

Article

Trust in Virtual Interaction: The Role of Avatars in Sustainable Customer Relationships

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Abstract: Trust—both cognitive and affective trust—sit at the core of the development of avatars in hospitality. Based on the theory of mind (ToM), this study collected data from 563 hotel customers and utilized partial least squares-structural equation modeling (PLS-SEM) to examine the differential roles of affective and cognitive trust in shaping the customer experience, customer-brand identification, brand love, and brand loyalty, all within a framework that emphasizes sustainable relationships and practices. The framework encompasses a comprehensive approach to fostering long-term, mutually beneficial relationships throughout the customer journey. This research contributes to the field by exploring the specific impacts of affective and cognitive trust on various customer-related outcomes within the context of avatars in hospitality, providing valuable insights into the unique dynamics of trust-building in this domain. The findings shed light on the ToM and offer strategic marketing plans for hospitality practitioners, highlighting the significance of trust and sustainable customer relationships in driving long-term value.

Keywords: avatar; cognitive trust; affective trust; customer experience; customer-brand identification; brand love; brand loyalty; sustainability



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1. Introduction

In recent years, the hospitality industry has embraced technology to enhance the customer experience [1]. By adopting cutting-edge technologies, such as artificial intelligence (AI), virtual reality (VR), mobile applications, and data analytics, hospitality establishments strive to provide personalized, seamless, and immersive experiences for their guests [2]. One of the most innovative and exciting applications of technology in the hospitality industry is the use of avatars [3]. Avatars are defined as computer-generated characters or virtual representations of people, typically manifesting in three-dimensional images [3].

Avatars have become an innovative tool in the hospitality sector [4]. Their application spans various facets of the guest experience, aiding hotels in achieving sustainable competitive differentiation through value creation [5]. For example, avatar-based concierge services can provide personalized recommendations and guidance to hotel guests. In addition, avatar technology can be used to create virtual tour experiences of hotels and other attractions. Avatar technology can also be used to enhance customer service experiences. For instance, avatars can be used to provide digital concierge services or to help guests with check-in and check-out procedures. Moreover, avatars can help resolve complaints and provide other customer support functions [6,7]. Beyond the novelty, avatars are heralded for their contributions to sustainability [8]. One of the key ways that avatars contribute to sustainability is by minimizing the need for printed materials. By providing digital alternatives for brochures, menus, and information leaflets, avatars help in reducing paper consumption, conserving natural resources, and minimizing waste generation. Additionally, avatars operate on efficient digital platforms, consuming minimal energy compared

to traditional service delivery methods. They eliminate the need for physical resources such as lighting, heating, and cooling, resulting in reduced energy consumption and lower greenhouse gas emissions. Avatars also optimize resource allocation by automating routine tasks and offering self-service options, reducing reliance on human resources and associated energy consumption. Furthermore, avatars contribute to transportation reduction by providing virtual tours and information, reducing the need for guests to physically travel and explore. The adaptability and round-the-clock availability of avatars ensure consistent service quality, while also optimizing resources—qualities that further underscore their indispensable role in fostering sustainability in the hospitality industry.

Trust plays a vital role in human-to-human interaction because it influences the outcome of the social exchange [9]. As artificial intelligence (AI) continues to advance, the utilization of avatars has shifted from gimmick to necessity, and the role of avatars is transferring from being a passive tool to an active social agency. Therefore, the scope of trust extended from human-to-human interaction to human–avatar interaction [10]. Trust in avatars refers to the customers' belief that avatars can help them to achieve the goals they expect [11]. In hospitality service encounters, customers' trust in avatars is influenced by avatars' perceived performance, appearance, proximity, anthropomorphic features, and perceived empathy [12–15]. Trust is important for hospitality brands because it shapes customers' perceived usefulness and ease of use [16], which may eventually influence customers' perception and acceptance of avatars [17]. In the hospitality workplace, mutual trust between human and virtual employees strengthens the impact of AI on reducing employees' turnover intention [18].

Originating in neuroscience, the theory of mind (ToM) refers to a fundamental neural process to understand oneself and other people by ascribing mental states to them, such mental states include beliefs, desires, intentions, emotions, and thoughts [19]. The ToM posits that trust comprises cognitive trust and affective trust [20]. Cognitive trust refers to a type of knowledge-based belief in the ability, skills, and reliability of an exchange partner; whereas affective trust is emotion-based confidence in a focal partner's benevolence and caring [21]. Both types of trust are important in the hospitality industry. Affective trust helps to create a positive emotional connection between the customer and the service provider, which can lead to repeat business [20]. Cognitive trust helps to create a sense of confidence in the service provider, which can also lead to repeat business. Hospitality is an industry based on benevolence and genuine care [22], which should be closely linked with affective trust. However, there is scant research that has explored the differential roles of cognitive and affective trust in the development of the hospitality industry. This study aims to fill in this gap by exploring the asymmetric impacts of cognitive and affective trust on customer experience and a series of branding effects.

In an attempt to achieve business success, hospitality brands strive to optimize customer experience and its branding effects—customer–brand identification, brand love, and brand loyalty [23–29]. Specifically, memorable brand experience is defined as an immersive brand encounter with the inherent longevity to endure the test of time [30]; customer–brand identification emphasizes the perceived oneness with or the belongingness to a hospitality brand [31]; brand love refers to the emotional attachment a satisfied consumer has for a particular hospitality brand [32]; brand loyalty indicates the positive attitudes customers' uphold for a hospitality brand and the inclination toward continued purchase action [33]. Together, customer–brand identification, brand love, and brand loyalty contribute to a mutually beneficial and enduring customer–brand relationship. They foster trust, engagement, and loyalty, which are essential for sustainable growth and success in the marketplace [24,25,29]. Because of their importance in the service industry for establishing long-term strategies for economic growth and gain a competitive edge, those branding effects sit at the core of branding and service literature [34,35]. However, they were seldom explored together in hospitality studies.

