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ABSTRACT

Keywords:

Introduct on

Anthropomorphic communication refers to the use of interpersonal communication by enterprises to communicate with consumers (Fournier 1998; Dennett 1996). Anthropomorphic communication is an important element in advertising because it can enhance consumers' attitudes toward the brand and toward advertisements, ultimately increasing purchase intentions (Hart and Royne 2017). The relationship between brands and consumers developed through anthropomorphic communication can effectively reduce perceived risk and increase perceived usefulness, thereby improving consumer evaluation and purchase intention (Jarvenpaa and Leidner 1999). Anthropomorphic communication can also significantly improve the effectiveness of advertising. Choi, Miracle, and Biocca (2001) revealed that anthropomorphic communication on social media can increase the sense of social presence and telepresence to improve the effectiveness of advertisements.

With the development of social media, online interactions between companies and consumers have begun to involve increasingly anthropomorphic characteristics (Sohn and Choi 2019). Enterprises frequently adopt anthropomor

phic communication to interact with consumers on social media (Fournier 1998; Muehling, Sprott, and Sprott 2004; Sung, Kim, and Choi 2018). Because of the virtuality of and types of interaction on social media, anthropomorphic communication can effectively create a highly realistic social interactive experience and can prompt consumers to communicate more deeply with enterprises (Dennett 1996; Zhou and Wang 2014; Fox, Nakhata, and Deitz 2019). Therefore, anthropomorphic communication has become an effective advertising approach for enterprises to spread information via social media.

Some enterprises from developing countries employ anthropomorphic communication through social media in the international market and have obtained positive market responses. These brands engage in anthropomorphic communication and interactions with consumers via social media, which effectively spreads information about the enterprises and establishes a positive image in the international market. For example, Haier (China) has adopted “Haier brothers” as virtual spokespersons and opened official webpages on Facebook in Italy, Spain, France, Germany and other core markets. The “Haier brothers” chat online with local consumers, and European consumers have become more receptive to Haier products. The smartphone maker MIUI (China) employs anthropomorphic communication on Twitter using facial expressions and emotional words to publicize brand information. These actions have been lauded by large numbers of fans and have laid a foundation for MIUI to enter the international market. How can these enterprises establish a positive reputation by employing anthropomorphic communication in social media? Can anthropomorphic communication in social media weaken the country-of-origin effect of these enterprises from developing countries? What is the internal mechanism of this effect?

Previous studies have focused primarily on the influence of product factors (e.g., brand, store, presentation) (Lotz and Hu 2001; Kabadayi and Lerman 2011; Chu et al. 2010) or individual differences (e.g., consumer knowledge, consumer involvement) (Sharma 2011; Ahmed, d’Astous, and Eljabri 2002; Bhaskaran and Sukumaran 2007; Giraldi and Ikeda 2009; Guina and Giraldi 2015) to weaken the country-of-origin effect. Can anthropomorphic communication in social media effectively reduce the effect of country of origin? No prior study has investigated these research issues. To fill this research gap and provide important practical implications for enterprises to effectively apply anthropomorphic communication strategies, the current study investigates the influence of anthropomorphic communication via social media to weaken the country-of-origin effect based on human schema theory.

The current research consists of several studies. In study 1, the researchers examine the influence of anthropomorphic communication through social media to reduce the country-of-origin effect. In study 2, the mediating effect of information effectiveness is assessed, which verifies the internal theoretical process of the main effect. Study 3 seeks to verify the moderating role of the manner of presentation. The main effect is significant only when the manner of presentation is separate.

This study provides a series of theoretical contributions. First, the current study offers a new research perspective by considering the role of anthropomorphic communication in reducing the country-of-origin effect. Second, based on human schema theory, this study analyzes the influence of anthropomorphic communication on the country-of-origin effect and constructs a complete internal mechanism model. The findings deepen the application of human schema theory to the field of marketing research. Furthermore, the current studies explore the effect of anthropomorphic communication in social media from the perspective of cognitive processing, which promotes the development of research in the field of anthropomorphic communication. In addition, this study adds to presentation theory by analyzing the moderating role of the manner of presentation and setting explicit boundary conditions for the main effect.

Theoretical background

The country-of-Origin effect

The country of origin refers to the country of manufacture, production, or growth of a product, which is an important external cue (Schooler 1965; Wang et al. 2014). The country of origin is a vital piece of information that influences consumers’ evaluation and purchase decisions (Verlegh and Steenkamp 1999; Nie and Wang 2019). First, the country of origin can influence consumers’ perceptions of product risk. If a product originates in a country with low economic development, consumers are more likely to perceive higher risks and pay more attention to the attributes and performance of the product (Verlegh and Steenkamp 1999). Second, the country of origin can effectively impact consumers’ perceptions of product quality. There is a significant correlation between a product’s country of origin

and consumers' perception of the product's quality (White and Cundiff 1978). Thakor and Lavack (2003) reveal that the more idealized consumers' stereotypes of a country are, the higher their evaluation of the product's quality (Han 1990; Schooler 1965). Furthermore, the country of origin has a significant impact on consumers' willingness to purchase. Compared with products from developing countries, consumers generally prefer products from developed countries (Khachaturian and Morganosky 1990). Finally, the country of origin can effectively influence consumers' willingness to pay. Existing studies have shown that consumers are willing to pay a higher price if a product has a more positive and ideal source country (Koschate-Fischer, Diamantopoulos, and Oldenkotte 2012, Drozdenko and Jensen 2009).

