

Article

“Global Face” and the “Local Soul”: Boundary Effects in Virtual Endorsements

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Abstract: As digital marketing technologies keep advancing, virtual endorsers have become increasingly common in advertising. However, some brands adopt them without carefully considering whether such endorsers align with their brand identity, showing a blind trend-following tendency. To explore the underlying mechanism and its boundary conditions, this study starts from the identity relationship between brands and consumers. Through a 2 (endorser type: virtual vs. human) $\times$ 2 (brand type: local vs. global) between-subjects experiment, it examines how virtual versus human endorsers influence consumers' purchase intentions across different brand types, as well as the boundary conditions of this effect. The results of the ANOVA and mediation tests reveal that brand type exerts a significant moderating effect on endorsement effectiveness. For local brands, human endorsers are significantly better at stimulating consumers' purchase intentions than virtual ones; for global brands, no significant difference exists between the two types. Further analysis shows that perceived brand localness plays a moderated mediating role: virtual endorsers weaken the perceived localness of local brands, thereby reducing their promotional effectiveness, whereas this mechanism does not hold for global brands. By introducing brand type as a key boundary condition, this research not only provides empirical support from a brand globalization perspective for the situational adaptability of virtual endorser marketing, deepening the understanding of the alignment between digital endorsers and brand identity, but also addresses enterprises' confusion over emerging technology application. In practice, the findings suggest that companies should not blindly follow the virtual endorser trend. Instead, they should prioritize the fit between endorsers and brand positioning. Local brands should adopt virtual endorsers cautiously as their effectiveness is weaker than human endorsers, while global brands can choose flexibly without concerns about diminished effectiveness. This study provides both a theoretical foundation and actionable guidance for companies looking to make smarter use of digital technologies and tailor their endorsement strategies to different brand contexts.

Keywords: virtual endorser; consumer behavior; brand marketing; perceived brand localness

1. Introduction

1.1. Research Background

With the growing popularity of the metaverse and continued advances in artificial intelligence, digital marketing has changed considerably in recent years. Virtual endorsers, such as Lil Miquela and AYAYI, have gradually expanded beyond gaming and anime-related contexts and are now increasingly used in brand communication and advertising. Their stable public personas, high degree of controllability, and ability to operate without conventional time and location constraints have encouraged more brands to adopt virtual endorsers. The successful commercialization of the Spanish virtual model “Aitana” further validates their market potential. From luxury brands to fast-moving consumer goods, a marketing wave centered on “virtual humans” is sweeping the industry.

However, behind the clamor of technological optimism, a critical strategic question is widely overlooked: Are virtual endorsers a “one-size-fits-all” marketing tool? In fact, many brands, especially domestic ones, have rushed to adopt virtual endorsers without fully considering their compatibility with their own brand attributes and market positioning, which may result in inefficient marketing investments or even trigger consumer resistance.

At the same time, basic marketing theory reminds us that brands are defined by their strategic positioning. Among the various identity types, “global” and “local” brands represent two classic and widely recognized categories, each carrying distinct consumer expectations and associations with identity. Existing research on virtual endorsers has largely focused on direct comparisons with real-life endorsers regarding traits such as credibility and appeal, or on exploring the technical “uncanny valley effect.” However, they still have paid limited attention to how brand type may shape the effectiveness of virtual endorsers. The role of perceived brand globalness in explaining this relationship also remains unclear.

As domestic brands attract more attention and cultural exchange becomes more common, it is worth examining whether virtual endorsers work in the same way for different types of brands. This question is also relevant to companies when they decide whether to use virtual or human endorsers. Instead of adopting virtual endorsers simply because they are popular, firms need to consider whether this type of endorser matches the brand itself. In addition, this issue may provide a new perspective for research on brand globalization and virtual endorsement. Therefore, this study examines the effect of virtual endorsers by treating brand type as a moderating variable and perceived brand localness as a mediating variable. The findings are expected to provide useful implications for both research and brand marketing practice.

1.2. Research Objectives and Significance

1.2.1. Research Objectives

This study uses a 2 (endorser type: virtual vs. human) × 2 (brand type: global vs. local) experimental design to examine whether the effects of virtual and human endorsers differ between global and local brands. It also explores the mechanisms that may explain these differences and the conditions under which they occur. The specific research objectives are as follows:

1. To examine whether the effectiveness of virtual and human endorsers differs between global and local brands, and to identify which type of endorser is more suitable for each brand type.
2. To examine whether perceived brand localness mediates the relationship between endorser type and purchase intention, and to better understand how this effect occurs.
3. To provide useful implications for firms when choosing endorsers for different types of brands and help them make endorsement decisions based on brand fit rather than simply following new technological trends.

1.2.2. Theoretical Significance

First, this study applies research on brand globalization to the context of virtual endorser marketing. Previous studies have often examined the differences between virtual and human endorsers or focused on the effects of brand-related factors, while less attention has been paid to how these two aspects may work together. This study therefore considers endorser type, brand type, perceived brand localness, and purchase intention within the same research model and tests their relationships through a moderated mediation framework. By doing so, it provides a broader perspective for understanding virtual endorser effectiveness and adds to existing research on brand globalization in digital marketing contexts.

Second, this study examines the mediating role of perceived brand localness in the relationship between endorser type and purchase intention. Previous studies have often treated perceived brand localness as an outcome of global branding strategies. In contrast, this study considers it in the context of virtual endorsement and examines how it helps explain consumers’ responses to virtual endorsers. The results show that perceived brand localness can affect how endorsement information is translated into purchase intention. This finding extends the application of perceived brand localness to virtual endorsement and provides a clearer understanding of its role in consumer responses.

1.2.3. Practical Significance

The findings of this study also have practical implications for brand marketing. The results show that brand type can affect the effectiveness of virtual endorsers. Therefore, companies should consider their own brand characteristics before deciding whether to use a virtual endorser, rather than simply following a popular marketing trend. As virtual brand ambassadors become more common, firms need to assess whether this form of endorsement fits their brand positioning. The findings also suggest that consumers may respond differently to virtual endorsement depending on whether the brand is global or local. This provides marketers with a useful reference when choosing between virtual and human endorsers and may help reduce unnecessary trial and error in endorsement decisions.

Moreover, the results provide targeted operational advice for brand endorsement strategy. Specifically, local and global brands should adopt different approaches when using virtual endorsers: local brands risk diluting consumers’ perception of the brand’s international appeal if they rush into using virtual endorsers, so they need

to be more cautious; global brands, on the other hand, have greater flexibility in selecting endorsers and can freely switch between virtual and human options based on specific marketing objectives. This provides marketers with a useful reference when choosing between virtual and human endorsers and may help reduce unnecessary trial and error in endorsement decisions.

2. Literature Review

2.1. Virtual Endorsers vs. Human Endorsers

2.1.1. Concept and Characteristics of Virtual Endorsers

Virtual endorsers, in the context of modern technology, are broadly defined as computer-generated virtual characters [1]. These figures typically exhibit human-like appearances, behaviors, and social identities, and are designed to interact with users through social media [2,3]. Through deliberate design of their looks and personas, virtual endorsers undertake brand promotion and communication tasks-posting content and cultivating audiences in a manner comparable to their human counterparts. Take Lil Miquela, for instance. As the world's first mainstream virtual endorser, she has amassed a large fanbase through her distinctive fashion aesthetics and consistent social media activity [4].