This study aims to explore the distinct impacts of affective and cognitive trust towards hospitality avatars on shaping customer experiences, brand identification, love, and loyalty.

Data was collected from 563 hotel guests who have stayed at hotels and was analyzed by the partial least squares-structural equation modeling (PLS-SEM). This study contributes to the understanding of the cognitive ToM and affective ToM in the field of hospitality and tourism and extends the existing body of knowledge on trust in influencing the branding effects. Furthermore, this study helps hospitality practitioners to understand the focus of trust in promoting avatars to improve customer experience and strengthen branding effects.

2. Trust in Avatars

Trust is a multidimensional social concept that depends on the circumstances of the encounter to determine the significant dimensions. Schurr and Ozanne defined trust as the belief that the words or promise of the other party is reliable and that the other party will perform its obligations in the social exchange [36]. Dwyer et al. regarded trust as the belief that the other party is capable and willing to participate in social exchanges [37]. McAllister defined trust as the degree to which one has confidence in and is willing to behave based on the words, actions, and decisions of another party [38]. Hart and Saunders defined trust as the confidence that another party will act upon the goodwill and the belief in another party's competence, openness, caring, and reliability [39]. Regardless of definitional variances, trust is defined as a sophisticated collection of beliefs, confidence, and expectations about the exchange party that ensures a peaceful social exchange. Trust is very important for the hospitality industry because it helps create a positive relationship between the customer and the service provider. When customers feel they can trust the service provider, they are more likely to use the service again in the future. In the process of hospitality technological development, trust is a key ingredient in providing good customer service [40].

In the hospitality industry, trust is a critical component of any relationship, but it is especially important in human–avatar relationships for a number of reasons. First, there is the perceived uncertainty about avatars' behaviors. Because they are autonomous agents, avatars can choose to act in ways that may be unexpected or even undesirable from a human perspective. This can create a feeling of unease or even fear in humans, who may not be sure what an avatar will do next. Therefore, the unpredictability necessitates higher degrees of trust for customers to engage comfortably with avatars. Second, trust is also important because of the autonomy of avatars' behaviors. The ability of an avatar to adapt to changes in its environment is known as autonomy, and it is a crucial quality that determines the kinds and levels of activities that AI agents may perform [10]. This means that humans must trust that their avatars will behave in accordance with their wishes and not take any actions that could harm them or others. Finally, trust is also important because it helps to build rapport and understanding between humans and avatars [41]. By trusting each other, humans and avatars can learn to communicate and cooperate more effectively, which can improve the overall quality of their relationship. Park investigated that customers' trust in AI agents has a positive influence on their behavioral intention [10]. Tusssyadish et al. examined how negative attitudes toward technology and the propensity to trust technology influence trust in AI agents [11]. Furthermore, Pinxteren et al. studied that trust correlated positively with perceived enjoyment, which increases intentions to utilize AI agents [42]. With the increased attention to avatars in hotels, the degree of trust in AI agents will affect the interaction process between humans and avatars, which in turn will affect the customers' experience and their relationship with the brand.

Cognitive trust is defined as a trustor's rational expectation that a trustee will have the necessary attributes to be relied upon [43]. Cognitive trust emerges when people decide whom they will trust in which situations and for what reasons based on the facts and evidence. Also, cognitive trust is built on a foundation of knowledge that allows for choice. It takes time for an individual to be able to process and evaluate the relevant facts cognitively [44]. The choice is motivated by a conscious calculation of advantages, a calculation that in turn is based on an explicit and internally consistent value system [45]. Therefore, cognitive trust should be knowledge-based, immediate understanding of exoge-

nous stimuli, and can also subsequently form beliefs or expectations based on reason and rationale [46]. Therefore, cognitive trust in the hospitality industry can determine whether customers accept new technologies from their heads. Throughout this research, cognitive trust is defined as the belief that the hotel avatar is reliable, competent, and can deliver on its commitments. It is based on the customer's expectations based on experience and accumulated knowledge that the hotel avatar can provide them with quality service.

Affective trust refers to one's ability to depend on instincts, intuitions, or feelings regarding the reliability of a person, group, or organization [47]. Cognitive trust is insufficient without affective trust to explain how people decide whether to trust or not. Affective trust is driven by pleasant sentiments and feelings rather than objective considerations [44]. A defining characteristic of affective trust is the reliance on a partner based on emotions. Establishing an emotional bond between parties is not necessarily achieved through reasoning and understanding but rather through feeling and sense [46]. Emotional connections may enhance trust beyond what is justified by an individual's knowledge of the partner [21]. Therefore, affective trust is tremendously important to customers' acceptance of new technologies from their hearts in the service industry. In this research, affective trust is defined as consumer confidence in the hotel avatar. This confidence is generated by instincts, intuitions, or feelings generated by the level of care the hotel shows. It is the emotional bond between the consumer and the hotel.

