"How chatbot e-services motivate communication credibility and lead to customer satisfaction: The perspective of Thai consumers in the apparel retailing context"

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HOW CHATBOT E-SERVICES MOTIVATE COMMUNICATION CREDIBILITY AND LEAD TO CUSTOMER SATISFACTION: THE PERSPECTIVE OF THAI CONSUMERS IN THE APPAREL RETAILING CONTEXT

Abstract

Many apparel retailing brands use e-service marketing tools such as a chatbot (a system that is available 24 hours a day, 7 days a week) to increase their competitive advantage in today's world of digitalization. During the COVID-19 pandemic, chatbots gained more power to serve as a communication tool that provides information and maintains customer experience. Therefore, this study is conducted to investigate the influence of chatbot e-service agents' marketing efforts (involving interaction, entertainment, trendiness, and problem-solving) on Thai customers' perceived communication credibility and satisfaction in apparel retailing, as research in this area is limited. In order to test the hypotheses, the paper employed structural equation modeling using Amos. In addition, an online survey of 400 Thai consumers who had previously used chatbots in the apparel retailing industry was conducted. The results showed that chatbot e-service marketing efforts, including interaction, trendiness, and problem-solving, affected customer satisfaction without entertainment elements. Beyond this, a chatbot, viewing interaction and entertainment, was found to have an insignificant effect on communication credibility. Thus, the coefficient value proved that information regarding communication credibility is more dominant in customer satisfaction. Therefore, the chatbot e-service marketing effort is essential in motivating communication credibility in customer satisfaction. These findings delivered managerial implications for understanding consumers in the field of digitalization.

Keywords	Thailand, AI chatbot, communication, satisfaction, apparel retailing
JEL Classification	L81, M15, M31

INTRODUCTION

Artificial intelligence (AI) refers to tools that support organizations in designing a service interaction line with customers. Innovative AI-based technologies have garnered significant interest in recent years, both in theoretical study and practice (Tran et al., 2021). AI is used in a wide variety of applications, including autonomous vehicles (e.g., Tesla), intelligent recommendation tools (e.g., Salesforce Einstein), and natural language treatment (e.g., chatbots). However, customers' preference for AI changes according to the service task difficulty, as they tend to be content with using AI for low-complexity tasks but prefer to deal with human agents during matters of higher complexity (Xu et al., 2020; Tran et al., 2021). In this study, which focuses on natural language processing, the chatbot is derived from a grouping of the two words "chat" (as in online communication) and "bot" (as in a

robot) (Rese et al., 2020). Indeed, any software application that converses with a human using natural language is referred to as a conversational agent. Chatbots show a natural language interface that can "understand natural language and respond in natural language to a user request" (Lester & Piore, 2004, p. 220; Rese et al., 2020).

Customers had to rely on social media tools such as chatbots to obtain information and build buying choices, particularly during the COVID-19 pandemic, when consumers were quarantined at home, and human agents were unavailable. In the US market, Cheng and Jiang (2022) reported that more than 30,000 chatbots have been launched on messaging social media like the Messenger application of Facebook and Viber, while approximately 2 billion messages are sent via these services a month. Due to continued advancements in AIs' ability to mimic conversational language, chatbots are being built to connect with humans or even to take the place of human agents in digital marketing (Kumar et al., 2016; Cheng & Jiang, 2022).

Many scholars have studied AI chatbots to find ways to prove what chatbot support is when it comes to marketing efforts in luxury brands (Chung et al., 2020; Kim & Ko, 2012). Despite this, a few studies have focused on exploring the concept of chatbot e-service agents' marketing efforts, perceived communication credibility, and satisfaction. There are limited studies concerning this concept in apparel retailing and chatbot e-service marketing in Thailand. Therefore, this paper focuses on bridging the existing knowledge gap by setting two essential research objectives. They are to examine the effect of e-service agents' marketing efforts delivered by chatbots in Thai apparel retailing, and to identify how chatbots influence Thai people regarding communication credibility and customer satisfaction.

1. LITERATURE REVIEW AND HYPOTHESES

1.1. E-service agents and marketing e-service

Today, since many brands are becoming globalized, AI and digital marketing are changing service agent roles (Jansom & Pongsakornrungsilp, 2021). E-service agents are continuously accessible personal helpers that support creating vital buyer relations, maximizing customer time, and providing an improved understanding of product performance (Lee & Choi, 2017; Ben Mimoun et al., 2017; Chung et al., 2020). Additionally, as accuracy increases, users will be able to engage in social interactions with virtual intelligent agents (Godey et al., 2016; Chung et al., 2020). Burberry, Louis Vuitton, Tommy Hilfiger, Levi's, H&M, and eBay are all recognizing the e-service agent's bright future and growing appeal (Lee & Choi, 2017; Aleedy et al., 2019).

A chatbot is a key tool for solving problems via real-time chat with customers. Indeed, a chatbot's success or failure in eliciting purchase behaviors through optimistic verbal and nonverbal interac-

tions is determined by its success or failure in eliciting buying behaviors (Bailey & McCollough, 2000; Chung et al., 2020). E-service agents are measured by the quality of service and social networking activity, i.e., interaction, entertainment, customization, trendiness, innovativeness, and problem-solving dimensions (Kim & Ko, 2012; Kim et al., 2016; Ladhari et al., 2017; Chung et al., 2020). Furthermore, social media marketing initiatives have proved that interactivity, entertainment, personalization, trendiness, and word-of-mouth all contribute to brand equity and customer response (Godey et al., 2016; Morra et al., 2018; Chung et al., 2020). Although Chen et al. (2021) employed usability and responsiveness to measure chatbots' online customer experience in e-retailing, research on e-service agents is limited, particularly regarding online communication with brands.

The present study fills the above-mentioned gap by measuring e-service agents' interaction, entertainment, trendiness, innovativeness, and problem-solving, thereby enabling a more significant examination of consumer satisfaction. Furthermore, although AI chatbots are an increasing platform in the apparel retail business, research on their use in Thailand is limited.

