Construction and Application of a College English Blended Teaching System Based on Multi-Source Data Fusion

Hongyan Xi, Yichun University, China

Dongyan Sang, Cangzhou Preschool Teachers College, China*

ABSTRACT

By using modern data analysis techniques, this study aims to construct an innovative university English teaching effectiveness evaluation model based on particle swarm algorithm and support vector machine. The model is designed to improve assessment accuracy and personalization. The research process includes the methodology of data collection, preprocessing, model construction and evaluation. The experimental results show that the model can more accurately assess students' English learning effectiveness and provide customized suggestions for personalized education. This research is important for improving the quality of university English education, promoting personalized learning, and providing support tools for educational decision makers.

KEYWORDS

College English, College English Teaching, Evaluation Model, Multi-Source Data Fusion, Particle Swarm Algorithm, Support Vector Machine

INTRODUCTION

According to Buhalis et al. (2020), the use of e-commerce is increasingly widespread, especially in the field of tourism. A growing number of travel consumers, especially young tourists, are using internet search engines and social network platforms and booking service applications for tourism activities. The presence of e-commerce in the travel industry—in OTAs (online travel agencies), for instance—has been continuously influencing the behavior of the community and the consumer purchasing model. (Cham et al., 2020). Many customers are starting to consider using online booking whenever they need anything related to travel, especially hotel and transportation services (Zahratu & Hurriyati, 2020). It is crucial for OTAs to understand the factors influencing customer satisfaction in order to implement strategies that strengthen customer impact (Dutta et al., 2017).

Additionally, the emergence of OTAs has transformed the way consumers search for and book travel services. As observed, OTAs appeared in the late 1990s and continued to thrive over the subsequent decade, becoming a vital part of the online travel industry. The development of industrial revolution 4.0 has brought many opportunities for online commerce. The outbreak of the COVID-19

*Corresponding Author

pandemic has brought difficulties to the tourism industry. However, OTAs have had the opportunity to develop as Vietnamese consumers have changed traditional shopping habits by ordering services from direct travel agents and tour operators. The presence and growth of OTAs have become more crucial than ever in the context of the post-COVID-19 world, as OTAs play a significant role in connecting tourists with travel services and facilitate their online search, price comparison, and booking.

In Vietnam, the development of OTAs has provided travelers with more options and created a vibrant, competitive environment among travel service providers. According to statistical data from Dutta et al (2017), over 30% of bookings for luxury hotels come from travel companies and tour operators. Second ranking are OTAs, contributing nearly 26%, and their influence is steadily increasing. In this sector, cross-border service providers such as Agoda.com, Booking.com (both under Booking Holdings), Trivago.com, and Hotels.com (under Expedia Group), as well as Airbnb. com, TripAdvisor and Traveloka (Indonesia), are dominating the market. Additionally, according to a survey by Huang & Lan in 2021 targeting individuals aged 16–64, consumers' needs when using the internet extend beyond search engines. Other sources, such as word-of-mouth recommendations, comments on social media, and consumer review websites, also play a significant role in meeting their demands.

For the Vietnam market, currently, popular OTA channels are mostly international online channels. However, to reach the market, OTA channels also need to learn the behaviors of customers and the differences among them to be able to build appropriate websites (Huang & Lan, 2021). In addition, one of the challenges for businesses involved in online travel services is retaining customers, or in other words, ensuring customer satisfaction through the quality of the services provided, leading to service purchase behavior and continued use of OTA services. However, up to this point in Vietnam, studies have focused mainly on consumers' online shopping intentions in the general e-commerce sector. There have been limited studies in the field of tourism, especially research related to online travel services, specifically OTAs in online hotel booking. OTAs are important because they help increase the visibility of hotel brands on websites, thereby enhancing tourist interest and occupancy rates (Ling et al., 2015). According to Sardar et al. (2021), from the consumer's perspective, booking through OTAs provides benefits related to convenience, financial advantages (such as lower prices), speed, enjoyment, and variety of products/services (Liu & Zhang, 2014). Previous research has predominantly emphasized channel cooperation or channel competition (Yang et al., 2013). Although the subjects examined in previous studies included various channels, these channels were all affiliated with the same business organization.

In the competitive context of the tourism industry, especially with the development of the OTA system, OTA channels need to invest in quality factors to attract customers. Furthermore, intangible products can pose challenges in terms of quality measurement from pre-consumption to purchase (Yan et al., 2018). Consumers, in general, often rely on word-of-mouth (WOM) information from family or acquaintances to learn about product attributes and quality (Kamalasena & Sirisena, 2021). Nowadays, in the digital age, consumers tend to utilize WOM through a form of social media communication known as EWOM (Chakraborty & Bhat, 2018). Before the rise of digitalization and the widespread use of EWOM by consumers, these studies didn't clearly explain how the factors influencing EWOM affect travelers' intentions to book through OTA channels. Many studies (e.g., Pinto and Castro, 2019) have explored the influence of positive and negative reviews on purchase intentions. Meanwhile, some researchers have shifted their focus to travel blogs and online diaries as a form of EWOM, often using content analysis or narrative analysis techniques (Ajzen & Fishbein, 2000). In addition, previous research also suggests that EWOM yields different impact outcomes on different platforms and different approaches (Yan et al., 2018). However, the antecedents affecting customer EWOM adoption are inconsistent across studies. Furthermore, with the popularity of social media platforms today (such as Facebook, TikTok, Instagram, YouTube, etc.), current research often focuses on studying the impact of EWOM on social media in influencing destination choices or the

use of travel products and services, because social media has become an integral part of the daily lives of internet users.

However, this does not mean that researching OTAs or other areas is unimportant. OTAs still play a vital role in the tourism industry, and research in this field also holds value for understanding how technology is changing the way tourists travel and purchase travel services. Therefore, both lodging service providers and OTAs are interested in determining the most important factors influencing customer information adoption on OTA platforms, especially in potential online travel markets like Vietnam. According to statistics from the Yan et al. (2018), from 2015 to 2019, 88% of Vietnamese tourists used the internet to search for tourism information; the total number of online information searches by domestic tourists increased more than 32 times, an average of more than 5 million visits per month. However, 80% of OTA platforms are sites operated by foreign companies, a situation which also hinders the access of Vietnamese tourists because of the user interface, language and usage, and payment method. Consequently, this research undertook a survey to investigate the factors that drive information adoption ultimately leading to online purchase intentions across OTA channels. The research focused on examining the impact of the factors leading to information adoption and pre-purchase by tourists on OTA channels.