2.1. Memorable Brand Experience

A memorable experience is quintessentially characterized as one that lingers in the mind, effectively shaping individuals' subsequent decisions—especially in considerations such as revisiting a locale [48]. Concurrently, brand experience delves into the realm of an individual's nuanced and subjective reactions, encompassing cognitive perceptions, emotive responses, and sensory stimulations precipitated by brand-centric cues [49]. Melding these frameworks, Hwang and Lee articulate a memorable brand experience as an immersive brand encounter with the inherent longevity to endure the test of time [30]. Such experiences achieve their indelible nature due to their potent and impactful attributes, making them more vivid and ingrained in memory [50]. Crucially, these brand experiences are not confined to post-purchase reflections; they manifest both through direct and peripheral brand engagements [51].

Pine and Gilmore's theoretical lens posits that a profoundly enriching experience possesses a unique signature, encapsulated by its distinctiveness, memorability, and enduring nature [52]. Central to their conceptualization is the 'sweet spot'—an intersection of active and passive consumer engagements. The domain of tourism research consistently underscores the imperative of curating such unforgettable experiences, given memories' pivotal role as determinants in revisit decisions [30]. In the context of the experiential marketplace, the importance of delivering such resonating experiences is a recurring theme [53]. Memories effectively act as a sieve, bridging experiences with their resultant emotional and perceptual outcomes [54]. Consequently, discerning the elements that customers deem memorable is pivotal. Thus, for businesses entrenched in the service industry, especially within tourism, curating an environment conducive to fostering memorable experiences is not just a luxury but a requisite [50]. Such efforts invariably shape consumers' intentions, influencing their propensity to return.

Cognitive trust is the belief that the service provider is competent and reliable, while affective trust is the belief that the service provider is benevolent and trustworthy [44]. Previous research has shown that trust in AI agents positively leads to a higher intention for customers to stay at hotels [10]. Notably, cognitive trust has a stronger relationship with experience than affective trust. The ToM assumes that individuals can, by analogy, observe the surroundings and assume that other people have similar reasons to their own and make responses and actions to meet society's expectations [55]. Arising from the accumulated knowledge, the prediction that adopting an avatar, which is generated by cognitive trust, will lead to a better experience might be more intuitive than affective trust considering that

customer experience occurs and develops by a relatively short-term and one-time touch point with service providers [56]. This means that customers who trust the service provider to be competent and knowledgeable are more likely to have a positive experience at the hotel than those who simply have positive feelings towards the service provider. Therefore, the following hypotheses are proposed:

H1a. *Cognitive trust is positively related to experience.*

H1b. *Affective trust is positively related to experience.*

H1c. *Cognitive trust has a stronger relationship with experience than affective trust.*

2.2. Customer–Brand Identification

Grounded in social identity theory, customer–brand identification is essentially a perceptual yet underutilized construct in the hospitality field, referring to “perceived oneness with or belongingness to an organization” [31]. When customers perceive a higher level of customer–brand identification, they are more likely to generate essential psychological bonds and connections between themselves and a particular brand. Therefore, customer–brand identification is seen as an essential antecedent of leading positive influence on service quality, perceived value, brand trust [28], brand loyalty, customer commitment, customer satisfaction [27], and revisit intention [57] in empirical hospitality studies.

In recent years, the hospitality industry has placed a greater emphasis on corporate reputation, specifically customer trust. A number of studies have investigated the relationship between customer trust and brand identification in this context, with mixed results. However, it is generally accepted that customer trust is positively related to customer–brand identification. For instance, Keh and Xie found that customer trust is positively related to customer–brand identification in the investigation of corporate reputation in the marketing field [58]; whereas Martínez and Del Bosque illustrated that although being one of the critical factors in developing long-term relationships with customers, trust is not related to customer–brand identification in the hospitality marketing field [23]. Moreover, this study proposes that affective trust is a more influential antecedent for customer–brand identification than cognitive trust. Affective trust is based on customers’ feelings and emotional bonds with a particular brand, whereas cognitive trust is based on customers’ perceptions of a brand’s competence and integrity. Therefore, it is proposed that affective trust poses a more influential antecedent for customer–brand identification. Therefore:

H2a. *Cognitive trust is positively related to brand identification.*

H2b. *Affective trust is positively related to brand identification.*

H2c. *Affective trust has a stronger relationship with brand identification than cognitive trust.*

2.3. Brand Love

Brand love is a relatively new concept that has been gaining popularity in the marketing world. Brand love reveals a significant connection to various fields, such as the sports industry [59], the luxury fashion industry [60], tourism destination management [61], and hotel management [62]. As an essential marketing division, brand love is defined as “the degree of passionate, emotional attachment a satisfied consumer has for a particular trade name,” including various psychological elements such as passion, attachment, positive evaluation, positive emotions, and declarations of love toward the brand [32].

The concept of brand love is gaining incremental attention in hospitality research. Extant hospitality literature that explores the antecedents of brand love has focused on the positive relationship with word-of-mouth intention [63], brand authenticity [64], and brand reputation [65]. Moreover, preliminary empirical evidence has shown the importance of building brand love for hospitality practitioners, such as enhancing positive word-of-mouth, revisiting intention [65], and repurchasing intention [66].