Therefore, the paper assesses how e-service agents can affect communication quality and customer satisfaction, as well as how this affects purchase intention for apparel retail fashion brands that use chatbots for e-service.

1.1.1. Interaction

At physical stores, interaction is one of the dimensions used to increase the number of brand associates. Indeed, Dabholkar et al. (1996) studied positive interactions that supported brands in being courteous, helpful, and trustworthy. Beyond this, Holzwarth et al. (2006) mentioned that customers engage with sales representatives to save time, increase advice, touch value, enjoy communications, and simplify purchasing procedures. Nowadays, interactions have changed from being people-based to being technology-based, with many brands using social media to interact with consumers. Technology advancements have provided brands to use social media for casual conversations that create and strengthen relationships with users while also giving information (Kim & Ko, 2012). Holzwarth et al. (2006) showed that consumer experiences with service agents are comparable to those with actual human agents influencing consumer choices, saving time, obtaining advice, and earning parasocial advantages.

Based on the current knowledge gap, interaction factors have been studied for interactive representatives both online and offline in various industries. However, perceived communication credibility and customer satisfaction with e-service agents such as chatbots have not been extensively studied, especially in the apparel retailing industry. Therefore, the purpose of this paper is to examine whether chatbot e-services can generate positive interactions in communication credibility and customer satisfaction.

1.1.2. Entertainment

Given that social media stimulates human entertainment, retailing brands are attempting to build customer social media experiences to increase competitive advantage (Godey et al., 2016). Successful brands understand the benefits of combining fun and amusement into their daily work (Redman & Mathews, 2002). Entertainment

is a hedonistic approach to delivering meaningful and legitimate communication, boosting value perceptions and intentions through online technologies like mobile internet and social media (Chung et al., 2020).

Muntinga et al. (2011) and Park et al. (2009) found that using social media has enhanced entertainment. For illustration, Burberry brand created a video alluding to the Billy Elliot film in order to include visual information, pique customer attention, and establish a connection with their brand. Thus, it can be stated that consumers' favorable responses to virtual service agents depend on their delight, amusement, and relaxation (Godey et al., 2016; Muntinga et al., 2011). Although the factor of online entertainment with brands has been explored in the preceding literature, the impacts of perceived communication credibility and customer satisfaction with the entertainment of chatbot e-service agents have not been thoroughly studied. As a result, the purpose of this study is to investigate how chatbot e-services might increase communication credibility and customer satisfaction.

1.1.3. Trendiness

Social media platforms deliver news stories and trending debate topics (Naaman et al., 2011) while serving as a primary product search. Trendiness can build the perception of a brand since numerous consumers require up-to-date brand and product information to be reassured that products appropriately reflect their fashionable lifestyles (Muntinga et al., 2011; Zolkepli & Kamarulzaman, 2015; Chung et al., 2020).

Muntinga et al. (2011), Godey et al. (2016), and Chung et al. (2020) state that trending information on social media is consumed for four distinct reasons: surveillance, knowledge, pre-purchase, and motivation. Surveillance is the act of observing and maintaining knowledge of one's social environment. Knowledge indicates brand-related communication that customers obtain to benefit from the knowledge and expertise of other consumers, gathering further information about a product or brand. In order to make well-informed purchasing decisions, consumers often conduct pre-purchase research by reading online reviews of products or threads on brand communities.

Finally, inspiration relates to customers acquiring new ideas regarding brand-related information, with that information thus serving as a source of stimulation. For example, when customers look at the clothes worn by other people, they develop ideas regarding what they want to wear.

As per the above argument, trendiness is stated in this study in terms of the transmission of the most current and trending communication from the apparel context. However, in-store salespeople were originally the primary sources of fashion trends in the past, while technological advances are now allowing online and in-store encounters to coexist (Chung et al., 2020). Consequently, the purpose of this paper is to examine extensively whether trendiness of chatbot e-services can promote communication credibility and customer satisfaction, especially in apparel retailing.

1.1.4. Problem-solving

When consumers perceive service quality, they might be concerned with the answers provided by salespeople in a shop. According to Kim et al. (2016), service quality includes personal interaction, physical aspect, policy, problem-solving, and reliability, which are precursors to a variety of consumer emotions. Furthermore, each customer has different shopping behaviors based on motives and tends to focus on different aspects of service (Dawson et al., 1990; Kim et al., 2016). Hence, a customer evaluates a given quality measurement in a different way.

Previous studies employed problem-solving to identify the impact of chatbot e-services on consumers' experiences by assessing communication and satisfaction on social media sites. However, customers disappointed with the quality of a service or product may experience resentment and even humiliation due to feeling constrained (Izard, 1977; Chung et al., 2020). Since the way in which customers cogitate in retail service is based on how quickly and honestly, they deal with customer problems, complaints, returns, and exchanges, a retail brand's associates are often supposed to teach recruits how to deal with these issues right away sincerely (Dabholkar et al., 1996; Kim et al., 2016; Chung et al., 2020). Previous research highlighted the influence of chatbot e-services on

problem-solving of social media sites based on the present gap in the literature. Thus, this paper intends to confirm the factor problem-solving of chatbot e-services support positive communication credibility and customer satisfaction.

1.2. Communication credibility and customer satisfaction

Credibility refers to brands providing trust to customers via information communication. The recipient's level of trust in the addresser's information is determined by the source's credibility (Wu & Wang, 2011). Consumers place a high premium on source credibility, and a favorable view of the information sender increases the recipient's agreement with the message (Kang & Namkung, 2019). Credibility of a brand can help lower projected expenses and perceived risk while also increasing brand selection (Erdem & Swait, 2004). The quality of communication increases customers' experience by perceiving and responding positively to information transmitted, which follows from the exchanging parameters of human communication.

The study of Twitter bot agents can assume that quality communication involves precision, credibility, and expertise (Edwards et al., 2014; Yen & Chiang, 2021). In addition, customer-brand relationships are essential applied service agents' marketing efforts to communication, while social media enables brand marketers to cultivate positive customer relationships, increase earnings, and educate customers about new products and services (Kim & Ko, 2012; Chung et al., 2020). To ensure that consumers regard communication as being of high quality, Emmers-Sommer (2004), Mohr and Sohi (1995), and Chung et al. (2020) stated that online conversations with service agents must be seamless, enjoyable, prompt, efficient, and accurate.