The purpose of the study is to evaluate the impact of EWOM on the purchasing intentions of tourists on online travel agency channels and the relation of attitude and subjective norms to the adoption of EWOM information. It contributes to enhancing our understanding of the relationship between EWOM and customer behavior within the tourism and hotel industry. Given the focus of this study on EWOM within OTA channels, the use of the IAM (information adoption model) is deemed appropriate. The factors from IAM utilized in this study include information quality, information credibility, and information adoption. Moreover, TRA (the theory of reasoned action) suggests that before taking action, an individual's intention is shaped on the basis of their attitude and subjective norm (Ajzen & Fishbein, 2000). The research results will contribute to the theory of EWOM, online travel, and hotel marketing, as well as providing management recommendations for hotel marketing managers and OTA marketers. Additionally, the practical contributions of this study are as follows. There is not much research on the role of EWOM and tourist behavior during the accessing of online accommodation booking applications in Vietnam. The research focuses on understanding the consumer behavior characteristics of Vietnamese tourists. Therefore, the results uncover differences within the consumption culture of Vietnamese tourists. It provides insights into the significance of the management and development of OTAs within this sector. Finally, in particular, the findings will be useful to OTA marketers in Vietnam, who can offer marketing strategies and tourism products to satisfy the needs of tourists. It will also be useful to Vietnamese consumers, who will be able to easily access this form of booking services directly to serve their travel needs, contributing to promoting tourism industry activities in the context of globalization.

THEORETICAL BACKGROUND

IAM

EWOM typically contains basic information exchanged between senders and receivers (Kumar et al., 2023). However, the way this information is perceived can differ as it travels from one person to another. The same content may be received differently, leading to varying perceptions and ideas among those receiving the information (Cheung et al., 2008), even though the initial content may be similar. Previous research findings indicate that many scholars have applied TRA and TAM (technology acceptance model) to elucidate how individuals are influenced in the process of receiving and applying ideas or information (Davis F. D., 1989; Ajzen, 2000). However, Sussman and Siegal (2003) took a more comprehensive approach when considering EWOM within a dual-theory model known as the Information Adoption Model (IAM). Moreover, IAM has received considerable recognition among researchers in its application to EWOM studies (Cheung et al., 2008; Shu and Scott, 2014; Kumar et

al., 2023). For instance, Cheung et al. (2008) employed IAM in the investigation of behavior within online discussion forums, while Shu and Scott (2014) also considered IAM in their examination of social media communication. Given the focus of this study on EWOM within OTA channels, the use of IAM is deemed appropriate. The factors from IAM utilized in this study include information quality, information credibility, and information adoption.

TRA Model

TRA suggests that before taking action, an individual's intention is shaped on the basis of their attitude and subjective norms (Ajzen & Fishbein, 2000). In previous research, this theory was commonly applied to explore the relationship between EWOM and purchase intention (Cheung & Thadani, 2012). However, researchers often focus primarily on two main components of the TRA model: attitude and behavioral intention. There are various perspectives on subjective norms, which relate to how individuals interpret others' opinions when forming their behavior. Ajzen & Fishbein (2000) explained that when an individual's personality is largely uninfluenced by the opinions of others, the impact of subjective norms on intention becomes negligible. This viewpoint is also supported by Erkan and Evans (2018), who excluded the role of subjective norms in their study of WOM intentions.

However, in the context of researching online purchase intention, Litvin et al. (2018) established a positive relationship between the subjective norm and the intention to make online purchases. Some researchers propose that the information influencing online purchase intention can be categorized as "experiential information" (Nelson, 1970). In an information-based economy, less-experienced online consumers often rely on the guidance of friends or relatives. Furthermore, in a Southeast Asian nation where community and social culture are highly valued, the influence of an individual's social environment on their behavioral intention is significant. Consequently, this study suggests including all three variables from the TRA model: attitude toward information, subjective norm toward information, and purchase intention.

EWOM

The rapid development of the internet has led to the growth of online communication through websites, blogs, and social media such as Facebook, Instagram, and more. The comments and feedback of previous consumers are important reference resources for tourists (Xu et al., 2020; Saura et al., 2021; Luan et al., 2022). As a result, the WOM channel—direct information exchange among consumers— has evolved into a more modern form known as EWOM (Hussain et al., 2020). In the research of Ismagilova et al. (2020), the most commonly employed definition of EWOM characterizes it as "any favorable or unfavorable expression shared by potential, current, or past customers regarding a product or a company, which is accessible to individuals and organizations through the internet." Furthermore, EWOM serves as a type of online evaluation and commentary that can propagate when the message possesses persuasive or remarkable qualities. In the context of evolving online platforms, this mode of communication has gained specific prominence, establishing itself as one of the internet's most influential information sources.

OTAs

An OTA, also known as a third-party booking website, serves as a fundamental tool in the field of online tourism. The primary function of OTA websites is to provide travel product information to consumers, allowing users to book services online (Pan et al., 2013).

CONCEPTUAL FRAMEWORKS AND HYPOTHESIS DEVELOPMENT

Lis (2013) stated that information credibility is a term defining the positive characteristics of the message source, which influences the information adoption of the recipient (trust in the message).

Reliable sources of information often generate positive and persuasive messages, thus influencing a favorable attitude toward products/services related to evaluations. Pan et al. (2013) examined the positive impact of EWOM source credibility on the information adoption of online users during the travel planning process. Therefore, this study also posits that EWOM source credibility promotes user information adoption on OTAs through EWOM communication and proposes the following hypothesis:

Hypothesis 1: Information credibility has a positive impact on the information adoption of EWOM on OTA channels by tourists.

Information quality is a term that relates to the effectiveness of arguments presented within a message when conveying information. Lê Minh Chí (2018) clarified that it is the persuasiveness of these arguments that recipients take into account when defending their viewpoints. Within the context of end-user computing, the evaluation of information quality primarily encompasses the content, accuracy, format, and timeliness of the information. According to De Maeyer (2012), IAM and research on the persuasiveness of information, using Petty and Cacioppo's Elaboration Likelihood Model, have laid the groundwork for numerous subsequent studies underscoring the significant impact of information quality on attitude change and recipient behavior. On the basis of the arguments above, a hypothesis is proposed as follows:

Hypothesis 2: Information quality has a positive impact on the information adoption of EWOM on OTA channels by tourists.