Substantial studies support the positive relationship between trust and brand love [67–69]. In the field of hospitality, Song et al. stated that brand love positively affects brand loyalty when they examined the brand–customer relationship of name-brand coffee shops [70]. Customers may love a specific brand based on their past experiences or special emotional bonds, thereby both cognitive trust and affective trust contribute to the development of brand love. However, brand love is considered a significant emotional result of a consumer’s long-term relationship with the brand [32]. Therefore, compared to cognitive trust, we assumed that affective trust has a closer relationship with brand love. The hypotheses were built:

H3a. *Cognitive trust is positively related to brand love.*

H3b. *Affective trust is positively related to brand love.*

H3c. *Affective trust has a stronger relationship with love than cognitive trust.*

Additionally, customer–brand identification was found to be a more powerful antecedent of brand love. For instance, Alnawas and Altarifi claimed that customer-brand identification positively related to brand loyalty, and it appeared to influence brand loyalty indirectly via brand love in the investigation of hotel guests [62]. Empirical studies on luxury branding revealed a positive relationship between customer–brand identification and brand love [35]. Consequently, the hypothesis was built:

H3d. *Identification is positively related to brand love.*

2.4. Brand Loyalty

The hospitality industry is one of the most competitive industries in the world. In order to succeed, businesses need to create a strong brand that customers can trust and be loyal to. Brand loyalty is extremely important for the hospitality industry because it allows businesses to build long-term relationships with their customers [71]. Brand loyalty helps businesses to build up a base of regular customers who are less likely to switch to a competitor. Brand loyalty can be developed through various marketing activities such as creating a strong brand identity, providing excellent customer service, and offering competitive prices [26]. It is important for businesses to nurture their brand loyal customers as they can provide valuable feedback and help to promote the business to others [27]. In a service context, it is inevitable for organizations to develop and maintain a competitive and repetitive business to ensure financial sustainability. For this reason, hospitality practitioners strive to build marketing strategies to develop brand loyalty. Because of its complexity in nature, researchers applied brand loyalty as a multi-dimensional concept [72].

It has been proved that cognitive and affective trust is the key to building stronger loyalty intention when customer satisfaction is increased in the online retailing context [44]. In a similar vein, the better service experiences perceived by customers in hotels result in positive customer evaluation and eventually develop brand loyalty. As a result, trust is served as an imperative determinant of brand loyalty in the context of hospitality and tourism research [23,28,73,74]. However, Moon et al. proposed that while cognitive and affective trust enhances customers’ acceptance intention to reveal their information for the hotel to collect, only cognitive trust significantly posed resistance to brand switching intention [75]. In this study, it is believed that the trust in avatars is more related to the emotional and affective connection where the elimination of negative concerns and acceptance of innovative technology can eventually develop brand loyalty. Thus, the hypotheses were proposed:

H4a. *Cognitive trust is positively related to brand loyalty.*

H4b. *Affective trust is positively related to brand loyalty.*

H4c. *Affective trust has a stronger relationship with loyalty than cognitive trust.*

Additionally, brand love is a strong, positive emotional attachment that consumers feel towards a brand. This feeling of love leads to brand loyalty, where consumers are less

likely to switch to competing brands and are more willing to forgive the brand if it makes a mistake. Carroll and Ahuvia proposed that brand love had a positive and direct effect on brand loyalty and word-of-mouth in marketing research [32]. Similarly, Huang proposed that brand love and trust are the main mechanisms in facilitating customer loyalty [76]. Therefore, the hypothesis was proposed:

H4d. *Brand love is positively related to brand loyalty.*

The present study offers a conceptual model, as shown in Figure 1, based on the proposed hypotheses.

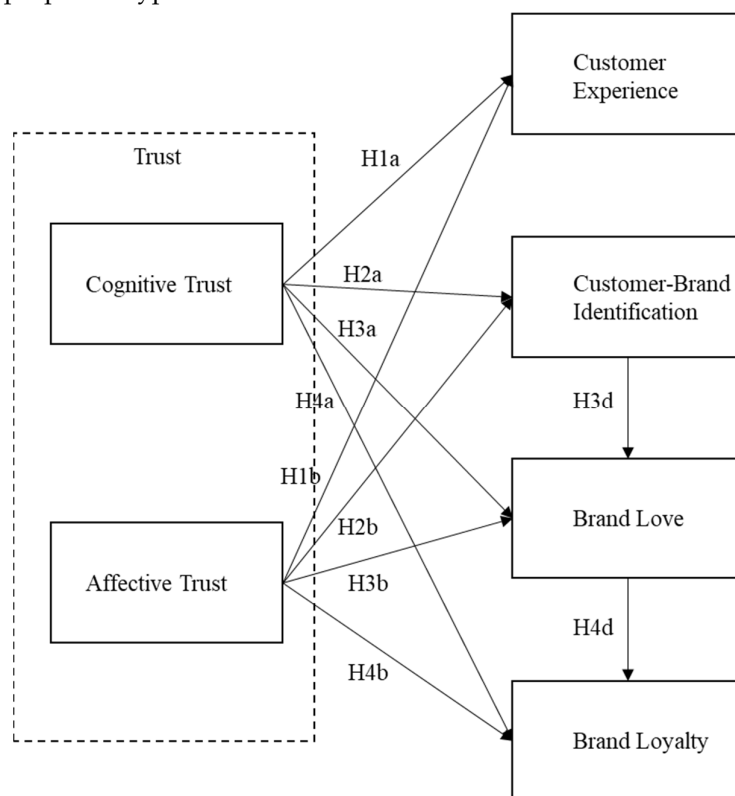


Figure 1. Conceptual model.