Customer satisfaction refers to pre-purchase, service encounter, and post-purchase expectations at each touch point. Brands enable a holistic and seamless customer experience (Gruber et al., 2015). From the past until today, brands have always focused on customer satisfaction. Jian et al. (2014) found that when salespeople communicate trustworthy, relevant, current, and in-depth product information, it can increase customer satisfac-

tion that alleviates uncertainty (Adjei et al., 2010) and motivates psychological connections and satisfaction. Chung et al. (2020) researched premium brands and showed that it encourages consumers to purchase and repurchase. In comparison, Edwards et al. (2014) studied the function of Twitterbots similarly to human agents and found that it can generate authentic communication and client satisfaction via digital tools on social media.

The above-mentioned literature shows the positive impact of chatbots on perceived communication credibility to customer satisfaction, especially in apparel retailing. Fashion apparel retailers often utilize chatbots as e-service agents to respond to users, for example, client inquiries, and deliver broad and deep knowledge to eliminate ambiguity and increase customer satisfaction (Ben Mimoun et al., 2017; Cheng & Jiang, 2022).

1.3. Hypotheses

Based on the literature review, this study aims to examine the impact of chatbot e-service agents' marketing efforts in terms of interaction, entertainment, trendiness, and problem-solving on Thai customers' perceptions of communication credibility and satisfaction with apparel retailing particularly in the Thailand context. The following hypotheses are therefore proposed (Figure 1):

H1a: *Chatbot e-services can provide positive interactions that evoke communication credibility.*

H1b: *Chatbot e-services can provide positive interactions that evoke customer satisfaction.*

H2a: *Chatbot e-services can provide positive entertainment that evokes communication credibility.*

H2b: *Chatbot e-services can provide positive entertainment that evokes customer satisfaction.*

H3a: *Chatbot e-services can provide positive trendiness that evokes communication credibility.*

H3b: *Chatbot e-services can provide positive trendiness that evokes customer satisfaction.*

H4a: *Chatbot e-services can provide positive problem-solving that evokes communication credibility.*

H4b: *Chatbot e-services can provide positive problem-solving that evokes customer satisfaction.*

H5: *Communication credibility of chatbots can provide positive customer satisfaction.*

2. METHODOLOGY

The study implemented a deductive approach to test and validate the conceptual model, which included delivering a survey to gather data to investigate the hypotheses generated by the liter-
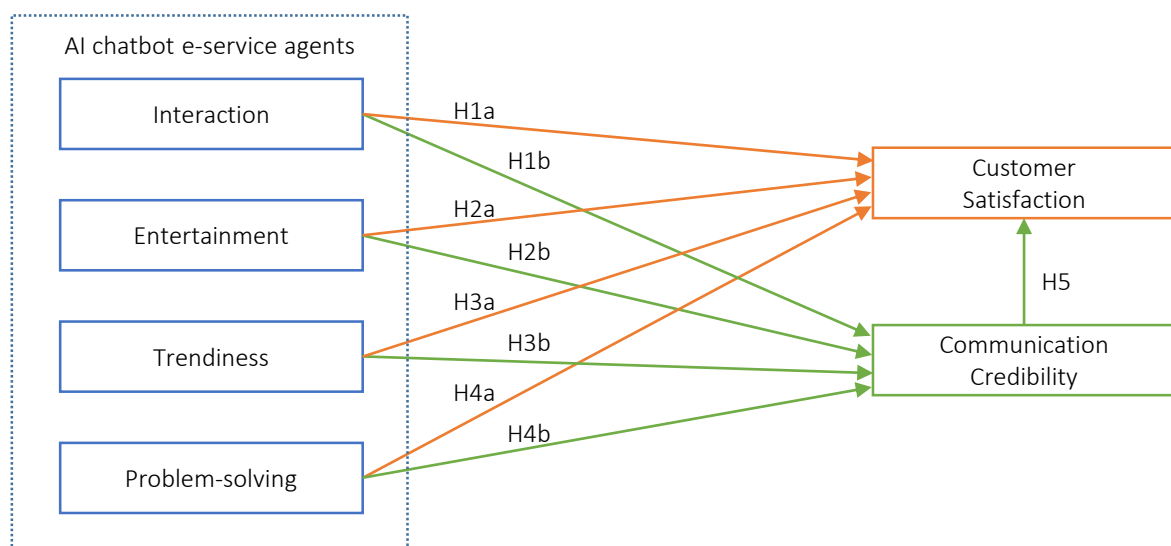

Figure 1. Conceptual framework

ature review. The data were collected in March 2022 after the study had been approved by the Ethics Committee of the Human Research at Walaialk University (WUEC-22-050-01). Validated scales from earlier literature were adapted to the current situation to create the questionnaire, and the study was carried out via an online survey utilizing Google Forms. A total of 33 questions were translated into Thai and then retranslated by marketing academics to ensure the authenticity and dependability of the information they included. The questionnaire consisted of three main parts: the first included screening questions (Is the person aged 18 or over, has he/she ever used chatbots and/or platforms that employ chatbots?), while the second covered socio-demographic characteristics of the respondents. The last part concentrated on the question items associated with the construct proposed in the model, which was used in prior studies to measure marketing efforts according to interaction, entertainment, trendiness, and problem-solving (Kim & Ko, 2012; Lee & Choi, 2017; Chung et al., 2020). These elements were previously implemented to demonstrate that brands influence consumer relationships in virtual environments. For communication quality, the paper adapted a measuring tool forwarded by Mohr and Sohi (1995) and Chung et al. (2020), while for satisfaction it also used previous constructs (Joosten et al., 2016; Lee & Choi, 2017; Chung et al., 2020).