The moderator of the country-of-Origin effect

Current studies on the moderator of the country-of-origin effect primarily focus on the influence of product factors (brand, store, presentation) or individual differences (consumer knowledge, consumer involvement). With regard to product factors, researchers have revealed that brand names can alleviate the country-of-origin effect. In particular, when the brand name has a high reputation and popularity, this weakening effect is more significant (Han and Terpstra 1988; Kim and Pysarchik 2000). Similarly, when a store has a positive image and a high social prestige, the country-of-origin effect is also weakened (Lotz and Hu 2001). Another study has shown that the price of products can also effectively influence the country-of-origin effect. Providing price discounts can provide a compensation to mitigate a negative country-of-origin effect (Chao and Rajendran 1993). With regard to individual differences, one important factor that affects the country-of-origin effect is consumer involvement (Ahmed, d'Astous, and Eljabri 2002). Low-involvement consumers are reluctant to pay much attention to searching for and processing product information and tend to rely on external cues, such as country-of-origin information, to make evaluations. However, high-involvement consumers are willing to invest more cognitive resources in products, thus reducing the dependence on country of origin (Schaefer 1997; Bhaskaran and Sukumaran 2007). Another effective moderator is consumer knowledge. Consumers can be divided into novice consumers and expert consumers according to their knowledge. Novice consumers lack the ability to analyze the actual quality of products, so country-of-origin information becomes an important clue for them to evaluate products. In contrast, expert consumers have comprehensive and abundant product-related knowledge and the ability to integrate all information clues to systematically evaluate products, which reduces the dependence on country of origin (Alba and Hutchinson 1987; Maheswaran 1994; Zhao, Wang, and Fan 2015).

Anthropomorphic communication

With the development of social media, enterprises have adopted an interpersonal communication model called anthropomorphic communication to interact with consumers (Fournier 1998; Muehling, Sprott, and Sprott 2004). On line interactions between companies and consumers have been shown to possess increasingly anthropomorphic characteristics. Anthropomorphic communication via social media can effectively prompt consumers to interact with enterprises, which can help to strengthen emotional contracts with consumers (Dennett 1996; Bondt, Kerckhove, and Geuens 2018). Anthropomorphic communication can help to assess the actual needs of consumers, publish official information on brands or products, and interact with consumers as individuals, thus successfully transforming enterprises from businessmen into friends and helping enterprises establish emotional ties with consumers (Heide, Wathne, and Rokkan 2007; Reavey et al. 2018).

Anthropomorphic communication employs an interpersonal communication model on social media that reflects the characteristics of human communication. In human interactions, anthropomorphic communication adds unrelated information (Nowak, Plotkin, and Jansen 2000) and tends to use informal terms (Nowak, Komarova, and Niyogi 2001). Furthermore, emotional expression is one of the key factors in an individual's perception of virtual objects on social media as human beings. In the process of anthropomorphic communication, communicators can respond to external stimuli and display corresponding emotional expressions, which encourages individuals to perceive the virtual objects on social media as real human beings (Bogdan, Axel, and Werner 2006).

Human schema theory

Anthropomorphic communication that has the characteristics of human communication encourages individuals to perceive virtual objects on social media as real human beings, which activates the human schema in their cognition. The human schema can significantly influence information focusing and processing, which plays an important role in

the country-of-origin effect. Therefore, the current research employs the human schema theory to explore the influence of anthropomorphic communication on the country-of-origin effect.

The human schema refers to the cognitive representation of human characteristics in the brain. Essentially, anthropomorphism involves endowing an inanimate object with human characteristics, such as appearance, motivations and emotions, that can effectively activate the human schema. The human schema belongs to the cognitive structure related to the individual self and is likely to influence an individual's perceptions and judgments (Epley, Waytz, and Ciccioppo 2007).

Prior research has shown that activating the human schema in cognition can significantly affect the attention an individual gives to that information. People generally have a natural preference for things similar to themselves and are therefore likely to be attracted to objects with human characteristics (Aggarwal and McGill 2007; Tremoulet and Feldman 2000). Thus, activating the human schema can increase an individual's arousal level, stimulating the nervous system and elevating attention to related information (Kapur et al. 1994). For example, existing research has found that the use of a virtual assistant that uses anthropomorphic communication results in greater attention than normal communication, thereby promoting learning efficiency (Moreale and Watt 2004). Second, the human schema can affect information processing. The human schema is an important cognitive function that helps individuals understand unfamiliar things. Human beings are more familiar with themselves than with unfamiliar inanimate objects. Knowledge about human beings is easily acquired and understood. Furthermore, people's experiences are centered on their perceptions of themselves, making it difficult for them to imagine themselves as inanimate objects. The human schema can function as a knowledge system that can be easily activated and acquired to help individuals understand inanimate objects (Preus 1987; Perner 1991; Wimmer and Perner 1983).

Information effectiveness

Information effectiveness refers to the degree to which an individual can translate the target information into effective working memory in the brain (Archibald and Fisk 2000). Information effectiveness is affected by two key factors: information attention and information processing. First, an individual's attention impacts the target selection when the individual is confronted with a large amount of information, thus affecting the effectiveness of the target information (Michiels et al. 1999; Schmicker et al. 2016). Second, the way that target information is processed influences the validity of the information (Speirs et al. 2014). The better the understanding and processing of the target information is, the more likely it is to be transformed into effective working memory in the brain. Information effectiveness can impact many areas of daily life, including the understanding of language, learning ability, problem solving and decision-making (Archibald and Fisk 2000). In the market, consumers' preferences and decision-making are also significantly influenced by their information selection and processing (Sproles, Geistfeld, and Badenhop 1980).

