. However, users still perceive chatbots as machinelike, scripted, and cold. The current study attempts to eliminate this perception by applying humor to their conversational style. Humanlike cues, including humor, increase social presence and perceived enjoyment, which typically enhances brand attitude, purchase intention, and patronage intention. The current paper investigates the degree to which this applies in eCommerce chatbots while examining whether brand familiarity influences users' perceptions of a humorous chatbot's communication style. An online experiment reveals insignificant effects of humor on brand attitude, purchase intention, and patronage intention. In addition, perceived enjoyment does not mediate these relations, whereas social presence only mediates the relations of the chatbot's communication style with purchase intention and patronage intention. The findings also suggest that when users evaluate a chatbot's communication style they do not consider brand familiarity in order to purchase, revisit and recommend a chatbot. Overall, this study provides guidelines for firms that intend to integrate humor into an eCommerce chatbot's personality in order to increase their economic profits.

Keywords: eCommerce chatbots, humor, social presence, perceived enjoyment, brand familiarity, brand attitude, patronage intention.

Ecommerce chatbots: The effects of humor and the role of brand familiarity on brand attitude, purchase intentions, and patronage intentions.

The widespread use of eCommerce chatbots has enabled industries to deliver enhanced shopping experiences to their customers. Ecommerce chatbots are software tools that interact with customers through text messages to provide product information and assistance in placing orders (Ashfaq et al., 2020). Chatbots can serve as a potential substitute for human agents as they manage many customers simultaneously, providing companies with a way to reduce employees and subsequently business expenses (Go & Sundar, 2019; Bilquise et al., 2022). In an attempt to optimize the shopping process, chatbot designers imbue chatbots with humanlike cues, since customers proceed easier to a purchase by a human than a bot (Luo et al., 2019). Because chatbots feel impersonal or unnatural to users (Liebrecht & Van Hooijdonk, 2019), the need of developing humanized chatbots is increasing (Schanke et al., 2021).

Humanizing chatbots refers to the practice of attributing human characteristics to them in an attempt to resemble human social interactions (Shin, 2021; Schuetzler et al., 2020). For instance, chatbots integrating conversational cues (i.e., linguistic elements that represent their conversational skills) in their communication style manage to resemble human dialogue (Go & Sundar, 2019). Using conversational cues, they greet customers, amuse them through humor (Johansson, 2021) or even apologize for their failures (Klein et al., 2020) hence, appearing more humanlike. Such features intend to increase consumers' patronage intentions (Lou et al., 2022), namely their willingness to interact with a chatbot, buy from it, revisit it or recommend it to friends in the future (Baker et al., 2002), actions that create economic profits for companies.

The main purpose of the current study is to investigate the path to humanizing eCommerce chatbots through humor in an attempt to increase purchase and patronage intentions.

Humor constitutes a human attribute; thus, it has been employed in recent studies as a way of humanizing customer service chatbots (Shin et al., 2022; Thomaz et al., 2020). In combination with other human traits such as empathy and apologies, humor can increase social presence (Van Hooijdonk & Liebrecht, 2021), users' perception that a "real person" is interacting with them through the computer-mediated environment (Short, et al., 1976; Gunawardena, 1995). Social presence leads to positive evaluations of the chatbot's brand (i.e., brand attitude) (Van Hooijdonk & Liebrecht, 2021), which typically improves purchase and patronage intentions (Kasilingam, 2020; Zarouali et al., 2018). However, the extent to which humor alone can generate similar results in eCommerce has not been studied yet (Meany & Clark, 2010; Thomaz et al., 2020).

In detail, humor is defined as "a stimulus that evokes laughter, amusement, and fun" (Warren et al., 2018). In the context of online shopping, which users anticipate to be a fun and entertaining process (Wolfenbarger & Gilly, 2001), humorous chatbots could contribute in favor of users' entertainment. Marketing literature pinpoints that humor influences positively consumers' purchase intentions (Tremblay, 2022), namely the "probability that lies in the hands of the customers who intend to purchase a particular product" (Grewal et al., 1998). Nevertheless, the extent to which this knowledge applies in eCommerce, let alone in eCommerce chatbots remains unclear (Shin et al., 2022). In essence, it is undetermined whether humor applied in a chatbot's communication style is sufficient to lead customers to purchase (i.e., purchase intention) and revisit and recommend the service to potential future customers (patronage intention).

Furthermore, earlier evidence reveals that users' perceptions of a chatbot's communication style depend on users' familiarity with the brand (i.e., brand familiarity) (Van Hooijdonk & Liebrecht, 2021). For instance, chatbot messages that combine humor with

empathy and sympathy produce more feelings of social presence when users are familiar with the brand than when they are unfamiliar with it (Van Hooijdonk & Liebrecht, 2021). This, in turn, enhances the brand attitude (Van Hooijdonk & Liebrecht, 2021). Thus far, eCommerce literature has neglected to address brand familiarity's role in a chatbot's humorous communication style. In an attempt to isolate and assess the effects of humor, the above findings might not apply, emerging contradictory results. Essentially, users may perceive a humorous comment as informal, thus inappropriate when addressed by an unfamiliar brand, disrupting the feelings of social presence (Gretry et al., 2017) with adverse effects on brand attitude (Van Hooijdonk & Liebrecht, 2021).

In addition, when applied in the appropriate manner and context, humor can produce feelings of enjoyment (Eastman & Fry, 2017). Preliminary papers in the eCommerce field reveal that both enjoyment and social presence are predictive factors of brand attitude and purchase behaviors (De Cicco et al., 2020; Han, 2021). Hence, it is deemed interesting to extend the existing literature on eCommerce chatbots based on these findings. Also, existing literature thus far has focused merely on the relationship between users' perceived enjoyment and purchase behaviors (Koufaris, 2002; Selamat & Windasari, 2021; Cai et al., 2022). Thus, the current study will examine the contribution of humor in this relationship and brand familiarity's role since this construct is oftentimes overlooked by eCommerce chatbot literature.

Considering the aforementioned research gaps, the current study aims to provide valuable insights to chatbot specialists, eCommerce professionals, and online marketers by proposing the following research question: *“To what extent does the existence of humor and brand familiarity of eCommerce chatbots increase brand attitude, purchase intentions, and patronage intentions through social presence and perceived enjoyment?”*

2. Theoretical background and hypotheses development

2.1 Ecommerce chatbots

Internet sales increased by 55% during the global crisis of 2019, produced by the Covid-19 pandemic, which forced customers to shop increasingly online in order to avoid social interactions (Solis-Quispe et al., 2021). This led to a rise in eCommerce use and the need for optimizing the online experience became progressively important (Solis-Quispe et al., 2021). Although Covid is not regulating consumers' lives anymore, eCommerce is expected to continue growing (Dinesh & MuniRaju, 2021). However, some pitfalls in the systems that eCommerce employs become apparent. Statista (2022) reports that 69.82% of customers abandon their baskets and leave the online environment without reaching the purchase stage. This is mostly attributed to a poor shopping experience generated by the absence of digital shopping assistants that recommend products and persuade customers to buy or revisit the website in the future (Devaney, 2018; Solis-Quispe et al., 2021). Contrarily, eCommerce websites that integrate digital shopping assistants save customers time and effort in searching for a product that matches their desires because such systems provide tailored advice based on customers' search and purchase history (Shafi et al., 2020). Thus, the idea of employing shopping agents, such as eCommerce chatbots, seems appealing to companies attempting to increase their sales.

A chatbot is defined as computer software that receives users' input through text or voice-based messages and responds to them using natural language (Pradana et al., 2018). Artificial intelligence (AI) technology allows these systems to imitate humans and complete tasks in an intelligent manner (Hoyer et al., 2020). In particular, AI enables chatbots to recognize specific entities in users' phrases, such as keywords (e.g., the date of arrival of the delivery or the size of a clothing item), in order to extract users' intentions (Gwendal et al., 2020). Chatbots

match these keywords with a set of predefined answers and reply to the users by converting these data to an appropriate response using natural language (Angelov & Lazarova, 2019).

Similarly, eCommerce chatbots employ AI technology and demonstrate favorable results. Past literature indicates that eCommerce chatbots have served as recommenders and marketers (Asadi & Hemadi, 2018), customer relationship managers (Bhawiyuga, 2017), and sales assistants (Nursetyo & Subhiyakto, 2018). Some of their daily tasks include replying to customers about product-related concerns, recommending products/services, or reminding customers of their favorite choices that are pending in the shopping basket, thus influencing their decision-making and increasing sales (Cui et al., 2021; Chung et al., 2020; Tran et al., 2020). A representative example is Amazon's case, which, with the help of AI and chatbots, increased employees' productivity, clients' online purchasing skills, and the company's revenues (Anh, 2019). Mori et al. (2019) however, pinpoint that chatbot agents' responses lack "emotion", "attitude", and general human characteristics, which can be detrimental to users' trust. Moreover, chatbots come across as unnatural and impersonal by users (Liebrecht & Van Hooijdonk, 2019), thus improving their perceived humanness seems imperative, according to Oguntosin and Olomo (2021).

The humanization of chatbots has been extensively researched in the past (Cai et al., 2022; Han, 2021; Schanke et al., 2021). Some of the most studied humanization techniques are the chatbot's self-introduction, addressing the user by their name, using adaptive response speed, and message contingency (responding accurately to the customer's query based on past conversations) (Rhim et al., 2022; Go & Sundar, 2019). Go and Sundar reveal that although identity (e.g., a human name or specific gender) and visual cues (e.g., a human appearance) are important, the main focus when humanizing chatbots is on verbal cues that enhance their

conversational skills since these are significantly associated with users' perceptions of the chatbot (i.e., attitudes) and users' intention to use the agent (i.e., behavioral intention).

2.2 Humanizing chatbots through humor

This study attempts to demonstrate that humanizing chatbots through humor constitutes an effective tool for eCommerce. In detail, several studies define humor as a social skill used by individuals to initiate social interactions, surpass shyness and hesitation at first contact, facilitate difficult situations, or even provide emotional support (Hampes, 2005; Marini, 1992; Yip & Martin, 2006). Indeed, chatbot literature shows how humor can motivate social responses in users (Schuetzler, 2020), whereas, in psychology, humor is used to cope with depression, anxiety, and loneliness (Nezlek & Derks, 2001). Marketing literature indicates that humor constitutes a communication tool able to capture the audience's attention in an attempt to inform and persuade about a product or make a brand name easier to recall (Fugate, 1998). In the advertising field, humor was found to increase purchase intentions (Eisend, 2009). Furthermore, in eCommerce, Van Dolen et al. (2008) demonstrate that humor enhances consumers' evaluation of the brand and increases website revisit and recommendation intentions, which compose important factors for a successful eCommerce as they represent customers' growing visit and purchase rates (Syah & Olivia, 2022).