Existing literature identifies four key characteristics of virtual endorsers: high humanization, controllability, cost-efficiency, and technological embeddedness [5]. The humanized aspect allows these digital figures to cultivate personified images and establish affective connections with consumers. Their controllability and cost-effectiveness, in turn, give them a competitive edge in practical marketing contexts. Furthermore, their reliance on digital technology enables them to generate content efficiently and engage with audiences across multiple social platforms at once [6]. Although the term "virtual endorser" is often used interchangeably with "digital human" or "CGI spokesperson", it differs notably from user-controlled avatars and functional chatbots. Its core distinction lies in its role as a marketing tool that promotes brands through an independent identity [3].

2.1.2. Concept and Characteristics of Human Endorsers

Human endorsers have been important stakeholders in the social media marketing ecosystem, and their roles have been more well-defined as digital communication has matured. Based on the available literature on social media influencers, we can describe human endorsers as people who keep producing original content on social media networks under their genuine social profiles and individualized personas. Through the use of knowledge of particular areas, personal life experience, or emotionally affecting content, they form a trust-based relationship with the audience, eventually having a realistic effect on the attitudes and purchasing behavior of consumers [7]. The conceptual definition is essentially different than the conventional celebrity endorsements and virtual endorsers. The primary features of human endorsers lie in the authenticity of their identity and the interactivity of their communication. In contrast to conventional entertainment stars that are dependent on pre-existing social capital, these individuals develop and amass their power over time by creating native content and daily participation in community management on social media platforms. These are a heterogeneous population comprising of grassroots content creators, industry experts, and key opinion leaders (KOLs) across industries. Communication-wise, they act as mediators due to interpersonal trust [8].

2.1.3. Differences in Endorsement Effectiveness Between the Two Types of Endorsers

When conducting research on advertising and brand marketing, there has been an increasing number of studies that examine the way virtual and human endorsers influence the attitude and behaviour of consumers. The findings of some of the studies indicate that virtual endorsers have considerable benefits in various aspects. To begin with, virtual endorsers can produce consistent and high-quality content as per the needs of the brand. This capability allows them to be more closely aligned with the positioning of the brand and the interests of the target audience, which makes the brand more appealing and distinctive [9]. Moreover, because they are highly controllable, virtual endorsers do not cause negative events or uncontrollable actions that human endorsers might encounter, which improves the credibility of the brand and the stability of its image [2].

In terms of market outreach, virtual endorsers have peculiar surreal properties, including an ageless look and universal attractiveness, that allow it to access various consumer groups. Especially in the case of technological and innovative product promotion, their high-tech and futuristic appeal renders consumers more susceptible to buying [6,10]. Such a special position and this special ability make virtual endorsers perfect representatives of those brands that are planning to extend to the consumer technology market.

Nevertheless, many other studies have also pointed out some shortcomings of online endorsers in various aspects. Consumers usually see the virtual endorsers as not being authentic and culturally rich; they do not have enough emotional resonance or perceptive abilities. Therefore, they are less successful than human endorsers in

the promotion of cultural heritage and historical sites, which need a deep knowledge of culture [6]. More information shows that virtual endorsers are unable to provide sophisticated sensory sensations like touch, smell, and taste. Such a limitation reduces their sales efficacy on sensory-based products like food and skincare products [2].

Perceived trust and social presence-wise, virtual endorsers have a much lower strength in comparison to human endorsers, which makes it challenging to form a strong feeling of trust among consumers [11]. In particular, on the dimension of authenticity, the advantage still remains with human endorsers when taking into account the overall performance between ideal authenticity, self-authenticity and real-world authenticity [12].

Moreover, researchers have studied the effects of various kinds of virtual endorsers on consumer attitudes and behaviors. Studies show that cartoon-like virtual endorsers are more effective in eliciting positive consumer responses than photorealistic virtual figures, and they are considered more appealing and trustworthy [13,14]. Human-operated hyper-realistic and anime-style virtual endorsers also perform well in driving consumer tipping behavior under highly interactive livestreaming marketing conditions, compared with AI-driven virtual endorsers [15]. (See Table 1)

Table 1. Comparison of Characteristics between Virtual and Human Endorsers

Dependent Variable	Result		Method	Reference
	Virtual	Human		
Sensory capability	Weak	Strong	Secondary data/Experiment	[16]
Proximal sensory	Comparable	Comparable	Experiment	[2]
Distal sensory	Weak	Strong	Experiment	
Positive reactions from social media users	Weak	Strong	Secondary data	[13]
Source trust	Weak	Strong	Survey questionnaire	[17]
Word-of-mouth intention	Weak	Strong	Survey questionnaire	
Perceived trust	Weak	Strong	Experiment	[11]
Social presence	Weak	Strong	Experiment	
Responsibility for the outcomes of endorsements	Small	Large	Experiment	[18]
Level of appearance anxiety triggered	Low	High	Experiment	[19]
Perceived novelty	Strong	Weak	Experiment	[10]
True-to-ideal	Comparable	Comparable	Qualitative	[12]
True-to-fact	Weak	Strong	Qualitative	
True-to-self	Weak	Strong	Qualitative	

2.2. Brand Types (Global vs. Local)

2.2.1. Definitions and Characteristics of Global and Local Brands

A global brand can be described as a brand that is marketed and advertised using one and the same name and the same brand image in various countries and continents. In marketing operations, the brands are likely to use standard marketing approaches that are in line with the overall strategy of the headquarters [20]. Being well-known and accepted by a large number of consumers around the world, global brands have a high impact on the market [21] and have a constant position in the domestic and foreign markets [20,22]. Besides the unity of positioning, brand imagery, and brand personality, global brands may take advantage of the economies of scale to achieve cost benefits and create synergies with other global peers, and strengthen their main competitive fronts even more [23].

On the contrary, local brands are mostly active in one country or in a limited geographical region [20]. They create value based on their knowledge of local markets, close relationships with customers, responsiveness to local requirements and pricing flexibility [23]. On average, local brands tend to be more successful at correctly understanding the emotional requirements of local consumers and developing a feeling of local identity [24], which leads to positive consumer attitudes.

2.2.2. The Impact of the Two Brand Types on Consumer Attitudes

Global brands have mainly focused on their powerful cross-cultural adaptability and their great international popularity. These brands develop positive consumer attitudes by engaging consumers in their global identity [20]. As a result of the stereotype activation process of the country-of-origin effect, individuals are likely to view global brands as providing better international quality and cutting-edge technological abilities. Those preconceived beliefs may be highly effective in increasing favorable attitudes toward these brands among consumers [20]. Available literature indicates that in the emerging markets, the innovation levels of the products of the global brands and their investment in advertisements play more significant roles in determining the attitudes of consumers [25]. It is largely due to the reason that consumers within these markets always desiring the global trends, and their perceptions of brands are easily influenced by novel product attributes and active brand communication.