3. Method

3.1. Data Collection

The data collection was carried out using Amazon Mechanical Turk (MTurk), an online crowdsourcing platform, with no specific geographical restrictions. MTurk was recognized as a reliable and cost-effective tool capable of providing representative data for research in the behavioral sciences [77]. Filter questions were carefully designed to exclude participants who were not relevant to the study. The study included eligible participants who were 18 years or older and had experience with digitalized hotel services within one year. Prior to the main study, a pilot study was conducted with a sample of 100 participants, leading to minor adjustments in the wording of the measurement items to enhance clarity. A total of 606 respondents participated in the main study, with 43 responses being excluded due to failure in passing the attention check questions. Hence, the final sample size utilized for analysis and interpretation was 563. The characteristics of the participants are provided in Table 1, highlighting key demographic information.

Table 1. Profiles of participants.

Category	Frequency	Percent	Category	Frequency	Percent
Gender			Age		
Male	353	62.7	Baby boomers (Born between 1946–1964)	42	7.5
Female	210	37.3	Generation X (Born between 1965–1981)	145	25.8
Education			Generation Y (Born between 1982–2000)	350	62.2
Less than high school	7	1.2	Generation Z (Born after 2000)	26	4.6
High school graduate	84	14.9			
Some college	5	0.9	Income		
Bachelor’s degree	378	67.1	Less than \$10,000	61	10.8
Master’s degree	88	15.6	\$10,000–\$19,999	67	11.9
Doctorate	1	0.2	\$20,000–\$29,999	27	4.8
			\$30,000–\$39,999	36	6.4
			\$40,000–\$49,999	80	14.2
Travel frequency (in three years)			\$50,000–\$59,999	130	23.1
1–5 times	114	20.2	\$60,000–\$69,999	43	7.6
6–10 times	258	45.8	\$70,000–\$79,999	49	8.7
11–15 times	118	21	\$80,000–\$89,999	26	4.6
16–20 times	46	8.2	\$90,000–\$99,999	29	5.2
20 or more times	27	4.8	\$100,000–\$149,999	8	1.4
			More than \$150,000	7	1.2

3.2. Measurement

Qualified participants were required to watch a one-minute video in which the hotel virtual ambassador, Milan, welcomed the guests to the hotel and provided a brief introduction to the hotel brand. Milan is a young, feminine AI assistant representing the hotel brand, dressed in professional attire and welcoming guests with a warm smile (shown as Figure 2). Then, participants were required to imagine their experience with the hotel avatars and assess their cognitive trust and affective trust with avatars, identification with the hotel brand, customer–brand identification, and love and loyalty with the hotel brand.

**Figure 2.** Avatar sample (Ms. Milan).

All items on cognitive trust and affective trust were extracted from Johnson and Grayson [21]; memorable brand experience was adopted from Hwang et al. [50]; customer–brand identification and attachment were taken from Güntürkün et al. [78], and brand love and loyalty were incorporated from Mody and Hanks [24]. Notably, this study implemented controls on participants’ age, gender, experience with avatars, innovativeness, and need for

interaction in the model [79–81]. All items in the online questionnaire were evaluated with a seven-point Likert scale (shown as Table 2).

Table 2. Descriptive statistics, VIF, and outer loadings of indicators.

Indicators	M	SD	Kurtosis	Skewness	VIF	Loadings
Cognitive trust, adopted from the study of Johnson and Grayson [21]						
COGT_1	5.678	1.089	0.861	−0.876	1.314	0.668
COGT_2	5.712	1.04	2.18	−1.079	1.374	0.712
COGT_3	5.772	0.985	1.051	−0.866	1.404	0.731
COGT_4	5.754	1.011	0.851	−0.841	1.277	0.654
COGT_5	5.781	0.989	1.046	−0.888	1.422	0.741
Affective trust, adopted from the study of Johnson and Grayson [21]						
AFFT_1	5.537	1.215	1.272	−1.099	1.328	0.637
AFFT_2	5.717	1.08	1.785	−1.083	1.6	0.765
AFFT_3	5.658	1.082	0.927	−0.952	1.453	0.724
AFFT_4	5.726	1.05	1.171	−0.932	1.612	0.773
AFFT_5	5.706	1.059	0.977	−0.978	1.678	0.802
Memorable brand experience, adopted from the study of Hwang et al. [50]						
EXPE_1	5.06	1.102	0.557	−0.625	1.407	0.797
EXPE_2	5.091	0.997	1.183	−0.702	1.491	0.81
EXPE_3	5.155	1.031	0.724	−0.616	1.463	0.782
Customer–brand identification, adopted from the study of Güntürkün, Haumann et al. [78]						
IDEN_1	5.084	0.999	0.747	−0.705	1.403	0.774
IDEN_2	5.093	1.029	1.408	−0.844	1.365	0.787
IDEN_3	5.098	0.987	1.03	−0.676	1.473	0.758
IDEN_4	5.087	1.013	0.768	−0.752	1.577	0.786
Brand loyalty, adopted from the study of Mody and Hanks [24]						
LOYA_1	5.783	1.017	1.948	−1.081	1.498	0.81
LOYA_2	5.781	1.074	1.287	−1.008	1.506	0.829
LOYA_3	5.852	1.027	1.834	−1.154	1.503	0.81
Brand love, adopted from the study of Mody and Hanks [24]						
LOVE_1	5.854	1.064	1.823	−1.173	1.574	0.748
LOVE_2	5.87	1.05	2.258	−1.2	1.513	0.715
LOVE_3	5.786	1.066	1.113	−0.981	1.491	0.706
LOVE_4	5.836	1.098	1.372	−1.114	1.644	0.76
LOVE_5	5.847	1.063	2.442	−1.261	1.607	0.745
LOVE_6	5.824	1.072	2.07	−1.201	1.387	0.675

Note: M = means; SD = standard deviation; VIF = variance inflation factor. AFFT_5 was removed due to low loading.