Prior scholars have investigated humor in combination with other cues that make conversational chatbots more humanlike. Niculescu et al. (2013) aimed to create attractive chatbots by making them more social through humor, emotional responses, and empathy. Their findings showed that humor, in particular, enhances a chatbot's personality and communication style, and users' perceptions of task enjoyment. Schanke et al. (2021) created a chatbot that combined elements of social presence (e.g., a human name and the use of informal language) with humor and communication delays (which indicate that the agent is thinking before

responding). This chatbot induced trust in users, which led to beneficial transaction outcomes. Additionally, Cai et al. (2022) developed chatbots that expressed humor, empathy, and general emotional expressions and found that this combination conveyed through emoticons increased consumers' intentions to use chatbots.

However, expressing humor on behalf of a brand and representing it in the proper way can be challenging; thus, integrating the most suitable type of humor seems imperative for the outcomes of this study. Martin et al. (2003) distinguish between four dimensions of humor based on the different uses in everyday life. Self-enhancing humor is directed at oneself and includes benevolent comments, while affiliative humor is directed at others with the intention to enhance their well-being through positive jokes (Jovanovic, 2011). Moreover, self-defeating humor is a negative type of humor, directed at oneself and includes injurious comments (e.g., sarcasm or irony) and aggressive humor addresses others with the same intentions and functions as the self-defeating type. In the traditional retailing business, self-defeating and aggressive humor have been associated with a decrease in purchase intentions (Tremblay, 2022). Shin et al. (2022) argue that affiliative humor is the most socially appropriate type when approaching customers online since the other types of humor may come across as misconstrued in the online context, which typically entails an impersonal nuance (Kear, 2010). Therefore, the current study integrates affiliative humor in the chatbots' humorous communications.

In detail, affiliative humor constitutes a positive style of humor that acts as a social lubricant and creates social bonds (Shin et al., 2022; Duncan & Feisal, 1989). Affiliative humor may include witty jokes, good-natured teasing, "inside" jokes, or funny stories about particular groups (Winterheld et al., 2013; Romero & Cruthirds, 2006). In human-human interactions, affiliative humor not only increases interpersonal closeness but also individuals are more willing

to continue interacting with a person who uses affiliative humor (Kirsh & Kuiper, 2003). This evidence indicates that affiliative humor makes the process of establishing and maintaining a relationship with a customer much easier than other types of humor (Kuiper & McHale, 2009). In addition, Martin et al. (2003) argue that affiliative humor amuses individuals more than the aggressive type. In an attempt to develop an entertaining eCommerce chatbot, this study assumes that the presence of affiliative humor will engage users in eCommerce chatbot services more than the absence of it.

2.3 Brand attitude, purchase intentions, and patronage intentions

When designing chatbot software, companies aim to create an appealing outcome able to accomplish a positive brand attitude, which typically influences adoption intention and leads to increased revenues (Zarouali et al., 2018). Brand attitude is defined as the consumer's overall evaluation of the brand and can either be positive or negative depending on users' experience with the brand. Among other factors that form an attitude, the most important are the emotions that the interaction with a brand elicits (Navaneethakrishnan & Sathish, 2020). Humor generally elicits positive emotions when applied in the correct manner and appropriate context (Shin et al., 2022). Thus, it is expected that consumers will evaluate positively a humorous chatbot and its brand.

Brand attitude constitutes a significant determinant of the consumer's purchase intentions (Shah et al., 2012; Abzari et al., 2014) and patronage intentions (Rose et al. 2000; Pan & Zinkhan, 2006). Earlier studies have based this influence on the theory of Planned behavior (TPB) (Zarouali et al., 2018; Singh, 2014; Soares et al., 2022). This theory demonstrates that attitude, subjective norms (i.e., whether "most significant others" approve or disapprove of a behavior), and control beliefs (i.e., factors that facilitate or hinder the performance of the behavior) lead accordingly to an intention to use a technological development/product/service

(Ajzen, 1991). This intention motivates users to actually perform the desired behavior (Ajzen, 1991), which indicates that the intention to perform a behavior is a significant predictor of the actual behavior. Based on this conceptual framework, companies have realized that they can only affect attitudes in order to influence customers to purchase from their brand, revisit, and recommend it, hence this paper assumes that a positive brand attitude leads directly to increased purchase intentions and patronage intentions (Teng et al., 2015).

Taking into consideration the above as well as prior studies in the advertising industry which show that humor enhances sales and that this is attributed to the positive brand attitude it generates (Jumbo et al., 2021; Zarouali et al., 2018; Morkes et al., 1999; Erevelles, 1998), the current paper hypothesizes that:

H1: Humor applied in eCommerce chatbots will produce a positive brand attitude, and increase purchase intentions and patronage intentions.

2.4 Social presence

Prior work by Howe (2002, p. 254) contends that humor constitutes a “defining characteristic of humanity” that “can only occur when two separate minds communicate”, distinguishing this way between human and non-human entities. Thus, humor is regarded as an effective tool when humanizing chatbot agents (Schanke et al., 2021; Shin et al., 2022). According to the CASA (Computers-Are-Social-Actors) paradigm, humans interacting with computer systems that integrate humanlike cues tend to respond unconsciously in a social manner as they would during human-to-human interactions (Nass & Moon, 2000). On that account, a chatbot’s communication style that integrates humor is expected to trigger users to unconsciously perceive this chatbot as human and the interaction with it as human-to-human.

Following, applying human characteristics to chatbots increases their perceived humanness (Araujo, 2018; Go & Sundar, 2019; Schuetzler et al., 2020), which can lead to high levels of social presence (Liebrecht & van der Weegen, 2019; Ng et al., 2020). Social presence represents the extent to which users can experience the medium as psychologically present attributing a human warmth to it (Short et al. 1976). According to the Social Presence Theory, a communication medium can facilitate a sense of social connection between two interactants even if one of them is not an actual human being but acts like one (Short et al., 1976; Gefen & Straub, 2004).

Social presence is critical for eCommerce since it bridges the gap between the impersonal and unnatural automated responses of computer systems (Gefen & Straub, 2004) and the user's need to experience a personal interaction with a human agent before proceeding with an online purchase (i.e., a sales representative). Existing literature on eCommerce websites reveals that high levels of social presence boost users' trust, increasing their intentions to use and purchase (Kumar & Benbasat, 2002; Grabner-Kräuter & Kaluscha, 2003; Gefen & Straub 2004). Furthermore, digital agents and chatbots that exhibit humanlike behaviors or integrate visual humanlike elements elicit high levels of social presence (Kumar & Benbasat, 2002; Grabner-Kräuter & Kaluscha, 2003; Gefen & Straub 2004). Han (2021) expanded upon these studies and showed that eCommerce chatbots that integrate humanlike verbal cues through text-based messages induce perceptions of social presence in consumers, which positively influences their purchase intentions.

Moreover, the role of social presence in eCommerce is essential as it affects patronage intentions due to the closeness that warm and sociable chatbots create (Lu et al., 2016; Cyr et al., 2007). Customer service chatbots that employ humanlike verbal elements, such as informal

language and invitational rhetoric, increase brand attitude through social presence (Van Hooijdonk & Liebrecht, 2021). Zarouali et al. (2018) reveal that a positive attitude toward a chatbot's brand leads to increased patronage intentions. Overall, this study assumes that since humor is a humanlike cue, it could generate feelings of social presence which typically boost brand attitude, purchase intention, and patronage intention.

2.5 Perceived enjoyment

Apart from social presence, consumers' intention to use a chatbot in eCommerce environments is also driven by the interaction's perceived enjoyment (Han, 2021; Ali et al., 2014). Perceived enjoyment is defined as the level of satisfaction and happiness that consumers feel during online purchases, without considering the overall performance of the system (Davis et al., 1992). To capture consumers' behaviors in online shopping environments, prior scholars have employed the basic principles of the Technology of Acceptance Model (TAM), which are perceived usefulness, and ease of use (Davis, 1989). This model illustrates that these two factors determine the intention to use and the actual use of a technology (Kasilingam, 2020; Khoa, 2021). A recent study by Chan & Leung (2021) however, reveals that eCommerce chatbots' usefulness and ease of use are not significant determinants of acceptance, as users nowadays expect chatbots to act in a humanlike manner and embody entertaining features. Celik and Yilmaz (2011) extended the TAM and demonstrated that perceived enjoyment is one of the main reasons why users accept a new technology in eCommerce, as feelings of entertainment lead inevitably to positive evaluations (i.e., attitudes) and intention to use.

From the users' perspective, eCommerce chatbots not only serve as a source of product/service information and continuous support on product recommendations but also as an entertaining and fun process to pass the time (Sanny et al., 2020), or cope with loneliness

(Brandtzaeg & Følstad, 2017). The contribution of humor in this process is significant as it enhances users' perceptions of enjoyment (Niculescu et al., 2013). According to Jain et al. (2018, p. 901), "a shopping chatbot should be casual and humorous" users feel impressed by an entertaining personality, which they do not expect from a chatbot (Shin et al., 2022).

Perceived enjoyment is associated with positive emotions, which can have a considerable impact on forming a favorable brand attitude. Indeed, marketing literature reveals that perceived enjoyment is a strong predictor of brand attitude (Yang et al., 2017). Furthermore, recent work in eCommerce chatbots confirms that perceived enjoyment affects attitude toward the chatbot and, consequently, toward the brand it represents (Marjerison et al., 2022). Han's (2021) recent findings demonstrate that perceived enjoyment in commerce chatbots increases users' purchase intentions. However, other scholars claim that perceived enjoyment has no direct effect on the intention to use, which implies that users might experience enjoyment without necessarily proceeding to purchase/patronage behaviors (Koenig-Lewis et al., 2015). This debate attaches more significance to the following hypothesis:

H2: Humor will produce positive brand attitude, purchase intentions, and patronage intentions through social presence and perceived enjoyment.

2.6 Brand familiarity

The current paper also investigates whether users' familiarity with a chatbot's brand accounts for their perceptions of the chatbot's humorous communication style. Prior scholars pinpoint the importance of a chatbot's communication style and regard it as a key determinant of whether users will continue interacting with a chatbot (Melián-González et al., 2021; Ukpabi et al., 2019). Van Hooijdonk and Liebrecht (2021) found that when humor in combination with other tactics (e.g., empathy, sympathy, apologies, well-wishing, acknowledgment) is employed

by a customer service chatbot, brand familiarity can moderate users' perceptions of social presence. Participants in this study experienced more social presence when they were familiar with the chatbot's brand. This finding is in line with the Role theory (Sarbin & Allen 1968), which postulates that when communicating with a familiar partner, humans' perceived appropriateness differs considerably from when communicating with an unfamiliar partner.