All items were measured using a five-point Likert scale (1 = strongly disagree to 5 = strongly agree), which helped to quantify the participants' responses. Social media channels, including Facebook groups, LinkedIn, and the Line application, were used to gather data for the study. Non-probabilistic (accidental sampling) sampling was used, with 410 Thai respondents who had personal experience interacting with chatbots in the apparel retailing industry participating in the study. After excluding invalid responses, the paper obtained a final sample of 400 surveys for the investigation. Re-reading the screening question on the platforms where respondents use chatbots, it is clear that more than 85.50% of the respondents were using one via Messenger on Facebook, and 10.50% were using chatbots through the Line applica-

tion, while 4% engaged with chatbots via other platforms. As shown in Table 1, most of the respondents (58.75%) were female and aged 26-33 (37.75%). A Bachelor's degree was the highest educational level of the participants (49.25%), and the average monthly income was 10,001-20,000 Thai baht (36.75%). The respondents were mostly purchasing online apparel 3-5 times per month (38.75%) and using chatbots 2-4 times per month. Amongst the sample, 98.75% of Thai customers considered a chatbot to be a tool for motivating satisfaction with brands.

Table 1. Demographic characteristics

Items		n	%
Gender	Male	131	32.75%
	Female	235	58.75%
	LGBTQ	34	8.5%
Age	18-25 years old	140	35%
	26-33 years old	151	37.75%
	34-41 years old	94	23.5%
	50 years old or more	3	0.75%
Education	Bachelor's degrees	197	49.25%
	Master's degrees	66	16.5%
	Ph.D. degrees	10	2.5%
	Others	127	31.75%
Income	<10,000 baht	32	8%
	10,001-20,000 baht	147	36.75%
	20,001-30,000 baht	146	36.5%
	30,001-40,000 baht	58	14.5%
	40,001 baht or more	17	4.25%
Online apparel purchase frequency per month	< 2 times	77	19.25%
	3-5 times	155	38.75%
	6-8 times	108	27%
	> 9 times	60	15%
Frequency of chatbot use per month	1-2 times	97	24.25%
	2-4 times	132	33%
	3-5 times	110	27.5%
	> 6 times	61	15.25%
Is a chatbot a tool that helps you to be satisfied with a brand?	Yes	395	98.75%
	No	5	1.25%

An overall measure of sampling adequacy (MSA) and Bartlett's test of sphericity were used to determine whether or not the observed variables had good correlations before moving further with the factor analysis. The test findings are summarized in Table A1; the aggregate MSA calculated by KMO was 0.946, exceeding the 0.50 cut-off figure (Hair et al., 2006). This revealed that the observed variables were significantly linked in aggregate and hence suitable for factor analysis.

Table 2. Measuring sampling adequacy and Bartlett's test of sphericity

Construct	KMO Measure of Sampling Adequacy	Bartlett's Test of Sphericity		
		Approx. Chi-Square	df	Sig.
6-factor-measurement model	0.946	6766.232	253	0.000

An Exploratory Factor Analysis (EFA) using SPSS 24.0 was performed simultaneously on all of the six constructs. The purpose was to identify how scale items were interrelated and to interpret these inter-relationships using the principal axis factor analysis with a varimax rotation. The study used 23 items for factor extraction, but they were also utilized to assess the underlying dimensions of the given items. The initial EFA results showed that two items had either low factor loadings or cross-loadings; therefore, they were eliminated from the analysis (Bilgin et al., 2015, p. 209). The items were loaded under six factors (Appendix A), which explained a total of 69% of the variance. Eigenvalues for each construct were higher than 1.0, which was used as the threshold value to retain the factors. The factor loadings of all 21 items were above 0.5, ranging from 0.584 to 0.834. These examples demonstrate that the requirements for factor interpretation outlined above were met, and as a result, the factors derived from this study were appropriate. After EFA, the scales for each of the extracted factors were tested for internal consistency through Cronbach's alpha coefficient, with a suggested threshold of 0.7. The results of the reliability tests are presented in Table 3. Cronbach's alphas for each construct surpassed 0.7 and ranged from 0.829 to 0.903.

3. RESULTS

3.1. Descriptive statistics

Descriptive statistics are used to analyze the model's variables in order to demonstrate how chatbots motivate communication credibility and lead to customer satisfaction, as presented in Table 3. The standard deviations were less than 1.5 with 30% of the mean; thus, the statistics were not broadly dispersed from the mean, with a range of 3.760-3.990 and standard deviations of 0.770-0.939.

3.2. Confirmatory factor analysis (CFA)

The CFA test began with a measuring model comprising all 21-scale items corresponding to the six components identified in previous EFA analyses.

Table 3. Reliability and validity result

Constructs	Items	Mean	Std. Deviation	Standardized loadings	Cronbach's alpha	CR	AVE
Interaction	INT1	3.840	0.925	0.742	0.829	0.725	0.538
	INT2	3.800	0.852	0.725			
	INT3	3.760	0.875	0.837			
Entertainment	ENT1	3.760	0.893	0.883	0.903	0.909	0.713
	ENT2	3.780	0.846	0.793			
	ENT3	3.740	0.907	0.821			
	ENT4	3.740	0.939	0.878			
Trendiness	TRN1	3.920	0.801	0.827	0.869	0.870	0.690
	TRN3	3.860	0.785	0.851			
	TRN4	3.840	0.770	0.814			
Problem-solving	PRO2	3.890	0.776	0.770	0.850	0.849	0.653
	PRO3	3.900	0.804	0.821			
	PRO4	3.820	0.826	0.832			
Communication credibility	COM1	3.810	0.905	0.909	0.898	0.888	0.667
	COM2	3.870	0.799	0.818			
	COM3	3.860	0.851	0.774			
	COM4	3.830	0.827	0.757			
Customer satisfaction	SAT1	3.990	0.788	0.863	0.881	0.872	0.631
	SAT2	3.93	0.758	0.802			
	SAT3	3.97	0.799	0.789			
	SAT4	3.94	0.753	0.716			

CFA is used to ascertain the factor appropriateness of items and the number of dimensions in an empirical model (Nunnally & Bernstein, 1994; Jansom & Pongsakornrungsilp, 2021), as well as to identify dependent variables. CFA determines the data's fit to the empirical investigation (Bollen, 1989). The paper chose a theoretical framework for this research that included six variables: interaction, entertainment, trendiness, problem-solving, communication credibility, and customer satisfaction. The results of this model's multi-factor confirmatory study indicate that the acceptable threshold levels are compatible with those proposed by Hair et al. (1998) and Bollen (1989). Table 3 provides the CFA results in terms of how chatbots motivate communication credibility and lead to customer satisfaction. The average variance extracted (AVE) measures the variation calmed by the indicators relative to measurement error. This study discovered a range from 0.538 to 0.713, higher than 0.50. The composite reliabilities (CR) for all model concepts were over the threshold value of 0.70 (Teo et al., 2008), although the range was also more than 0.60 (0.725 to 0.909). All variable measurements were found to be acceptable, which powerfully suggests that the item set presents a single fundamental concept and provides indication of discriminatory validity.