Wang et al. (2015) defined reviewer expertise as the information about specific products provided by an individual with extensive knowledge and reliable information. Cheung et al. (2008) stated that travelers need to determine the expertise and credibility of the reviewer to accept or reject information. If travelers believe that the opinions are posted by individuals with expertise and high credibility, travelers will have a better perception of the usefulness of the opinions and comments. Many studies have confirmed that the expertise of the reviewer becomes a factor influencing EWOM (Cheung et al., 2008). Based on the arguments above, a hypothesis is proposed as follows:

Hypothesis 3: Reviewer expertise has a positive impact on the information adoption of EWOM on OTA channels by tourists.

The term *information quantity* refers to the amount or volume of data available that is appropriate for a specific task. The quantity of EWOM displayed on OTA channels primarily represents the number of online reviews for each accommodation; it serves as a signal for information processing, because it is a shortcut that consumers can use to make decisions. The quantity of EWOM associated with each product is seen as a gauge of the product's popularity and its impact on market purchasing decisions (Yones & Muthaiyah, 2023). Travelers often perceive accommodations with a higher number of reviews as being more popular and booked more frequently compared to those with fewer reviews. Previous studies have confirmed the positive impact of the quantity of EWOM on customers' purchasing decisions (Filieri and McLeay, 2014). Therefore, this study hypothesizes:

Hypothesis 4: Information quantity has a positive impact on the information adoption of EWOM on OTA channels by tourists.

Product ranking, a numerical representation derived from collective traveler reviews, plays a crucial role in EWOM. It provides a summary of lodging service evaluations, reflecting positive, neutral, and negative feedback. As a common attribute of EWOM, product ranking aids in categorizing

opinions and producing unbiased summaries, enhancing the adoption of information on OTAs. OTAs employ diverse measurement scales, like TripAdvisor's five-point system, influencing travelers' choices by narrowing options. Customer value is attached to overall average ratings, impacting decision making. Extensive research conducted by Cheung et al. (2008) delved into the influence of this factor on the information adoption behavior of online travel users, affirming its notably positive impact on user decision making. Consequently, the author contends that the comprehensive product ranking can exert an effect on the adoption of information from EWOM on OTAs and posits thefollowing hypothesis:

Hypothesis 5: Product ranking has a positive impact on the information adoption of EWOM on OTA channels by tourists.

Attitude toward information can be assessed by considering information deliberation prior to selection, the benefits derived from the information, beliefs, or the level of trust in the gathered information for decision making (Erkan & Evans, 2018). Attitude is a crucial research variable in predictive behavior models such as TRA and the Theory of Planned Behavior (TPB) (Ajzen & Fishbein, 2000). Erkan and Evans (2018) also demonstrated that attitude toward information influences users' perceptions of the usefulness of the information and their intentions. In this study, *attitude toward information* is defined as an individual's feelings when considering engaging in shopping through e-commerce platforms via EWOM. Consequently, the research hypothesis is posited in the following manner:

Hypothesis 6: The attitude of tourists on OTA channels has a positive impact on information adoption of EWOM on OTA channels by tourists.
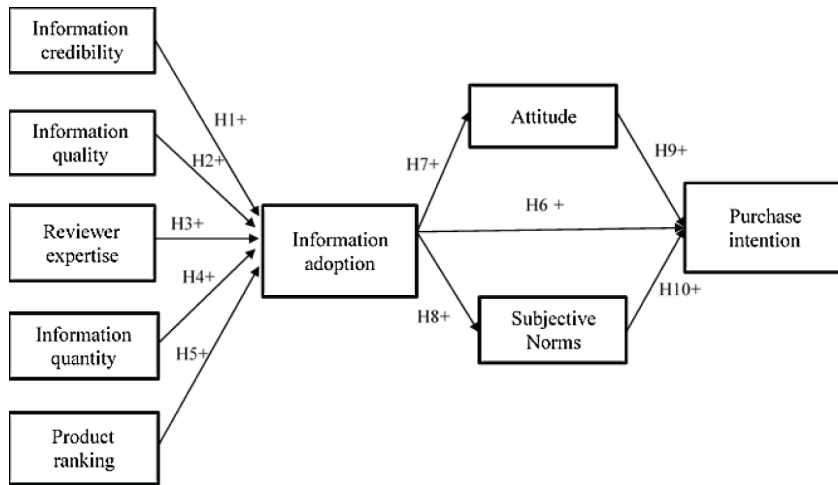
Subjective norm represents an individual's perception of social influence, whether it encourages or discourages their specific behavior. In e-commerce activities, information generated by EWOM influences consumers. These are opinions and perspectives often created by acquaintances, colleagues, and loved ones, known as peer influence, affecting whether consumers should or should not perform their individual behaviors. According to Ajzen (2002), the subjective norms are influenced by WOM in the field of technology application in the consumer market. Moreover, Sulthana and Vasantha (2019) found that WOM positively influenced subjective norms. In this study, *subjective norm* is defined as individuals' perceptions of the reference group's expectations regarding shopping behavior through e-commerce platforms via EWOM. Therefore, researching EWOM and subjective norms is essential:

Hypothesis 7: The information adoption of EWOM has a positive impact on the subjective norms of tourists on OTA channels.

EWOM adoption relies on the influence of social norms and the sentiments prevailing within the online community. Individuals engender trust in EWOM while in the midst of their evaluation. When customers regard a review or opinion as reliable, it instills greater confidence in customers to embrace EWOM and employ it as a guide for their purchasing choices. In this research, *the adoption of EWOM* is defined as the acceptance of using information provided by online shoppers as a reference for making purchase decisions. On the basis of the arguments above, a hypothesis is proposed as follows:

Hypothesis 8: The information adoption of EWOM has a positive impact on the purchasing intention of tourists on OTA channels.

Figure 1. Research framework

The TRA model (Ajzen & Fishbein, 2000) introduces the concepts of attitude and subjective norm toward information. Drawing insights from Ahmad et al. (2020), it was Raising children that subjective norms play a substantial role, particularly in countries with community-oriented cultures such as Vietnam. Therefore, the proposed hypotheses are that attitudes and subjective norms toward EWOM can positively impact the purchase intentions of tourists.

Hypothesis 9: The attitude of tourists has a positive impact on purchasing intention on OTA channels.
Hypothesis 10: The subjective norm of tourists has a positive impact on purchasing intention on OTA channels.