As opposed to global brands, the benefit of local brands concerning the consumer attitude is based on regional cultural linkages and ingroup preference, which is a result of consumer ethnocentrism [26]. Local brands are more likely to achieve trust and emotional resonance in daily consumer goods, food and other very closely related to life because local brands enhance consumers' sense of local affiliation and perceived local flexibility. Specifically, in areas with a high degree of market heterogeneity, local brands may reduce the constraints of consumption due to the lack of resources. They ensure that their consumer attitudes are steady and positive as they tailor to the specific requirements of low-income segments and rural markets [25].

2.3. Perceived Brand Localness

2.3.1. Definition and Measurement Dimensions

Perceived Brand Localness (PBL) is one of the key concepts of international marketing, and it deals with the subjective perceptions of consumers on aspects related to the location of a brand. In contrast to the real geographic area of operation or ownership of a brand, PBL is a measure of consumers' subjective evaluation. Depending on external stimuli, including cultural symbols of the region, market importance to the region and connections with its resources, consumers identify a brand as being highly involved in the regional environment, culture and demand of the consumers [27-29]. The perception is strongly influenced by a brand expression of local culture. Perceived brand localness will be enhanced when consumers recognize that a brand has a link to the local context [30,31].

The current available literature has developed very established measurement system in relation to the PBL, which involves three main dimensions. The local presence dimension is concerned with the regional market coverage of a brand and its accessibility to the consumer, and largely represents the perceptions of consumers regarding local distribution and channel convenience. The local cultural connection dimension indicates whether the brand is compatible with local culture, values and consumption behaviour. The local resource association dimension assesses the extent to which consumers identify that a brand produces locally, uses local raw materials and adds value to the local economy [20,24,27].

Due to the fact that the tendencies of local brands expanding into global markets and global brands adapting to local markets are converging, scholars have broadened the scope of measuring PBL in different settings. National stereotypes and brand localness were investigated by Halkias et al. [32], who emphasized a significant role played by cultural elements in shaping consumer attitudes. In terms of the authenticity of the brand, Riefler

[33] mentioned that cultural heritage and real identity of the local brand is the most important differences between the local and the global brands. Taken together, all these researches contribute to the theoretical implication of PBL at various angles and refine its measurement framework, which makes it more suitable for the intricate situation of brand-consumer interaction in contemporary markets.

2.3.2. Impact on Consumer Attitudes and Related Psychological Mechanisms

Research literature shows that there is a positive influence of PBL on consumer attitudes. The effect is based on three fundamental psychological principles and influenced by boundary conditions such as market situations and personality traits of consumers.

To begin with, PBL, as a brand signal, indicates that a brand is suitable for local needs and cultural backgrounds. The local relevance perceived by consumers is associated with strong knowledge of the regional preferences of the brands, as well as increased functionality and experiential compatibility with local requirements. The signaling effect is particularly relevant when it comes to culturally sensitive product categories, which diminishes consumer uncertainty about decisions and develops positive attitudes towards a brand [24,27,34]. Secondly, based on social identity theory, PBL satisfies the people's need to identify locally and belong to the community. By opting for brands with unique local features, consumers are able to enhance their connection to regional culture and society, hence creating a feeling of belonging and communal pride. Similar evidence has indicated that in developing economies, this identity attachment is frequently linked to social concern about local economic development which in turn strengthens positive consumer perceptions [28,29,34,35]. Moreover, PBL may create stronger emotional connections through recalling local sentiments, nostalgia and emotions of the community. There are some researchers who have found that local brands tend to represent shared memories of consumers' childhood or a sense of accountability to the local community. These two elements easily provoke emotional identification in consumers, which then becomes translated into positive attitudes [28,32–33].

Notably, the positive influence of PBL on consumer attitudes varies across contexts, as it is contingent on market types and individual consumer traits. At the market level, PBL generates more salient benefits within emerging markets, where consumers commonly link local brands to national pride and regional economic development. By contrast, consumers in developed markets prioritize cultural inheritance and product authenticity. For local brands lacking unique cultural features, the persuasive power of PBL is relatively limited [27,33,35,36]. At the individual level, consumer ethnocentrism (CET) positively moderates the relationship between PBL and attitude. Individuals with high CET exhibit a stronger preference for local products, and their perception of PBL is further amplified. At the same time, consumers with high local identity are more sensitive to a brand's localness and respond more positively to it, whereas those with low local identity are relatively less influenced by PBL [29,33,35,37]. Furthermore, a brand's actual country of origin moderates the effects of PBL. For local brands, PBL creates a synergistic effect, further reinforcing consumers' positive attitudes. For foreign brands with deep local adaptation, strong PBL perceptions can effectively reduce consumers' sense of cultural distance. In some cases, such localized foreign brands even outperform domestic brands in driving positive consumer responses [28,32].

2.4. Relevant Theoretical Foundations

2.4.1. Social Identity Theory

The social identity theory suggests that a person's self-concept is in part determined by the fact that they belong to certain social groups. Three processes are used by people to define themselves, including social categorization, social comparison, and positive differentiation, and they work towards preserving and enhancing their positive identification with their in-group [38].

The theory in marketing provides an important perspective on how consumers develop attitudes towards brands through the formation of group relations with endorsers. Consumers are likely to choose endorsers that reflect their self-identity, as they see them as the representatives of their in-group [39]. Endorsers could also strengthen consumer trust and group identification when sharing content about group values or giving product suggestions. And then it encourages consumers to feel an affiliation and loyalty to the brand through emotional associations with the brand. Moreover, shared social identity-based endorsement marketing may be more effective than the traditional endorsement of celebrities in eliciting positive consumer reactions.

The use of virtual endorsers has added another scenario to the use of social identity theory. In contrast to human endorsers, virtual endorsers do not have real human emotions, but are highly controllable and consistent in fulfilling the identity requirements of particular subcultural groups [40]. Nevertheless, their non-human characteristics could be used as a psychological barrier to group membership and thus negatively affect the emotional perception of the consumer and their sense of identity projection. Based on the social identity theory, this research will consequently compare the mechanistic distinctions between virtual and human endorsers in

instilling consumer group identity, creating brand relationships, and forming purchase intentions in an organized manner. The purpose is to reveal the hidden psychological mechanisms behind the effectiveness of these two types of endorsers in marketing.

2.4.2. Meaning Transfer Model

The meaning transfer model (MTM) serves as the main theory of cultural meaning transfer in endorsement marketing. McCracken [41] suggested that the carriers of the cultural meaning, or the endorsers, will initially transfer their meaning to the brand so that it can be communicated to the consumer by the brand, and ultimately impact the consumer in terms of their attitudes and behaviors. Qualitative research methods were used by Jain and Roy [42] to extend McCracken's traditional model in a systematic way. The seven dimensions of endorser meaning were recognized by them when viewed through the eyes of the consumer as personality, credibility, appearance, emotion, professional performance, values and persuasiveness. Except for persuasiveness, all other dimensions can be transferred to the brand via endorsement action. Moreover, the research revealed that meaning transfer is not unidirectional; that means, that brands are able to send messages back to the endorser. This process is moderated by factors like consumers' previous knowledge, the experience of the endorser in previous endorsements, and product involvement.