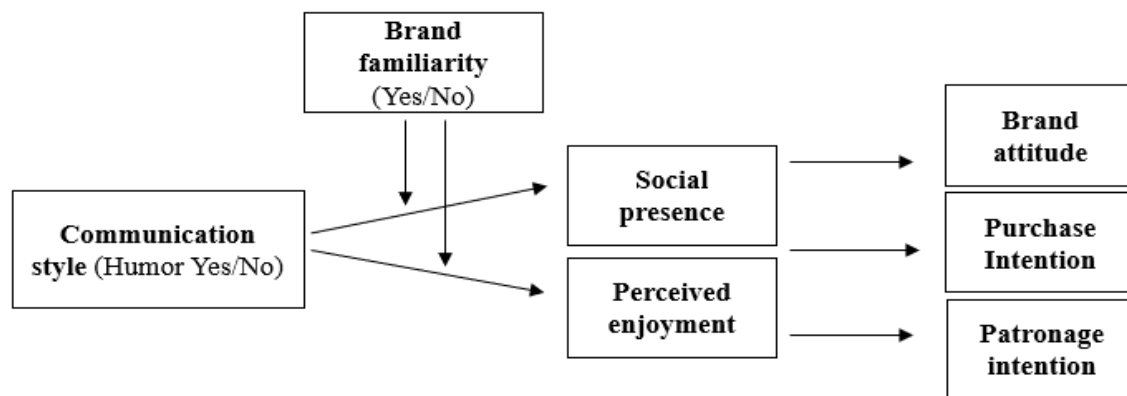
In detail, the Role theory describes that the assessment of interaction is significantly associated with the appropriateness that the medium projects and their social role (Biddle, 2013). More specifically, it posits that everyone serves a specific role in society, which aligns with what is perceived as "appropriate" or "permitted" based on their identity and relationship with others determining their behavior and acceptance by them (Sarbin & Allen, 1986). In line with this theory, the current study assumes that users will perceive a humorous communication style from a familiar brand more positively than from an unfamiliar brand since they perceive the former as more appropriate because they have interacted with it before. Contrarily, Gretry et al. (2017) demonstrate how detrimental it can be for an unfamiliar brand to address a customer in an informal way through social media. Since, the literature indicates that humor entails an informal tone (Lynch, 2002), humor addressed by unfamiliar brands is expected to be perceived as inappropriate and thus, negatively affect users' perceptions of the chatbot's communication style. In contrast, a familiar brand addressing the user with humor is expected to generate more feelings of social presence and perceived enjoyment because a humorous comment might be perceived as "human natured" or "enjoyable" when the receiver has interacted with the brand in the past. Therefore, it is hypothesized that:

H3: Brand familiarity will moderate the effects of humor on social presence and perceived enjoyment.

Overall, based on the literature discussed, three hypotheses are developed to address this study's research question. More precisely, it is suggested that humor applied in brand-familiar chatbots can generate a positive brand attitude due to the high levels of social presence and perceived enjoyment it is expected to induce in users. Due to this positive brand attitude, increased purchase and patronage intentions are also expected. A representative illustration of the predicted relationships between these constructs is depicted in Figure 1.

Figure 1

Conceptual model of the study.



3. Method

3.1 Design

To assess whether the humorous communication style of eCommerce chatbots affects users' brand attitudes and patronage intentions when they are familiar with the chatbots' brand and when they are not, a quantitative research method was used. More specifically, an online experiment with a 2 (communication style: humor vs no humor) x 2 (brand familiarity: familiar vs unfamiliar) between-subjects design was employed. Each participant of the study was exposed to one condition containing a scenario (with either a familiar or unfamiliar brand) and a prototype of a human-chatbot interaction (with humor or no humor, by a familiar or unfamiliar brand). Hence, four conditions were designed, and participants were randomly and evenly

assigned to one of them. Next, respondents completed a questionnaire that measured the mediating variables, perceived enjoyment, and social presence, as well as the outcome variables, brand attitude, purchase intentions, and patronage intentions.

3.2 Participants

For the purpose of the experiment, participants were recruited through online social networks using convenience and snowball samplings. In total, 121 participants completed the survey, which, according to previous studies, constitutes a sufficient number of participants for online experiments (Feine et al., 2020; Adam et al., 2021). Of all participants, four cases were excluded from the data since they did not successfully complete the survey. Moreover, five participants skipped one of the questions, which was reported as a “missing value”, and their remaining data were included normally in the analysis. Hence, the statistical analysis that followed was based on a sample size of 117 participants ($N=117$).

The sampled population consisted of 44 males, 71 females, and two indicated as “prefer not to say”, while their ages ranged from 19 to 49 ($M = 28.56$, $SD = 6.18$). Most participants were highly educated with 83.76% (98 out of the 117) holding a Bachelor’s degree or higher. Of the 117 participants, 29 were randomly assigned to condition 1 (humor + brand familiarity), 30 to condition 2 (no humor + brand familiarity), 30 to condition 3 (humor + no brand familiarity), and 28 to condition 4 (no humor + no brand familiarity). Lastly, participants responded on their level of chatbot use and claimed that, on average, they were using chatbots rarely to occasionally (on a scale from 1 = “never” to 7 = “always”) with a mean score of 3.56 ($M = 3.56$, $SD = 1.42$).

3.3 Stimuli-Materials

3.3.1 Scenarios

Initially, two fictitious scenarios were created in order to introduce the participants to either a well-known (i.e., familiar) or an unknown (i.e., unfamiliar) brand. More specifically, participants were informed that Netflix.shop (familiar), in scenario 1, or Thema.shop (unfamiliar, imaginary name of a brand), in scenario 2, has integrated a shopping chatbot into their online services, and that they could experience a potential conversation with it by navigating through a chatbot prototype (see Appendix A). The purpose of the two fictitious scenarios was primarily to manipulate brand familiarity.

In detail, in the scenarios, participants were invited to imagine that due to their limited free time, they would have to shop online for a gift for their nephew's upcoming birthday party. The participants were asked to imagine that, after visiting Netflix.shop/Thema.shop, they came across some limited-edition T-shirts with films/series logos, that their nephew adores. Since a shopping bot was available to guide them, they would be interacting with its prototype in this study. It was also explained to participants that Netflix.shop/Thema.shop constitutes a recent attempt by the brand to sell its merchandise through an eCommerce platform. Following, the chatbot prototype was displayed on their screen to provide them with the feeling of interacting with a humorous/non-humorous chatbot of the brand.

3.3.2 Brand familiarity

Brand familiarity is linked to the amount of time users have spent with a specific brand and their exposure to its advertisements, resulting in forming specific evaluations and purchase behaviors (Baker et al., 1986). On account of this, brand familiarity was employed to assess whether users' perceptions and feelings towards a humorous chatbot can get affected by their preexisting level of exposure to the specific brand.

Next to the manipulation of brand familiarity in the scenarios, it was also manipulated in the chatbot conversation. To strengthen the manipulation of brand familiarity, the names of the brands were mentioned three times throughout the chatbot conversation. Firstly, in the welcoming message, secondly, in the middle of the conversation, mentioning the new collection of the brands, and at the end of the conversation, after thanking the participants for choosing the specific brand (see Appendix B). Moreover, to enhance the manipulation, this study employed the authentic logo of Netflix in the chatbot profile image of Netflix.shop, while for Thema.shop a logo was designed through Canva¹, an online platform where a variety of graphic design tools are available for free.

A significant point of this study was the selection of a familiar brand. It was deemed necessary that the chosen brand would be able to support a humorous version of a chatbot other than the non-humorous one. According to Gogolan (2021), Netflix integrates humor into its social media strategy in an engaging and attention-catching manner. In reference to Boldbusiness.com (2022), Netflix adopts a humorous communication style as an advertising technique that differentiates it from its competitors (Putri, 2022). Furthermore, prior work has demonstrated that compared to other on-demand video streaming platforms, such as HBO, Netflix addresses its audience more often by using humor through social media (Martín-Quevedo et al., 2019).

3.3.3 Humor

For this study, affiliative humor was employed. According to its definition, affiliative humor is directed at others and enhances their well-being through positive jokes (Martin et al., 2003). In the humorous chatbots, this was operationalized through ‘inside jokes’ such as “Nice

¹ <https://www.canva.com/>

choice, you Cobra Kai maniac! Kicks get the chicks-Cobra Kai”, which refers to the fans of the Cobra Kai series who are familiar with this phrase that Cobra Kai uses. This comment was made by the chatbot after a successful recommendation where the participant, supposedly, found the perfect gift for his nephew. Furthermore, this research used witty jokes such as “I get it! Life is too short to wear boring clothes” after the participant rejected the chatbot’s recommendation and “Oh! Party time! 😄 Enjoy and remember! A party without alcohol is just a meeting! 🍷🍸” when the participant explained that he would attend a party. Another example of affiliative humor is “good-natured practical jokes that are traditionally played on people during social events” (Romero & Cruthirds, 2006, p. 59). This was apparent through comments such as “Size always matters! 🗡️ 😊” or “Let me quickly run to the stockroom and check what I can find for you! 🧑🧑”.

As shown, this study also used emojis. Emojis are commonly used in computer-mediated channels as they constitute a way of conveying feelings and attitudes in a non-verbal way (non-textual) (Beatie et al., 2020). Emojis may include facial expressions or body movements and when displayed in text messages they can enhance the relationship between the message and its meaning (Murphy, 2017). Hence, this study employed emojis after each humorous comment in an attempt to strengthen and support the humorous intentions of the messages (Tang & Hew, 2019), whereas emojis were absent from the non-humorous balloon messages of the chatbot conversations since no humorous intentions were present there.

3.3.4 Chatbot prototype development and chatbot experience

To design the four conditions of the experiment, four chatbot prototypes were developed. A chatbot prototype constitutes a simulation of a real chatbot and depicts its appearance and functions. Figma.com was used for this purpose. This platform serves as an interface design tool,

allowing for the development of chatbot interfaces that are shareable to anyone without a Figma account. In addition, a prototype interface design is a valuable tool as participants can experience and visualize a designer's intentions (Pricilla et al., 2018) and sense the chatbot experience quickly and efficiently (Pricilla et al., 2018), which generally minimizes their dropout probability during experiments (Jain et al., 2018).