3.3. Data Analysis

The researchers employed partial least squares-structural equation modeling (PLS-SEM) for data analysis with SmartPLS 3 software, a professional statistical tool for data analysis. PLS-SEM was a component-based least squares substitute for covariance-based structural equation modeling (CB-SEM). PLS-SEM had the advantages of soft assumptions on multivariate distributions, capabilities of estimating complex models, and precision of parameter estimation [82]. The main purpose of this study was to describe and justify the influence of trust on customer experience, customer–brand identification, and brand love and loyalty. The process involved complicated cause–effect relationships among constructs, and thus PLS-SEM was more applicable to implement in this study [83].

3.4. Measurement Model

Table 2 displays the indicator loadings results. All indicators exhibited satisfactory reliability, with most loading values at or above 0.708 [83]. Internal consistency reliability, convergent validity, and discriminant validity of all measurements were analyzed with the help of Cronbach’s alpha (α), Joreskog’s rho (ρ_A), and composite reliability (CR) [84], average variance extracted (AVE) [83], and the heterotrait–monotrait (HTMT) ratio [85], respectively. Table 3 showed that all factor models had values of α , ρ_A , and CR greater

than 0.7 and less than 0.9, indicating acceptable internal consistency reliability, and AVE above 0.5 or around, indicating satisfactory convergent validity. As shown in Table 4, no discriminant validity problems were present with HTMT values lower than 0.9.

Table 3. Internal consistency, reliability, and convergent validity.

Constructs	a	rho_A	CR	AVE
AFFT	0.796	0.808	0.859	0.551
COGT	0.742	0.747	0.829	0.493
EXPE	0.712	0.713	0.839	0.634
IDEN	0.781	0.782	0.859	0.603
LOVE	0.82	0.821	0.869	0.526
LOYA	0.751	0.752	0.857	0.667

Note. a = Cronbach's alpha; rho_A = Joreskog's rho; CR = composite reliability; AVE = average variance extracted.

Table 4. The heterotrait–monotrait (HTMT) test.

Constructs	AFFT	ATTA	COGT	EXPE	IDEN	LOVE	LOYA
AFFT							
COGT	0.793	0.612					
EXPE	0.57	0.843	0.638				
IDEN	0.565	0.776	0.566	0.788			
LOVE	0.659	0.716	0.682	0.706	0.684		
LOYA	0.638	0.644	0.639	0.667	0.63	0.804	

3.5. Structural Model

Before assessing the structural model, we conducted several diagnostic tests to ensure data integrity and eliminate regression biases. Common method bias was tested with Harman's single factor test and common latent factor (CLF) [86]. No common method bias was identified. We further validated multivariate assumptions using Cook's distance [87], skewness and Kurtosis analysis, and the Breusch–Pagan test [88]. After removing six outliers, our results showed no heteroskedasticity and affirmed the data's normal distribution. The model's fit was deemed acceptable, with an SRMR value of 0.054, falling below the 0.08 threshold [89]. In addition, all variance inflation factors (VIF) recorded were below 3, as detailed in Table 2, confirming the absence of collinearity issues in our model [83].

R^2 and Q^2 were tested to validate the proposed structural model. Because R^2 increases as model complexity increases and it only measures the model's in-sample fit, Q^2 was used in addition to addressing these concerns [90]. The proposed model had moderate explanatory power for customer–brand identification, brand love and loyalty (with R^2 of 0.593, 0.671, 0.647 > 0.5), and comparatively weak explanatory power for memorable brand experience (with R^2 of 0.408 > 0.25) related to R^2 [91]; the model had moderate explanatory power for all five consequent constructs (with Q^2 of 0.252, 0.393, 0.35, 0.343, 0.424 > 0.25) related to Q^2 [83].

Moreover, a 10-fold cross-validation PLSpredict was performed to evaluate out-of-sample predictive power. PLSpredict was run ten times to avoid abnormal extreme results [92]. The results show that $Q^2_{predict}$ of all items were above 0. The predictive power of the structural model for all items is greater than the most naïve benchmark [93]. In addition, the distribution of prediction errors was tested with the Shapiro–Wilk test and the results showed it was not normally distributed. However, the distribution was not highly non-symmetric with a visual inspection of the histogram. Therefore, the validation process was based on the RMSE values. The PLS model only produced a higher prediction error for indicator LOYA_1 than LM naïve benchmark did (0.861 for PLS and 0.860 for LM). The results represented the medium predictive power of the model.

3.6. Hypotheses Test

The results of the hypothesis tests were shown in Table 5. In line with Hypothesis 1a and 1b, the results demonstrated that cognitive trust and affective trust were positively correlated with memorable brand experience ($\beta = 0.391, p \leq 0.001$; $\beta = 0.288, p \leq 0.001$). This finding was aligned with a recent study by Park [10]. That is, customers with higher trust in avatars tend to have a better hotel stay experience.

Table 5. Hypothesis tests.