Taking this as a basis, Roy and Jain [43] experimentally examined the extended model with the help of quantitative approaches. The results showed that endorser meaning has a highly positive impact on brand meaning, which subsequently has a positive effect on consumer purchase intentions, recommendation behavior, and real purchase decisions. Apart from confirming these pathways, Roy [44] tried to address the problem with cognitive linguistics by integrating the concept of metaphor into the MTM paradigm. The research discovered that the comprehension of the endorser by consumers was also metaphorical in general and such metaphors could be passed on to the brand in the endorsement process through the application of metaphor elicitation strategies. To put it another way, the metaphors are a particular means of transferring meaning.

On the meaning transmission aspect of a brand being local or global, D'Antone and Merunka [45] offered the Brand Origin Meaning Transmission (BOMT) model. They introduced semiotics and analogical learning theory to the meaning transmission framework, stating that the brand origin cues could be divided into indexical cues (factual) and iconic cues (similarity-based). In assessing brand origin, consumers use both the national-level meanings and those of exemplary brands at the same time. Expert consumers have a better ability to transfer relationally than novice consumers who depend heavily on attributional transfer. It is the first model to include brand origin (local/global) as a limiting variable in meaning transfer and thus offer a clear theoretical foundation to this research investigation on the moderating effect of brand type.

3. Research Model and Hypotheses

3.1. Research Gaps and Model Development

An analysis of the current literature reveals that this paper will reveal three major gaps in the sphere of brand marketing. To start with, the moderating nature of brand type has not been given enough consideration. The available studies are mostly dedicated to the direct influence of global brands and local brands on consumer brand loyalty and purchase choices through the halo effect of global brands and the emotional connection of local brands, but do not consider brand type as a moderating variable to see what happens to the effectiveness of various endorser types. Secondly, there is no systematic framework for studying virtual endorsers and human endorsers. Studies of virtual endorsers are often focused on their novelty and controllability, whereas studies of human endorsers are based on their trustworthiness and likability. Nevertheless, the empirical data can not be considered sufficient when considering the difference in effectiveness and the underlying mechanisms between these two endorser types under different conditions of brand context. Finally, the mediating function of PBL has not been included in the endorsement studies. The current research usually considers PBL as a dependent variable linked with local brands, and examines its direct relationship with brand equity and purchase intentions. However, they seldom discuss its mediating effect between endorser type and purchase intention or even combine this discussion with the moderating effect of brand type.

The moderated mediation model will be developed in the present study, which will help in determining how endorser type plays a role in influencing consumer purchase intentions through perceived brand localness and what the boundary conditions are where brand type moderates this process. Precisely, the independent variable of the present study is endorser type (virtual or human endorsers), the moderator is brand type (global or local brands), the mediator is perceived brand localness, and the dependent variable is consumer purchase intention. The model framework is illustrated in Figure 1.

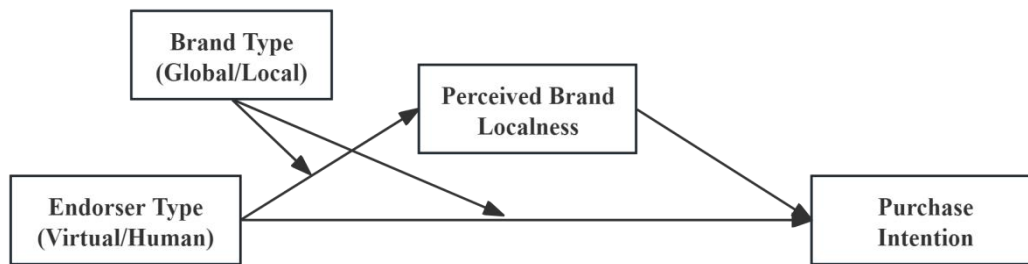


Figure 1. Research Model Framework

3.2. Research Hypotheses

Based on the concept of meaning transfer, endorsers convey the cultural meanings that they represent to the brands by doing endorsement, which in turn influences the attitude of the consumers. Consequently, it can be concluded that various types of endorsers (virtual vs. human) would possess different meaning structures and will therefore be effective in their endorsement. The positive attitude of consumers toward global brands is mainly based on the reputation of the brand across countries and the aura of quality [20]. Global brands already have obvious meaning labels, which include high-quality and international, with the brand as the main source of meaning. In this case, endorsers merely take on the supportive role in the process of meaning transmission. Because the intrinsic meaning of global brands is very powerful, the variations in meaning caused by the type of endorser are quite insignificant. As a result, virtual and human endorsers exert no considerable effect on the purchase intent of consumers.

For local brands, their core meaning revolves around “local cultural connections” and “local identity” [23,24]. Drawing on social identity theory [38], consumers tend to favor brands that reinforce their group identity. Comparative studies have shown that human endorsers outperform virtual endorsers significantly in terms of authenticity, trustworthiness, and social presence [23,24]. Human endorsers are inherently rooted in local cultures, and the local meanings they embody can be more effectively transferred to the brand through endorsement activities. In contrast, the “artificial” nature and cross-cultural adaptability of virtual endorsers make them more likely to be associated with “global” connotations[40]—a mismatch with the core positioning of local brands. Therefore, for local brands, human endorsers exert a significantly stronger impact on consumer purchase intention than virtual endorsers.

Based on the above reasoning, this study proposes the following hypotheses:

H1: Brand type moderates the direct effect of endorser type on consumer purchase intention.

There is no significant difference in endorsement effectiveness of both virtual endorsers and human endorsers in the case of global brands.

H1b: The endorsement effectiveness of human endorsers is much higher to that of virtual endorsers in the case of local brands.

The study by Roy and Jain [43] has proven that endorser meaning has a considerable positive effect on brand meaning. Applying this reasoning to the present study, it is concluded that the type of endorser is what determines consumer perceived brand localness (PBL). The notion of PBL can be defined as the subjective view of consumers about the compatibility between a brand and the local culture and the demands of the regional market [27,28]. Human endorsers are more prone to develop a positive image of the brand in the eyes of consumers, as the brand understands the local needs due to their real-life experiences in the local culture, unlike virtual endorsers, who can reduce this image since they do not have real-life experience in the local culture. It should be noted once again that PBL has a positive effect on purchase intention, but this effect occurs through two mechanisms: the satisfaction of social identity requirements and the excitation of emotions [24,29]. Hence, the role of PBL could be played as a mediator in the association between endorser type and purchase intention.

Nevertheless, the validity of such a mediating path depends upon the brand type. Consumers make purchases of global brands mainly because they want to buy international quality [20], and PBL does not play a major role in their decisions, which leads to the presence of a negligible mediating effect. Local brands have a natural expectation of the concept of being local, and the mechanism of how endorser type affects PBL and finally purchase

intention comes into focus: human endorsers increase PBL, which strengthens purchase intention; virtual endorsers decrease PBL, which weakens purchase intention. On this basis, this study has formulated the following hypotheses:

H2: Perceived brand localness mediates the relationship between endorser type and consumer purchase intention.