RESEARCH METHODOLOGY

Data Collection Procedure

The study utilizes a quantitative research approach, involving the distribution of a survey questionnaire directly to tourists. The findings from this research serve to validate the theoretical model. A pilot test was carried out with 30 participants in Ho Chi Minh City to assess the questionnaire's validity and reliability. The sample selection follows the convenience sampling method. The convenience sampling method is used to collecting the study data because it is effective and appropriate for contact with the target audience for this survey, namely tourists living and working in Ho Chi Minh City who have previously booked accommodation services on online travel agency websites/apps and have consulted online reviews/comments on these websites/apps before making a booking decision. To access the target audience, the sampling method was carried out directly and on-site at tourist attractions in Ho Chi Minh City, including: Nguyen Hue Walking Street, Independence Palace, Bach Dang Pier, Ho Chi Minh City Post Office, and Tao Dan Park.

The research scale was adapted from previously published studies. Each participant completed the assessment using a five-point Likert scale from "strongly disagree" (1) to "strongly agree" (5). Information credibility consisted of four items developed by Ahmad et al. (2020) and three items for information quality. Information quantity consisted of three items developed by Lin et al. (2013). Lin et al. (2013) developed five items for reviewer expertise; product ranking consisted of two items

developed by Filieri and McLeay (2014). Cheung et al. (2008) and Lin et al. (2013) developed four items for Information adoption; attitude consisted of three items developed by Ahmad et al. (2020) This research developed three items for subjective norms, and purchase intention consisted of five items. A total of 320 questionnaires were collected from August, 2023, to October, 2023, of which 286 questionnaires were valid and 34 responses were rejected because they did not meet the study's eligibility criteria.

The questionnaire includes the following categories, each assessed using a five-point Likert scale from "strongly disagree" (1) to "strongly agree" (5) in Table 1: (1): Information credibility (four items) obtained from Ahmad et al.(2020); (2): Information quality (three items) obtained from Le and Le (2018); (3): Information quantity (three items) obtained from Lin et al. (2013); (4): Reviewer expertise (five items) obtained from Lin et al. (2013); (5): Product ranking (two items) obtained from Filieri et al. (2014); (6): Information adoption (four items) obtained from Cheung et al. (2009); (7): Attitude (three items) obtained from Le and Le (2018); (8): Subjective Norms (three items) obtained from Le and Le (2018); (9): Purchase intention (five items) obtained from Lin et al. (2013).

DATA ANALYSIS

Reliability and Validity

The author employed SPSS and AMOS 22.0 to empirically evaluate and analyze the proposed study model. Before testing the hypotheses, the author computed descriptive statistics about profiles of respondents. Additionally, the author assessed various types of reliabilities and validities and conducted confirmatory factor analysis to establish discriminant validity. Subsequently, structural equation modeling (SEM) was applied to examine the hypotheses outlined in Figure 1, utilizing several fit indices such as TLI, CFI, SRMR, IFI, RMSEA, and a chi-square test ($\chi2$) to assess the model fit. The $\chi2/df$ values should be below 3 for a satisfactory model fit and the CFI, IFI, and TLI should exceed 0.90. SRMR and RMSEA values should not surpass 0.08.

To further ensure "reliability and validity," the author conducted tests on the average variance extracted (AVE), convergent validity (specifically, indicator loadings and critical ratios), and discriminant validity (i.e., inter-factor correlations). AVE results exceeding 0.50 are considered acceptable (Asif, 2023). An item loading surpassing 0.50 is deemed sufficient. Discriminant validity is established when the anticipated correlations are below 0.85 (Hussain et al., 2020). The associations between the study constructs were analyzed using a structural equation modeling (SEM) test with maximum likelihood estimation.

Statistical Analysis

Regarding gender, the participants were 35.3% male, 64.7% female. In terms of age, 81.5% were aged 18–30, 15.4% aged 31–40, and 3.1% above 41. Regarding educational attainment, 88.1% of participants had completed college/university, 8% had completed high school, 0.7% middle school, and 3.1% postgraduate. Income levels differed significantly among specific groups, with 50.3% having an annual income under 5 million VND, 22% 5-10 million VND, 21% 10-15 million VND, and 6.6% over 15 million VND. Regarding occupation, 58.4% of participants were students, 17.1% were office workers, 10.8% were civil servants, 9.1% were business/retail workers, 2.8% were teachers, 0.7% were manual laborers, 0.3% were unemployed, and 0.7% were in other professions. Regarding the frequency of online room booking within one year, 68.2% booked fewer than three times, 24.5% booked three to five times, and 7.3% booked more than five times a year. Regarding the importance of the role of online reviews for participants in making decisions before booking a hotel room online, 52.4% found online reviews very interesting, 28% occasionally read online reviews, 17.1% rarely read online reviews, and 2.4% had other opinions. Regarding OTA channel preference, 30.5% preferred

Table 1. Scale items and scale encoding

Encoding	Items	Reference
	1. Information credibility (IC)	
IC1	Information evaluated/commented on by customers online is persuasive and can be referenced.	Le et al. (2018)
IC2	Information evaluated/commented on by customers online is authentic.	
IC3	Information evaluated/commented on by customers online is reliable.	
IC4	Information evaluated/commented on by customers online is accurate.	
	2. Information quality (IQ)	
IQ1	Online reviews/comments are easy to understand.	Le et al. (2018)
IQ2	Online reviews/comments are clear.	
IQ3	Online reviews/comments are of high quality and provide complete information.	
	3. Information quantity (IN)	
IN1	A large number of online reviews/comments indicate that the accommodation facility is popular.	Lin et al. (2013)
IN2	A large volume of online review/comment information suggests that the accommodation facility has good sales performance.	
IN3	High ratings and recommendations indicate that the accommodation facility has a good reputation.	
	4. Reviewer expertise (RE)	
RE1	I think the people providing online reviews/comments are experienced.	Le et al. (2018)
RE2	I think the people providing online reviews/comments have extensive knowledge about the product.	
RE3	I think the people providing online reviews/comments have the ability to make judgments.	
RE4	This person provides some ideas different from other sources.	
RE5	This person mentions some things that I haven't considered.	
	5. Product ranking (PR)	
PR1	The overall rankings of different accommodation facilities help me easily evaluate/compare the available choices.	Filieri et al. (2014)
PR2	The overall rankings help me quickly choose the best accommodation among many alternative options.	
	6. Information adoption (IA)	
IA1	The information from the reviews has contributed to helping me understand more about the discussed product/service.	Cheung et al. (2009)
IA2	The reviews make it easier for me to make online booking decisions.	
IA3	The reviews help me make online booking decisions with more confidence.	
IA4	The reviews have motivated me to take online booking actions.	
	7. Attitude (AT)	
AT1	When I want to book a room, I always read the information shared on online travel agency websites about accommodation facilities.	Le et al. (2018)
AT2	The shared review information is helpful and assists me in making online booking decisions.	
AT3	The shared information and reviews on online travel agency websites make me feel confident when making reservations.	
	8. Subjective Norms (SN)	
SN1	My relatives think that I should consult reviews on online travel agency websites before booking.	Le et al. (2018)
SN2	People I value advise me to consider reviews on various online travel agency websites.	
SN3	People like me often read shared information on online travel agency websites before making reservations.	