The influence of anthropomorphic communication on the country-of-Origin effect

A product contains a series of information cues (internal cues and external cues). Internal cues refer to the internal attribute information of the product, and external cues refer to external information related to the product, such as the country of origin. These cues may affect a consumer's perception and evaluation of the product (Liefeld 1993). According to existing research, the country of origin of a product is one of the most important external cues that can significantly impact consumers' preferences with respect to products. Because foreign products (vs. domestic products) are more unfamiliar to consumers (Han and Terpstra 1988), consumers are more inclined to rely on external cues (e.g., country of origin) to evaluate the products (Huber and McCann 1982). However, if individuals can effectively process internal cues, dependence on the external cue may be reduced, and the influence of the country-of-origin effect may be weakened.

According to current research, anthropomorphic communication in social media can create a realistic social interaction experience, activate the human schema in cognition, enhance the effectiveness of internal attribute information, reduce the dependence on country of origin and weaken country-of-origin effects. Specifically, consumers are inclined to rely on external cues, such as the country of origin, when there is a lack of effective processing and understanding of the internal attribute information of a product (Huber and McCann 1982). However, anthropomorphic communication in social media can create a realistic social interaction experience and activate the human schema in cognition. Individuals generally have a natural preference for things that are similar to themselves and are therefore

H1: Anthropomorphic communication in social media can reduce negative and positive country-of-origin effects.

H2: The information effectiveness of internal attribution mediates the effect of anthropomorphic communication on the country-of-origin effect.

The method of presentation (separate or joint) is an important factor in individual decision-making (Hsee and Leclerc 1998; Mellers and Cooke, 1996). In a joint presentation, multiple selection items are presented together; in a separate presentation, only one selection item is presented at a time. The method of presentation (separate or joint) is also an important boundary condition in the country-of-origin field (Chu et al. 2010). Therefore, the current research investigates the moderating role of presentation between anthropomorphic communication and the country-of-origin effect.

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H3: Only by separate presentation can anthropomorphic communication in social media weaken negative and positive country-of-origin effects by improving information effectiveness.

Study 1

Method

Study 1 was conducted to test whether anthropomorphic communication in social media could effectively attenuate the country-of-origin effect (**H1**). A total of 208 participants (age range = 18 to 66, $M = 31.46$, $SD = 12.16$, 56.25% female) in the New World Department Store completed the experiment in exchange for ¥35 Chinese yuan (\$5 US dollars). Participants were randomly assigned to conditions in a 2 (communication style: anthropomorphic communication vs. nonanthropomorphic communication) \times 3 (country of origin: favorable country vs. unfavorable country vs. control group) between-subjects design. After signing the consent form, the participants were asked to complete a set of measures. Data from 7 participants who provided incorrect country-of-origin information were excluded from the analyses. No respondents correctly guessed the purpose of the survey. Valid data from 201 participants were retained for subsequent analyses ($N_{AC, FC} = 33$, $N_{AC, UFC} = 34$, $N_{AC, CG} = 33$, $N_{NAC, FC} = 33$, $N_{NAC, NFC} = 34$, $N_{UAC, CG} = 34$).

For study 1, we chose one of the most popular import products (red wine) in the Chinese market according a report from the China Ministry of Commerce in 2018 and conducted a pretest ($N = 55$, age range = 19-51, $M = 28.42$, $SD = 7.50$, 47.27% female) to select a negative and positive country of origin in the red wine market. The results revealed that most participants chose Australia (32.73%) as a positive country of origin and Vietnam (29.09%) as a negative country of origin.

We used a fictitious brand of red wine called “FWYY.” We created two different versions of communication styles to introduce the attributes of the target product. For the anthropomorphic condition, the content read, “The quality of this baby is very reliable. I am 100% handmade from high-quality grapes. Oh! I have a very smooth taste with the flavors of black currants, blackberries, peppermint and cedar. Remember to take me with you when having dinner because I am an expert in creating the right ambiance.” For the nonanthropomorphic condition, the content read, “FWYY red wine has a reliable and stable quality. It is 100% handmade using high-quality grapes. This product is smooth and has the aroma of black currants, blackberries, peppermint and cedar. FWYY can provide you with quality red wine. It’s a good choice for parties and dinner.” To ensure that our manipulation of anthropomorphic communication was successful, we recruited 63 participants (age range = 17-42, $M = 27.19$, $SD = 6.08$, 52.38% female) online to perform a pretest. Participants were randomly placed into the anthropomorphic group or the nonanthropomorphic group. After the information was displayed, we asked the participants to evaluate the level of anthropomorphism of the information on a 7-point scale (1 = “low,” 7 = “high”). The results showed that the anthropomorphic group reported a higher level of anthropomorphism than did those in the nonanthropomorphic group ($M_{AC} = 5.42$, $SD = 0.81$; $M_{NAC} = 3.63$, $SD = 0.61$, $t = 9.98$, $df = 61$, $p < .05$, $d = 2.50$).

In addition, we conducted a pretest ($N = 63$, age range = 18-59, $M = 32.14$, $SD = 9.76$, 47.62% female) to examine the country-of-origin effect of the selected country stimuli (i.e., Australia and Vietnam). Participants were randomly arranged into the favorable group (Australia) or the unfavorable group (Vietnam). After viewing a picture of the red wine and receiving the country-of-origin information (Made in Australia/Vietnam), participants were asked to evaluate the level of anthropomorphism of the information on a 7-point scale (1 = “low,” 7 = “high”). The results showed that the anthropomorphic group reported a higher level of anthropomorphism than did those in the nonanthropomorphic group ($M_{AC} = 5.42$, $SD = 0.81$; $M_{NAC} = 3.63$, $SD = 0.61$, $t = 9.98$, $df = 61$, $p < .05$, $d = 2.50$).