The mediating role of perceived brand localness in the case of global brands is insignificant.

H2b: Perceived brand localness is a mediator between the effect of the endorser type on consumer purchase intention in the context of local brands; in particular, virtual endorsers reduce purchase intention by reducing the perceived brand localness of consumers.

4. Pilot Study

4.1. Purpose of the Pilot Study

The present paper examines the boundary conditions of virtual endorsers in brand endorsement and confirms the moderating role of brand type and the mediating role of perceived brand localness. At the same time, the connection between the endorser type and the perception of the consumers about their global identity is used as the main mechanistic assumption forming the basis of the research framework.

Consequently, the pilot study chooses a one-way between-subjects design because it will enable understanding of the underlying mechanisms behind it. It investigates how consumers perceive the difference in global identity in response to anime-style virtual endorsers and human endorsers, and confirms whether virtual endorsers are more likely to elicit greater perception of global identity than human endorsers. These results give both theoretical and empirical grounds to the hypotheses stated in the primary research. Also, the pilot study examines the validity of experimental materials, the applicability of measurement scales, and the possibility of experimental manipulation to give optimization advice on the experimental design and its variables in the main study.

4.2. Pilot Study Design

The pilot study used a one-factor between-subjects design, where endorser type is the independent variable, and it has two conditions, namely virtual endorser and human endorser. This study chose anime-style virtual endorsers and human endorser images that were found to be equally attractive in the methodological approach of Zhou et al. [2]. Simultaneously, the experimental situation was created in accordance with authors' theoretical framework as a web page of a blogger on Weibo, which restores the authentic communication environment of social media endorsement.

The 7-point Likert scale was used to measure all the variables. The questions that were used in measuring the perceived global and local identity of endorsers were based on the global-local identity scale developed by Yang et al. [46]. A seven-point matrix scale was used on overall judgment (1 = totally a local citizen, 7 = totally a global citizen). Consumers who give a higher score will indicate that they see the endorser as having a strong global identity.

The pilot study used online questionnaires delivered via the Credamo platform and random sampling to select the users of the platform. The questionnaire was separated into three sections. The first section had a screening question that defined the term local community, and only those participants who responded correctly could proceed to the subsequent experimental condition. In the second section, participants were randomly divided into various groups and shown Weibo homepage screenshots of the corresponding endorsers. They subsequently filled in ratings of identity perceptions, manipulation checks and overall judgement regarding global or local citizenship relying on their intuitive impressions. Items were written in a neutral way with no leading words. The third part gathered demographic data of participants such as gender, age, education, and work, as well as their acquaintance level with virtual bloggers (See Figure 2).

Virtual Blogger	Human Blogger
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Figure 2. Screenshots of Weibo homepages of the two types of endorsers

Table 2 shows that the participants were equally split between the virtual endorser group and the human endorser group. There were 53 respondents in the virtual group (49.5%) and 54 respondents in the human group (50.5%). According to age, the sample was mostly composed of young and middle-aged people aged 18-45 years, and they represented 99.1 percent of all respondents, whereas those aged 46 and over represented only 0.9 percent. The 18-45 age group is the primary consumer of social media and the main customer of brands. Based on education, undergraduate respondents had the highest percentage, with 71. On average, the demographic characteristics of the samples comply with the image of mainstream consumer groups that provide a high level of representativeness of the results of the research.

Table 2. Descriptive Statistics of Valid Samples in the Pilot Study

	Category	Frequency	Percentage
Experimental Group	Virtual Endorser Group	53	49.5%
	Human Endorser Group	54	50.5%
Age	18-25years	37	34.6%
	26-35years	44	41.1%
	36-45years	25	23.4%
	46+years	1	0.9%
	Junior College	8	7.5%
Educational Level	Undergraduate	76	71%
	Master's Degree	20	18.7%
	Doctoral Degree	3	2.8%

4.3. Data Analysis and Results

4.3.1. Manipulation Checks

The manipulation check item used to examine whether the endorser type manipulation (virtual or human) worked was placed at the end of the experimental procedure. The statement was given in this form, namely, This blogger is, and two choices were offered: A. Human and B. Virtual figure. The participants were instructed to choose an answer based on the image of the endorser that was presented during the experiment. Incorrect response samples were labeled invalid and removed to be analyzed.

The pilot study consisted of 120 questionnaires in total. A total of 107 valid samples were obtained after discarding 13 invalid samples that did not pass the manipulation check. The recognition rate was correctly at 89.2 percent, which is much higher than the usual critical level of 80 percent required to confirm the validity of the manipulation. This result supports the fact that the experimental manipulation of endorser type was successful and consistent.

4.3.2. Reliability Test

To determine scale reliability, the analysis was done through Corrected Item-Total Correlation (CITC) and Cronbach's alpha coefficient. Typically, a CITC level of more than 0.5 and a Cronbach's alpha of over 0.7 is acceptable as an indicator of scale reliability. As can be seen in Table 3, the total Cronbach's alpha coefficient was 0.958, which is significantly higher than the limit of 0.8, and each of the CITC values was significantly greater than 0.5. These results indicate that the scales have high internal consistency and also reliable and strong measurement outcomes (See Table 3).

Table 3. Reliability Test Results of the Pilot Study

Dependent	Items	CITC	Cronbach's α if	Cronbach α
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Variable		Item Deleted		
Global Identity	I regard her as a global citizen.	0.924	0.930	
	I perceive her as a global citizen.	0.912	0.937	0.958
	My first impression defines her as a global citizen.	0.898	0.947	

4.3.3. Differential Effects of Endorser Type on Global Identity

In the pilot study, the independent variable (endorser type) and the dependent variable (global identity) were analyzed by conducting an independent-samples t-test to examine the effect of different types of endorsers on the perceived global identity of consumers. This assumption of homogeneity of variance was confirmed by Levene's test of variance homogeneity, which provided $F = 0.534$, and $p = 0.467 > 0.05$. Thus, the results of the t-test with equal variances were accepted. The statistically significant differences in global identity among the two endorser groups are shown in Table 4.

Table 4. T-test for the Differences in Global Identity Across Endorser Types

Dependent Variable	Group	M	SD	t	df	Sig.	Mean Difference
Global Identity	Virtual	4.465	1.718	2.679	105	0.009**	0.867
	Human	3.599	1.628				
	Human	3.599	1.628				

Notes:** $p < 0.01$, indicating a statistically significant difference.

The findings suggest that the type of endorser plays a vital role in consumers' perceived global identity. The virtual endorser group was found to have significantly greater global identity ($M=4.4654$, $SD=1.71761$) compared to the human endorser group ($M=3.5988$, $SD=1.62834$); $t(105) = 2.679$, $p = 0.009 < 0.01$. It is shown that consumers are more likely to have strong beliefs about global identity concerning virtual endorsers as opposed to human endorsers.

This result both supports the important connection between the endorser type and perception of global identity, but also supports that these differences are critical antecedents to the change in the consumers' perception of brands thereafter. Following the empirical findings of the pilot study, the present study will conduct the formal main experiment. Through examining the boundary effects of virtual endorsers in brand endorsement contexts, the research also looks into the moderating effect of brand type and the mediating effect of perceived brand localness with an aim of exploring the internal mechanisms and conditions under which virtual endorsers exert their endorsing effects.