The chatbot interface that was designed was similar to the ones users encounter in their daily lives. Its first page displayed the profile image containing the logo of the brand and at the bottom of the screen, a "Let's shop" button. Participants were able to click on this button in order to commence their interaction with the bot. During the conversation, the chatbot prototype displayed "typing" dots to provide users with a real feel of a conversation like the one they sense on social media. Participants were already informed that the chatbot prototype contained predefined choices and that it would direct them accordingly. Thus, the conversation was merely guided by the predefined options (e.g., even if participants would select the "Yes" option in the first recommendation of the chatbot, the cursor would indicate that they could only click on the "No" option, otherwise they could not proceed, and the conversation would end at this point). The purpose of this was to force participants to experience the whole conversation and expose them all to the exact same messages or jokes, in the case of the humorous chatbots.

In regard to the content of the chatbot conversations, all four chatbot prototypes displayed the same conversation flow with the main difference in the presence and absence of humorous comments as well as the familiarity of the brand, as displayed in Figures 2 and 3. More specifically, in the first stage, all chatbot prototypes displayed questions regarding the customers' preferences, such as the exact product they would like to buy, and its size. Humorous comments were included in the message balloons of the humorous chatbots throughout the recommendation

process, while they were either absent from the non-humorous chatbots or replaced by non-humorous phrases (see Appendix B).

Figure 2

Humor in Netflix.shop Chatbot

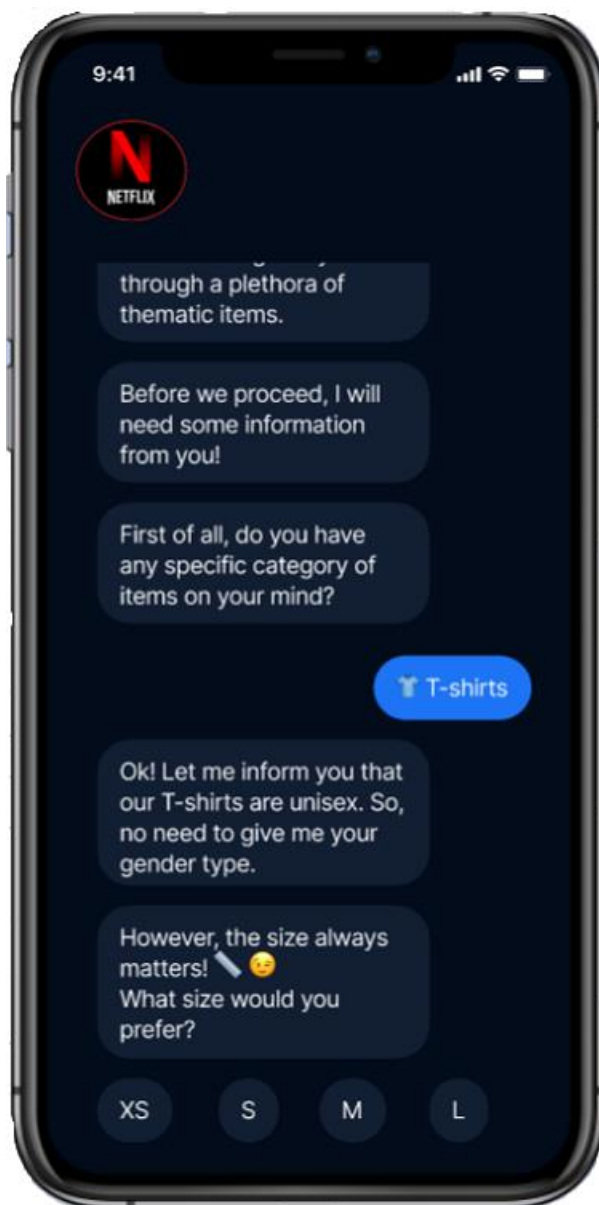
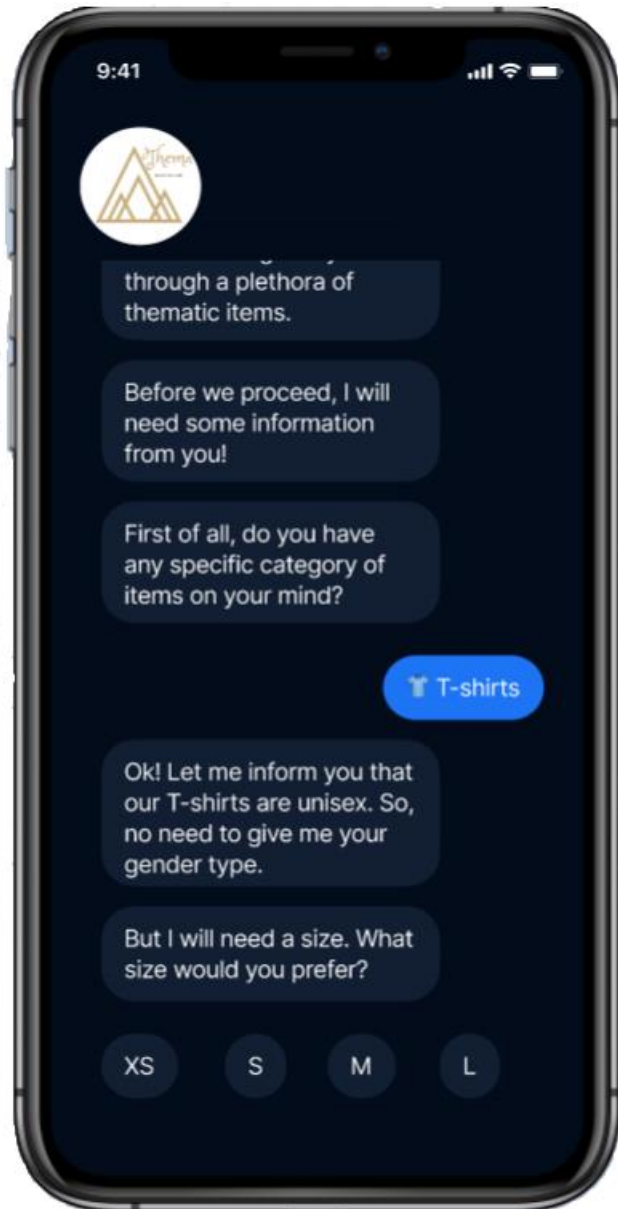


Figure 3

No Humor in Thema.shop Chatbot



3.3.5 Pretest and usability test

Prior to applying the humorous comments in the chatbot conversations, a pretest was performed to ensure that the researcher's perception of humor was analogous to the general perceptions of humorousness. The pretest was distributed to 10 friends and included the whole conversation flow of the humorous chatbots, asking the extent to which it elicits "laughter", "smile", and "cheerfulness" (Casu & Gremigni, 2012) on a seven-point Likert scale. Based on the responses, a mean score for each item was computed providing a new variable named "humorousness". This new variable yielded a mean score of 5.56 ($M = 5.56$, $SD = 0.38$), which indicates a sufficient level of humorousness as it is close to seven (Booth-Butterfield & Booth-Butterfield, 1991).

Concerning the usability of the chatbot prototypes, after their development, they were shared with 10 relatives, who tested them and detected some inconsistencies in the speed of the transitions from one page to the next. These inconsistencies were rectified. Additionally, since the shopping process can take place either through a smartphone or desktop, participants should be able to experience any of these options. A usability test revealed that although the functionality of the prototypes was operating smoothly on smartphones, participants would have to scroll down each time they needed to tap on the indicated buttons. Therefore, they were informed that the most optimal way to participate in the experiment was through a desktop.

3.4 Measurements

The basic constructs of the study were measured through a survey on seven-point scales. In detail, the two mediators of the research model, perceived enjoyment and social presence were evaluated on a scale ranging from 1 = "Strongly disagree" to 7 = "Strongly agree". Perceived enjoyment contained three items; "Using this chatbot was enjoyable", "Using this chatbot was

fun”, and “Using this chatbot was entertaining” (Selamat & Windasari, 2021; Melián-González et al., 2021). The reliability of the scale was regarded as excellent ($\alpha = 0.95$, $M = 5.15$, $SD = 1.60$). Furthermore, to assess social presence, the survey measured the participants’ feelings of “human contact”, “human warmth”, “sensitivity”, “sociability”, and whether the interaction felt “personal” to them (Liebrecht & van der Weegen, 2019). The scale was found reliable ($\alpha = 0.93$, $M = 4.45$, $SD = 1.77$).

The dependent variables of this study, brand attitude, purchase intentions, and patronage intentions were assessed on a seven-semantic differential scale. Firstly, to measure brand attitude participants indicated the extent to which they perceived the chatbot as “unappealing/appealing; bad/good; unpleasant/pleasant; unfavorable/favorable; unlikeable/likable” (Spears & Singh, 2004). This scale was found reliable ($\alpha = 0.96$, $M = 5.25$, $SD = 1.33$). Secondly, purchase intentions used modified items from Spears and Singh (2004) and respondents answered the question “in case I want to buy a film/series T-shirt in the future I will consider purchasing from this chatbot” with the items “highly unlikely/highly likely; impossible/possible; never/always; very low purchase interest/very high purchase interest”. The reliability analysis revealed that this scale was also reliable ($\alpha = 0.97$, $M = 4.55$, $SD = 1.60$). Additionally, patronage intention was measured with statements such as “I would be unwilling to shop from this chatbot/ I would be willing to shop from this chatbot”, “The likelihood that I would revisit this chatbot is very low/ The likelihood that I would revisit this chatbot is very high”, and “I would be unwilling to recommend this chatbot to my friends/ I would be willing to recommend this chatbot to my friends”, modified from Baker et al. (2002). The scale of these items was reliable ($\alpha = 0.95$, $M = 4.65$, $SD = 1.63$).

Lastly, employing a seven-point Likert scale, participants reported whether their interaction with the chatbot was perceived as humorous. This was determined through the same questions employed during the pretest (i.e., whether the chatbot motivated them to “laugh”, “smile”, and experience “feelings of cheerfulness”) (Casu & Gremigni, 2012). This scale was found reliable ($\alpha = 0.94$, $M = 4.34$, $SD = 1.88$).

3.5 Procedure

Initially, respondents read the consent form on the Qualtrics platform. The consent form pinpointed their voluntary participation, dropout options, the duration of the survey, and the confidentiality of their enclosed data. After consenting to this form, participants were briefly provided with general instructions regarding the experiment and the order of the tasks (i.e., scenario-chatbot prototype-survey), where they were also requested to follow the procedure as indicated before submitting their responses. After their exposure to the scenario and the interaction with the chatbot prototype, participants were instructed to close the current tab and return to the Qualtrics page to fill in the questionnaire. At this point, they evaluated their overall experience with the chatbot prototype. Finally, after completing the questionnaire, respondents were thanked for their participation and debriefed about the purpose and nature of the study. Here some details regarding the purpose of the fictitious scenarios and the imaginary brand name “Thema.shop” were provided along with information concerning the withdrawal of their responses if needed.