Table 1. Continued

Encoding	Items	Reference
	9. Purchase Intention (PI)	
PI1	After reading online reviews/comments, I want to book the accommodation.	
PI2	I will consider choosing the accommodation discussed in the online reviews/comments section.	
PI3	I plan to try booking the accommodation discussed in the online reviews/comments.	Lin et al. (2013)
PI4	In the future, I intend to search for accommodations discussed in the online reviews/comments section.	
PI5	In the future, I intend to book the accommodation discussed in the online reviews/comments section.	

Source: Compiled by the authors.

Traveloka, 27.6% preferred Agoda, 22.8% preferred Booking, 6.1% preferred Vietnambooking, 4.4% preferred Ivivu, 3% preferred Vntrip, 1.2% preferred Expedia, and 2.2% preferred Airbnb and others.

Reliability of the Scale

The study employed Cronbach's alpha coefficient to assess the reliability of the scale. Verifying the reliability coefficient is crucial for ensuring research accuracy, as it helps identify and eliminate unreliable observed variables. Acceptance criteria for scales included a coefficient of 0.5 and above (Hair et al., 2021, Chapter 1). Table 2 reveals that all Cronbach's alpha coefficients are greater than 0.6, indicating the scales are reasonably robust and exhibit a high level of reliability.

EFA—Exploratory Factor Analysis

To analyze the suitability of EFA, the scale must meet KMO ≥ 0.5 and have a Bartlett's test < 0.05. The results indicate that the scale corresponding to the research model has KMO = 0.789, Sig. = 0.000, Chi-Square = 7213.549, and df = 496. The analysis of Eigenvalues (Eigenvalues ≥1) shows that nine factors provide the most suitable representation of the data's characteristics, with a total variance explained at 75.198% ≥ 50%. Moreover, the rotation matrix further indicates that all factors are at 0.5, signifying that the variables remain unchanged, with no exclusions, particularly as there are no duplicate elements uploaded (Table 3).

Table 2. Results of the reliability analysis of the scale

Code	Scale	Number of Observed Variables	Cronbach's Alpha Coefficient	Conclusion
IC	Information credibility	4	0.900	Accept
IQ	Information quality	3	0.921	Accept
RE	Reviewer expertise	5	0.904	Accept
IN	Information quantity	3	0.928	Accept
PR	Product ranking	2	0.935	Accept
IA	Information adoption	4	0.919	Accept
AT	Attitude	3	0.922	Accept
SN	Subjective Norms	3	0.893	Accept
PI	Purchase intention	5	0.912	Accept

Table 3. Exploratory factor analysis result

Factors/items	Factor loading	Eigenvalue	% of variance explained
Purchase intention (PI)		6.678	20.075
PI5	0.906		
PI4	0.892		
PI3	0.825		
PI1	0.749		
PI2	0.735		
Reviewer expertise (RE)		3.658	30.720
RE4	0.889		
RE2	0.826		
RE1	0.802		
RE3	0.801		
RE5	0.745		
Information adoption (IA)		2.991	39.268
IA2	0.900		
IA3	0.837		
IA1	0.836		
IA4	0.818		
Information credibility (IC)		2.878	47.486
IC4	0.884		
IC3	0.878		
IC2	0.817		
IC1	0.760		
Informtion quality (IQ)		2.507	54.590
IQ2	0.978		
IQ1	0.863		
IQ3	0.839		
Information quantity (IN)		2.376	61.252
IN3	0.916		
IN2	0.914		
IN1	0.869		
Attitude (AT)		1.956	66.689
AT2	0.965		
AT3	0.872		
AT1	0.843		
Subjective norms (SN)		1.585	71.125
SN2	0.908		
SN1	0.877		
SN3	0.796		
Product ranking (PR)		1.502	75.198
PR1	0.946		
PR2	0.903		

Table 4. Reliability and validity findings

	CR	AVE	SN	PI	RE	IA	IC	IQ	IN	AT	PR
SN	0.895	0.740	**0.860**								
PI	0.902	0.655	0.215	**0.809**							
RE	0.906	0.660	0.059	0.203	**0.812**						
IA	0.920	0.742	0.135	0.236	0.189	**0.862**					
IC	0.900	0.694	0.033	0.129	0.201	0.133	**0.833**				
IQ	0.924	0.803	0.038	0.026	-0.067	0.030	0.078	**0.896**			
IN	0.928	0.811	0.001	0.178	0.257	0.263	0.260	-0.034	**0.900**		
AT	0.926	0.806	0.248	0.198	0.052	0.433	0.147	0.032	0.079	**0.898**	
PR	0.938	0.883	0.111	0.101	0.108	0.381	0.070	0.047	0.137	0.249	**0.939**

Confirmatory Factor Analysis (CFA), Reliability, and Validity

To enhance the assessment of the measures and establish both convergent and discriminant validity, a confirmatory factor analysis (CFA) was executed. The CFA models, conducted on theoretically associated constructs, yielded the following results (Chi-square = 2.002, CFI = 0.939, GFI = 0.839, TLI = 0.929, and RMSEA = 0.059), all indicative of a strong fit with the proposed model. Moreover, internal consistency was scrutinized by evaluating composite reliability (CR), discriminant validity, and convergent validity for all statements to enhance the robustness of the data and the study framework. As depicted in Table 4, the CR of all constructs varied from 0.895 to 0.938, surpassing the recommended threshold (CR > 0.7). Statistical outcomes of AVE for all loaded variables, ranging between 0.655 and 0.883, demonstrated convergent validity, surpassing the 0.50 threshold. Additionally, discriminant validity was assessed in this study, with all statistical outcomes of the square root of AVE surpassing the inter-factor relationship values.