Hypotheses	Path	Path Coefficients				Hypotheses
		β	SD	T	p	
H1a	COGT \rightarrow EXPE	0.391 ***	0.082	4.782	0	Supported
H1b	AFFT \rightarrow EXPE	0.288 ***	0.083	3.48	0.001	Supported
H2a	COGT \rightarrow IDEN	0.078	0.064	1.213	0.225	Not Supported
H2b	AFFT \rightarrow IDEN	0.22 ***	0.057	3.835	0	Supported
H3a	COGT \rightarrow LOVE	0.211 **	0.071	2.987	0.003	Supported
H3b	AFFT \rightarrow LOVE	0.222 ***	0.061	3.656	0	Supported
H3d	IDEN \rightarrow LOVE	0.246 ***	0.049	5.057	0	Supported
H4a	COGT \rightarrow LOYA	0.059	0.065	0.897	0.37	Not Supported
H4b	AFFT \rightarrow LOYA	0.154 ***	0.047	3.271	0.001	Supported
H4d	LOVE \rightarrow LOYA	0.575 ***	0.061	9.404	0	Supported

Note. β = unstandardized coefficient; SD = standard deviation; T = T statistics; p = p values; ** $p \leq 0.01$, *** $p \leq 0.001$.

The effect of cognitive trust ($\beta = 0.078$, n.s.) on customer–brand identification was not significant, whereas affective trust ($\beta = 0.22, p \leq 0.001$) exerted a positive influence on customer–brand identification, thereby supporting Hypothesis 2a and rejecting 2b. Furthermore, researchers additionally explore the indirect relationships between cognitive and affective trust and customer–brand identification via memorable brand experience. The results also showed that cognitive trust ($\beta = 0.219, p \leq 0.001$) and affective trust ($\beta = 0.161, p \leq 0.001$) have a positive indirect effect on customer–brand identification via memorable brand experience. Therefore, the positive correlation between cognitive trust and customer–brand identification was partially mediated by memorable brand experience, while affective trust and customer–brand identification were fully mediated by memorable brand experience. This finding was congruent with the existing research of Keh and Xie [58] and contradicted Martínez and Del Bosque’s [23] study that trust and customer–brand identification was not related in hospitality.

The positive correlation between cognitive trust ($\beta = 0.211, p \leq 0.01$) and brand love, and affective trust ($\beta = 0.222, p \leq 0.001$) and brand love was statistically significant. Supporting Hypotheses 3a and 3b, this finding was in line with previous studies on the close relationship between trust and brand love [67–69]. Further, consistent with Hypothesis 3d, the results presented that customer–brand identification was positively correlated with brand love ($\beta = 0.246, p \leq 0.001$). An increase in brand love also indicated an increase in brand loyalty ($\beta = 0.575, p \leq 0.001$), thereby supporting Hypothesis 4d. These results suggest that as consumers resonate more profoundly with a brand—akin to perceiving a reflection of themselves in the brand or aligning closely with its values—their emotional commitment towards the brand intensifies, subsequently fostering heightened loyalty. Moreover, the influence of cognitive trust on brand loyalty was partially mediated via brand love (direct: $\beta = 0.059$, n.s.; indirect: $\beta = 0.154, p \leq 0.001$), and affective trust on brand loyalty fully mediated via brand love (direct: $\beta = 0.039, p \leq 0.01$; $\beta = 0.127, p \leq 0.001$), thus supporting Hypotheses 4b and rejecting 4a. This study reinforced previous studies on the mediation effect of brand love on the relationship between trust and brand loyalty [69,74,76].

A supplementary test of the difference between the influences of cognitive trust and affective trust was conducted to find out the significance of both effects on different consequences (see Table 6). Cognitive trust has a significantly greater effect than affective trust

on memorable brand experience ($\Delta | \text{COGT} - \text{AFFT} | = 0.107, p \leq 0.001$), thus supporting Hypothesis 1c. Additionally, affective trust was more effective on customer–brand identification ($\Delta | \text{AFFT} - \text{COGT} | = 0.139, p \leq 0.001$), brand love ($\Delta | \text{AFFT} - \text{COGT} | = 0.008, p \leq 0.001$), and brand loyalty ($\Delta | \text{AFFT} - \text{COGT} | = 0.089, p \leq 0.001$), thus supporting Hypotheses 2c, 3c, and 4c. This finding contradicted Moon et al.’s [75] recent study stating that cognitive trust was more effective on brand loyalty.

Table 6. Differences in the influences between cognitive trust and affective trust.

	Hypotheses	DV	Diff	SE	T	<i>p</i>	Hypotheses
H1c	$\Delta \text{COGT} - \text{AFFT} > 0$	EXPE	0.107	0.002	48.316	0	Supported
H2c	$\Delta \text{AFFT} - \text{COGT} > 0$	IDEN	0.139	0.002	89.513	0	Supported
H3c	$\Delta \text{AFFT} - \text{COGT} > 0$	LOVE	0.008	0.001	4.996	0	Supported
H4c	$\Delta \text{AFFT} - \text{COGT} > 0$	LOYA	0.089	0.001	67.445	0	Supported

Note. DV = dependent variable; Diff = mean difference; SE = standard error; T = T statistics; *p* = *p* values; One-tailed paired *t*-Test.

4. Conclusions

With the advent of technological innovations, considerable theoretical and empirical research has been conducted to address the rise and influence of digital transformation in the hospitality industry [94]. However, few studies have focused on how digital transformation affects the relationship between customer trust and hotel brands from the marketing angle to create a sustainable customer relationship. This study analyzes how the trust, both cognitive trust and affective trust, of hotel avatars affect the customer experience, brand identification, brand love, and brand loyalty by employing the ToM. As a result of the collection of 563 data from hotel customers, the results indicate that cognitive trust is more effective at creating a positive memorable brand experience. However, affective trust has a greater impact on developing strong bonds such as identification with the brand, love for the brand, and loyalty to the brand.