4. Results

4.1 Manipulation check

Based on participants’ responses regarding the “laugh”, “smile”, and “feelings of cheerfulness” they experienced during the chatbot interaction, a new variable called

humorousness was computed through IBM SPSS Statistics (Version 28) software. To determine whether participants in the humorous and non-humorous conditions experienced the existence and absence of humor accordingly, the mean scores of both cases were compared in relation to the humorousness. In total, the humorous chatbots were indeed perceived as more humorous ($M = 4.72$, $SD = 1.80$) than the non-humorous chatbots ($M = 3.94$, $SD = 1.64$; $Mdif = 0.77$, $F(1, 116) = 5.70$, $p = .02$). It was also checked whether the brand would impact participants' perceptions of humor. This appeared not to be the case (familiar brand: $M = 4.19$, $SD = 1.85$; unfamiliar brand: $M = 4.48$, $SD = 1.67$; $Mdif = 0.26$, $F(1, 116) = 0.69$, $p = .41$). Thus, the existence of the familiar brand, Netflix, did not affect the perceptions of humorousness for the participants. Hence, it can be stated that participants' perceptions of the chatbots' humorousness were caused by the humorous communication style.

4.2 Hypotheses testing

In general, all variables yielded higher mean scores in the humorous conditions and lower mean scores in the non-humorous conditions. A more detailed description is provided in Table 1.

Table 1

Means (M) and standard deviations (SD), between brackets, of the mediating and outcome variables per experimental condition.

| Variable | Humorous chatbot | | | Non-humorous chatbot | | | |
|-----------------|------------------|----------------|----------------|----------------------|----------------|----------------|----------------|
| | Brands | Familiar | Unfamiliar | Total | Familiar | Unfamiliar | Total |
| | | ($N = 29$) | ($N = 30$) | ($N = 59$) | ($N = 30$) | ($N = 28$) | ($N = 58$) |
| Enjoyment | | 5.33 (1.83) | 5.26 (1.30) | 5.30 (1.58) | 4.92 (1.60) | 5.10 (1.24) | 5.00 (1.42) |
| Social presence | | 4.94 (1.74) | 4.65 (1.54) | 4.80 (1.63) | 4.22 (1.37) | 4.00 (1.45) | 4.10 (1.40) |
| Brand attitude | | 5.47 | 5.29 | 5.40 | 5.10 | 5.12 | 5.10 |

| | | | | | | |
|---------------------|--------|--------|--------|--------|--------|--------|
| | (1.48) | (1.24) | (1.35) | (1.15) | (1.10) | (1.10) |
| Purchase intention | 4.82 | 4.41 | 4.60 | 4.50 | 4.45 | 4.48 |
| | (1.76) | (1.44) | (1.60) | (1.37) | (1.41) | (1.38) |
| Patronage intention | 4.81 | 4.55 | 4.70 | 4.61 | 4.62 | 4.60 |
| | (1.84) | (1.53) | (1.70) | (1.41) | (1.45) | (1.40) |

First H1 was tested, which stated that humorous chatbots would lead to greater brand attitude and increase purchase intentions and patronage intentions compared to non-humorous chatbots. An independent *T*-test revealed that the effect of humor on brand attitude was not significant ($Mdif = 0.27$, $t(115) = 1.19$, $p = .24$, 95% BCa CI [-0.18, 0.73]) nor the effect of humor on purchase intention ($Mdif = 0.14$, $t(115) = 0.50$, $p = .62$, 95% BCa CI [-0.41, 0.68]) and on patronage intention ($Mdif = 0.07$, $t(115) = 0.24$, $p = .81$, 95% BCa CI [-0.50, 0.64]). Therefore, H1 is not supported by the data.

To investigate whether these relationships would be mediated by perceived enjoyment and social presence (H2), six mediation analyses were conducted using Hayes' PROCESS model 4 (Hayes, 2012) in which communication style served as the independent variable, one of the dependent variables as the outcome variable, and either perceived enjoyment or social presence as the mediator.

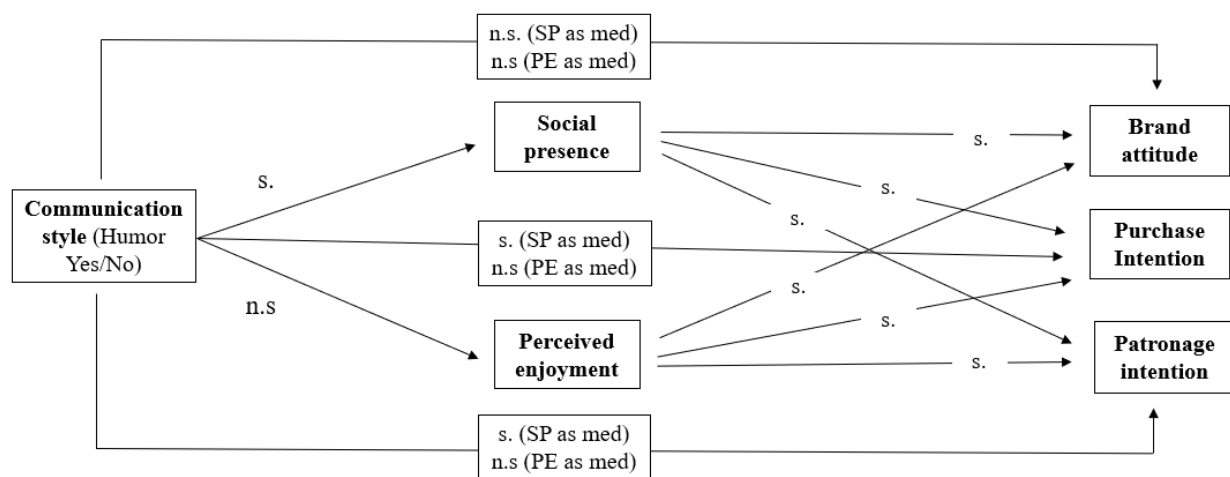
Concerning the mediator perceived enjoyment, no significant relations were found (see Appendix C)². However, some significant relations were observed for the mediator social presence. Firstly, the direct effect of the communication style on brand attitude through social presence was insignificant, $b = 0.17$, $SE = 0.14$, $p = .25$, similar to the indirect effect, $b = 0.44$, $SE = 0.18$, 95% BCa CI [-0.79, 0.08]. Contrarily, the direct effect of the communication style on purchase intention was

² Due to word limit of this academic project, the insignificant results found for perceived enjoyment have been moved to the Appendix C.

found significant when social presence mediated the relation, $b = 0.41$, $SE = 0.16$, $p = .01$. Similarly, a significant indirect effect was found when social presence interfered, $b = -0.55$, $SE = 0.23$, 95% BCa CI [-0.99, -0.09], indicating partial mediation. Regarding patronage intention, social presence did not significantly mediate the effect of the communication style, $b = 0.47$, $SE = 0.19$, $p = .01$. However, the indirect effect of the communication style on patronage intention with social presence interfering was found significant, $b = -0.54$, $SE = 0.22$, 95% BCa CI [-0.95, -0.01], signifying full mediation. H2 is, therefore, partially supported since perceived enjoyment did not mediate the relationships of communication style with the outcome variables, while social presence revealed partial and full mediation. A detailed description of the mediation analyses is displayed in Figure 4.

Figure 4

Mediation analysis



Note. s.= significance, n.s = non significance, SP = Social Presence, PE = Perceived Enjoyment, med = mediator

4.3 Moderation effect of brand familiarity

H3 suggested that brand familiarity would moderate the effect of humor on perceived enjoyment and social presence, affecting the overall relationship of humor on brand attitude,

purchase intention, and patronage intention. To test this expectation, six moderated mediation analyses were performed using Hayes' PROCESS Model 8 (Hayes, 2012), again with either one of the three dependent variables as outcome variables, and either perceived enjoyment or social presence as mediators.

Similar to the mediation analyses, no significant relations were found when perceived enjoyment was included in the moderated mediation analyses (see Appendix D), while the relations between both mediators and outcome variables remained significant (see Figure 4 and Appendix E). With regard to social presence as a mediator, no significant relations were found in the moderated mediation analyses when the brand attitude was assessed as the outcome variable. In detail, the communication style did not have a significant effect on social presence due to the presence of brand familiarity, $b = -0.78$, $SE = 0.91$, $p = .39$. Moreover, brand familiarity did not have a significant effect on social presence as well, $b = -0.34$, $SE = 0.89$, $p = .70$. The interaction effect of communication style and brand familiarity on social presence was found insignificant, $b = 0.06$, $SE = 0.57$, $p = .92$, and the direct effect of communication style on brand attitude through social presence was also found insignificant for both familiar ($b = -0.09$, $SE = 0.20$, $p = .67$) and unfamiliar brands ($b = 0.25$, $SE = 0.20$, $p = .22$). Following, the indirect effect was insignificant for familiar ($b = -0.46$, $SE = 0.26$, 95% BCa CI [-0.98, 0.06]) and unfamiliar brands ($b = -0.43$, $SE = 0.25$, 95% BCa CI [-0.90, 0.07]). Overall, there was no significant effect of communication style on brand attitude with social presence as a mediator and brand familiarity as a moderator, $b = 0.04$, $SE = 0.37$, 95% BCa CI [-0.71, 0.74].