Structured Equation Modeling

In this model, the criteria include chi-squared with a p-value < 0.05, CFI (comparative fit index), GFI (goodness-of-fit index), Tucker-Lewis Index (TLI), P-value for the Close Fit (PCLOSE), and RMSEA (root mean square error approximation) index. A model is considered to be in good agreement with the data if it attains GFI, TLI, and CFI values between 0.7 and 1, and RMSEA values < 0.08 (Kaiser, 1974). The results indicate that chi-square/df is 1.995 < 3; TLI is 0.930 > 0.7; CFI is 0.937 > 0.7; GFI is 0.834; RMSEA is 0.059 < 0.08; and PCLOSE is 0.942. Therefore, the model fit indicators are relatively favorable, suggesting that the model is appropriate (Figure 2).

Within the regression weights, six factors exhibit p-values below 0.05 (H4, H5, H6, H7, H8, H10), indicating the statistical significance of the relationships within the model. Notably, the factors IC, IQ, RE, and AT have a value of 0.468, 0.671, 0.106, and 0.238, respectively, which is greater than 0.05, signifying that this particular factor lacks statistical significance (Table 5).

DISCUSSION

In Vietnamese culture, product choice is significantly influenced by numerical factors like price, star rating, reviews quantity, discounts, and user choices. Numbers play a crucial role in purchase decisions, allowing consumers to compare options and validate their choices. Visual appeal is also vital in online shopping, as Vietnamese consumers are drawn to aesthetically pleasing websites and applications; visual appeal creates a positive initial impression and sparks buyer interest.
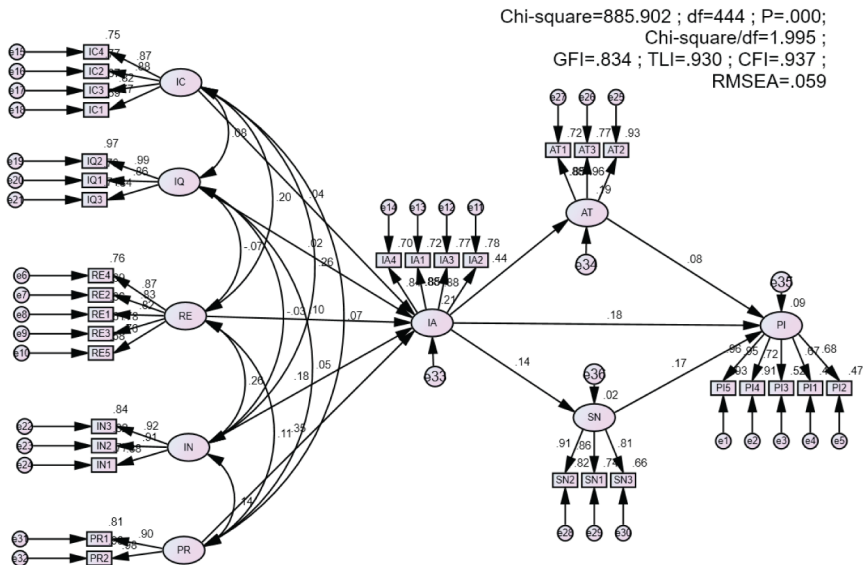
Figure 2. Structural model result

Table 5. Hypothesis testing

Hypothesized relationship	Coefficient	Standardized coefficient	S.E	C.R	P	Conclusion
H1: IC → IA	0.047	0.045	0.064	0.725	0.468	Unsupported
H2: IQ → IA	0.022	0.024	0.051	0.425	0.671	Unsupported
H3: RE → IA	0.098	0.100	0.060	1.616	0.106	Unsupported
H4: IN → IA	0.151	0.179	0.053	2.855	0.004	Supported
H5: PR → IA	0.315	0.346	0.054	5.825	***	Supported
H6: IA → SN	0.175	0.145	0.078	2.248	0.025	Supported
H7: IA → AT	0.430	0.438	0.058	7.362	***	Supported
H8: IA → PI	0.213	0.183	0.080	2.653	0.008	Supported
H9: AT → PI	0.094	0.079	0.080	1.179	0.238	Unsupported
H10: SN → PI	0.164	0.170	0.060	2.758	0.006	Supported

As seen in the results, information quantity on OTA channels positively influences information adoption by tourists ($\beta = 0.179$, p-value = 0.004), which validates H4. This finding demonstrates the importance of providing diverse and detailed information to assist travelers in making accurate decisions when selecting products or services in the tourism and hotel industry. The diversity and transparency of information help build trust and generate interest from customers, providing them with confidence in making online bookings and transactions. The results of this study are completely consisteny with studies such as Filieri and McLeay (2014); Zahratu and Hurriyati (2020); Dwiputri and Syahputra (2023). Likewise, high ratings and rankings positively attract potential customers, as consumers trust businesses with positive community recommendations. The results show that product

ranking significantly influences EWOM adoption ($\beta = 0.346$, p-value < 0.01), which validates H5, emphasizing the importance of maintaining high ratings on OTA channels for customer satisfaction and attracting new customers. Moreover, by adopting information positively, tourists often evaluate the value and benefits of a specific product or service. When tourists find information helpful and persuasive, they are likely to enhance their purchase intention. Thus, information adoption has a positive impact on purchase intention with a $\beta = 0.183$ and a p-value $= 0.008$, which validates H8.

Additionally, in the realm of OTA channels, attitudes and subjective norms play pivotal roles in shaping the process of forming purchase intentions. When tourists sense positive opinions from their social circle or community reviews about a product or service, it boosts their confidence and encourages them to choose that offering. Positive opinions foster trust in the shopping process, making travelers feel supported by others in their decision making. However, noteworthy findings from this study indicate that, contrary to expectations, attitudes do not exert a direct impact on purchase intention within the OTA setting. This nuanced insight underscores the complexity of consumer behavior on online platforms and suggests that factors beyond attitudes may play a more prominent role in influencing purchase intentions in this specific context.

IMPLICATIONS OF THE STUDY

The study identifies crucial factors influencing travelers' trust and adoption of EWOM. Specifically, product ranking and information quantity significantly promote EWOM adoption, leading to purchase intention, indicating customers' particular concern for rankings and review quantity when booking hotels online.

Moreover, EWOM adoption positively affects travelers' attitude and subjective norms. However, subjective norms impact online booking intentions, while attitude does not significantly affect them, possibly because of essential decision making factors and external context. The author recommends strategies for accommodation businesses and OTAs to enhance travelers' shopping experience, emphasizing product ranking and information quantity to attract potential customers. Strategies for accommodation businesses include encouraging reviews, managing reputation, offering reasonable rates, and utilizing visual and promotional elements. For OTAs and marketers, emphasis is placed on prominently displaying reviews, using appealing visuals, and responding positively to feedback to enhance visibility and credibility.