4.1. Theoretical Implications

Focusing on the trust of hotel avatars, the findings of this study provide meaningful theoretical contributions to the literature on tourism and hospitality.

First, this study is an attempt to examine the trust of avatars in the hotel guest experience and its influence on hotel branding effects such as brand identification, brand love, and brand loyalty. While previous studies have explored the positive influence of avatar presence on the intention to use [95], providing unique and memorable experience [7], reducing the employees’ workload [96], as well as the efficiency and effectiveness of digitalized service technologies [6], this study expands the research scope by demonstrating the strong impact of customers’ trust in avatars on various aspects of the customer experience and branding effects in the hospitality and tourism context. Second, this study contributes significantly to the ToM, which analyzes the direct effect of customers’ cognitive trust and affective trust on customer experiences and related branding effects. The results highlight the positive influence of trust on customer experiences, brand identification, brand love, and brand loyalty, aligning with the ToM framework [19]. By considering the role of trust within this conceptual framework, the study provides deeper insights into the dynamics of customer psychology, experience, and the subsequent branding effects in the context of avatars in hospitality. Third, this study prints a comprehensive picture of customers’ trust in hotel avatars. Previous studies demonstrated that trust, as a positive belief about the reliability and dependability of a person, is one of the most important factors affecting consumers’ perceptions and purchase behavior in the hotel industry [97–99]. However, this study is the one analyses trust, including cognitive trust and affective trust, in a comprehensive way to get a deep understanding of the relationships between customers’ psychology, experience, and branding effects.

4.2. Managerial Implications

In the age of digital transformation, the research underscores the pivotal role of trust in digital technologies, particularly avatars and AI, in shaping customer experiences and fostering sustainable business relationships. As businesses increasingly integrate digital technologies into their operations, understanding and building this trust becomes paramount. Society at large benefits as businesses that prioritize trust in their digital initiatives contribute to a more transparent, ethical, and sustainable digital ecosystem. By leveraging digital transformation to tailor customer experiences, businesses inherently promote sustainability. By fostering trust, businesses not only enhance customer loyalty but also contribute to a more responsible and ethical digital landscape.

The research findings chart a compelling roadmap for a wide spectrum of industry professionals, illuminating the substantial advantages of cultivating trust in avatars within the hospitality sector. Hotel managers, for instance, can harness this trust to cultivate enhanced guest experiences and fortify customer loyalty. Pragmatic measures may encompass tailoring avatar interactions to cater to individual preferences, ensuring transparent operations that prioritize data security, and instituting robust feedback mechanisms that showcase responsiveness to guest needs. Human resources professionals can expedite avatar integration and optimize their utilization through targeted training programs, thus enhancing both cognitive and affective trust in avatars. Avatar developers, by emphasizing user-centric design and cultural alignment, can stimulate widespread adoption, ensuring avatars resonate with guests and are perceived as reliable companions. Marketing and branding teams can harness the trustworthiness of avatars by seamlessly integrating them into campaigns, closely aligning them with the hotel's image, and accentuating their advantages, thereby significantly influencing customer perception and loyalty. IT and support teams can bolster trust by prioritizing avatar reliability, establishing round-the-clock support systems for immediate issue resolution, and maintaining rigorous data security measures. Through the collaborative implementation of these strategies, industry professionals can not only forge sustainable and meaningful customer experiences but also cultivate brand loyalty and champion sustainable business practices, thereby solidifying their professionalism and success within the dynamic landscape of digital transformation.

Furthermore, the insights on trust, while derived from the hospitality realm, have expansive relevance across diverse sectors, especially where human-machine synergy is crucial. In industries like manufacturing, the rapport between humans and assistive technologies is central to operational excellence. Establishing cognitive trust ensures operators have unwavering confidence in the technology's precision and reliability, streamlining operations and reducing the propensity for doubt or verification. Affective trust, on the other hand, nurtures an emotional connection, positioning the technology as a collaborative partner rather than a mere instrument. This deep-seated trust transforms the human-technology interaction from being merely transactional to a sustainable partnership, expediting the adoption and optimal use of these technologies. The result is a boost in operational efficiency, diminished errors, and a work environment that prioritizes well-being and productivity.

4.3. Limitations

This research presents several limitations. Firstly, a noticeable deficiency exists in holistic research examining the branding dynamics detailed within the hospitality sector. Future investigations should undertake a more integrated approach to clarify the intricate relationships and consequences of these branding effects in the industry. Secondly, since the data were collected through a self-report survey, common method bias may have been a contributing factor. We recommend that future research use multiple sources of data to fully exclude the possibility of same-source variance influencing the results. Thirdly, a customer's trust in hotel avatars is affected not only by the trust but also by social norms and technology popularity, which may differ by country. Thus, future studies should collect data from different regions and countries to enhance the generalizability of the

results. Fourthly, future studies are encouraged to conduct field experiments and utilize eye tracking and EEG technology to better understand customers' real-time responses to hotel avatars. Lastly, this study predominantly emphasized memorable brand experiences, potentially overlooking other vital facets of the customer experience. It would be beneficial for future research to delve into a broader spectrum of customer experiences to render a more exhaustive understanding of the topic.

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