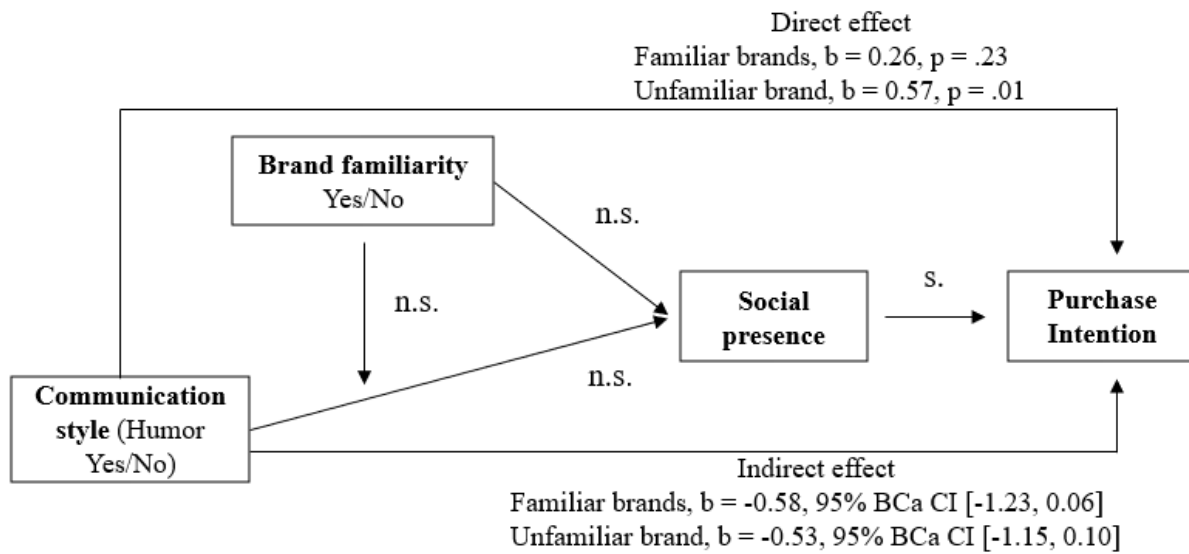
When purchase intention served as the dependent variable in the moderated mediation analysis, the direct effect of communication style through social presence was insignificant for familiar brands ($b = 0.26$, $SE = 0.23$, $p = .25$) in contrast to the unfamiliar brands, where the effect

was significant ($b = 0.57$, $SE = 0.23$, $p = .01$). Moreover, the indirect effect was insignificant for both familiar ($b = -0.58$, $SE = 0.32$, 95% BCa CI [-1.23, 0.06]) and unfamiliar brands ($b = -0.53$, $SE = 0.31$, 95% BCa CI [-1.15, 0.10]), and there was no significant effect of communication style on purchase intention with social presence as a mediator and brand familiarity as a moderator, $b = 0.05$, $SE = 0.46$, 95% BCa CI [-0.82, 0.99].

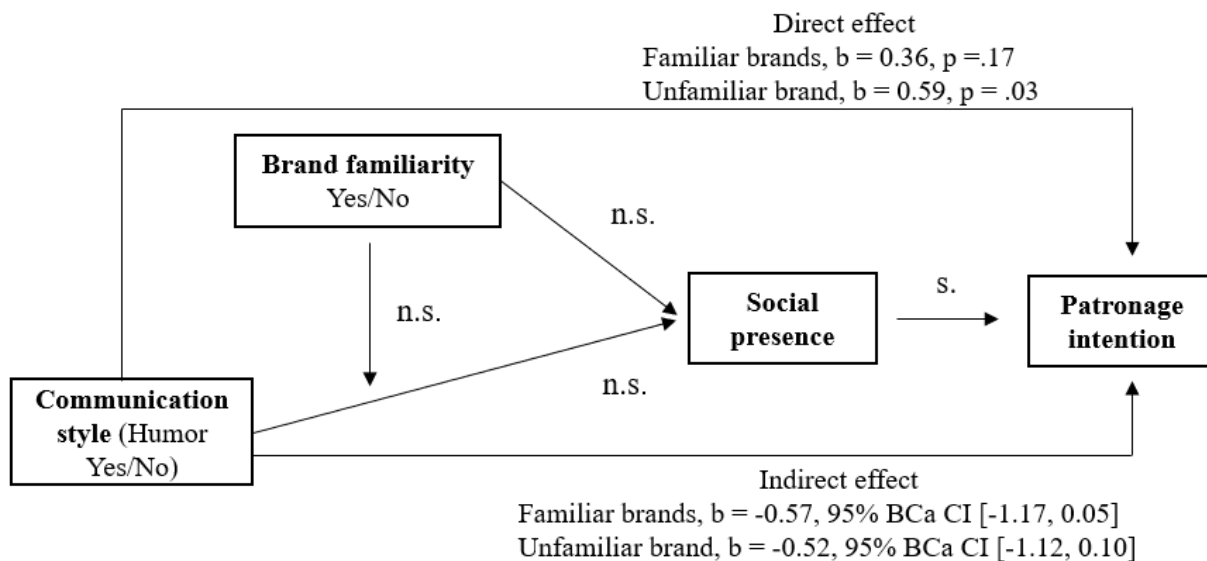
Furthermore, similar patterns were found for patronage intention. The direct effect of communication style through social presence was found insignificant for familiar brands ($b = 0.36$, $SE = 0.26$, $p = .17$), whereas it was significant for unfamiliar brands ($b = 0.59$, $SE = 0.26$, $p = .03$). The indirect effect was insignificant for both familiar ($b = -0.57$, $SE = 0.31$, 95% BCa CI [-1.17, 0.05]) and unfamiliar brands ($b = -0.52$, $SE = 0.31$, 95% BCa CI [-1.12, 0.10]). Overall, there was no significant effect of communication style on patronage intention with social presence as a mediator and brand familiarity as a moderator, $b = 0.05$, $SE = 0.45$, 95% BCa CI [-0.85, 0.93]. Thus, the third hypothesis was rejected for all three outcome variables. However, it is noteworthy to observe the direct effects in Figures 5 and 6 that demonstrate the unexpected significance of the unfamiliar brands concerning purchase intention and patronage intention, respectively.

Figure 5

Moderated Mediation Analysis with Purchase Intention as the Outcome Variable

**Figure 6**

Moderated Mediation Analysis with Patronage Intention as the Outcome Variable



5. Discussion

5.1. Discussion of the findings

This study focused on humor applied in eCommerce chatbots and investigated its effects on customers' brand evaluations (i.e., brand attitude), their willingness to purchase from a humorous chatbot (i.e., purchase intention), and revisit and recommend it to friends in the future (i.e., patronage intention). More particularly, it was examined whether social presence and perceived enjoyment would explain these relations and whether customers' brand familiarity would play a role. Participants in this study, therefore, interacted with a humorous or non-humorous chatbot of a familiar or unfamiliar brand.

In general, the findings did not support the majority of the study's hypotheses. The results showed that humor in eCommerce chatbots does not enhance brand attitude or increase customers' purchase intention and patronage intention. However, social presence constitutes a significant mediator between the chatbot's communication style (i.e., humor yes/no) and purchase intention, and patronage intention. In contrast, customers' perceived enjoyment does not mediate the relations of the chatbot's communication style with the outcome variables (i.e., brand attitude, purchase intention, patronage intention). Furthermore, brand familiarity does not moderate the effects of humor, either on the mediators or the outcome variables.

Drawn from Shin et al.'s paper (2022) which suggests isolating humor from chatbots' other social skills "as a gateway to humanizing them" (p. 1), this paper demonstrates the ineffectiveness of this practice for the eCommerce industry. A possible explanation for humor's inability to elicit a positive brand attitude and increase purchase and patronage intentions would be that the more human traits a chatbot integrates the more humanized it appears to the customers, who, in turn, trust in its humanness (Araujo, 2018; Sah & Peng, 2015; Rhim et al.,

2022; Schwede et al., 2022). As a result, this affects positively users' attitudes and behaviors toward the brand (Yen & Chiang, 2021). Moreover, since humor constitutes a human trait that entails intelligence and creativity (Cunningham, 1962), isolating it from other human traits may feel unnatural in the online context.

An interesting finding of this study, which contradicts the previously stated, is that when assessing the effects of a chatbot's communication style (combining both humorous and non-humorous conditions) on purchase intention and patronage intention, significant results are reported through social presence. This may be attributed to the fact that this study did not control for Conversational Human Voice (CHV) elements (e.g., personalization by addressing the interactant with "you", or invitational rhetoric through well-wishing), which might have resulted in increasing participants' social presence (Liebrecht et al., 2021) in both conditions. Although the main concern was to isolate humor from major human traits such as empathy, sympathy, and emotional expressions, which prior scholars integrated into their conversational chatbots (Niculescu et al., 2013; Cai et al., 2022), some CHV elements could not be omitted, otherwise chatbots would feel irrationally unnatural. Overall, this finding underlines the significance of social presence during human-to-chatbot interactions and the favorable results this produces for companies. This finding aligns with prior evidence which show that humanlike behaviors of virtual agents in the online shopping context increase customers' feelings of social presence, which positively affects purchase, and patronage intention (Holzwarth et al., 2006; Wang et al., 2007; Zarouali et al., 2018).

The results, furthermore, reveal that all four chatbots, both humorous and non-humorous, were perceived as equally enjoyable by the participants. This could be explained by the participants' low usage of chatbot services as, on average, they reported that they were using

such systems rarely to occasionally, which indicates low levels of analogous experiences. This along with the excitement that the scenario likely generated for them (i.e., due to the anticipation of buying a gift online) may have created a novelty effect. A novelty effect typically occurs when a new technology is experienced by a user who feels motivated to use it due to its newness (Howard & Crompton, 2003). Hence, a potential novelty effect could explain why participants perceived non-humorous chatbots as enjoyable. Additionally, perceived enjoyment did not mediate the relation between communication style (humor yes/no) and the dependent variables. This outcome contradicts previous studies that pinpoint the importance of enjoyment for the eCommerce industry (Han, 2021; Selamat & Windasari, 2021) and signifies that enjoyment appears rather irrelevant when aiming to accomplish a positive brand attitude or increase purchase and patronage intention in the eCommerce field. Hence, the current study advocates prior scholars who found that perceived enjoyment is not sufficient to enhance the sales of a company (Koenig-Lewis et al., 2015).

Contrary to expectations, this study showed that humor, applied in eCommerce chatbots, does not compose a positive brand attitude. This could be attributed to participants' prior experience with the brand or the overall service quality they encountered during the experiment (VonReisen & Herndon, 2011). The current study, however, did not inspect the participants' prior experience with Netflix, nor did it aim to develop service quality but rather to integrate humor in a chatbot recommendation system. Thus, the way brand attitude was assessed in this study might display some limitations.

With regard to H3, participants' familiarity with the brand did not affect their perceptions of enjoyment and social presence and in the same manner, the outcome variables were not influenced by the existence or absence of brand familiarity. In the same direction, prior scholars

revealed that brand familiarity does not influence brand attitude (Liebrecht & Van Der Weegen, 2019), while the current paper confirms this finding also for purchase intention and patronage intention. Van Hooijdonk & Liebrecht (2021) however, provided evidence for the opposite results when examining chatbots in the tourism industry indicating a significant effect of brand familiarity when invitational rhetoric was integrated, including humor. These results, therefore, need to be interpreted with caution. Additionally, considering the Role theory, which postulates that humans depend on social norms and accept as appropriate only the behaviors that come from familiar communication partners, this study reveals that this norm does not apply in human-to-chatbot interactions in the eCommerce context.