According to Sudirjo et al. (2023), their research suggests that website features have a direct impact on customers' online shopping behavior. In the culture and consumer behavior of the Vietnamese people, the intention to choose a particular product is often heavily influenced by numbers such as price; star rating or average score; the number of reviews/comments; the quantity of discounts, freebies, or special offers; and the number of users or customers who have made the same choice. Numbers and statistics often play an essential role in the purchasing decisions of Vietnamese consumers because consumers prefer to compare multiple options before making a decision. Consumers like to have specific data and numbers to validate their choice, ensuring that they are selecting the best product or service on the basis of their criteria. Therefore, these numbers are one of the criteria that make it easier for customers to compare and make decisions. Additionally, the visual interface often attracts customers when they are shopping online. Vietnamese consumers are often interested in the aesthetics and beauty of shopping websites and applications. A visually appealing appearance can create an initial impression and stimulate the interest of the buyer. Recognizing this issue along with research results, this research focuses on providing solutions regarding Information quantity and product ranking on OTA channels to enhance the shopping experience for customers and leverage EWOM information. The managerial significance of this research provides benefits to OTAs, accommodation service marketers, and the lodging industry in general.

LIMITATIONS AND FUTURE RESEARCH

In spite of the valuable contributions it offers, this research is not without its limitations. Based on the limitations of this study, there are several recommendations for further research in the field of online hotel booking OTA websites. First of all, the study population is an important aspect to consider. Therefore, bias may create limitations in terms of diversity and representativeness of the data sample, failing to fully capture the diversity within the tourist community. The lack of even classification in demographics may reduce the broad applicability of the results and understanding across all consumer segments regarding the usage of online hotel booking applications. To optimize the applicability of the research, future studies should consider expanding the target audience to include a more diverse sample in terms of age and demographic characteristics. The research sample size should also be increased. The study's sample size of only 286 participants may not provide reliable results for a significant portion of Ho Chi Minh City tourists. The study was conducted in Ho Chi Minh City and represents only one group of participants in the research results. Therefore, for future studies, the author proposes expanding the research sample to include a larger number of customers from various regions across the country. This will help improve the representativeness and wide applicability of the research findings. Furthermore, the research scope should be expanded. The current study focused on examining the impact of EWOM factors in hotel booking within the Ho Chi Minh City area. To gain a more comprehensive and detailed understanding, future research can expand the scope to cover multiple regions and cities throughout the country. This can help identify variations in customer behavior based on different geographical and cultural contexts. In addition, additional factors influencing online hotel booking intentions should be identified. The author's research concentrated on specific factors related to EWOM, such as information credibility, information quality, information quantity, reviewer expertise, and product ranking. However, there are numerous other factors that may explain their influence on tourists' online booking intentions. This possibility presents an avenue for further research.

CONFLICTS OF INTEREST

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REFERENCES

Ahmad, N., Muhammad, H., Khizar, U., & Othman, B. (2020). The effect of electronic word of mouth communication on purchase intention moderate by trust: A case online consumer of Bahawalpur. *International Journal of Advanced Science and Technology*, *29*(9), 4995–5008. doi:10.5267/j.msl.2019.1.011

Ajzen, I. (2002). Perceived behavioral control, self-efficacy, locus of control, and the theory of planned behavior. *Journal of Applied Social Psychology*, *32*(4), 665–683. doi:10.1111/j.1559-1816.2002.tb00236.x

Ajzen, I., & Fishbein, M. (2000). Attitudes and the attitude-behavior relation: Reasoned and automatic processes. *European Review of Social Psychology*, *11*(1), 1–33. doi:10.1080/14792779943000116

Buhalis, D., López, E. P., & Martinez-Gonzalez, J. A. (2020). Influence of young consumers' external and internal variables on their e-loyalty to tourism sites. *Journal of Destination Marketing & Management*, *15*, 100409. doi:10.1016/j.jdmm.2020.100409

Chakraborty, U., & Bhat, S. (2018). Effect of credible reviews on brand image: A mixed method approach. *IIM Kozhikode Society & Management Review*, *7*(1), 13–22. doi:10.1177/2277975217733873

Cham, T. H., Cheng, B. L., Low, M. P., & Cheok, J. B. C. (2020). Brand image as the competitive edge for hospitals in medical tourism. *European Business Review*, *33*(1). doi:10.1108/EBR-10-2019-0269

Cheung, C. M., Lee, M. K., & Rabjohn, N. (2008). The impact of electronic word-of-mouth: The adoption of online opinions in online customer communities. *Internet Research*, *18*(3), 229–247. doi:10.1108/10662240810883290

Cheung, C. M. K., & Thadani, D. (2012). The impact of electronic word-of-mouth communication: A literature analysis and integrative model. *Decision Support Systems*, *54*(1), 461–470. doi:10.1016/j.dss.2012.06.008

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *Management Information Systems Quarterly*, *13*(3), 319–340. doi:10.2307/249008

De Maeyer, P. (2012). Impact of online consumer reviews on sales and price strategies: A review and directions for future research. *Journal of Product and Brand Management*, *21*(2), 132–139. doi:10.1108/10610421211215599

Dutta, S., Kumar Chauhan, R., & Chauhan, K. (2017). Factors affecting customer satisfaction of online travel agencies in India. *Tourism and Hospitality Management*, *23*(2), 267–277. doi:10.20867/thm.23.2.3

Dwiputri, A. L., & Syahputra, S. (2023). Minat beli skincare: Peran electronic word of mouth di Tiktok. *Jurnal Manajemen Maranatha*, *22*(2), 217–226. doi:10.28932/jmm.v22i2.6399

Erkan, I., & Evans, C. (2018). Social media or shopping websites? The influence of eWOM on consumers' online purchase intentions. *Journal of Marketing Communications*, *24*(6), 617–632. doi:10.1080/13527266.2 016.1184706

Filieri, R., & McLeay, F. (2014). E-WOM and accommodation: An analysis of the factors that influence travelers' adoption of information from online reviews. *Journal of Travel Research*, *53*(1), 44–57. doi:10.1177/0047287513481274

Hair, J. F. Jr, Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2021). *Partial least squares structural equation modeling (PLS-SEM) using R: A workbook*. Springer. doi:10.1007/978-3-030-80519-7

Huang, C. C., & Lan, Y. C. (2021). Collaboration and competition in the online travel industry: A comparative study of China and Vietnam. *Asia Pacific Journal of Tourism Research*, *26*(3), 277–293. doi:10.1080/109416 65.2020.1862883

Hussain, S., Song, X., & Niu, B. (2020). Consumers' motivational involvement in eWOM for information adoption: The mediating role of organizational motives. *Frontiers in Psychology*, *10*, 3055. doi:10.3389/fpsyg.2019.03055 PMID:32038413

Ismagilova, E., Slade, E. L., Rana, N. P., & Dwivedi, Y. K. (2020). The effect of electronic word of mouth communications on intention to buy: A meta-analysis. *Information Systems Frontiers*, *22*(5), 1203–1226. doi:10.1007/s10796-019-09924-y

Kamalasena, B. D. T. M., & Sirisena, A. B. (2021). The impact of online communities and e word of mouth on purchase intention of generation Y: The mediating role of brand trust. *Sri Lanka Journal of Marketing*, *7*(1), 92–116. doi:10.4038/sljmuok.v7i1.58

Kumar, S., Prakash, G., Gupta, B., & Cappiello, G. (2023). How e-WOM influences consumers' purchase intention towards private label brands on e-commerce platforms: Investigation through IAM (Information Adoption Model) and ELM (Elaboration Likelihood Model) Models. *Technological Forecasting and Social Change*, *187*, 122199. doi:10.1016/j.techfore.2022.122199

Lê Minh Chí, L. T. N. (2018). Tác động của truyền miệng trực tuyến đến ý định mua hàng của người dùng mạng xã hội. *Tạp chí Khoa học Trường Đại học Cần Thơ*, 133–143. 10.22144/ctu.jvn.2018.018

Lin, C., Wu, Y. S., & Chen, J. C. V. (2013, May). Electronic word-of-mouth: The moderating roles of product involvement and brand image. In *Proceedings of 2013 International Conference on Technology Innovation and Industrial Management* (*Vol. 2947*). ToKnow Press. http://www.toknowpress.net/ISBN/978-961-6914-07-9/papers/S3_29-47.pdf

Ling, L., Dong, Y., Guo, X., & Liang, L. (2015). Availability management of hotel rooms under cooperation with online travel agencies. *International Journal of Hospitality Management*, *50*, 145–152. doi:10.1016/j.ijhm.2015.07.005

Lis, B. (2013). In eWOM we trust: A framework of factors that determine the eWOM credibility. *Business & Information Systems Engineering*, *5*(3), 129–140. doi:10.1007/s12599-013-0261-9

Litvin, S. W., Goldsmith, R. E., & Pan, B. (2018). A retrospective view of electronic word of mouth in hospitality and tourism management. *International Journal of Contemporary Hospitality Management*, *30*(1), 313–325. doi:10.1108/IJCHM-08-2016-0461

Liu, J., & Zhang, E. (2014). An investigation of factors affecting customer selection of online hotel booking channels. *International Journal of Hospitality Management*, *39*, 71–83. doi:10.1016/j.ijhm.2014.01.011

Nelson, P. (1970). Information and consumer behavior. *Journal of Political Economy*, *78*(2), 311–329. doi:10.1086/259630

Pan, B., Zhang, L., & Law, R. (2013). The complex matter of online hotel choice. *Cornell Hospitality Quarterly*, *54*(1), 74–83. doi:10.1177/1938965512463264

Pinto, I., & Castro, C. (2019). Online travel agencies: Factors influencing tourists' purchase decisions. *Tourism & Management Studies*, *15*(2), 7–20. doi:10.18089/tms.2019.150201

Sardar, A., Manzoor, A., Shaikh, K. A., & Ali, L. (2021). An empirical examination of the impact of ewom information on young consumers' online purchase intention: Mediating role of ewom information adoption. *SAGE Open*, *11*(4), 21582440211052547. doi:10.1177/21582440211052547

Saura, J. R., Ribeiro-Soriano, D., & Palacios-Marqués, D. (2021). Setting B2B digital marketing in artificial intelligence-based CRMs: A review and directions for future research. *Industrial Marketing Management*, *98*, 161–178. doi:10.1016/j.indmarman.2021.08.006

Shu, M., & Scott, N. (2014). Influence of social media on Chinese students' choice of an overseas study destination: An information adoption model perspective. *Journal of Travel & Tourism Marketing*, *31*(2), 286–302. doi:10.1080/10548408.2014.873318

Sudirjo, F., Lotte, L. N. A., Sutaguna, I. N. T., Risdwiyanto, A., & Yusuf, M. (2023). The influence of generation Z consumer behavior on purchase motivation in E-commerce shoppe. *Profit: Jurnal Manajemen, Bisnis dan Akuntansi, 2*(2), 110–126. doi: 10.58192/profit.v2i2.735

Sulthana, A. N., & Vasantha, S. (2019). Influence of electronic word of mouth eWOM on purchase intention. *International Journal of Scientific and Technology Research*, *8*(10), 1–5.

Wang, X., Teo, H. H., & Wei, K. K. (2015). Simultaneity and interactivity of the effects of communication elements on consumers' decision making in ewom systems. *Journal of Electronic Commerce Research*, *16*(3). http://www.jecr.org/sites/default/files/16_3_p01.pdf

Xu, F., Niu, W., Li, S., & Bai, Y. (2020). The mechanism of word-of-mouth for tourist destinations in crisis. *SAGE Open*, *10*(2), 2158244020919491. doi:10.1177/2158244020919491

Yan, Q., Wu, S., Zhou, Y., & Zhang, L. (2018). How differences in eWOM platforms impact consumers' perceptions and decision-making. *Journal of Organizational Computing and Electronic Commerce*, *28*(4), 315–333. doi:10.1080/10919392.2018.1517479

Yang, S., Lu, Y., & Chau, P. Y. K. (2013). Why do consumers adopt online channel? An empirical investigation of two channel extension mechanisms. *Decision Support Systems*, *54*(2), 858–869. doi:10.1016/j.dss.2012.09.011

Yones, P. C. P., & Muthaiyah, S. (2023). eWOM via the TikTok application and its influence on the purchase intention of somethinc products. *Asia Pacific Management Review*, *28*(2), 174–184. doi:10.1016/j.apmrv.2022.07.007

Zahratu, S. A., & Hurriyati, R. (2020, February). Electronic word of mouth and purchase intention on Traveloka. In *3rd Global Conference On Business, Management, and Entrepreneurship (GCBME 2018)* (pp. 33–36). Atlantis Press. doi:10.2991/aebmr.k.200131.008