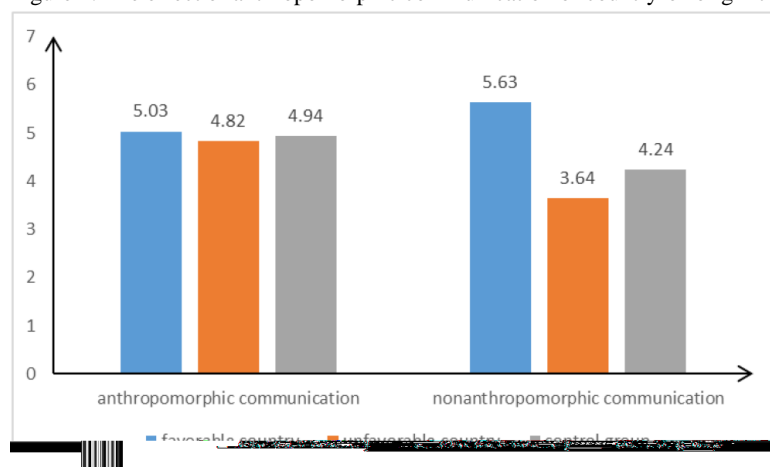
acted with a virtual spokesman via social media about unrelated items such as individual interests and past experiences. Then, they were randomly allocated to one of six conditions (anthropomorphic/favorable, anthropomorphic/unfavorable, anthropomorphic/control, nonanthropomorphic/favorable, nonanthropomorphic/unfavorable, nonanthropomorphic/control). The favorable country-of-origin information was “Made in Australia,” the unfavorable country-of-origin information was “Made in Vietnam,” and the control group was not given any information on country of origin. Next, the participants were asked to complete a series of questions regarding their preferences for the product and the expertise and authority of the internal product information (Bansal and Voyer 2000). We measured the emotional state of the subjects using an emotional scale (Hagtvedt 2011). The participants rated the items on a 7-point scale. Psychological distance was measured with a 13-question Behavior Identification Form (BIF, Vallacher and Wegner 1989). Finally, participants were asked to report the degree of anthropomorphic communication, the effect of the country of origin (negative or positive), and the purpose of the survey.

Results and discussion

Manipulation checks: As expected, the anthropomorphic group reported a higher level of anthropomorphism than the nonanthropomorphic group ($M_{AC} = 5.47$, $SD = 0.73$; $M_{NAC} = 3.76$, $SD = 0.63$, $t = 17.69$, $df = 199$, $p < .05$, $d = 2.51$). There were no significant differences in the findings for emotional state ($M_{AC} = 4.36$, $SD = 0.89$; $M_{NAC} = 4.26$, $SD = 0.81$, $t = 0.85$, $df = 199$, $p > .05$, $d = 0.12$), psychological distance ($M_{AC} = 8.62$, $SD = 0.87$; $M_{NAC} = 8.58$, $SD = 0.80$, $t = 0.30$, $df = 199$, $p > .05$, $d = 0.05$), expertise of internal product information ($M_{AC} = 4.13$, $SD = 0.90$; $M_{NAC} = 4.28$, $SD = 0.91$, $t = 1.16$, $df = 199$, $p > .05$, $d = 0.17$), or authority of internal product information ($M_{AC} = 4.12$, $SD = 0.77$; $M_{NAC} = 4.24$, $SD = 0.72$, $t = 1.12$, $df = 199$, $p > .05$, $d = 0.16$) between the two groups. Thus, the anthropomorphic manipulation was successful.

Country-of-origin effect: We conducted a 2 (communication style: anthropomorphic communication vs. nonanthropomorphic communication) \times 3 (country of origin: favorable country vs. unfavorable country vs. control group) between-subjects ANOVA with product preference as the dependent variable. The results indicated a significant two-way interaction between communication style and country-of-origin information ($F = 25.27$, $df = 2$, $p < .05$). As reflected in Figure 1, there was a significant effect of country of origin on product preference in nonanthropomorphic conditions ($F = 62.61$, $df = 2$, $p < .05$). Specifically, participants assigned to the favorable country group reported a greater preference for the target product than those assigned to the control group ($M_{NAC, FC} = 5.85$, $SD = 0.76$; $M_{NAC, CG} = 4.18$, $SD = 0.97$, $t = 8.16$, $df = 98$, $p < .05$, $d = 2.15$); participants in the unfavorable country group reported a lower preference for the target product than those in the control group ($M_{NAC, UFC} = 3.65$, $SD = 0.77$; $M_{NAC, CG} = 4.18$, $SD = 0.97$, $t = 2.60$, $df = 98$, $p < .05$, $d = 0.61$). However, in the anthropomorphic conditions, the results revealed an insignificant effect of country of origin on product preference ($F = 0.24$, $df = 2$, $p > .05$; $M_{AC, FC} = 5.00$, $SD = 0.94$; $M_{AC, CG} = 4.91$, $SD = 0.87$, $t = 0.40$, $df = 97$, $p > .05$, $d = 0.10$; $M_{AC, UFC} = 4.85$, $SD = 0.91$; $M_{AC, CG} = 4.91$, $SD = 0.87$, $t = 0.29$, $df = 97$, $p > .05$, $d = 0.07$).

Figure 1. The effect of anthropomorphic communication of country-of-origin the effect (Study 1).



The findings of study 1 provide initial support for our hypothesis that anthropomorphic communication via social media can reduce the country-of-origin effect.

Study 2

Method

Study 2 was designed to test **H2**. We recruited 138 participants (age range = 18 to 57, $M = 32.22$, $SD = 10.03$, 52.17% female) from the New World Department Store to complete the experiment in exchange for ¥35 Chinese yuan (\$5 US dollars). Participants were randomly assigned to conditions in a 2 (communication style: anthropomorphic communication vs. nonanthropomorphic communication) \times 2 (country of origin: favorable country vs. unfavorable country) design. Data from 5 participants who provided incorrect country-of-origin information were excluded from the analyses. No respondents guessed the purpose of the survey. Valid data from 133 participants were retained for subsequent analyses ($N_{AC, FC} = 33$, $N_{NAC, UFC} = 34$, $N_{AC, FC} = 33$, $N_{NAC, UFC} = 33$).