3.3. Structural equation modeling (SEM)

SEM is a popular data analysis method used by scholars across various disciplines for maximum likelihood estimation. Therefore, the study analyzed the constructed model using SEM analysis to test the relationships. Once the overall model fit had been approved, the significance of individual path coefficients was examined, as this was the input for hypothesis testing. Commonly, the chi-square value is used to evaluate the overall fit of a model and to estimate the magnitude of the disagreement between the sample and the fitted covariance matrices (Hu & Bentler, 1999). Barrett (2007), Hair et al. (1998), and Bollen (1989) provided a good model fit result at a 0.05 threshold. The goodness-of-fit statistics for the structural model were chi-square $\chi^2 = 310.975$, df = 169, $\chi^2/df = 1.84$, GFI = 0.932, AGFI = 0.907, CFI = 0.976, NFI = 0.949, TLI = 0.970, and RMSEA = 0.046. The SEM results for analyzing how chatbots motivate communication credibility and lead to customer satisfaction proved a reasonable fit of the model based on numerous fit statistics.

4. DISCUSSION

Table 4 shows the findings of the hypothesis testing for the fit confirmation of the model describing how chatbots motivate communication credibility and lead to customer satisfaction, summarizing the path coefficients and the hypotheses in the SEM analysis.

H1 displayed that the chatbot e-service can provide interaction in apparel retailing, which is H1a, a chatbot with positive interaction evokes satisfaction with a regression weight estimate of standardized coefficients of 0.406, t-value 3.576, and Sig.0.000 < 0.05 (H1a is supported, Sig = 0.000*). The result matches with Holzwarth et al. (2006). They studied an avatar on web-based retail sales, indicating that customers will be satisfied with interactions when they make decisions to purchase and save time with an adviser while looking for products. Moreover, Kim and Ko (2010) also supported the notion that chatbot technologies can provoke positive interactions with customers. Meanwhile, H1b states that chatbot

Table 4. Structural model and hypothesis testing

Hypothesized relationship	Standardized coefficient	t	Sig.	Decision
H1a: Interaction → Satisfaction	0.406	3.576	0.000*	Supported
H1b: Interaction → Communication Credibility	−0.073	−0.805	0.421	Not Supported
H2a: Entertainment → Satisfaction	−0.165	−1.655	0.098	Not Supported
H2b: Entertainment → Communication Credibility	0.059	0.712	0.476	Not Supported
H3a: Trendiness → Satisfaction	0.214	2.211	0.027*	Supported
H3b: Trendiness → Communication Credibility	0.456	6.269	0.000*	Supported
H4a: Problem-solving → Satisfaction	0.223	2.355	0.019*	Supported
H4b: Problem-solving → Communication Credibility	0.485	7.049	0.000*	Supported
H5: Communication Credibility → Satisfaction	0.450	6.148	0.000*	Supported

Note: * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$.

interactions do not significantly evoke communication credibility (H1b is rejected). The result contrasts with the findings of Kim and Ko (2010), Holzwarth et al. (2006), and Cheng and Jiang (2021), who discovered that chatbot interactions motivate communication credibility among customers. However, the study showed that Thai respondents do not believe in information communication provided via e-services, as they instead like to interact with salespeople face-to-face. Dabholkar et al. (1996) supported the finding that brand associates in a physical store can build customer interaction and make people see the brand as courteous, helpful, and trustworthy. Thus, although Thai respondents use chatbots for interaction without wanting information credibility while communicating, interaction with chatbots can lead to satisfaction.

Interestingly, the finding for H2 showed that chatbot e-services with entertainment elements in apparel retailing show that both H2a and H2b are unsupported on communication credibility and customer satisfaction. Thai respondents did not experience entertainment of the chatbot that provides information when using e-service. However, this result contradicts Holzwarth et al. (2006), Godey et al. (2016), and Cheng and Jiang (2021). They examined the notion that a chatbot e-service provides positive entertainment and leads to satisfaction as well as communication credibility. Chatbots with an entertainment element do not prompt Thai customer satisfaction, although Godey et al. (2016) mentioned that human entertainment can help build social media experience. Indeed, entertainment may be involved with attributes of content or tools to communicate with consumers. Beyond this, entertainment cannot build credibility in communication, but it is involved with brand credibility (Erdem & Swait, 2004). Thus, Thai consumers do not use chatbots with entertainment.

H3 showed that a chatbot e-service can provide trendiness in apparel retailing, while H3a indicates that a chatbot with positive trendiness evokes satisfaction with a regression weight estimate of standardized coefficients of 0.214, t-value 2.211, and Sig. 0.027 < 0.05 (H3a is supported, Sig = 0.027*). Concerning the notion that chatbots provide up-to-date information, the result supported Muntinga et al. (2011) and Zolkepli and Kamarulzaman (2015), who studied how brands reflect trendiness in lifestyles. Meanwhile, H3b indicates that a chatbot with positive trendiness

evokes satisfaction, and there are regression weight estimates of communication credibility coefficients of 0.456, t-value 6.269, and Sig. 0.000* < 0.05 (H3b is supported, Sig = 0.000*). The result agrees with the findings of Muntinga et al. (2011), Godey et al. (2016), and Chung et al. (2020), providing trending information on social media is undertaken for four reasons, namely surveillance, knowledge, pre-purchase information, and inspiration. Overall, both H3a and H3b showed that Thai respondents use chatbots with trendiness when brands deliver trendiness information, which enhances the communication credibility of the information and raises customers' satisfaction with the brand.