Although H3 is not supported, it is noteworthy to underline the significant direct effects found for unfamiliar brands. These indicate that when customers interact with unfamiliar brands the chatbot's communication style affects their willingness to purchase, revisit and recommend the eCommerce chatbot. In detail, it appears that when an unfamiliar brand employs a chatbot that elicits feelings of social presence to them due to its communication style, the users proceed to the desired actions more easily than when a familiar brand attempts to conduct the same. However, since this was a small effect observed in the moderated mediation analysis and could not stand alone, further research is needed to examine its validity.

Lastly, a notable element of the study is observed in the relations of the mediators with the outcome variables. These relations remained significant during both the mediation and the moderated mediation analyses, which relates to different studies indicating that perceived enjoyment and social presence significantly influence brand attitude, purchase intention, and patronage intention (Marjerison et al., 2022; Lu et al., 2016; Cyr et al., 2007; Han, 2021). However, the overall insignificant results of the current study are attributed to the chatbot's

communication style, pointing out to future researchers that adding other conversational elements or modifying the type of humor could potentially lead to the desired results for eCommerce practitioners.

5.2 Limitations and future research

This research is subject to several limitations. In order to acquire a better understanding of the customer's perceptions of humorous eCommerce chatbots, future research should take these limitations into consideration. First, the current study attributed the participants' perceptions of enjoyment to a potential novelty effect due to their reported low levels of chatbot usage. However, to gain a better view of this justification and to further investigate whether humorous chatbots produce more enjoyment than non-humorous chatbots, future researchers are encouraged to explicitly determine the participants' experience with eCommerce chatbots. Considering the different expectations of enjoyment participants might hold based on their previous experiences with relevant chatbots (Ischen et al., 2020), further research could investigate the degree of enjoyment participants may perceive regardless of prior exposure to similar chatbots.

Secondly, this study overlooked participants' prior experience with the familiar brand (i.e., Netflix), which might have impacted both the results of brand attitude and the manipulation of brand familiarity. In detail, customers' perceptions of a familiar brand are oftentimes influenced by their emotions based on previous encounters with the brand (Rossiter & Percy, 1997). The current study did not consider possible preexisting negative attitudes toward the familiar brand, which future studies should examine. Moreover, this study replicated Liebrecht et al.'s (2021) methodology to strengthen the manipulation of the chatbots' brand familiarity, and similar to their study, no moderating effect of brand familiarity was found. However,

respondents' subjective perceptions about the familiar brand's reputation could have formed specific expectations that were not predicted by the study. For instance, participants who were aware of Netflix's humorous communication style would have already formed different expectations about the chatbot conversation they would experience, compared to the participants who were unaware of it. Thus, further research is required to establish a better understanding of these factors.

Another shortcoming of this work was that due to the nature of the study (i.e., academic project), the development of chatbot software appeared infeasible hence a simulation of a chatbot conversation (i.e., a prototype) replaced the initial idea. Greussing et al. (2022) support that pre-recorded materials such as prototypes and scenarios are an affordable way of studying chatbots in an online environment since they allow the researcher to manipulate specific factors of an experiment. However, participants become passive viewers of such interactions (Abendschein et al. 2021), thus when assessing their perceptions of a communicative agent, more interactive tools might be more suitable (Greussing et al., 2022). In the current study, three participants reported that they would prefer to sense an actual eCommerce chatbot experience that would give them more freedom in the recommendation stage. This originated from their misunderstanding of the instructions given before the chatbot interaction, which eventually resulted in expecting the chatbot prototype to allow them to click on any of the given buttons (i.e., freedom in the recommendation stage). This lack of freedom in online environments can have a detrimental impact on users' perceptions of a system's credibility (Sundar, 2008). Even though the small number of the reported cases could not affect the overall findings of this study, future research in the field is suggested to engage participants more interactively through a live chat (Tsai et al.,

2021) to avoid such misunderstandings and provide a more concrete sense of a humorous eCommerce experience to the participants.

Overall, this study failed to support that humorous eCommerce chatbots can increase sales in favor of a company's economy. A plausible reason is that humor feels natural only when it derives spontaneously during human-human interactions, whereas chatbots integrate "canned jokes" since they are programmed (Tsakona, 2017, p. 1). Hence, future research could establish a more spontaneous style of addressing humorous comments. Additionally, considering the successful manipulation check of the chatbots' humorousness, one can conclude that affiliative humor appears inadequate in the eCommerce context. Although prior scholars suggest that affiliative humor is the most appropriate in reducing social distance between interactants (Romero & Cruthirds, 2006), future scholars could explore the effectiveness of other types of humor in the eCommerce context. For example, Binsted (1995) indicates how friendlier and more natural an interface can feel when the conversational agent uses self-deprecating humor, even if it is considered risky as it might be perceived as inappropriate or irritating by users. In addition, Binsted (1995) suggests the development of systems that adapt their communication style to the users' tastes of humor to avoid appearing scripted. Hence, future research is encouraged to explore such a path in the eCommerce chatbot context.

5.3 Practical and theoretical implications

To the best of my knowledge, the current paper constitutes the first attempt to explore the effects of humorous eCommerce chatbots on brand attitude, purchase intention, and patronage intention. The findings suggest that whilst using humor as a way of humanizing chatbots might generate feelings of social presence in users, this is not sufficient to drive them to a positive attitude toward the chatbot's brand. Moreover, humor applied in eCommerce chatbots cannot

increase purchase and patronage intentions. These results build upon prior work by Shin et al. (2022), which demonstrates that isolating humor from other humanlike cues of a chatbot's personality generates positive evaluations by users. Shin et al. (2022) raised the knowledge gap concerning users' perceptions of humorous chatbots and their attitudinal and behavioral outcomes, which this study attempted to fill.

Moreover, based on recent evidence (Marjerison et al., 2022), this study considered that enjoyment plays a significant role in the eCommerce context due to the presence of humor as well as the users' need for entertainment during online shopping (Shen, 2012). This research showed that a humorous communication style can produce enjoyment but not to a satisfactory extent for participants to form a positive brand attitude, buy, revisit, and recommend the humorous chatbot. This finding contributes to the ever-expanding eCommerce and humor literature while it suggests to eCommerce specialists to take enjoyment into account but not to rely on it for increased sales (Augello et al., 2008; Han, 2021; Oguntosin & Olomo, 2021; Shin et al., 2022)

The findings of this investigation complement those of earlier studies (Kumar & Benbasat, 2002; Grabner-Kräuter & Kaluscha, 2003; Gefen & Straub 2004), which support that applying humanlike cues in chatbots is crucial for generating high levels of social presence. Indeed, humor was able to generate high levels of social presence, which impacted positively purchase intention and patronage intention. Practitioners in the eCommerce industry are strongly advised to consider this information as it can benefit both their communication strategies and their sales' growth.

Lastly, the current study adds to the growing body of research, which currently presents contradictory evidence about the role of brand familiarity on the perceptions of chatbots'

communication style (Van Hooijdonk & Liebrecht, 2021; Liebrecht et al., 2021). The current work demonstrates that brand familiarity does not play a significant role when humorous eCommerce chatbots attempt to achieve a positive brand attitude and increase sales nor does it affect users' feelings of enjoyment and social presence when interacting with such chatbots. However, eCommerce chatbot designers, who want to stimulate consumers' shopping intentions, should take these findings with caution due to the limitations of this academic work discussed above. Hopefully, the current paper can inspire future researchers to investigate these limitations and take these findings one step further.

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Appendix A

Scenarios

Scenario 1: Netflix.shop (familiar brand)

Please read the following scenario below:

Imagine that your nephew's birthday is coming the following weekend! You already know that he is a fan of series and films so you decide to buy him a relevant gift. After much thought, you come up with the idea of buying him a Limited-edition T-shirt with a logo of a film/series. Due to a busy schedule and the limited time you have, you decide to buy it online. You start browsing on the web and come across Netflix.shop, the eCommerce platform of the famous brand Netflix, where a variety of thematic merchandise is displayed. You find out that a chatbot is available to help you decide on a T-shirt that your nephew would like to receive as a gift.

You will now navigate through a potential conversation you could have with this chatbot. The chatbot will be recommending T-shirts and you will need to click on the indicated buttons (e.g., “Yes” or “No”). To begin this interaction, please start by clicking the “Let’s shop!” button.

Scenario 2: Thema.shop (unfamiliar brand)

Please read the following scenario below:

















Imagine that your nephew's birthday is coming the following weekend! You already know that he is a fan of series and films so you decide to buy him a relevant gift. After much thought, you come up with the idea of buying him a Limited-edition T-shirt with a logo of a film/series. Due to a busy schedule and the limited time you have, you decide to buy it online.

You start browsing on the web and come across Thema.shop, an anonymous eCommerce platform where a variety of thematic merchandise is displayed.

You find out that a chatbot is available to help you decide on a T-shirt that your nephew would like to receive as a gift. You will now navigate through a potential conversation you could have with this chatbot. The chatbot will be recommending T-shirts and you will need to click on the indicated buttons (e.g., “Yes” or “No”). To begin this interaction, please start by clicking the “Let’s shop!” button.

Appendix B

Conversation flow for humorous chatbots

| Netflix.shop + humor | Thema.shop + humor |
|--|---|
| <p>Hello! I am the shopping bot of <u>Netflix.shop</u>! I am here to guide you through a plethora of thematic items. Before we proceed, I will need some information from you!</p> | <p>Hello! I am the shopping bot of <u>Thema.shop</u>! I am here to guide you through a plethora of thematic items. Before we proceed, I will need some information from you!</p> |
| <p>First of all, do you have any specific category of items on your mind?</p> | <p>First of all, do you have any specific category of items on your mind?</p> |
| <p> Shocks  <u>T-shirts!</u>   Accessories</p> | <p> Shocks  <u>T-shirts!</u>   Accessories</p> |
| <p> <u>T-shirts!</u></p> | <p> <u>T-shirts!</u></p> |
| <p>Ok! Let me inform you that our T-shirts are unisex. So, no need to give me your gender type. However, the size always matters!  . What size would you prefer?</p> | <p>Ok! Let me inform you that our T-shirts are unisex. So, no need to give me your gender type. However, the size always matters!  . What size would you prefer?</p> |
| <p>XS <u>S</u> M L</p> | <p>XS <u>S</u> M L</p> |
| <p>S</p> | <p>S</p> |
| <p>Great! Let me quickly run to the stockroom and check what I can find for you! </p> <p>What about this T shirt? (Photo of T-shirt1)</p> <p>Yes! <u>No!</u></p> | <p>Great! Let me quickly run to the stockroom and check what I can find for you! </p> <p>What about this T shirt? (Photo of T-shirt1)</p> <p>Yes! <u>No!</u></p> |
| <p>NO!</p> <p>Ok! I get it! Life is too short to wear boring clothes. What about this new arrival from <u>Netflix</u>? (Photo of T-shirt2)</p> <p>Yes! <u>No!</u></p> | <p>NO!</p> <p>Ok! I get it! Life is too short to wear boring clothes. What about this new arrival from <u>Thema.shop</u>? (Photo of T-shirt2)</p> <p>Yes! <u>No!</u></p> |

No!