For study 2, we chose one of the most popular import products (trench coat) in the Chinese market according a report from the China Ministry of Commerce in 2018 and conducted a pretest ($N = 61$, age range = 20-54, $M = 28.72$, $SD = 7.41$, 47.54% female) to select a negative and positive country of origin in the trench coat market. The results revealed that most participants chose Britain (36.07%) as a positive country of origin and Thailand (24.59%) as a negative country of origin.

We used a fictitious brand of trench coat called “TWO.” Similar to study 2, we created two versions of communication styles to introduce attribute information on the target product. For the anthropomorphic condition, the content read, “Hello, I was created by a top designer. I was handmade using 100% wool fabric. I come in numerous classic colors, such as pink, blue, black, camel and so on. I am not only beautiful in appearance but also possess high-end quality and impeccable after-sale service. Take me home with ease.” For the nonanthropomorphic condition, the content read, “TWO was created by a top designer and was handmade using 100% wool fabric. It is available in a variety of classic colors, such as pink, blue, black, camel and so on. This product is reliable and stable, possessing high-end quality and impeccable after-sale service.” To ensure that our manipulation of anthropomorphic communication was successful, we recruited 64 participants (age range 16-47, $M = 26.92$, $SD = 7.18$, 48.44% female) online to perform a pretest. The participants were randomly placed into the anthropomorphic group or the nonanthropomorphic group. After the information was displayed, the researchers asked the participants to evaluate the level of anthropomorphism of the information on a 7-point scale (1 = “low”, 7 = “high”). The results showed that the anthropomorphic group reported a higher level of anthropomorphism than the nonanthropomorphic group ($M_{AC} = 5.56$, $SD = 0.91$; $M_{NAC} = 3.81$ $SD = 0.86$, $t = 7.89$, $df = 62$, $p < .05$, $d = 1.98$).

For the country-of-origin effect, we used Britain as the favorable country and Thailand as the unfavorable country. A pretest ($N = 62$, age range = 18-51, $M = 29.03$, $SD = 7.82$, 54.84% female) was conducted to verify the different country-of-origin effects of the two countries. Participants were randomly arranged into the favorable group (Britain) or the unfavorable group (Thailand). After viewing a picture of the trench coat and receiving the country-of-origin information, the participants were asked to report their preferences for the products (on a scale of 1-7, where 1 = “dislike very much” and 7 = “like very much”). The results showed that

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tion. In the nonanthropomorphic group, participants were given nonanthropomorphic information. The favorable country-of-origin information was “Made in Britain,” and the unfavorable country-of-origin information was “Made in Thailand.” After the participants viewed each product’s information, they reported their preferences regarding the product. Next, a filler task was conducted to ensure that participants did not know the purpose of the study. Afterwards, the participants completed a series of questions, including the effectiveness of the information provided (Sproles, Geistfeld, and Badenhop 1980). They reported the degree to which they effectively focused on and processed the internal attribution of the target product (on a scale of 1-7, where 1 = “0%” and 7 = “100%”), the expertise and authority of the internal product information (Bansal and Voyer 2000), emotional state (Hagtvedt 2011), and other assorted items. Finally, the participants were asked to report the psychological distance, the degree of anthropomorphic communication, the effect of the country of origin (negative or positive), and the purpose of the survey.

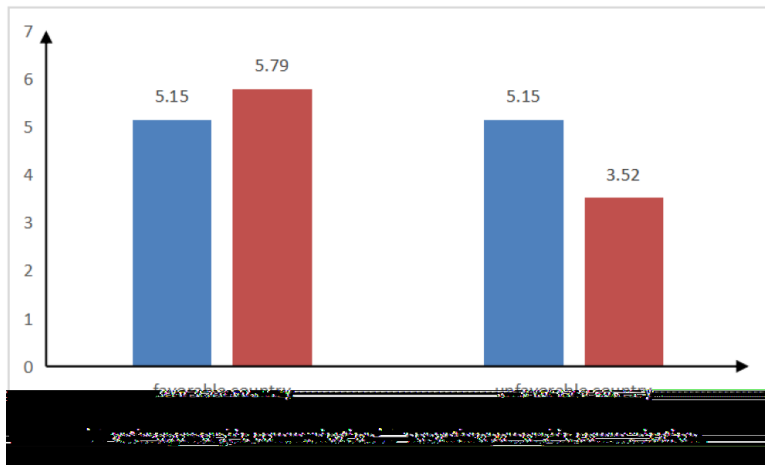
Results and discussion

Manipulation checks: A *t*-test showed that participants in the anthropomorphic condition reported a higher level of anthropomorphism than did those in the nonanthropomorphic condition ($M_{AC} = 5.34$, $SD = 0.75$; $M_{NAC} = 3.47$, $SD = 0.68$, $t = 15.05$, $df = 131$, $p < .05$, $d = 2.61$). There were no significant differences in the emotional state ($M_{AC} = 4.19$, $SD = 0.72$; $M_{NAC} = 4.14$, $SD = 0.76$, $t = 0.45$, $df = 131$, $p > .05$, $d = 0.07$), psychological distance ($M_{AC} = 8.49$, $SD = 0.66$; $M_{NAC} = 8.77$, $SD = 1.05$, $t = 1.85$, $df = 131$, $p > .05$, $d = 0.32$), expertise of internal product information ($M_{AC} = 4.18$, $SD = 0.69$; $M_{NAC} = 4.15$, $SD = 0.83$, $t = 0.21$, $df = 131$, $p > .05$, $d = 0.04$) or authority of internal product information ($M_{AC} = 4.15$, $SD = 0.80$; $M_{NAC} = 4.17$, $SD = 1.00$, $t = 0.11$, $df = 131$, $p > .05$, $d = 0.02$) between the two groups. Thus, the anthropomorphic manipulation was successful.