Both H4a and H4b can provide positive chatbots with problem-solving elements, thus leading to customer satisfaction with a regression weight estimate of standardized coefficients of 0.223, t-value 2.355, and Sig. 0.019 < 0.05 (H4a is supported, Sig = 0.019*) and communication credibility with a regression weight estimate of standardized coefficients of 0.485, t-value 7.049, and Sig. 0.000 < 0.05 (H4b is supported, Sig = 0.000 *). This result also agrees with not only the traditional process but also the notion that a chatbot e-service enhances consumers' perceived service quality (Taylor, 2000; Kim et al., 2016). A chatbot with problem-solving element is a tool to deal with customer problems, complaints, returns, exchanges, and retail brand associates (Dabholkar et al., 1996; Kim et al., 2016). Thus, a chatbot with trendiness is important in motivating Thai consumers' perception of communication and satisfaction.

H5 shows that the communication credibility of a chatbot provides positive customer satisfaction, with a regression weight estimate of standardized coefficients of 0.450, t-value 6.148, and Sig. 0.000 < 0.05 (H5 is supported, Sig = 0.000*). Thai consumers experience perceiving credibility of communication via source credibility, which reflects their satisfaction with e-service agents. The result agrees with Maltz (2000), Wu and Wang (2011), and Erdem and Swait (2004), who studied the effect of the credibility of information communication on customer satisfaction. Additionally, Kim and Ko (2012) supported the idea that brands may use online communication to create strong customer connections, enhance profitability, and educate customers about their products and services. In addition, Emmers-Sommer (2004) emphasized that online communication must be seamless,

satisfying, timely, efficient, and accurate while delivering information. Thus, Thai customers' perceived information of communication credibility can lead to consumer satisfaction.

The above discussion emphasizes the importance of studying chatbot e-services in apparel retailing. When Thai customers engage with communication credibility and customer satisfaction, they are concerned about many e-service marketing efforts, such as using chatbots for interaction, trendiness, and problem-solving without any entertainment factor. Therefore, the study achieved its primary objective by examining and identifying the effect of e-service agents on communication credibility and customers' satisfaction.

CONCLUSION

During the COVID-19 pandemic, many brands redesigned their services to heighten online experiences. The conclusion sheds light on how chatbot e-service agents' marketing motivates consumers to perceive communication credibility and satisfaction in apparel retailing. The results can serve as a guideline for apparel retailing brands to certify appropriate marketing efforts via e-services. Chatbots utilize ways to save time interacting with brands, together with trendiness, which can build positive perceptions of fashionable or up-to-date brands. Companies may now exceed customer expectations while also achieving corporate goals and creating value using new technology tools. E-service agents are continuously accessible personal helpers that help create vital client relations, allow extra effective use of customer time, and offer greater empathy regarding product performance. Additionally, as accuracy increases, users will be able to engage in intelligent social interactions with virtual agents. One of the most essential features that a chatbot should have is the ability to engage in problem-solving with customers.

Furthermore, communication credibility can enhance satisfaction. The study investigated the elements of trendiness and problem-solving in chatbots in regard to communication credibility, finding that both are important concerning this aspect. While interactive chatbots can provide customer satisfaction without credibility, the manager or marketer can design first impressions with friendly or informal information. Moreover, chatbots with entertainment components are unimportant to focus on during communication and may not result in customer satisfaction.

Despite the fact that the study's purpose was accomplished, some limitations were discovered. This study did not include the mediating and moderating variables perceived to be related to the evaluation of chatbot e-service marketing efforts, communication credibility, and customer satisfaction. Additionally, the paper did not spatially study online communication platforms such as Facebook, websites, or the Line application via e-service marketing efforts. Therefore, it is suggested that future studies should add value perception and consumer experience as mediating variables in obtaining a deeper understanding of consumers.

AUTHOR CONTRIBUTIONS

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REFERENCES

1. Adjei, M. T., Noble, S. M., & Noble, C. H. (2010). The influence of C2C communications in online brand communities on customer purchase behavior. *Journal of the Academy of Marketing Science, 38*(5), 634-653. https://doi.org/10.1007/s11747-009-0178-5

2. Aleedy, M., Shaiba, H., & Bezbradica, M. (2019). Generating and analyzing chatbot responses using natural language processing. *International Journal of Advanced Computer Science and Applications, 10*(9). https://doi.org/10.14569/ijacsa.2019.0100910

3. Bailey, J., & McCollough, M. (2000). Emotional labor and the difficult customer: Coping strategies of service agents and organizational consequences. *Journal of Professional Services Marketing, 20*(2), 51-72. https://doi.org/10.1300/J090v20n02_05

4. Barrett, P. (2007). Structural equation modelling: Adjudging model fit. *Personality and Individual differences, 42*(5), 815-824. https://doi.org/10.1016/j.paid.2006.09.018

5. Ben Mimoun, M. S., Poncin, I., & Garnier, M. (2017). Animated conversational agents and e-consumer productivity: The roles of agents and individual characteristics. *Information & Management, 54*(5), 545-559. https://doi.org/10.1016/j.im.2016.11.008

6. Bilgin, N., Kuzey, C., Torlak, G., & Uyar, A. (2015). An investigation of antecedents of organizational citizenship behavior in the Turkish hospitality industry: A structural equation approach. *International Journal of Culture, Tourism and Hospitality Research, 9*(2), 200-222. https://doi.org/10.1108/ijcthr-08-2014-0072

7. Bollen, K. A. (1989). A new incremental fit index for general structural equation models. *Sociological methods & research, 17*(3), 303-316. https://doi.org/10.1177/0049124189017003004

8. Chen, J.-S., Le, T.-T.-Y., & Florence, D. (2021). Usability and responsiveness of artificial intelligence chatbot on online customer experience in e-retailing. *International Journal of Retail & Distribution Management, 49*(11), 1512-1531. https://doi.org/10.1108/ijrdm-08-2020-0312