And what about this Limited edition Cobra Kai T-shirt? (Photo of T-shirt3)

Yes! No!

Yes!

Nice choice, you Cobra Kai maniac! 🤖 🤖

“Kicks get the chicks!” ~ Cobra Kai.



And is this item for a special occasion?
Should I deliver it to you in a special package?

Yes! It's a birthday gift! My nephew is throwing a party!

**Oh! Party time! 🥳 Enjoy and remember!
A party without alcohol is just a meeting!**



Ok it's wrapped up and ready for delivery!
Would you like to buy anything else?
Yes! No!

No!

Ok! Thank you for choosing [Netflix.shop](#) today! It was nice chatting with you! Have a nice day!

Thank you for interacting with my chatbot!
Please close the current tab and return to the main page with the questionnaire.

No!

And what about this Limited edition Cobra Kai T-shirt? (Photo of T-shirt3)

Yes! No!

Yes!

Nice choice, you Cobra Kai maniac! 🤖 🤖

“Kicks get the chicks!” ~ Cobra Kai.



And is this item for a special occasion? Should I deliver it to you in a special package?

Yes! It's a birthday gift! My nephew is throwing a party!

**Oh! Party time! 🥳 Enjoy and remember!
A party without alcohol is just a meeting!**











Ok it's wrapped up and ready for delivery!
Would you like to buy anything else?
Yes! No!

No!

Ok! Thank you for choosing [Thema.shop](#) today! It was nice chatting with you! Have a nice day!

Thank you for interacting with my chatbot!
Please close the current tab and return to the main page with the questionnaire.

Conversation flow for non-humorous chatbots

| Netflix.shop + no humor | <u>Thema.shop</u> + no humor |
|--|---|
| <p>Hello! I am the shopping bot of Netflix.shop! I am here to guide you through a plethora of thematic items. Before we proceed, I will need some information from you!</p> | <p>Hello! I am the shopping bot of <u>Thema.shop</u>! I am here to guide you through a plethora of thematic items. Before we proceed, I will need some information from you!</p> |
| <p>First of all, do you have any specific category of items on your mind?</p> | <p>First of all, do you have any specific category of items on your mind?</p> |
| <p> Shorts  <u>T-shirts!</u>  Accessories</p> | <p> Shorts  <u>T-shirts!</u>  Accessories</p> |
| <p> <u>T-shirts!</u></p> | <p> <u>T-shirts!</u></p> |
| <p>Ok! Let me inform you that our T-shirts are unisex. So, no need to give me your gender type. But I will need a size. What size would you prefer?</p> | <p>Ok! Let me inform you that our T-shirts are unisex. So, no need to give me your gender type. But I will need a size. What size would you prefer?</p> |
| <p>XS <u>S</u> M L</p> | <p>XS <u>S</u> M L</p> |
| <p>S</p> | <p>S</p> |
| <p>Great! What about this T shirt? (Photo of T-shirt1) Yes! <u>No!</u></p> | <p>Great! What about this T shirt? (Photo of T-shirt1) Yes! <u>No!</u></p> |
| <p>No! And what about this new arrival from <u>Netflix</u>? (Photo of T-shirt2) Yes! <u>No!</u></p> | <p>No! And what about this new arrival from <u>Thema.shop</u>? (Photo of T-shirt2) Yes! <u>No!</u></p> |
| <p>No!</p> | <p>No!</p> |
| <p>And what about this Limited edition Cobra Kai T-shirt? (Photo of T-shirt3)</p> | <p>And what about this Limited edition Cobra Kai T-shirt? (Photo of T-shirt3)</p> |

| | |
|---|---|
| <p>Yes! No!</p> <p>Yes!</p> <p>All right! Is this item for a special occasion? Should I deliver it to you in a special package?</p> <p>Yes! It's a birthday gift! My nephew is throwing a party!</p> <p>Ok, it's wrapped up and ready for delivery! Would you like to buy anything else? Yes! No!</p> <p>No! Ok! Thank you for choosing Netflix.shop today! It was nice chatting with you! Have a nice day! Thank you for interacting with my chatbot! Please close the current tab and return to the main page with the questionnaire.</p> | <p>Yes! No!</p> <p>Yes!</p> <p>All right! Is this item for a special occasion? Should I deliver it to you in a special package?</p> <p>Yes! It's a birthday gift! My nephew is throwing a party!</p> <p>Ok, it's wrapped up and ready for delivery! Would you like to buy anything else? Yes! No!</p> <p>No! Ok! Thank you for choosing Thema.shop today! It was nice chatting with you! Have a nice day! Thank you for interacting with my chatbot! Please close the current tab and return to the main page with the questionnaire.</p> |
|---|---|

Appendix C

Mediation analysis with perceived enjoyment as a mediator

For brand attitude, the first mediation analysis indicated that the total effect of the communication style on brand attitude was insignificant ($b = -0.27$, $SE = 0.23$, $p = .24$). The direct effect, after adding perceived enjoyment as a mediator, remained insignificant ($b = -0.06$, $SE = 0.12$, $p = .59$), similar to the indirect effect ($b = -0.21$, $SE = 0.20$, 95% BCa CI [-0.60, 0.17]). For purchase intention, also an insignificant total effect of the communication style was revealed ($b = -0.14$, $SE = 0.28$, $p = .62$). The direct effect when perceived enjoyment mediated the relationship was found insignificant ($b = 0.09$, $SE = 0.17$, $p = .59$), just like in the indirect effect ($b = -0.23$, $SE = 0.21$, 95% BCa CI [-0.63, 0.19]). Lastly, with regard to patronage intention, the total effect of the communication style was insignificant ($b = -0.07$, $SE = 0.29$, $p = .81$). This effect remained insignificant after adding the perceived enjoyment as a mediator ($b = 0.17$, $SE = 0.18$, $p = .36$), likewise the indirect effect ($b = -0.24$, $SE = 0.22$, 95% BCa CI [-0.67, 0.21]).

Appendix D

Moderation effect of brand familiarity with perceived enjoyment as a mediator

First, perceived enjoyment was assessed as the mediator between the chatbot's communication style and brand attitude, with brand familiarity as the moderator. In detail, the communication style did not have a significant effect on perceived enjoyment, $b = -0.65$, $SE = 0.89$, $p = .46$. Brand familiarity did not have a significant effect on perceived enjoyment as well, $b = -0.30$, $SE = 0.89$, $p = .73$. Moreover, the interaction effect of communication style and brand familiarity was insignificant, $b = 0.24$, $SE = 0.56$, $p = .67$. The direct effect of communication style on brand attitude through perceived enjoyment was found insignificant for both familiar ($b = -0.08$, $SE = 0.17$, $p = .62$) and unfamiliar brands ($b = -0.05$, $SE = 0.17$, $p = .77$), just like the indirect effect for familiar ($b = -0.29$, $SE = 0.32$, 95% BCa CI [-0.93, 0.33]) and unfamiliar brands ($b = -0.12$, $SE = 0.24$, 95% BCa CI [-0.57, 0.36]). Overall, there was no significant effect of communication style on brand attitude when adding perceived enjoyment as a mediator and brand familiarity as a moderator ($b = 0.17$, $SE = 0.40$, 95% BCa CI [-0.61, 0.98]).

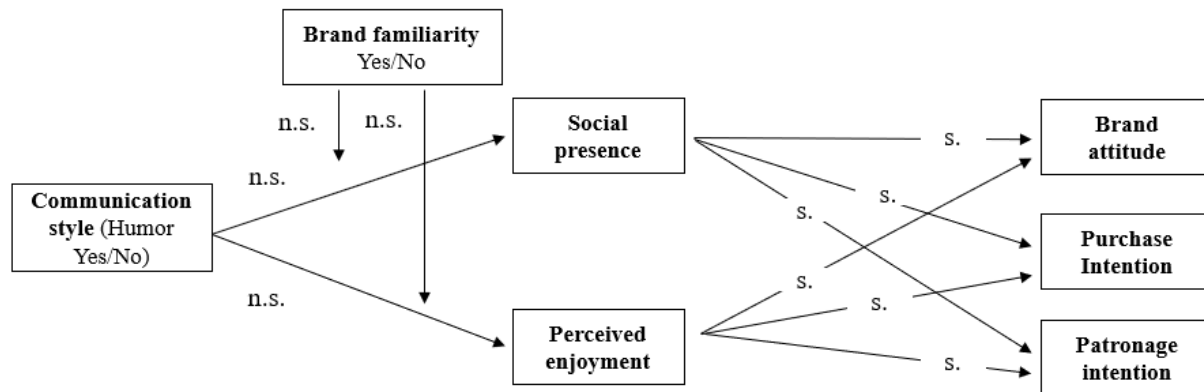
With regard to purchase intention, the direct effect of communication style on purchase intention through perceived enjoyment was insignificant for both familiar ($b = 0.00$, $SE = 0.24$, $p = 1.00$) and unfamiliar brands ($b = 0.17$, $SE = 0.24$, $p = .48$) similar to the indirect effect for familiar ($b = -0.32$, $SE = 0.34$, 95% BCa CI [-0.99, 0.36]) and unfamiliar brands ($b = -0.13$, $SE = 0.26$, 95% BCa CI [-0.63, 0.38]). In general, there was no significant effect of communication style on purchase intention when adding perceived enjoyment as a mediator and brand familiarity as a moderator, $b = 0.19$, $SE = 0.44$, 95% BCa CI [-0.67, 1.05].

Regarding patronage intention, the third moderated mediation analysis yielded insignificant results for both familiar ($b = 0.13$, $SE = 0.26$, $p = .62$) and unfamiliar brands ($b =$

0.20, $SE = 0.26$, $p = .44$) in the direct effect. Furthermore, the indirect effect was also insignificant for familiar ($b = -0.33$, $SE = 0.36$, 95% BCa CI [-1.02, 0.38]) and unfamiliar brands ($b = -0.14$, $SE = 0.27$, 95% BCa CI [-0.65, 0.41]). Overall, the effect of communication style on patronage intention with perceived enjoyment as a mediator and brand familiarity as a moderator was found insignificant, $b = 0.19$, $SE = 0.44$, 95% BCa CI [-0.67, 1.05].

Appendix E

Overall results of the moderated mediation analysis



Note. s.= significance, n.s = non significance