Effectiveness of the information: A significant difference in the information effectiveness emerged between the two groups ($M_{AC} = 5.39$, $SD = 0.83$; $M_{NAC} = 3.67$, $SD = 0.71$, $t = 12.82$, $df = 131$, $p < .05$, $d = 2.22$), indicating that anthropomorphic communication led to a higher level of information effectiveness.

Country-of-origin effect: We conducted a 2 (communication style: anthropomorphic communication vs. nonanthropomorphic communication) \times 2 (country of origin: favorable country vs. unfavorable country) between-subjects ANOVA with product preference as the dependent variable. The results indicated a significant two-way interaction between communication style and country-of-origin information ($F = 45.86$, $df = 1$, $p > .05$). As reflected in Figure 2, in the favorable country condition, participants in the nonanthropomorphic communication group reported lower information effectiveness ($M_{NAC, FC} = 3.67$, $SD = 0.78$; $M_{AC, FC} = 5.45$, $SD = 0.83$, $t = 9.02$, $df = 64$, $p < .05$, $d = 2.21$) and a greater preference for the target product than participants in the anthropomorphic communication group ($M_{NAC, FC} = 5.79$, $SD = 0.93$; $M_{AC, FC} = 5.15$, $SD = 1.23$, $t = 2.38$, $df = 64$, $p < .05$, $d = 0.59$). In the unfavorable country condition, participants in the anthropomorphic communication group reported higher information effectiveness ($M_{AC, UFC} = 5.32$, $SD = 0.84$; $M_{NAC, UFC} = 3.67$, $SD = 0.65$, $t = 9.01$, $df = 65$, $p < .05$, $d = 2.20$) and a greater preference for the target product than those in the nonanthropomorphic communication group ($M_{AC, UFC} = 5.15$, $SD = 0.82$; $M_{NAC, UFC} = 3.52$, $SD = 0.83$, $t = 8.07$, $df = 65$, $p < .05$, $d = 1.98$).

Figure 2. The effect of anthropomorphic communication of the country-of-origin effect (Study 2).



Mediation analysis: We examined the mediating role of information effectiveness in the relationship between anthropomorphic communication and the country-of-origin effect through a bootstrapping analysis using PROCESS model 4 (with 5000 bootstrapping resamples; see Hayes 2013). As predicted, the results revealed that the effect of anthropomorphic communication on the negative country-of-origin effect (95% confidence interval $\beta = 1.40$; $CI = 1.04$ to 1.85) and the positive country-of-origin effect (95% confidence interval $\beta = -2.05$; $CI = -2.62$ to -1.53) were mediated by information effectiveness (See Figure 3 and Figure 4).

Figure 3. Mediation analysis (Study 2).

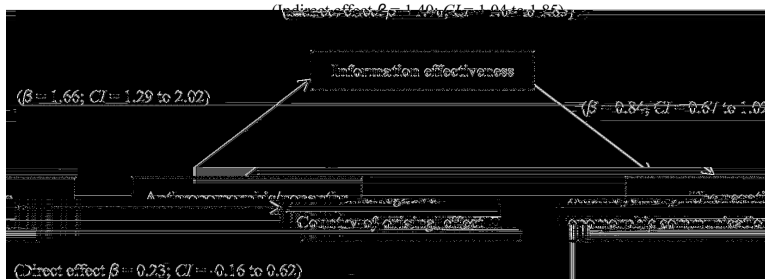
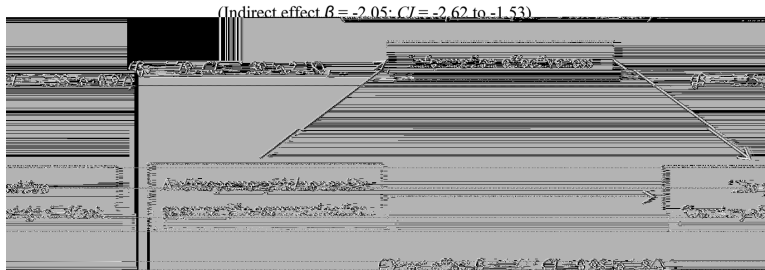


Figure 4. Mediation analysis (Study 2).



Study 2 demonstrates that information effectiveness mediates the relationship between anthropomorphic communication in social media and the country-of-origin effect. Consistent with **H2**, we found that anthropomorphic communication in social media increased information effectiveness, which reduced the dependence on country-of-origin cues and weakened both the negative and positive country-of-origin effects.

Study 3

Method

Study 3 was designed to test **H3**. A total of 135 participants (age range = 18-54, $M = 30.67$, $SD = 9.38$, 51.85% female) were recruited from the New World Department Store to complete the experiment in exchange for ¥35 Chinese yuan (\$5 US dollars). After signing the consent form, participants were randomly allocated to conditions in a 2 (method of presentation: separate or joint) \times 2 (communication style: anthropomorphic communication vs. nonanthropomorphic communication) \times 2 (country of origin: favorable country vs. unfavorable country) full-factorial mixed design with country of origin as a within-subjects factor and the method of presentation and communication style as between-subjects factors. Data from 9 participants were removed from the analyses: 5