9. Cheng, Y., & Jiang, H. (2022). Customer–brand relationship in the era of Artificial Intelligence: Understanding the role of chatbot marketing efforts. *Journal of Product & Brand Management, 31*(2), 252-264. https://doi.org/10.1108/jpbm-05-2020-2907

10. Chung, M., Ko, E., Joung, H., & Kim, S. J. (2020). Chatbot E-service and customer satisfaction regarding luxury brands. *Journal of Business Research, 117,* 587-595. https://doi.org/10.1016/j.jbusres.2018.10.004

11. Dabholkar, P. A., Thorpe, D. I., & Rentz, J. O. (1996). A measure of service quality for retail stores: Scale development and validation. *Journal of the Academy of Marketing Science, 24*(1), 3-16. https://doi.org/10.1007/bf02893933

12. Dawson, S., Bloch, P. H., & Ridgway, N. (1990). Shopping motives, emotional states, and. *Journal of retailing, 66*(4), 408-427.

13. Edwards, C., Edwards, A., Spence, P. R., & Shelton, A. K. (2014). Is that a bot running the social media feed? Testing the differences in perceptions of communication quality for a human agent and a bot agent on Twitter. *Computers in Human Behavior, 33,* 372-376. https://doi.org/10.1016/j.chb.2013.08.013

14. Emmers-Sommer, T. M. (2004). The effect of communication quality and quantity indicators on intimacy and relational satisfaction. *Journal of Social and Personal Relationships, 21*(3), 399-411. https://doi.org/10.1177/0265407504042839

15. Erdem, T., & Swait, J. (2004). Brand credibility, brand consideration, and choice. *Journal of Consumer Research, 31*(1), 191-198. https://doi.org/10.1086/383434

16. Esch, P., Cui, Y. G., & Jain, S. P. (2021). Self-efficacy and callousness in consumer judgments of AI-enabled checkouts. *Psychology & Marketing, 38*(7), 1081-1100. https://doi.org/10.1002/mar.21494

17. Godey, B., Manthiou, A., Pederzoli, D., Rokka, J., Aiello, G., Donvito, R., & Singh, R. (2016). Social media marketing efforts of luxury brands: Influence on brand equity and consumer behavior. *Journal of Business Research*, *69*(12), 5833-5841. https://doi.org/10.1016/j.jbusres.2016.04.181

18. Gruber, M., de Leon, N., George, G., & Thompson, P. (2015). Managing by design. *Academy of Management Journal, 58*(1), 1-7. https://doi.org/10.5465/amj.2015.4001

19. Hair, E., Halle, T., Terry-Humen, E., Lavelle, B., & Calkins, J. (2006). Children's school readiness in the ECLS-K: Predictions to academic, health, and social outcomes in first grade. *Early Childhood Research Quarterly, 21*(4), 431-454. https://doi.org/10.1016/j.ecresq.2006.09.005

20. Hair, J. F. J., Anderson, R. E., Tatham, R. L., & Black, W. C. (1998). *Multivariate Data Analysis* (5th ed.). Upper Saddle River, NJ, USA: Prentice Hall.

21. Holzwarth, M., Janiszewski, C., & Neumann, M. M. (2006). The influence of avatars on online consumer shopping behavior. *Journal of Marketing, 70*(4), 19-36. https://doi.org/10.1509/jmkg.70.4.19

22. Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal, 6*(1), 1-55. https://doi.org/10.1080/10705519909540118

23. Izard, C. E. (1977). Differential emotions theory. In *Human emotions* (pp. 43-66). Boston, MA: Springer.

24. Jansom, A., & Pongsakornrungsilp, S. (2021). How Instagram influencers affect the value perception of Thai millennial followers and purchasing intention of luxury fashion for sustainable marketing. *Sustainability, 13*(15),

8572. https://doi.org/10.3390/su13158572

25. Jian, G., Shi, X., & Dalisay, F. (2014). Leader–member conversational quality. *Management Communication Quarterly, 28*(3), 375-403. https://doi.org/10.1177/0893318914533201

26. Joosten, H., Bloemer, J., & Hillebrand, B. (2016). Is more customer control of services always better? *Journal of Service Management, 27*(2), 218-246. https://doi.org/10.1108/josm-12-2014-0325

27. Kang, J.-W., & Namkung, Y. (2019). The information quality and source credibility matter in customers' evaluation toward food O2O commerce. *International Journal of Hospitality Management, 78,* 189-198. https://doi.org/10.1016/j.ijhm.2018.10.011

28. Kim, A. J., & Ko, E. (2012). Do social media marketing activities enhance customer equity? An empirical study of luxury fashion brand. *Journal of Business Research, 65*(10), 1480-1486. https://doi.org/10.1016/j.jbusres.2011.10.014

29. Kim, S., Park, G., Lee, Y., & Choi, S. (2016). Customer emotions and their triggers in luxury retail: Understanding the effects of customer emotions before and after entering a luxury shop. *Journal of Business Research, 69*(12), 5809-5818. https://doi.org/10.1016/j.jbusres.2016.04.178

30. Kumar, V., Dixit, A., Javalgi, R. G., & Dass, M. (2016). Research framework, strategies, and applications of Intelligent Agent Technologies (IATS) in marketing. *Journal of the Academy of Marketing Science, 44*(1), 24-45. https://doi.org/10.1007/s11747-015-0426-9

31. Ladhari, R., Souiden, N., & Dufour, B. (2017). The role of emotions in utilitarian service settings: The effects of emotional satisfaction on product perception and behavioral intentions. *Journal of Retailing and Consumer Services, 34,* 10-18. https://doi.org/10.1016/j.jretconser.2016.09.005

32. Lee, S. Y., & Choi, J. (2017). Enhancing user experience with conversational agent for movie recommendation: Effects of self-disclosure and reciprocity. *International Journal of Human-Computer Studies, 103,* 95-105. https://doi.org/10.1016/j.ijhcs.2017.02.005

33. Lester, R. K., & Piore, M. J. (2004). *Innovation - the missing dimension.* Harvard University Press.

34. Maltz, E. (2000). Is all communication created equal?: An investigation into the effects of communication mode on perceived information quality. *Journal of Product Innovation Management: An International Publication Of The Product Development & Management Association, 17*(2), 110-127. https://doi.org/10.1111/1540-5885.1720110

35. Mohr, J. J., & Sohi, R. S. (1995). Communication flows in distribution channels: Impact on assessments of communication quality and satisfaction. *Journal of Retailing, 71*(4), 393-415. https://doi.org/10.1016/0022-4359(95)90020-9

36. Morra, M. C., Gelosa, V., Ceruti, F., & Mazzucchelli, A. (2018). Original or counterfeit luxury fashion brands? The effect of social media on purchase intention. *Journal of Global Fashion Marketing, 9*(1), 24-39. https://doi.org/10.1080/20932685.2017.1399079

37. Muntinga, D. G., Moorman, M., & Smit, E. G. (2011). Introducing COBRAs. *International Journal of Advertising, 30*(1), 13-46. https://doi.org/10.2501/ija-30-1-013-046

38. Naaman, M., Becker, H., & Gravano, L. (2011). Hip and trendy: Characterizing emerging trends on Twitter. *Journal of the American Society for Information Science and Technology, 62*(5), 902-918. https://doi.org/10.1002/asi.21489

39. Nunnally, J. C., & Bernstein, I. H. (1994). The Assessment of Reliability. *Psychometric Theory, 3,* 248-292.

40. Park, N., Kee, K. F., & Valenzuela, S. (2009). Being immersed in social networking environment: Facebook groups, uses and gratifications, and social outcomes. *CyberPsychology & Behavior, 12*(6), 729-733. https://doi.org/10.1089/cpb.2009.0003

41. Redman, T., & Mathews, B. P. (2002). Managing services: Should we be having fun? *The Service Industries Journal, 22*(3), 51-62. https://doi.org/10.1080/714005085

42. Rese, A., Ganster, L., & Baier, D. (2020). Chatbots in retailers' customer communication: How to measure their acceptance? *Journal of Retailing and Consumer Services, 56,* 102176. https://doi.org/10.1016/j.jretconser.2020.102176

43. Taylor, R. (2000). Marketing strategies: Gaining a competitive advantage through the use of emotion. *Competitiveness Review, 10*(2), 146-152. http://dx.doi.org/10.1108/eb046407

44. Teo, T. S., Srivastava, S. C., & Jiang, L. (2008). Trust and electronic government success: An empirical study. *Journal of Management Information Systems, 25*(3), 99-132. https://doi.org/10.2753/mis0742-1222250303

45. Tran, A. D., Pallant, J. I., & Johnson, L. W. (2021). Exploring the impact of chatbots on consumer sentiment and expectations in retail. *Journal of Retailing and Consumer Services, 63,* 102718. https://doi.org/10.1016/j.jretconser.2021.102718

46. Wu, P. C. S., & Wang, Y. C. (2011). The influences of electronic word-of-mouth message appeal and message source credibility on brand attitude. *Asia Pacific Journal of Marketing and Logistics, 23*(4), 448-472. https://doi.org/10.1108/13555851111165020

47. Xu, Y., Shieh, C.-H., van Esch, P., & Ling, I.-L. (2020). AI customer service: Task complexity, problem-solving ability, and usage intention. *Australasian Marketing Journal, 28*(4), 189-199. https://doi.org/10.1016/j.ausmj.2020.03.005

48. Yen, C., & Chiang, M.-C. (2021). Trust me, if you can: A study on the factors that influence consumers' purchase intention triggered by chatbots based on brain image evidence and self-reported assessments. *Behaviour & Information Technology, 40*(11), 1177-1194. https://doi.org/10.1080/0144929x.2020.1743362

49. Zolkepli, I. A., & Kamarulzaman, Y. (2015). Social media adoption: The role of media needs and innovation characteristics. *Computers in Human Behavior, 43,* 189-209. https://doi.org/10.1016/j.chb.2014.10.050

APPENDIX A

Table A1. Factor analysis results

Items	Factor loadings					
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
ENT2 I was engrossed in the chatbot service agent's response.	0.781					
ENT3 I was excited to talk with the chatbot service agent.	0.776					
ENT1 It is amusing and pleasurable to converse with the chatbot service agent.	0.749					
ENT4 I appreciate selecting things more when they are suggested by a chatbot service agent than when I select them myself.	0.741					
SAT3 Overall, I am pleased with my experience with the chatbot.		0.834				
SAT4 I would advise people to utilize the chatbot.		0.783				
SAT2 I am delighted with the pre-purchase experience I had with the chatbot (e.g., product search, quality of product or service information, product comparison).		0.743				
SAT1 I appreciate using the chatbot.		0.740				
COM4 The agent of communication is moral.			0.796			
COM3 The conversational agent is honorable.			0.772			
COM2 The conversational agent is trustworthy.			0.717			
COM1 The conversational agent is honest.			0.692			
PRO2 When a customer has an issue, a service agent demonstrates a genuine desire to resolve it.				0.777		
PRO3 The conversational agent may promptly and directly answer customer complaints.				0.745		
PRO4 I have confidence in the service agent's ability to do the task.				0.716		
PRO1 The service agent processes returns and exchanges willingly.				0.421*		
TRN3 The service agent offers the latest content.					0.757	
TRN4 It is trendy to utilize the brand's service agent.					0.726	
TRN1 The service agent gives the newest information.					0.686	
TRN2 Using the brand's service agent is very trendy.					0.336*	
INT1 The chatbot service agent is currently sensitive to customers' needs.						0.774
INT2 The chatbot service agent has the knowledge to answer customers' questions.						0.746
INT3 The chatbot service agent gives customers individual attention.						.584
Eigenvalues	10.643	5.094	1.854	1.535	1.328	1.120
% of variance	33.958	12.359	10.235	8.855	2.541	1.301
Cumulative % of variance	33.958	46.317	56.552	65.407	67.948	69.249

Note: * means factor loading > 0.5 (removed from statistical analysis).