5. Main Study

5.1. Main Study Design

The research paper used a 2 (endorser type: virtual endorser or human endorser) x 2 (brand type: global brand or local brand) between-subjects experimental design, with four experimental groups formed overall. Regarding experimental materials, the pictures of the two kinds of bloggers Maxi_Rico, that were used in the pilot study were reused to manipulate the independent variables, as they had no interference with other external personal properties. Moreover, to eliminate bias due to the previous perception of actual brands, the current study developed a hypothetical clothing brand called Borne and chose the simplest T-shirts as the experimental item. The same has been proved by Zhou [2] has shown that consumers do not have important differences in their preferences for these products based on the types of endorsers; thus, they can be used as appropriate carriers of this experiment. (Shown in Figures 3 and 4)

Local Virtual	Global Virtual
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Figure 3 Screenshots of Official Endorsement Posts



Figure 4. Product Posters Used in the Main Experiment

Table 5 shows a demographic distribution of the main experimental sample based on gender, age, and education level, as well as how the sample was divided into experimental groups. Participants were distributed equally between the endorser type conditions; the virtual endorser condition consisted of 179 participants (50.9), whereas the human endorser condition comprised 173 participants (49.1). Regarding the brand type, the global brand group comprised 177 participants (50.3) and the local brand group consisted of 175 participants (49.7), which almost equalized the proportions and made the assignment of the groups rational.

The female participants were 65.6 percent of the total sample, a fact that corresponds to the reality of the world where female users are more engaged in social media activities and consume the brands. Concerning the age, the sample was predominantly made up of young and middle-aged people ranging between 18-45 years old (who were 93.7 of all respondents). The largest percentage by education was undergraduates, whose number was 68.2 which represents a high level of education in general that matches the demographic profiles of active social media users.

On the whole, the sample profile fits the main consumer segments of brands and the main audience of social media platforms very well. Consequently, the results of this research are highly representative (See Table 5).

Table 5. Sample Statistics of the Main Study

	Category	Frequency	Percentage
Endorser Group	Virtual	179	50.9%
	Human	173	49.1%
Brand Type	Global	177	50.3%
	Local	175	49.7%
Gender	Male	121	34.4%
	Female	231	65.6%
Age	18-25years	100	28.4%
	26-35years	170	48.3%
	36-45years	60	17.0%
	46+years	22	6.3%
Educational Level	Junior College	44	12.5%
	Undergraduate	240	68.2%
	Master's Degree	62	17.6%
	Doctoral Degree	6	1.7%

5.2. Data Analysis and Results

5.2.1. Manipulation Checks

To test the efficacy of the experimental manipulation in the main study, dual manipulation checks on the endorser type and the brand type were performed. There were 400 questionnaires issued. Samples were filtered by strict standards: 23 samples with wrong manipulation check answers, 18 samples with unusual answer time, and 7 samples with incorrect responses to attention check questions were removed. Finally, 352 valid samples were kept, providing an effective response rate of 88.0%.

The validity of the manipulation of endorser type (virtual vs. human) was tested using a single-item identification check, which was implemented in the pilot study, whereby the participants were required to identify the endorser type using the given image. The statistical findings indicated that the right recognition rate was at 93.2, which is much higher than the standard critical point of 80% for successful manipulation, as it proved that manipulation of endorser type was reliable.

Moreover, in order to investigate the influence of brand type, an independent-samples t-test was conducted where the average score of Perceived Brand Localness (PBL_avg) was the test variable and brand type (local brand vs. global brand) was the grouping variable. Perceived Brand Localness was rated on a 7-point scale (-3= strongly disagree, +3= strongly agree) [2]. An average greater than zero showed that there was a strong perception of a local brand and the high rates reflected stronger perceived localness.

According to Table 6, it was found that the Levene test was statistically significant ($F=10.457$, $p=0.001 < 0.05$), which indicates that the variances are not the same across the groups. Hence, the t-test outcomes without the equal variance assumption were used. The findings showed that the local brand group ($n=175$, $M=1.3790$, $SD=1.21630$) had significantly greater perceptual localness of brand compared to the global brand group ($n=177$, $M=0.2147$, $SD=1.40808$). The mean difference between the two groups is 1.164 with a 95 percent confidence interval of [0.889, 1.440], which does not include zero. These results indicate that the perception of the local attributes of brands by the participants was very consistent with the experimental manipulation and confirms the validity of brand type manipulation (As shown in Table 6).

Table 6. Manipulation check results of brand type

Brand Type	N	M	SD	F	p (F)	t	df	p (t)
Local	175	1.379	1.216	10.457	0.001	8.305	343.817	0.000***
Global	177	0.215	1.408					

Notes:*** $p < 0.001$, indicating a statistically significant difference.

5.2.2. Reliability and Validity Tests of the Questionnaire

The PBL and Purchase Intention scales used in the main experiment were tested on the basis of internal consistency reliability and the findings are depicted in Table 7. The PBL scale had three items and its Cronbach's alpha coefficient was 0.888 and the Purchase Intention scale had three items with a Cronbach's alpha coefficient of 0.929. Both scales had significantly larger α values than the commonly accepted threshold of 0.7. These indicate that the scale items are highly consistent internally and that the measurement results are steady and reliable, which supports the validity of the scales as they are tested in further hypotheses (See Table 7).

Table 7. Reliability test results of the main study

Dependent Variable	Measurement Item	Cronbach α
Perceived Brand Localness	I associate Borne with Chinese features.	0.888
	Borne represents traits related to Chinese people.	
	Borne is a fine symbol of China.	
Purchase Intention	How likely are you to buy this T-shirt?	0.929
	How certain are you about purchasing this T-shirt?	
	Would you intend to buy this T-shirt?	

The Perceived Brand Localness scale that was used in this research has been modified based on Steenkamp et al. [20] and the Purchase Intention scale was modified based on Spears and Singh (2004)[47]. The items have been locally adapted to suit the situation of virtual and human brand support to make sure that it closely follows the fundamental meanings of the two constructs and hence can be considered as having adequate content validity (See Table 8).

Table 8. Validity test results of the main study

KMO	Bartlett's Sphericity Test			Communalities Range	Rotated Variance Explained	
	χ^2	df	p		Individual	Cumulative
0.826	1621.344	15	0.000	0.810~0.903	44.191%	85.289%
					41.098%	

5.2.3. Test of the Moderating Effect of Brand Type (H1)

In this study, a two-way ANOVA was used to investigate the moderating role of brand type in the relationship between endorser type and purchase intention. Using purchase intention (PI) as the dependent variable and brand type and endorser type as fixed factors, main and interaction effects were assessed and simple effects analysis was also performed to understand the moderating pattern to confirm H1a and H1b.

The findings of the two-way ANOVA are shown in Table 9. The corrected overall model was statistically significant ($F=3.774$, $p=0.011 < 0.05$). More importantly, the interaction effect of brand type and endorser type was significant ($F=4.536$, $p=0.034 < 0.05$) and indicated that the brand type could be a moderator of the relationship between the endorser type and purchase intention and supported Hypothesis H1.

Conversely, the only significant effects were those of brand type ($F=3.464$, $p=0.064 > 0.05$) and endorser type ($F=3.499$, $p=0.062 > 0.05$), which were not statistically significant. This means that they have insignificant influence on purchase intention separately, and it is important to note the central role played by their interaction. As a result of the important interaction, there was a simple effects analysis to determine the impact of endorser type on purchase intention at various levels of brand type, as illustrated in Tables 10 and 11.

Table 9. Two-way anova results (Dependent Variable: PI)

Source	Type III Sum of Squares	df	Mean Square	F	p
Corrected Model	20.21a	3	6.735	3.774	0.011
Intercept	8951.727	1	8951.727	5015.482	0.000
Brand Type	6.183	1	6.183	3.464	0.064
Endorser Type	6.246	1	6.246	3.499	0.062
Brand Type $\times$ Endorser Type	8.096	1	8.096	4.536	0.034

Error	621.117	348	1.785
Total	9585.207	352	
Corrected Total	641.323	351	
a R ² = 0.032 (Adjusted R ² = 0.023)			

Table 10. Simple Effect Analysis (Dependent Variable: PI)

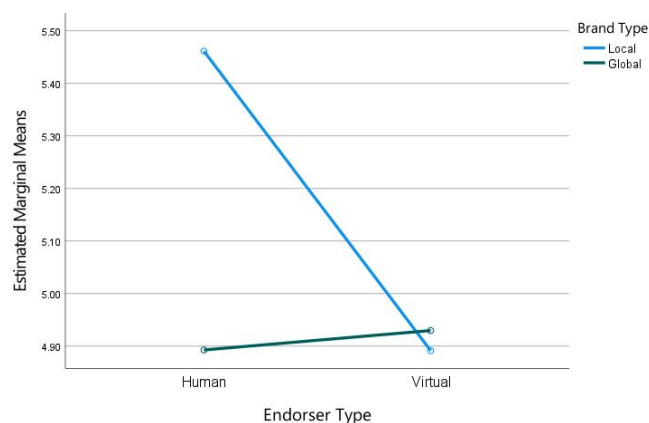
Category		Sum of Squares	df	Mean Square	F	p
Local Brand	Contrast	14.201	1	14.201	7.957	0.005
	Error	621.117	348	1.785		
Global Brand	Contrast	.060	1	.060	.034	0.854
	Error	621.117	348	1.785		

Table 11. Pairwise Comparison of Endorser Type on Purchase Intention by Brand Type

Brand Type	Endorser Type (I)	Endorser Type (J)	Mean Difference (I-J)	Std. Error	95% CI	
					LLCI	ULCI
Local	Human	Virtual	0.570*	0.202	0.173	0.967
	Virtual	Human	-0.570*	0.202	-0.967	-0.173
Global	Human	Virtual	-0.037	0.201	-0.432	0.358
	Virtual	Human	0.037	0.201	-0.358	0.432

In the tables, it is evident that purchase intention triggered by virtual endorsers ($M=4.93$, $SD=1.36$) in the global brand setting did not differ significantly from that elicited by human endorsers ($M=4.89$, $SD=1.42$). The mean difference was -0.037 ($p=0.854$), and the 95 percent confidence interval was $[-0.432, 0.358]$. This finding is in line with H1a, which indicates that there is no significant difference in endorsement effectiveness of virtual and human endorsers in promoting global brands.

Purchase intention by human endorsers ($M=5.46$, $SD=1.12$) was significantly greater than purchase intention by virtual endorsers ($M=4.89$, $SD=1.42$) in the case of local brands, though. The mean difference between them was 0.570 ($p=0.005$, $95\% \text{ CI} = [0.173, 0.967]$), which confirms H1b: human endorsers produce more effective endorsement than the virtual endorsers in the case of local brands. This unique effect of endorser type on purchase intention in the local brand situation is illustrated by Figure 5.

**Figure 5.** Simple Effect Analysis Plot (PI)

The findings obtained through the two-way ANOVA indicated that there is a significant interaction between the brand type and endorser type ($F=4.536$, $p=0.034<0.05$). In connection with the simple effect tests, brand type significantly moderates the direct association between endorser type and consumer purchase intention. Particularly, human endorsers create a significantly different level of endorsement effects compared to virtual

endorsers in the case of local brands, whereas both endorser types are not significantly different in the case of global brands. Hence, all three hypotheses H1, H1a, and H1b have been confirmed completely.

5.2.4. Test of the Moderated Mediation Effect (H2)

In order to determine whether the perceived brand localness has a moderated mediating role between endorser type and purchase intention, Model 8 of Hayes' SPSS PROCESS macro was used as a model of analysis. The previous two-way ANOVA has already confirmed that the type of brand significantly moderates the direct relationship between the type of endorser and purchase intention. Model 8 allows testing the combination of both the indirect and direct paths of the moderating effects of brand type simultaneously on both the indirect path (endorser type perceived brand localness) and the direct path (endorser type purchase intention), which is well suited to the theoretical hypotheses and data features of the current study.

The bootstrap sampling was defined as 5000 iterations and a 95% confidence interval. Significance was determined based on whether the confidence interval included zero. Gender and age of participants were taken as control variables. The independent variable used was endorser type (1 = human, 2 = virtual), purchase intention (PI) was the dependent variable; perceived brand localness was the mediator; and brand type (1 = local, 2 = global) was the moderator.

The regression model with perceived brand localness as a dependent variable was significant in general ($R^2=0.244$, $F(5,346)=22.418$, $p<0.001$). Endorser type ($\beta=-0.9389$, $p=0.029$) and brand type ($\beta=-1.8934$, $p<0.001$) were statistically significant, and their interaction was statistically significant at an alpha level of 0.05 ($\beta=0.4903$, $p=0.070$). The purchase intention model was statistically powerful as well ($R^2=0.3256$, $F(6,345)=27.7623$, $p<0.001$). Purchase intention was predicted positively and significantly by perceived brand localness ($\beta=0.5061$, $p<0.001$), as expected in the mediation analysis hypothesis (See Table 12, Table 13).

Table 12. Conditional Effects under Different Brand Types

Dependent Variable	Brand Type	Effect	SE	t	p	95% CL	
						LLCI	ULCI
Perceived Brand Localness	Local	-0.449	0.192	-2.343	0.020	-0.825	-0.072
	Global	0.042	0.189	0.221	0.825	-0.331	0.414
Purchase Intention (Direct Effect)	Local	-0.235	0.172	-1.367	0.172	-0.572	0.103
	Global	-0.008	0.168	-0.047	0.963	-0.339	0.323

Table 13. Conditional Indirect Effects of Perceived Brand Localness

Brand Type	Effect	Boot SE	95%BootstrapCL	
			BootLLCI	BootULCI
Local	-0.227	0.092	-0.412	-0.052
Global	0.021	0.104	-0.180	0.220

According to Table 13, the 95% bootstrap confidence interval of the indirect effect included zero in the case of global brands $[-0.180, 0.220]$, indicating a nonsignificant mediating effect and hence confirming H2a. The 95 percent bootstrap confidence interval of the indirect effect in the local brand context did not include zero $[-0.412, -0.052]$, which confirms a significant mediating relationship in statistics. This negative indirect effect means that virtual endorsers cause a decrease in perceived brand localness compared to human endorsers, and this leads to a reduction in consumer purchase intention as hypothesized in H2b.

In general, brand type plays a vital role in moderating the mediating role of perceived brand localness in the correlation between endorser type and consumer purchase intention, which confirms H2 completely. Namely, the moderated mediation outcomes indicate that the impact of endorser type on purchase intention directly, as well as indirectly through perceived brand localness, depends on the brand type. Precisely, the mediation effect of endorser type on purchase intention through perceived brand localness is not significant statistically with global brands. On the contrary, the perception among consumers regarding the localness of the brand and their purchase intention tends to be reduced by virtual endorsers, when it comes to local brands. The results of this paper enrich the body of knowledge concerning the consistency of endorser type and brand type, and contribute to the refined theoretical implication and practical reference of differential brand endorsement methods.

6. Research Conclusions and Future Outlook

6.1. Research Conclusions

The empirical analysis confirms that this paper validates both the moderating role of brand type and the moderated mediation effect of perceived brand localness. Two main conclusions are made, which completely correlate with the outcomes of hypothesis testing presented above.

Initially, the brand type is an essential moderator of the direct relation between endorser type and the purchase intent of consumers. The discrepancy in the effectiveness of human and virtual endorsers can be seen only within the local brand framework. Human and virtual endorsers produce similar levels of endorsement results, and the purchase intention of consumers is not very sensitive to changes in the type of endorser when it comes to global brands. On the other hand, in the case of local brands, the virtual endorsers are much less effective in their endorsement activity compared to human endorsers and lead to a significant decrease in the purchase intention of consumers. This confirms the hypothesis that brand type is a moderator of the direct effect.

Thirdly, the moderating role played by brand type on the perceived brand localness mediating effect between endorser type and purchase intention is considerable. Endorser type does not influence purchase intention via perceived brand localness in the case of a global brand, and the related mediating effect is not statistically significant. This mediating effect is statistically strong in the context of a local brand, though. Virtual endorsers decrease consumer perceived brand localness and thus negatively impact their purchase intention. These results are completely in accordance with the central moderated mediation hypothesis of this study.

6.2. Theoretical Contributions and Practical Implications

The two main theoretical contributions offered by this research are based on the matching effect between endorser type and brand type in digital marketing. To begin with, it empirically confirms the boundary effect of brand type on the marketing effectiveness of virtual endorsers, which is considered a gap in research in terms of the environmental situational suitability of virtual endorsers, as it relates to the concept of brand globalization. Secondly, this paper incorporates both global identity and perceived brand localness into a single analytical model that identifies the process by which virtual endorsers influence consumer purchase intention for local brands, and expands the applicability of perceived brand localness theory.

Also, the results answer the practical requirements of modern brand marketing and give practical recommendations on how local and global brands can develop specific marketing strategies.

On the other hand, this paper offers particular suggestions on how local brands can make their endorsement campaigns effective. In choosing endorser brands, local brands should focus on human endorsers. Human endorsers have the ability to build upon emotional ties and local empathy to increase consumers' perception of brand localness, which in turns increases the effectiveness of endorsement and purchase intention. It is recommended that local brands do not adopt virtual endorsers without discretion so as to avoid unnecessary expenditure on marketing resources.

Conversely, this paper provides tactical information useful to international companies developing endorsement plans that are targeted at individual markets. Global brands do not necessarily have to clearly separate human and virtual endorsers when doing marketing operations in regional markets. Instead, they have the liberty to choose suitable endorsers depending on the marketing budget and the personality of the brand. At the same time, global brands can deemphasize the issue of publicity associated with the brand's localness and instead focus on their internal strengths, which could help them relate to the customers. Besides, this study contributes to the more precise growth of the endorsement sector as it allows a more effective correspondence between endorsement assets and brand categories and thus increases the general effectiveness of resources in the advertising sector.

6.3. Research Limitations and Future Research Directions

The study has a number of limitations that can be divided into three main groups due to limitations of research time, sample size and experimental conditions. To begin with, the sample composition is fairly homogeneous. Research samples are comprised primarily of young consumers and exclude middle-aged or older consumers. Thus, the generalizability of the results still needs to be confirmed. Secondly, the choice of the research variables is somewhat limited. Perceived brand localness is the only mediator that is considered, and other possible mediators (e.g., brand trust, emotional identification), and moderators, including product type and consumer ethnocentrism are not taken into account. The completeness of the model is thus susceptible to further development. Finally, the study design used was cross-sectional, where all data were collected at one particular time. Hence, it does not allow observing the dynamics of the effectiveness of endorsement over time or taking into consideration external intervening factors like marketing campaigns or social sentiment.

The limitations mentioned above can be addressed in the following ways in future research. Firstly, future research must enhance the sample selection by increasing the age, geographic and occupational variety of the participants and perform multi-group comparisons to improve the generalizability of the results. Secondly, the research model may be enhanced by adding other mediating and moderating factors. As an example, a multiple mediation model with brand trust and consumer attitudes might be developed, or other moderators like product involvement and consumer ethnocentrism might be included to better understand the process behind the effectiveness of endorsements. Thirdly, the next study must use a longitudinal approach to observe the dynamics of brand endorsement effectiveness over time and consider the influence of external factors, including the market environment and public opinion to increase ecological validity. Fifth, the types of endorsers may be further divided: virtual endorsers into AI virtual persons and virtual idols, and human endorsers into professional KOLs, celebrities, and artists. With this, researchers will have the opportunity to study the differences in the effectiveness of endorsement in more specific conditions and offer more fine-grained theoretical basis to the marketing of brands.

To sum up, the research discussed the issue of endorsement flexibility between human and virtual endorsers. It was based on a moderated mediation model, which was formed by taking into account the difference in brand types and adding perceived brand localness, and explained the main mechanism via empirical analysis. The results verify the moderation role of brand type in the efficacy of endorsement: only in the case of local brands do human endorsers provide any clear benefits, and perceived brand localness is a critical mediator in this process. Not only does this add to the body of knowledge related to endorser marketing theory, but it also offers some practical advice to companies choosing their endorsement images as well as designing their marketing policies. Though the present study may have a few shortcomings, it can be generally aligned to the requirements of modern digital marketing. These limitations need to be overcome in future research to contribute more to the development of the area.

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Data Availability Statement

The empirical data used in this research were collected through online questionnaire experiments implemented on the Credamo data collection platform. The raw datasets include complete individual participant responses, which involve sensitive respondent information. For ethical reasons and to protect survey participants' privacy, the original raw data cannot be deposited in public repositories and cannot be fully publicly disclosed. Researchers with legitimate academic purposes may submit data-sharing applications to the corresponding author to obtain de-identified partial data upon reasonable request.

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Conflicts of Interest

The authors declare no conflicts of interest.

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