Results and discussion

Manipulation checks: To perform checks on the anthropomorphic manipulation, we conducted a *t*-test with the level of anthropomorphism as the dependent variable. The results indicated that participants in the anthropomorphic condition reported a higher level of anthropomorphism than participants in the nonanthropomorphic condition ($M_{AC} = 5.62$, $SD = 0.73$; $M_{NAC} = 3.44$, $SD = 0.71$, $t = 16.93$, $df = 124$, $p < .05$, $d = 3.03$). There were no significant differences in the emotional state ($M_{AC} = 4.03$, $SD = 0.69$; $M_{NAC} = 4.02$, $SD = 0.61$, $t = 0.14$, $df = 124$, $p > .05$, $d = 0.02$), psychological distance ($M_{AC} = 8.83$, $SD = 1.30$; $M_{NAC} = 8.70$, $SD = 1.30$, $t = 0.55$, $df = 124$, $p > .05$, $d = 0.10$), expertise of internal product information ($M_{AC} = 4.06$, $SD = 0.69$; $M_{NAC} = 4.16$, $SD = 0.70$, $t = 0.77$, $df = 124$, $p > .05$, $d = 0.14$), or authority of internal product information ($M_{AC} = 3.87$, $SD = 0.79$; $M_{NAC} = 3.97$, $SD = 0.65$, $t = 0.74$, $df = 124$, $p > .05$, $d = 0.14$) between the two groups.

Effectiveness of the information: We conducted an ANOVA with the effectiveness of the information as the dependent variable and the manner of presentation and communication style as factors. The results indicated a significant two-way interaction between the manner of presentation and communication style ($F = 42.52$, $df = 1$, $p < .05$). Specifically, under the separate conditions, participants in the anthropomorphic communication condition reported higher information effectiveness than did those in the nonanthropomorphic communication condition ($M_{AC} = 5.55$, $SD = 0.89$; $M_{NAC} = 3.56$, $SD = 0.76$, $t = 9.55$, $df = 61$, $p < .05$, $d = 2.40$). Under the joint condition, the information effectiveness did not differ between the two conditions ($M_{AC} = 5.03$, $SD = 0.82$; $M_{NAC} = 4.97$, $SD = 0.84$, $t = 0.30$, $df = 61$, $p > .05$, $d = 0.07$).

Country-of-origin effect: We again conducted an ANOVA with the country-of-origin effect (difference between product preference for the favorable country and the unfavorable country) as the dependent variable and the manner of presentation and communication style as factors. The results revealed an interactive effect between the manner of presentation and the anthropomorphic communication style regarding the country-of-origin effect ($F = 330.39$, $df = 1$, $p < .05$). Specifically, under the separate condition, there was a higher country-of-origin effect under the nonanthropomorphic communication condition opposed to under the anthropomorphic communication condition ($M_{NAC} = 1.86$, $SD = 0.51$; $M_{AC} = 0.16$, $SD = 0.07$, $t = 18.35$, $df = 61$, $p < .05$, $d = 4.67$). However, under the joint condition, participants in both groups reported a low level of the country-of-origin effect, and the country-of-origin effect did not differ between the two groups ($M_{NAC} = 0.15$, $SD = 0.06$; $M_{AC} = 0.15$, $SD = 0.05$, $t = 0.11$, $df = 61$, $p > .05$, $d = 0.00$).

The results of study 3 revealed that the manner of presentation (separate or joint) could effectively moderate the relationship between anthropomorphic communication in social media and the country-of-origin effect. We found that anthropomorphic communication in social media was able to reduce the country-of-origin effect by improving the effectiveness of the information only with a separate presentation.

General discussion

The primary objective of the current study was to investigate the influence of anthropomorphic communication via social media on the country-of-origin effect based on human schema theory. Across three experiments with diverse stimuli, we established evidence that anthropomorphic communication could effectively attenuate the country-of-origin effect. Study 1 revealed that anthropomorphic communication via social media could increase consumer preferences for products from an unfavorable country and decrease consumer preferences for products from a favorable country, indicating that the country-of-origin effect was mitigated. Study 2 tested the mediating role of information effectiveness, which verified the internal theoretical process of the main effect. The results indicated that information effectiveness mediated the effect of anthropomorphic communication on the country-of-origin effect. Study 3 examined the moderating role of the manner of presentation. The results indicated that the effect of anthropomorphic communication on attenuating the country-of-origin effect was only significant when the separate manner of presentation was utilized. Joint presentation induced high effectiveness of the product information, which counteracted the effect of anthropomorphic communication.

This study provides several theoretical contributions. First, although the existing literature has investigated numerous boundary conditions that affect the country-of-origin effect, they lack exploration in the domain of anthropomorphic communication strategies utilizing social media for enterprises. With the proliferation of social media networks,

the interaction between consumers and firms often exhibits the characteristics of anthropomorphism. In the process of internationalization, many firms have chosen social media as a communication platform and used anthropomorphism as a style of communication to promote and appeal to target customers. However, existing research fails to provide sufficient operational suggestions to effectively apply anthropomorphic strategies in the process of internationalization. Our current research offers a new research perspective and enriches related studies in the field of anthropomorphic communication. This study provides a new approach to weakening the country-of-origin effect and overcomes the limitations of previous studies.

In the field of anthropomorphic communication, the existing literature can be classified into two streams. One stream of literature mainly focuses on the emotional value and social function of anthropomorphic communication strategies (Fournier 1998; Muehling, Sprott, and Sprott 2004). The other stream of literature mainly focuses on the perspective of cognitive processing, which explores how anthropomorphic communication affects learning efficiency and persuasiveness (Moreale and Watt 2004). The current study employed information effectiveness as a mediator and explored the impact of anthropomorphic communication on the country-of-origin effect from the perspective of cognitive function. Our study deepens the research value of

the country-of-origin effect and provides a new perspective for internationalization.

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sumer preference has yet to be studied. Furthermore, this study only explored the moderating role of the manner of

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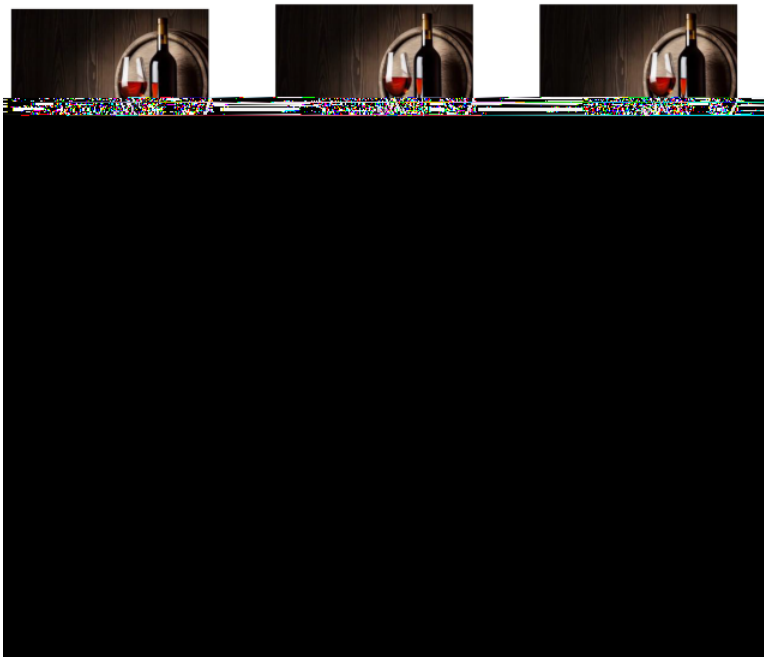
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Appendix A. Stimuli materials of study 1

Anthropomorphic communication condition



Appendix B. Stimuli materials of study 2



Appendix C. Stimuli materials of study 3



Hello, I have a big face (5.7 inches) and a strong heart made by the best processors (A10X, A11Z, A12Z) and memory chips (up to 1TB) coming with the best 5G network. I can stream 4K video, make 4K calls, and play 4K games. I can even play 4K games on my 4K screen (6.7 inches) and I can play 4K games on my 4K screen (6.7 inches) and I can play 4K games on my 4K screen (6.7 inches).

Hi, I'm in China

I can stream 4K video (up to 60 FPS) and make up to 4K calls on the 5G network (up to 4K + 256K) and I can stream 4K video (up to 60 FPS) and make up to 4K calls on the 5G network (up to 4K + 256K) and I can stream 4K video (up to 60 FPS) and make up to 4K calls on the 5G network (up to 4K + 256K).

Hi, I'm in America

This will be the best phone (6.7 inches) and the best 5G processor (A10X + 128GB memory chips) and I can stream 4K video (up to 60 FPS) and make up to 4K calls on the 5G network (up to 4K + 256K) and I can stream 4K video (up to 60 FPS) and make up to 4K calls on the 5G network (up to 4K + 256K).

Hi, I'm in India

This will be the best phone (6.7 inches) and the best 5G processor (A10X + 128GB memory chips) and I can stream 4K video (up to 60 FPS) and make up to 4K calls on the 5G network (up to 4K + 256K) and I can stream 4K video (up to 60 FPS) and make up to 4K calls on the 5G network (up to 4K + 256K).

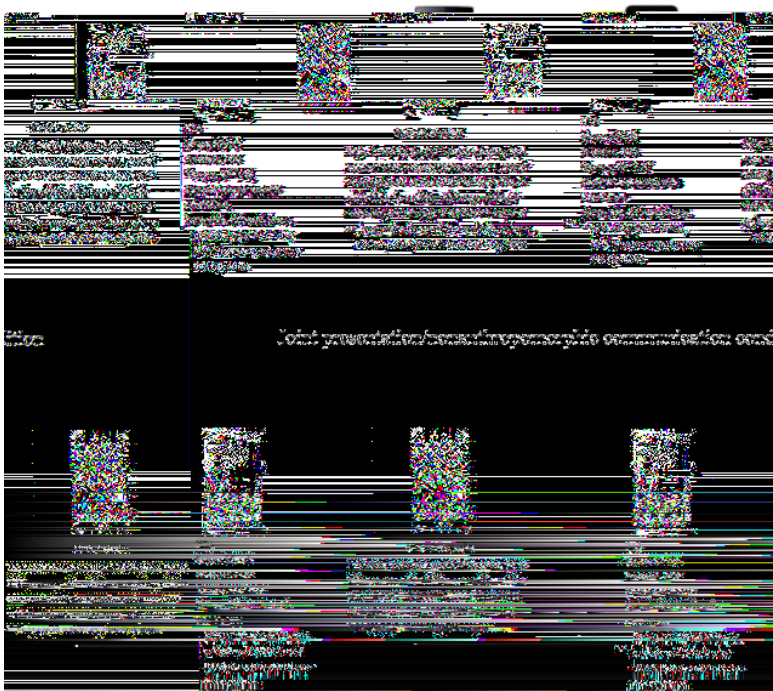
[illegible]

1970年，美国加州大学伯克利分校的科学家们发现，在人类基因组中，大约只有1%的DNA是编码蛋白质的。这一发现挑战了当时流行的“基因决定论”，即认为基因是决定生物性状的唯一因素。科学家们开始意识到，非编码DNA可能在基因表达调控中起着至关重要的作用。

[illegible]

This tablet phone has up to 8.7 hours of use on the 3G network, 6.65 • 12.65 hours of use on 2G network with double SIM, standard software (4000mAh battery), and many other things (2 • 20 minutes) bringing you an extreme product experience.

Joint presentation/anthropomorphic communication condition



Author Queries

Query:

Author Response:

Query:

Author Response:

Query:

Author Response:

Query:

Author Response:

Query:

Author Response:
