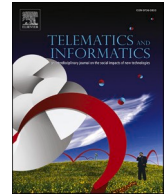




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What is the impact of eWOM in social network sites on travel decision-making during the COVID-19 outbreak? A two-stage methodology

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ABSTRACT

Social media users share a variety of information and experiences and create Electronic Word of Mouth (eWOM) in the form of positive or negative opinions to communicate with others. In the context of the COVID-19 outbreak, eWOM has been an effective tool for knowledge sharing and decision making. This research aims to reveal what factors of eWOM can influence travelers' trust in their decision-making to travel during the COVID-19 outbreak. In addition, we aim to find the relationships between trust in eWOM and perceived risk, and perceived risk and the decision to travel. These relationships are investigated based on online customers' reviews in TripAdvisor's COVID-19 forums. We use a two-stage data analysis which includes cluster analysis and structural equation modeling. In the first stage, a questionnaire survey was designed and the data was collected from 1546 respondents by referring to the COVID-19 forums on TripAdvisor. Specifically, we use *k*-means to segment the users' data into different groups. In the second stage, Structural Equation Modeling (SEM) was performed to inspect the relations between the variables in the hypothesized research model using a subsample of 679 respondents. The results of the first stage of the analysis showed that three segments could be discovered from the collected data for trust based on eWOM source and eWOM message attributes. These segments clearly showed that there are significant relationships between trust and perceived risk, and between perceived risk and the decision to travel. The results in all segments showed that users with a low level of trust have a high level of perceived risk and a low level of intention to travel during the COVID-19 outbreak. In addition, it was found that users with a high level of e-trust have a low level of perceived risk and a high level of intention to travel. These results were confirmed in all segments and these relationships were confirmed by SEM. The results of SEM revealed that visual and external information moderated the relationship between eWOM length and trust, and experience

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moderated the relationship between trust and perceived risk. For the moderating role of gender, it was found that the perceived risk has a higher impact on the decision to travel in the female sample.

1. Introduction

The huge competition in e-commerce and the expanding market digitization have generated new methodologies of communication between consumers. New interaction paradigms have shaped consumers' attitudes and behaviors (Audrain-Pontevia et al., 2013). Users' previous experiences of purchasing, including their opinions about service providers or products' quality, are presented to other customers in the Electronic Word of Mouth (eWOM) form. In the e-commerce field, eWOM is presented as consumers' positive or negative reviews about internet products (Abubakar et al., 2017). As indicated by Hsu et al. (2013), electronic reviews are more trusted than other advertisements methods. Around 82% of consumers refer to eWOM considering domestic businesses and 76% of individuals have confidence in the eWOM (Tandon et al., 2021). This has caused the deployment of eWOM in most online portals, leading to undeniable impacts on customers' attitudes and behaviors toward products or services (Viechtbauer, 2010). The influence of eWOM on consumers' experience has been investigated in previous studies in many contexts (Aakash and Aggarwal, 2019; Abubakar et al., 2017; Liang et al., 2006). It has been revealed that customers' attitudes are affected by eWOM, which might change their behaviors (Nizar Hidayanto et al., 2017).

Along with the huge impact on public health, COVID-19 had a severe influence on the tourism industry over the world. Travel restrictions to control the spread of the crisis have led to a significant decline in the travel and tourism industry starting from early 2020. This has led to a huge drop in the worldwide revenue in the tourism sector, with a 20% decrease in 2020 (Statista, 2021a). To face these unprecedented conditions, online reviews posted by other tourists on social media sites have played a vital role in tourists' choices. In the USA, 62% of online customers read eWOM before choosing a particular service, while 38% indicated the importance of online reviews in their decision-making process (Statista, 2021b). TripAdvisor is a popular portal that allows customers to add their reviews and related information about various places over the world (Nilashi et al., 2021). Considering the TripAdvisor portal, the total number of comments had raised steadily starting from 2014, reaching approximately 884 million comments in 2020 (Statista, 2021c). These online reviews cover several disciplines that concern the tourists including hotels, restaurants, attractions, and vacation rentals.

Social media users share a variety of information and experiences and create eWOM to communicate with others (Nilashi et al., 2021). In the context of the COVID-19 outbreak, eWOM has been an effective tool for knowledge sharing and decision making. Recently, social media has played a role in the COVID-19 outbreak, particularly in the virus's spread among travelers. Social media portals have participated in increasing the awareness of the COVID-19 epidemic among tourists. As a result, during the assessment stage, travelers require additional outsider information to assist them in making purchase decisions. Regarding this, travelers rely increasingly on eWOM to reduce perceived risk, which affects their behavioral intention and booking decisions. A significant number of travel eWOMs have been posted on social media platforms during the COVID-19 outbreak, which could be valuable for travel destination choice.

Although there have been many studies on eWOM and its effect on the customer's decision-making and purchase behavior, the relationship between e-WOM message attributes, e-trust, perceived risk, and decision to travel in the event of the COVID-19 outbreak has not been investigated previously. In addition, the moderating role of past experience and gender with eWOM practices are important to be investigated for understanding the relationships between users' e-trust and perceived risk and perceived risk and decision to travel. Overall, this research aimed to reveal what factors of eWOM can influence e-trust, perceived risk, and decision-making to travel during the COVID-19 outbreak. Particularly, the importance of eWOM as a driver of travelers' trust, perceived risk, and travel decisions, will be indicated in this study. A new model is developed according to the proposed hypotheses. We use a two-stage data analysis which includes cluster analysis and structural equation modeling. Specifically, we use *k*-means to segment the users' data in different groups and then apply Structural Equation Modeling (SEM) to evaluate the relationships in the proposed model.

The remainder of this paper is organized as follows. In Section 2, the research model and hypotheses development are presented. In Section 3, the two-stage method of analysis is provided. In Section 4, we provide discussions on the results. In Section 5, research implications, theoretical contribution, and practical contribution are presented. Finally, conclusions are presented in Section 6.

2. Research model and hypotheses development

Tourists usually communicate with others to reach a good decision about their vacations or indicate their level of satisfaction with a product or a service (Susan and David, 2010). The unprecedented development of Web 2.0 innovations, such as electronic review portals, social networking applications, and electronic blogs, has sped up and alleviated the communication methods among tourists. The advancements in these innovations have resulted in the expansion of eWOM, in which eWOM has become an essential source of information that cannot be neglected by service providers.

In this research, we aim to investigate the factors that are related to eWOM, which impact travelers' trust, and accordingly perceived risk and decision to travel. Basically, we aimed to evaluate travelers' assessments of eWOM, which are presented in the TripAdvisor forum. The eWOM is an inseparable part of the forum, hence, to a certain level, the attributes of the forum will impact travelers' perceptions of the eWOM features. To simplify, we present definitions of research variables in Table 1. The hypothesized research model of this study is presented in Fig. 1.

Table 1
Definitions of Research Variables.

Construct	Definition	Reference
Existing eWOM	Availability of eWOM layouts for posting and viewing the reviews.	(Ismagilova et al., 2020)
eWOM credibility	The level to which the user thinks that the eWOM is believable and dependable.	(Verma and Dewani, 2021)
eWOM usefulness	The level to which the eWOM aids customers in reaching good decisions.	(Ismagilova et al., 2020)
eWOM quantity	The number of eWOM presented for a particular item or service.	(Qahri-Saremi and Montazemi, 2019)
eWOM length	The number of letters in the posted eWOM.	(Mariani et al., 2019)
eWOM readability	The easiness of the textual content of a specific eWOM for readers to comprehend.	(Fresneda and Gefen, 2019)
eWOM helpfulness	User's perception of the level of help indicated to a specific eWOM.	(Filieri et al., 2019)
Source Trustworthiness	The level to which the user perceives the source of the eWOM as trustworthy.	(Qahri-Saremi and Montazemi, 2019)
Source credibility	The evaluation of the customer to the believability of a source of the eWOM.	(Qahri-Saremi and Montazemi, 2019)
Source expertise	The qualifications of the source of the eWOM or his/her ability to present truthful information about the item or topic to be reviewed.	(Qahri-Saremi and Montazemi, 2019)
Trust in eWOM	The willingness of the user to be vulnerable to the eWOM presented by another party on the online medium.	(Pyle et al., 2021)
Perceived risk	The level of uncertainty, which is associated with the travelers' expectation of loss when making a travel decision.	(Chen and Huang, 2017)
Visual and External Information	The representations of items as pictures that are posted from an external source within the eWOM.	(Kim and Lennon, 2008)
Experience	The level of knowledge of customers with online shopping through the online portal.	(Broekhuizen and Huizingh, 2009)

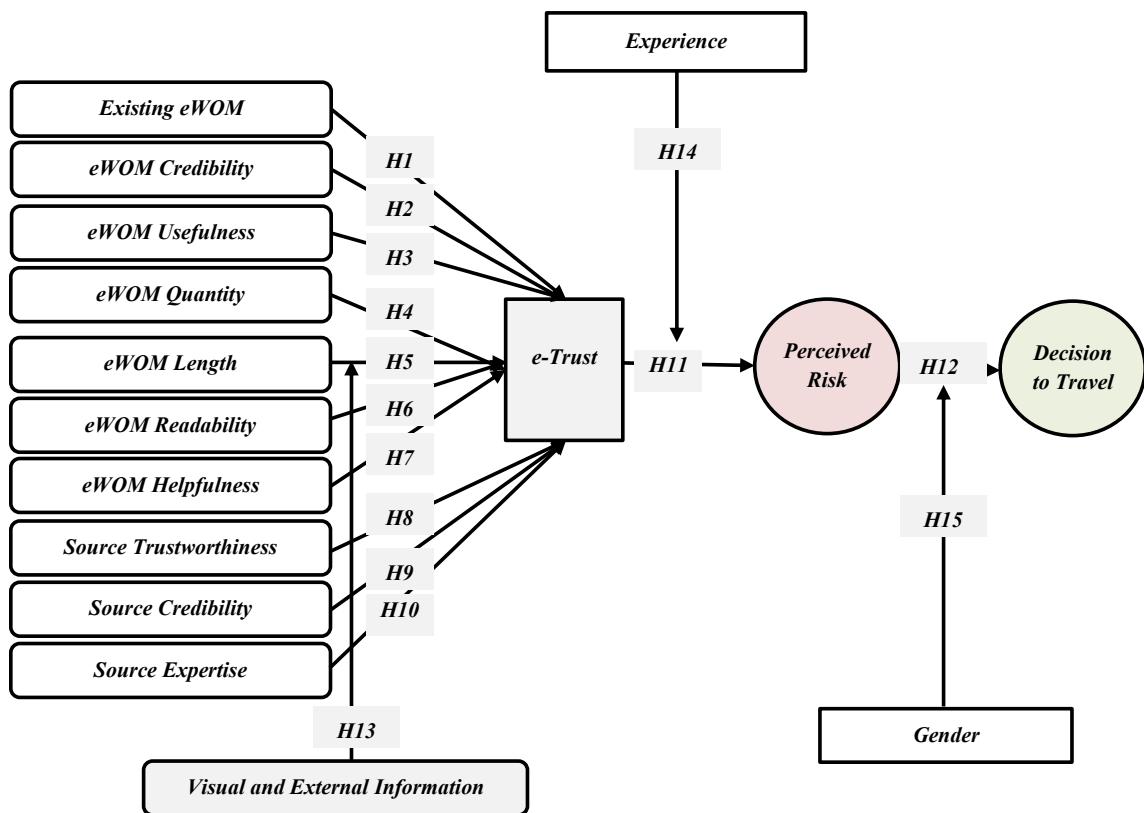


Fig. 1. Research framework.

2.1. Electronic WOM and E-Trust

In this research, several variables related to eWOM and the source of the eWOM were considered based on the review of previous literature. First, it is important to consider the impact of the existence of eWOM on travelers' trust. It is well supported in previous literature that eWOM considerably impacts travelers' behaviors (Bhandari and Rodgers, 2018; Jalilvand and Samiei, 2012; Lee, 2011).

As indicated by [Abubakar et al. \(2017\)](#), eWOM has a direct impact on tourists' destination trust, focusing on the medical tourism context. Existing eWOM has been indicated as an antecedent to purchasing intention in several studies ([Bhandari and Rodgers, 2018](#); [Netto et al., 2016](#); [Torlak et al., 2014](#)). Second, the credibility factor has a determining impact on users' perceptions of eWOM. It is unlikely that uncredible eWOM would be perceived as the high-quality content ([Qahri-Saremi and Montazemi, 2019](#)). As indicated by [Ismagilova et al. \(2020\)](#), the credibility of the information allows the development of confidence, which accordingly leads to the purchase decision. Third, it is important to focus on the usefulness of eWOM based on users' perceptions. Basically, eWOM has an impact on individuals' assessments of items and services ([Mayzlin, 2006](#)). Hence, useful eWOM can considerably impact users' purchase intention ([Cheung, 2014](#); [Huang et al., 2013](#); [Park and Lee, 2008](#)). The relationship between eWOM usefulness and purchase choice has been supported in previous literature in several studies ([Gunawan and Huarng, 2015](#); [Mafael et al., 2016](#)). Fourth, the number of eWOM messages for each item or service is an important variable to be investigated. Usually, service providers encourage the provision of large quantities of eWOM comments on their portals, which enables customers to check the comments and conduct a comparison between these comments to reach the right choice ([Qahri-Saremi and Montazemi, 2019](#)). The volume of eWOM has been linked positively to the purchase decision in several studies ([Flanagin et al., 2014](#); [Liu and Zhou, 2012](#)). Fifth, the length of the eWOM has an impact on users' shopping experiences. Generally, users who have a good experience with a product or service are more willing to share their experiences deeply by posting lengthy eWOMs on the portal. Several researchers have indicated the positive relation between the length of eWOM and users' experiences ([Ghose and Ipeiritos, 2011](#); [González-Rodríguez et al., 2016](#); [Lu et al., 2018](#)). Another important factor to be considered is the readability of the eWOM. This factor has been investigated in previous studies focusing on its impact on eWOM helpfulness ([Fresneda and Gefen, 2019](#); [Tandon et al., 2021](#)). On the other hand, [Liu and Park \(2015\)](#) indicated that users' perceptions of the level of eWOM helpfulness have a direct influence on the quality of the eWOM. Many online traveling portals such as TripAdvisor allow the users to assess the level of helpfulness of the eWOM by indicating if the presented eWOM is "helpful" or "not helpful". Referring to previous studies, there is inconsistency in conceptualizing the "helpfulness" of online reviews ([Lim and Benbasat, 2000](#)), however, in this research we consider this construct focusing on the general situation of the traveler, in which he/she seeks for additional information about destinations. Hence, based on the above discussion, we presented the following hypotheses:

- H1:** Existing eWOM has a positive influence on travelers' e-trust.
- H2:** eWOM credibility has a positive influence on travelers' e-trust.
- H3:** eWOM usefulness has a positive influence on travelers' e-trust.
- H4:** eWOM quantity has a positive influence on travelers' e-trust.
- H5:** eWOM length has a positive influence on travelers' e-trust.
- H6:** eWOM readability has a positive influence on travelers' e-trust.
- H7:** eWOM helpfulness has a positive influence on travelers' e-trust.

2.2. Electronic WOM source and E-Trust

Face-to-face WOM is usually transferred among members of the same family or close friends. A well-known source allows customers to perceive the source as credible based on customers' familiarity with the source, which can be extended to the comment itself. On the other hand, customers of electronic portals generally face more uncertainty about the source of the comment in terms of trustworthiness, credibility, and expertise because the source is usually unknown ([Shen et al., 2013](#); [Yan and Tan, 2017](#)). In online portals the presented comments are separated from the source of the comment, causing an ambiguity about the source. The source of the comment is usually a stranger with little information about his identity ([Qahri-Saremi and Montazemi, 2019](#)). Hence, source trustworthiness, credibility, and expertise present a cue for customers, which can help them in evaluating the eWOM and can impact customers' perceptions of the eWOM ([Qahri-Saremi and Montazemi, 2019](#); [Watts and Zhang, 2008](#)). Source trustworthiness has been indicated as a determinant factor that impacts users' perception of the eWOM in several studies ([Hu et al., 2008](#); [Ismagilova et al., 2020](#)). The trustworthiness of the source indicates its validity and honesty ([Ismagilova et al., 2020](#)). Source trustworthiness is considered an important predictor of the persuasiveness of eWOM communications. Perceived credibility has been linked to purchase intention in several studies ([Akyüz, 2013](#); [Yang et al., 2015](#)). Source expertise helps the traveler to overcome the uncertainty he/she faces regarding the travel decision. It has been indicated in previous literature as a significant factor that impacts the purchase decision ([Flavián et al., 2020](#); [Zainal et al., 2017](#)). Source experts allow effective communication between users and persuade them to buy ([Ismagilova et al., 2020](#)). Hence, based on the above, we present the next hypotheses:

- H8:** Source trustworthiness has a positive influence on travelers' e-trust.
- H9:** Source credibility has a positive influence on travelers' e-trust.
- H10:** Source expertise has a positive influence on travelers' e-trust.

2.3. Trust, perceived Risk, and decision to travel

In this study, we investigate how eWOM characteristics impact customers' trust. Moreover, we try to broaden our knowledge about how e-trust mediates the relationship between eWOM attributes and perceived risk. Besides, we also investigate the relationship between the perceived risk and tourists' decision to travel. Due to the nature of online commerce, customers are faced with a considerable level of risk ([Kim et al., 2008](#)). Usually, customers are faced with uncertainty regarding their future decisions, in which

trust has a major part to address the potential risk (Luhmann, 2000). Gambetta (2000) indicated that trust is particularly important to overcome ignorance or uncertainty concerning unknowable behaviors of others. Previous literature has presented various perspectives about the impact of trust on the perceived risk, but, in general, trust and risk have been considered as interrelated factors (Blau, 2017; Coleman, 1994; Calculativeness and Trust, 1993). Trust is related to conditions that involve a certain level of risk, in which the individual has insufficient control over the consequences (Ratnasingham, 1998; Rousseau et al., 1998). Hence, as the customer develops a sense of trust, he/she is more likely to perceive less risk (Kim et al., 2008). Hence, we anticipate that increasing the level of trust will impact the customers' perceptions of risk.

In an online context, the perceived risk faced by the user regarding the payment or the delivery of purchased items is more than in traditional commerce. Focusing on e-commerce, three kinds of risks are faced by customers (Bhatnagar et al., 2000): risk of financial loss, risk about the features of the product, and risk about the security of the entered data. Previous literature indicated that customers' perceived risks have an essential impact on the purchase intention and accordingly purchase decisions (Antony et al., 2006; Lwin and Williams, 2006). Hence, we anticipate that the perceived risk has a direct impact on purchase decisions. Based on this, we present the next two hypotheses:

H11: E-trust with eWOM has a negative influence on perceived risk.

H12: Perceived risk has a negative influence on travelers' decision to travel.

2.4. Moderating effect of visual and external Information, experience, and gender

The fast advancement in digital communication presents easier ways for customers to add visual content or video clips on the online portals to share the features of the purchased products or assess their previous experiences (Lin et al., 2012). Referring to previous studies, interactive online commerce has several features related to the online atmospheric, e.g. color, visualizations, and website layout. These features have a significant impact on customers' decisions (Griffith, 2005; Malthouse and Shankar, 2009). Hence, visual information that is linked to eWOM plays a significant role in impacting customers' perceptions and choices (Lin et al., 2012). Still, most of the previous eWOM studies concentrated mainly on text-oriented eWOM, with a little focus on the visual contents of eWOM (Alon and Brunel, 2006; Lin et al., 2005). We anticipate that lengthy eWOM, when attached with visual and external information can impact travelers' trust. Hence, we aim to investigate the following hypothesis:

H13: Visual and external information has a moderating influence on the relationship between eWOM Length and e-trust

Experience with the Internet is rapidly increasing, which might be represented in changing customers' online shopping (Doolin et al., 2005). Several factors are linked to the online shopping experience including convenience, enjoyment, and social communication (Jarvenpaa et al., 2000). New customers feel that online shopping is a new action that entails a considerable level of risk in comparison with classical shopping (Mohseni et al., 2018). The previous shopping experience has an impact on the users' sense of trust towards online shopping and impacts their perceptions of the risk. Hence, customers' perception of risk depends on their previous experience, which might affect their future purchase behavior. Based on the above discussion, the next hypothesis is presented:

H14: Experience has a moderating influence on the relationship between e-trust and perceived risk.

Previous literature has indicated clear differences, based on gender, in the usage of the Internet, which is linked to differences in online shopping behaviors (Bae and Lee, 2011). Females present more concerns about privacy while using the Internet with higher perceptions of security risks considering electronic shopping (Garbarino and Strahilevitz, 2004; Miyazaki and Fernandez, 2001; Sheehan, 1999). In general, females have unfavorable attitudes towards e-commerce (Milne and Rohm, 2000; Miyazaki and Fernandez, 2001), which indicates that men are more active in e-commerce activities than women (Rodgers and Harris, 2003; Van Slyke et al., 2002). Women's perceptions of the risk of electronic shopping and its impacts on purchase decisions are higher than the men's perceptions of risk and its impacts (Garbarino and Strahilevitz, 2004). Hence, we generalize this argument to the context of this study and present the following hypothesis:

H15: Gender has a moderating influence on the relationship between perceived risk and the decision to travel.

3. Two-Stage method of analysis


In this study, we used a two-stage data analysis method which includes cluster analysis and structural equation modeling. A questionnaire survey was designed, evaluated, and the data was collected. Content validity evaluates whether the underlying scale correlates with the domain of the factors. It confirms that the intended concepts match the individual indicators of the questionnaire adequately. To assure the content validity of the designed instrument tool in this research, the questionnaire was reviewed by seven experts in the related domain (Travel and Tourism and Information Technology). The questionnaire contains three main parts: part 1 includes demographic data, part 2 entails the indicators of the perceived risk, e-trust, and decision to travel, and part 3 entails the indicators of the rest of the research factors. The participants were recruited to answer the demographic data and part 2 of the questionnaire in the first stage after referring to the COVID-19 forums of TripAdvisor (see Fig. 2). Following that they were asked if they are willing to move to the next section of the questionnaire, if they choose to continue, part 3 of the questionnaire is presented to

Honeymoon during covid-19

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qashouri
Los Angeles...

Level 2 Contributor

32 posts
2 reviews
4 helpful votes

Honeymoon during covid-19

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Hello

So we are planning to travel from the US to Bangkok and Phuket on August

how are thing in Thailand now ? should be worried too much about covid-19?

would there be any issues entering and leaving airports?

life in Thailand more on the normal side?


any issues at all?

thank you for your help

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1. Re: Honeymoon during covid-19

1 year ago Save


Simply reading the recent threads on the forum will answer most of your questions to be fair

I really doubt you will be travelling from the USA to Thailand in 2 months time, and do you really want to be flying long haul 1/2 way round the world (even if its possible) in 2 months time ?

I'm not sure if I will be having my annual trip in Jan/Feb 2021


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Thailand Hotels and Places to Stay

- 


The Village Coconut Island

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Phuket Town, Phuket

View Hotel
- 


Shangri-La Bangkok

12,048 Reviews
Bangkok, Thailand

View Hotel
- 


Laolang Island Resort

56 Reviews
Trang Province, Thailand

View Hotel
- 


Amari Watergate Bangkok

8,353 Reviews
Bangkok, Thailand

View Hotel
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
Chatrium Hotel Riverside Bangkok

11,241 Reviews
Bangkok, Thailand

View Hotel
- 


Bangkok Palace Hotel

2,812 Reviews
Bangkok, Thailand

View Hotel
- 


Banyan Tree Bangkok

9,228 Reviews
Bangkok, Thailand

View Hotel
- 

Dream Bangkok

2,729 Reviews
Bangkok, Thailand

View Hotel
- 

Pathumwan Princess Hotel

2,740 Reviews
Bangkok, Thailand

View Hotel

View all hotels

Top questions about Thailand

- FAQ WHY Thailand?
- FAQ Thailand's WEATHER
- FAQ VISA INFO (incl. visitors from India)
- FAQ CURRENCY EXCHANGE & ATMs
- FAQ HELPFUL TRAVEL WEBSITES & ADVICE

Fig. 2. Online Users' reviews in COVID-19 forums of tripadvisor.

them. In the first stage, we aimed to find the relationships between trust in eWOM and travelers' perceived risk, and travelers' perceived risk and decision to travel. These relationships were investigated based on the online customers' reviews in the COVID-19 forums of the TripAdvisor portal. Hence, we were able to get 1546 responses in the first stage. Specifically, we use k-means to segment the users' data in different groups focusing on the first two parts of the questionnaire. In the second stage, part 3 of the questionnaire was gathered from a subsample of the participants to investigate deeply the factors that impact travelers' decision to travel. Following that, we applied structural equation modeling to evaluate the relationships in the proposed model.

3.1. Data analysis using clustering approach

K-means is a simple clustering algorithm that can classify a huge volume of data with fast computation time (Kuswandi et al., 2018). K-means allows data clustering by minimizing data similarity between groups and maximizing data similarity in one group. Clustering by k-means is a widely used algorithm for unsupervised learning in data mining and statistical analysis. The goal of this partitioning algorithm is to group data points based on the number of clusters, which is represented by the variable k. The number of clusters in k-means must be defined before the execution of the algorithm can begin. Final clustering is produced by k-means using an iterative refinement method. After selecting k centroids at random, k-means locates data points that are closest to the selected centroids to form k clusters. For each cluster, the algorithm then iteratively calculates the new centroids. K-means clustering is best suited to low-dimensional numerical data because numerical data is used to compute the mean value. Data with a small number of dimensions would be the best type of data for the k-means clustering. K-means procedure is presented in Algorithm 1.

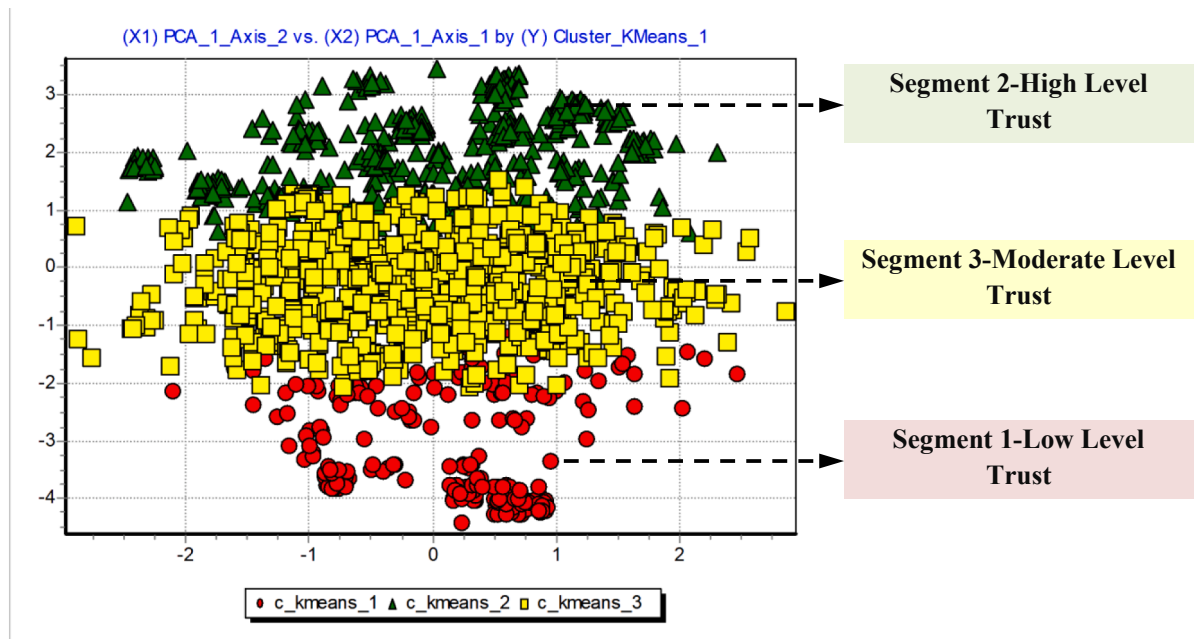


Fig. 3. Three segments of e-trust.

Table 2
E-trust, perceived risk and decision to travel in three segments.

Construct	Level	Segment 1	Segment 2	Segment 3
E-Trust	High	1	207	30
	Low	232	17	7
	Moderate	41	287	724
Perceived Risk	High	115	0	0
	Low	25	458	385
	Moderate	134	53	376
Decision to Travel	High	0	220	0
	Low	168	22	5
	Moderate	106	269	756

Table 3
Gender, E-Trust, Perceived Risk and Decision to Travel in Three Segments.

		Gender					
		Female			Male		
		Segment 1	Segment 2	Segment 3	Segment 1	Segment 2	Segment 3
E-Trust	High	0	76	9	1	131	21
	Low	146	6	2	86	11	5
	Moderate	12	72	214	29	215	510
Perceived Risk	High	66	0	0	49	0	0
	Low	8	138	112	17	320	273
	Moderate	84	16	113	50	37	263
Decision to Travel	High	0	68	0	0	152	0
	Low	102	3	1	66	19	4
	Moderate	56	83	224	50	186	532

Table 4
Experience, E-trust, perceived risk and decision to travel in three segments.

Factors and Their Level		Experience								
		0–2 Years			3–6 Years			Over 6 Years		
		Segment 1	Segment 2	Segment 3	Segment 1	Segment 2	Segment 3	Segment 1	Segment 2	Segment 3
E-Trust	High	0	28	2	0	96	9	1	83	19
	Low	116	8	1	68	4	2	48	5	4
	Moderate	12	44	127	16	106	266	13	137	331
Perceived Risk	High	54	0	0	37	0	0	24	0	0
	Low	4	63	65	8	185	141	13	210	179
	Moderate	70	17	65	39	21	136	25	15	175
Decision to Travel	High	0	30	0	0	89	0	0	101	0
	Low	74	7	0	50	7	1	44	8	4
	Moderate	54	43	130	34	110	276	18	116	350

Algorithm 1.

Algorithm 1: *K*-means procedure

Inputs: *k*, the desired number of clusters for a dataset *X* with *N* samples

Output: *k* cluster centroids $C = \{c_1, \dots, c_k\}$

$C \leftarrow \text{RandomSample}(X, k)$

Repeat

i. $S_i \leftarrow \{x : \|x - c_i\|^2 \leq \|x - c_j\|^2 \forall j, 1 \leq i, j \leq k \text{ such that } S_i \cap S_j = \emptyset\}$

ii. $c_i \leftarrow \frac{1}{|S_i|} \sum_{x \in S_i} x_j$

Until assignments S_i do not change

Return *C*

We implemented *k*-means algorithm in MATLAB software. Totally, *k*-means generated three segments from the TripAdvisor data. In Fig. 3, we present three segments of e-trust. Segment 1 indicates the users with a low level of trust. In Segment 2, a high level of trust is presented for the users. In Segment 3, the users with a moderate level of trust are presented. The trust levels are visualized on two principal components (PC1 and PC2) of PCA. In Table 2, the results for e-trust, perceived risk, and decision to travel in three segments are provided. In Tables 3 and 4, the results for gender and experience versus e-trust, perceived risk, and decision to travel in three segments are presented. Results for Segment 1 are presented in Fig. 4. For Segment 2 and Segment 3, the results are respectively presented in Figs. 1 and 2 of Appendix A. These figures clearly show the level of trust, level of perceived risk, the travel decision in three groups, the gender and year of experience for each individual. The segments presented in these figures show the level of decision to travel when the trust and perceived risk are at low, moderate, and high levels. Such segments can better help us to understand travelers’ behaviors during the COVID-19 outbreak. In fact, the results in all segments showed that users with a low level of trust have a high level of perceived risk and a low level of intention to travel during the COVID-19 outbreak. The results of this stage presented three main clusters as follows: Cluster 1: 274 individuals, Cluster 2: 511 individuals, and Cluster 3: 761 individuals. Based on the results, Cluster 1 has a low level of trust, Cluster 2 has a moderate to a high level of trust, while the majority of Cluster 3 has a moderate level of trust. Considering the perceived risk, in Cluster 1, the majority of the individuals have a moderate level of perceived risk, while in Cluster 2 and Cluster 3 the majority of the individuals have a low level of perceived risk. Considering the decision to travel, in Cluster 1, the majority of the individuals have a low intention to travel, while in Cluster 2 and Cluster 3, the majority of the individuals have a moderate intention to travel.

3.2. Structural equation modeling (SEM)

In the data collection stage, the participants were recruited to answer the demographic data and part 2 of the questionnaire after referring to the COVID-19 forum of TripAdvisor. Participants were given the following scenario; they were asked to see an example of the eWOM in the COVID-19 forums of TripAdvisor and then answer the survey questions. We shared the link of the forum with participants to understand if the eWOM can help them to reach a good decision or not. We provided them with the link to this forum just to make sure that they grasp the meaning of eWOM during COVID-19. Although participants were presented with the link to one forum, it was not aimed to evaluate this particular forum or particular eWOM. All participants have previous experience with Trip Advisor. Their evaluations were based on their previous experiences of eWOM in TripAdvisor, focusing on the impact of the provided eWOM on their overall trust and decision-making process during the COVID-19 crisis.

In the TripAdvisor forum, the reviews considering the COVID-19 situation will be provided for users to explore. The relationships between the underlying factors and e-trust, and between e-trust and perceived risk were investigated focusing on the impact of the eWOM, as an additional source of information that is presented to users to improve their trust in the destination of choice and to help

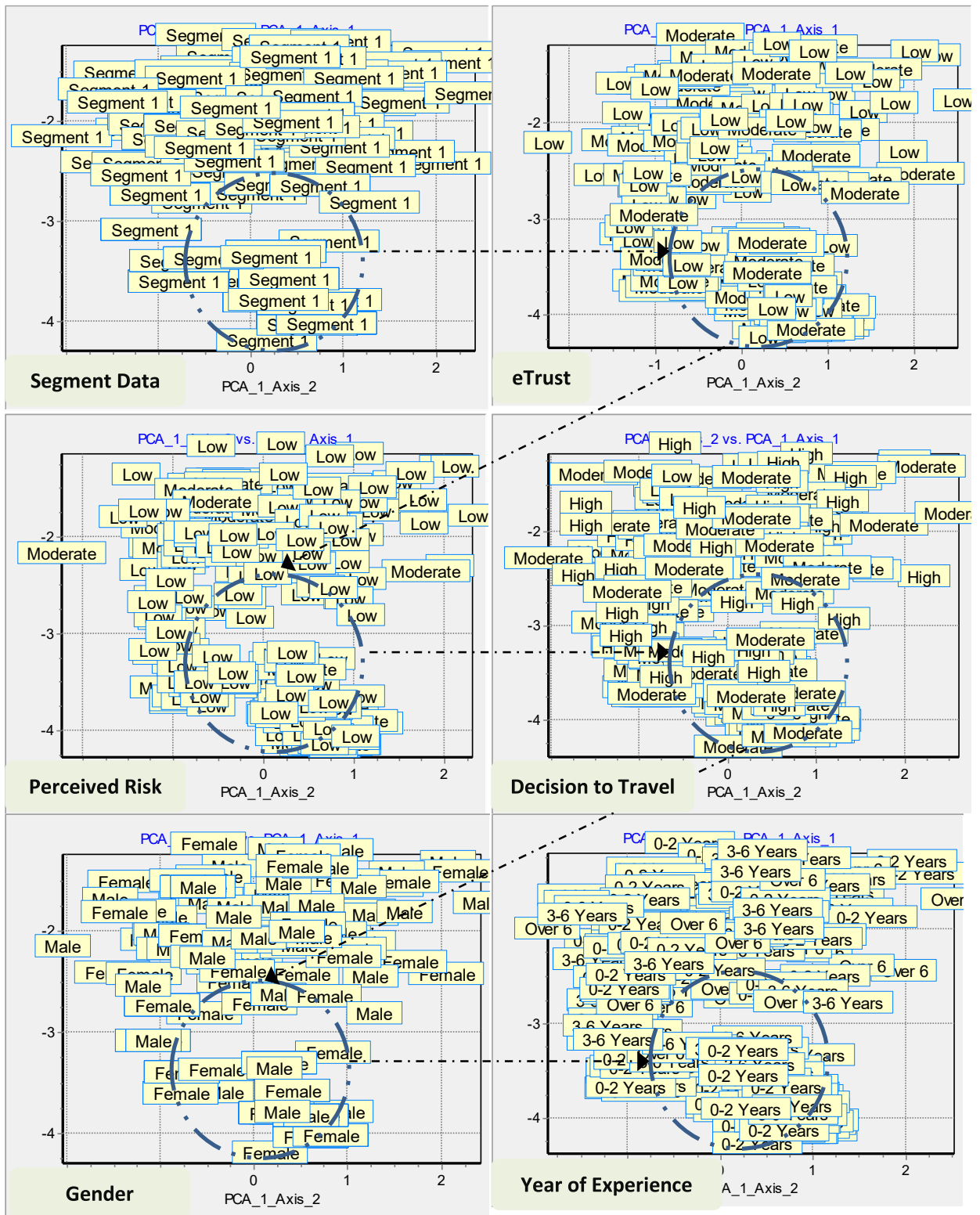


Fig. 4. Results for segment 1.

Table 5
Demographic Results of the Participants (N = 679).

Feature	Item	Frequency	Percentage
Gender	Female	369	54.3
	Male	310	45.7
Age	18–20	409	60.2
	21–30	150	22.1
	greater than30	120	17.7
Marital status	Married	355	52.3
	Single	324	47.7
Occupation	Employee	225	33.1
	Employer	150	22.1
	Student	65	9.6
	Retired	239	35.2
Usage of TripAdvisor	0–2 Years	150	22.1
	3–6 Years	175	25.8
	Over 6 Years	354	52.1
Mode of Travel	Family	211	31.1
	Solo	150	22.1
	Friends	318	46.8

Table 6
Constructs' Reliability and Validity.

Construct	CA	CR	AVE
Decision to Travel	0.877	0.924	0.803
Existing eWOM	0.855	0.912	0.775
Perceived Risk	0.748	0.816	0.689
Source Credibility	0.826	0.92	0.852
Source Expertise	0.726	0.845	0.646
Source Trustworthiness	0.836	0.889	0.668
Trust	0.766	0.865	0.682
Visual and External Information	0.743	0.836	0.561
eWOM Credibility	0.818	0.916	0.846
eWOM Helpfulness	0.746	0.852	0.658
eWOM Length	0.762	0.814	0.524
eWOM Quantity	0.773	0.898	0.815
eWOM Readability	0.896	0.951	0.906
eWOM Usefulness	0.786	0.875	0.701

them overcome the perceived risk.

COVID-19 has imposed several risks that are linked to tourism and travel, accordingly, TripAdvisor has supported travelers with the Travel Safe initiative to allow hotel managers to provide visitors with safety measures they follow (TripAdvisor, 2020). Following that, hotel managers provided safety measures on the portal to attract travelers, which include the availability of hand sanitizer, compulsory wearing of face masks, and physical distancing procedures. Tourists' comments reflected that they are aware of Standard Operating Procedures (SOPs). Tourists seek the information provided by other tourists to address the risk they face dusting this pandemic and to help them reach the travel decision.

We clarified at the introduction of the questionnaire that the gathered data will be only used for research purposes. 679 valid questionnaires, were considered for SEM analysis. Data gathering was performed during a period of three months from January 2021 to March 2021. The demographic data are presented in Table 5. Survey items with supporting literature are presented in Table 1 of Appendix A.

To inspect the reliability and the validity of the hypothesized research model, several tests should be performed using a particular tool, in which we decided to use SmartPLS software (www.SmartPLS.com). The constructs of the model and the links between these constructs should be examined (Hair et al., 2021). The main advantage of using the SmartPLS is that it allows handling both small and large sizes of samples. Partial Least Squares-Structural Equation Modeling (PLS-SEM) was utilized to evaluate the respondents for several causes. PLS-SEM concentrates on the prediction, which allows us to address the goal of the study (Iyer et al., 2018). PLS-SEM can be used to evaluate complex research models that entail a moderating relationship (Bolander et al., 2015). Particularly two main types of evaluations, in which the first concentrates on the constructs and the second focuses on the links among the constructs, will be

Table 7
Fornell-Larcker Criterion.

	DEC	EeWOM	PR	SCRED	EX	STRU	TRU	VEINF	CRED	HWOM	LEN	QUAN	READ	USE
Decision to Travel	0.896													
Existing eWOM	0.576	0.88												
Perceived Risk	0.659	0.586	0.83											
Source Credibility	0.501	0.451	0.597	0.923										
Source Expertise	0.432	0.424	0.475	0.45	0.804									
Source Trustworthiness	0.64	0.668	0.575	0.488	0.497	0.817								
Trust	0.455	0.332	0.585	0.584	0.423	0.383	0.826							
Visual and External Information	0.603	0.558	0.558	0.49	0.442	0.627	0.429	0.79						
eWOM Credibility	0.506	0.556	0.536	0.503	0.617	0.685	0.504	0.559	0.92					
eWOM Helpfulness	0.466	0.413	0.526	0.431	0.379	0.435	0.461	0.62	0.36	0.811				
eWOM Length	0.539	0.531	0.569	0.539	0.446	0.589	0.724	0.542	0.57	0.461	0.748			
eWOM Quantity	0.602	0.569	0.552	0.506	0.502	0.741	0.439	0.619	0.708	0.39	0.603	0.903		
eWOM Readability	0.797	0.629	0.687	0.494	0.366	0.624	0.453	0.557	0.469	0.447	0.568	0.614	0.952	
eWOM Usefulness	0.475	0.397	0.461	0.468	0.366	0.436	0.461	0.749	0.433	0.563	0.406	0.47	0.425	0.837

Decision to Travel: DEC, Existing eWOM: EeWOM, Perceived Risk: PR, Source Credibility: SCRED, Source Expertise: EX, Source Trustworthiness: STRU, Trust: TRU, Visual and External Information: VEINF, eWOM Credibility: CRED, eWOM Helpfulness: HWOM, eWOM Length: LEN, eWOM Quantity: Quan, eWOM Readability: READ, eWOM Usefulness: USE.

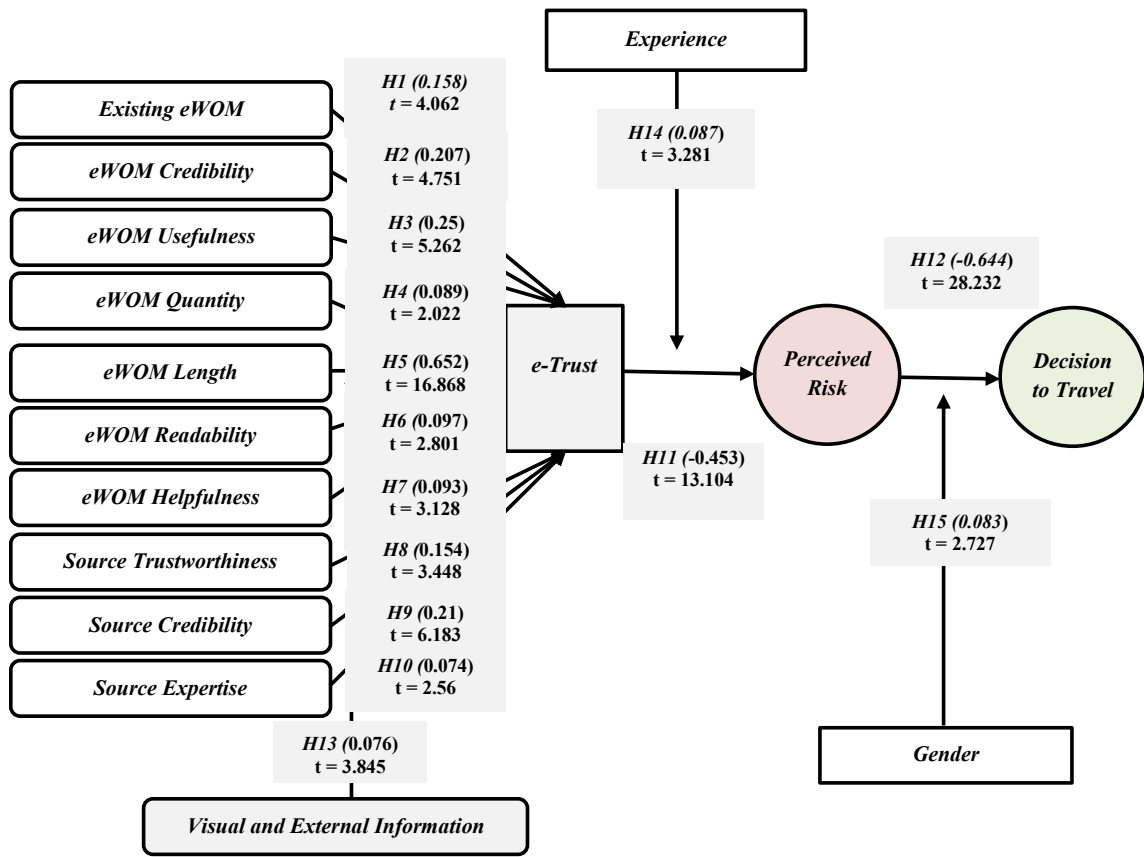


Fig. 5. Final research model.

elaborated in the next sections:

i. Assessment of the outer Model

In this study, the outer model was evaluated by utilizing SmartPLS and considering three main measures which are: Convergent Validity (CV), Internal Consistency (IC), and Discriminant Validity (DV). To meet the CV measure, the indicators of the questionnaire need to be inspected in terms of their outer loading values, as the value for each indicator should be more than 0.7 (Hair et al., 2021). The indicators with outer loading values that fall within the interval of 0.4–0.7 might be considered for removal, if only removing these items will enhance the results of the Composite Reliability (CR) or Average Variance Extracted (AVE) assessments. Based on the analysis result, and as all questionnaire indicators met this criterion, all indicators were kept in the next steps of analysis. In the second test of the CV evaluation, the AVE test result should be inspected. AVE test investigates the degree of relationship among the indicators of the same factor, in which the result of the test should be more than 0.5 for all research factors, which was confirmed in the result of the analysis. Second, the IC of the research model should be investigated by the results of two tests: Cronbach’s Alpha (CA) and CR tests. For the CA test, each factor should have a value that is more than 0.7. Besides, for the CR test, each construct should have a value above 0.7. Both CA and CR tests met the condition, meaning that research variables have passed the internal consistency assessment. The outcomes of constructs’ reliability and validity tests are presented in Table 6.

DV evaluation is carried out to examine the degree of discrimination between research factors based on two main tests of Cross-Loadings (CL) and Fornell-Larcker (FL) criterion. In the FL test, the divergence between research factors is evaluated to confirm that it is less than the square root of the AVE of that factor. On the other hand, for the CL test, the outer loadings of factors’ indicators must be more than its cross-loadings. Fornell-Larcker criterion is presented in Table 7, while the CL test is presented in Table 2 of Appendix A. Both tests have passed the discriminant validity conditions.

ii. Assessment of the Inner Model

Based on the evaluation of the outer model, research paths between the factors need to be assessed. Three main tests we used to evaluate the inner model, which are: Path Coefficient (PC), coefficients of determination (R^2), and Stone-Geisser’s (Q^2). Based on these three tests, the final inner model is given in Fig. 5. In the next, we will discuss the various outcomes of these three tests:

Table 8
Path Coefficient Result.

Hypotheses	Link	β	t-value	p-value	Supported
H1	Existing eWOM -> Trust	0.158	4.062	0	Yes
H2	eWOM Credibility -> Trust	0.207	4.751	0	Yes
H3	eWOM Usefulness -> Trust	0.25	5.262	0	Yes
H4	eWOM Quantity -> Trust	0.089	2.022	0.044	Yes
H5	eWOM Length -> Trust	0.652	16.868	0	Yes
H6	eWOM Readability -> Trust	0.097	2.801	0.005	Yes
H7	eWOM Helpfulness -> Trust	0.093	3.128	0.002	Yes
H8	Source Trustworthiness -> Trust	0.154	3.448	0.001	Yes
H9	Source Credibility -> Trust	0.21	6.183	0	Yes
H10	Source Expertise -> Trust	0.074	2.56	0.011	Yes
H11	E-Trust -> Perceived Risk	-0.453	13.104	0	Yes
H12	Perceived Risk -> Decision to Travel	-0.644	28.232	0	Yes
H13	Moderating Effect 1 -> Trust	0.076	3.845	0	Yes
H14	Moderating Effect 2 -> Perceived Risk	0.087	3.281	0.001	Yes
H15	Moderating Effect 3 -> Decision to Travel	0.083	2.727	0.007	Yes
Other Paths	Visual and External Information -> Trust	0.239	5.228	0	Yes
Other Paths	Experience -> Perceived Risk	-0.246	6.313	0	Yes

Significant at $P^{**} \leq 0.01$, $P^* < 0.05$.

To evaluate the paths in the proposed research model, a bootstrapping approach was carried out using the SmartPLS tool to investigate the significance of the paths among research factors (Hair et al., 2021). Paths' testing outcomes are reported in Table 8. The results confirmed the significance of the proposed paths. In most research areas, a significant degree of 5% is accepted, which indicates that the p-value must be < 0.05 (Abumalloh et al., 2021). On the other hand, the t-value should be higher than 1.96 for the significance level of 5%. As Table 8 presents, the basic relations in the hypothesized research model were approved to be significant ($p < 0.01$). The paths between the existing eWOM and trust, eWOM credibility and trust, eWOM usefulness and trust, eWOM quantity and trust, eWOM length and trust, eWOM readability and trust, eWOM helpfulness and trust, source trustworthiness and trust, source credibility and trust, source expertise and trust, were confirmed. Additionally, the path between trust and perceived risk was confirmed. Besides, the impact of the perceived risk on travelers' decision to travel was proved based on the analysis outcome ($p < 0.01$). Additional outcomes were also presented, as the impact of visual and external information on the trust was also proved to be significant. Besides, the negative impact of the experience on the perceived risk was also confirmed. Results of the inner model analysis from SmartPLS are presented in Fig. 3, Appendix A.

The predictive accuracy of the research model can be evaluated using the R^2 measure. R^2 examines the ratio of the variance of the endogenous variable, which is measured using its exogenous variables (Hair et al., 2021). R^2 values fall within the interval of 0 to 1, with higher predictive accuracy linked to higher values (Hair et al., 2021). Considering the "decision to travel" factor, the R^2 value is 0.450, which is a high value. For the "perceived risk", the R^2 value is 0.409. Finally, for the trust, the R^2 value is 0.695. All these measures indicate the high predictive accuracy of the research model (Hair et al., 2021).

The last evaluation to be performed for the inner model is the predictive relevance (Q^2 value). Q^2 value should be higher than zero for the endogenous factor. Having Q^2 higher than zero for a particular targeted endogenous construct specifies that the path's predictive relevance for that particular latent variable has been achieved. The Q^2 measure is calculated by utilizing the blindfolding procedure using the Smart PLS package. Based on the test's result, all endogenous variables achieved Q^2 values above zero (DEC: 0.345, PR: 0.274, TRU: 0.456). Hence, we can conclude that the predictive relevance of the employed model was achieved.

In this research, we aimed to inspect three moderating relationships. The moderation impact refers to the impact of an external variable on a particular relationship in the research model, in which this relationship becomes stronger or weaker by the impact of that variable (Hair et al., 2021). The first moderating impact is based on the impact of the visual and external information on the relationship between the eWOM length and the trust. Based on the result, visual and external information strengthened the positive relationship between eWOM length and trust, which is presented in Fig. 6a. The second moderating impact is based on the impact of the experience on the relationship between trust and the perceived risk. The experience dampened the negative relationship between trust and perceived risk as presented in Fig. 6b. The impact of gender as a moderator factor on the relationship between perceived risk and decision to travel is also proved. To confirm the moderating impact of gender on the relationship between the perceived risk and the decision to travel, we performed a subgroup analysis to compare the result of the path analysis among the male and the female samples. As the result of t-value tests in Table 9 indicates, the impact of the perceived risk on the decision to travel is stronger in the female sample.

4. Discussion

Online reviews represent a credible source of data for a huge portion of tourists to evaluate the provided products and services (Yadegaridehkordi et al., 2021). With the presence of social portals, online feedback has impacted travelers' decisions significantly (Nilashi et al., 2018). Online reviews can be inspected using several methods to get insightful outcomes regarding tourists' experiences using a survey-based approach. The current pandemic presents an unprecedented situation for researchers to explore the emerging and

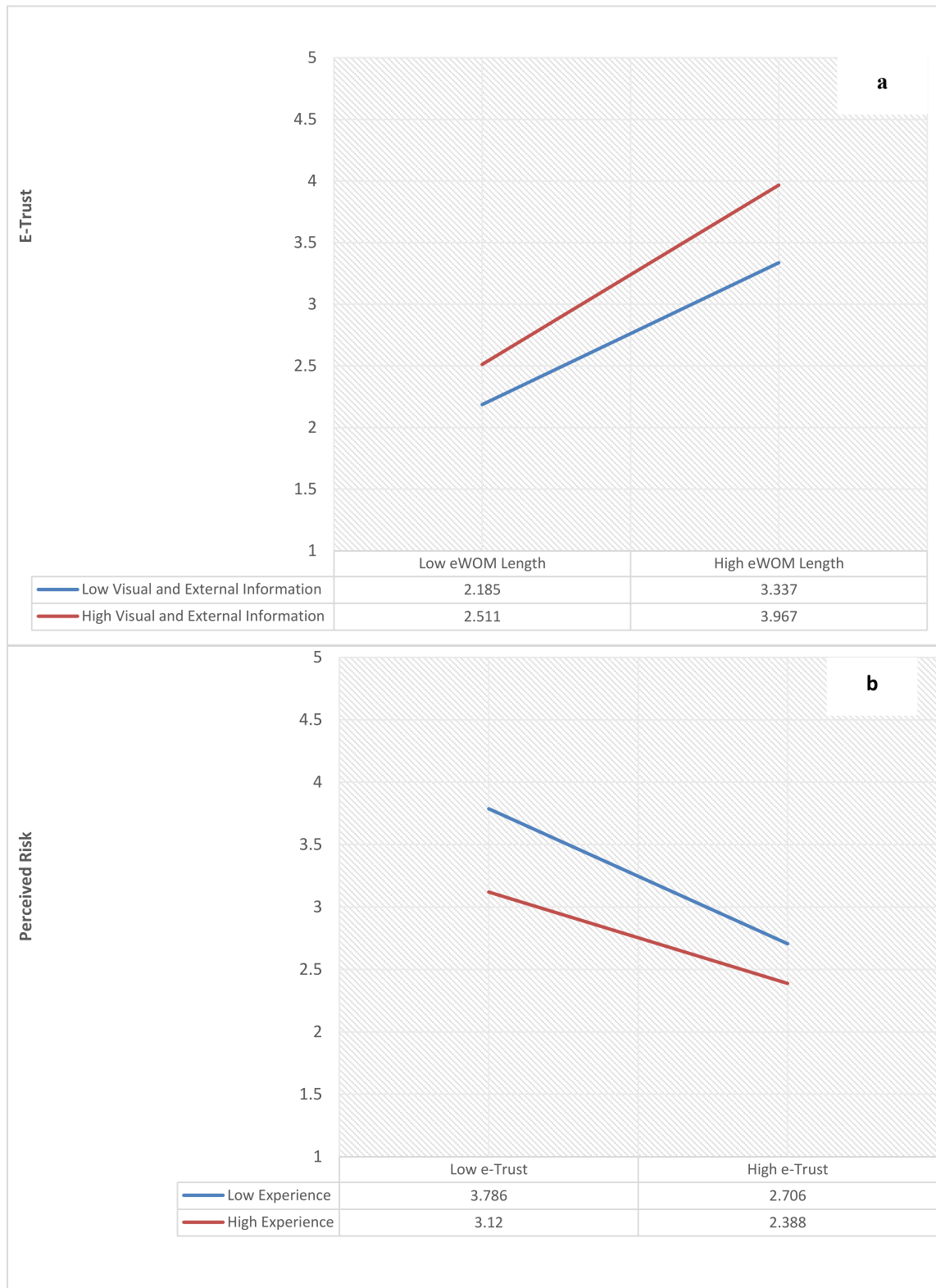


Fig. 6. The moderating impact (Variance-Based Technique): a) The moderating effect of visual and external information on the relationship between length of eWOM and E-trust, b) The moderating effect of experience on the relationship between e-trust and perceived risk.

Table 9
Path coefficient result.

Hypothesis	Gender	β	T-Value	P Values	R ² of DEC
Perceived Risk -> Decision to Travel	Male	-0.608	16.003	0	36.9%
	Female	-0.685	25.511	0	47%

new needs of travelers in the tourism and hospitality sectors.

In this research, we aimed to explore the factors that can develop users' trust and allow them to reach the right decision by exploring tourists' impressions about the eWOM based on a large-scale survey, which was distributed among the TripAdvisor users, focusing particularly on the current epidemic. The analysis of the research model presented the support to all research paths, in which the impact of perceived risk on the decision to travel was the strongest among the research paths. Particularly, the outcomes of the study indicated the significant impact of several attributes related to the eWOM and the source of the eWOM on travelers' trust during this crisis. These variables need to be investigated using various techniques trying to capture the various dimensions of the eWOM during COVID-19.

Considering H1, which proposed that there is a positive impact of existing eWOM on e-trust, the result of the analysis runs smoothly with previous literature in this context (Bhandari and Rodgers, 2018; Jalilvand et al., 2013). As indicated by Kim and Park (2013), when the user uses online portals, he/she refers to the comments posted by other users to overcome the uncertainty about the quality of the provided services. The presence of online reviews in the online portal has been considered as the front to the business's digital reputation. The online review allows the business to be marketized by customers, enhance the search engine rankings, improve the sales, provide feedback to business managers, and induce customers to proceed to the purchase decision.

The analysis result confirmed H2 also, which suggested that there is a positive impact of eWOM credibility on e-trust. The result of the analysis supports previous literature in this context, as indicated by McKnight and Kacmar (2006) the credibility of the provided information is a significant factor for the eWOM adoption. Referring to H3, in which eWOM usefulness has a positive impact on e-trust, the result of the analysis supports previous studies. In a similar context to our study, Zarifah Dhabitah (2020) examined the impact of eWOM usefulness on travelers' trust and confirmed the positive relationship. H4 indicated that the quantity of eWOM has an impact on e-trust. The result of the analysis supports previous literature in this context. The number of eWOM on the electronic portal is a significant factor, as the volume of the online reviews reflects the popularity of the seller or the product (Matute et al., 2016). Additionally, as H5 proposed, there is a positive impact of the length of eWOM on e-trust, in which the result of the analysis approved this hypothesis. As indicated by Bosman (2013), online reviews in terms of the number of posted reviews and the length of each individual review (words' count) have an impact on the customers' perceptions of the popularity of the product under review, as they reflect the level of involvement of other customers with the product. The authors linked the length of the review with the credibility of the review. Lengthy reviews were perceived to be more helpful by customers as indicated by Tandon et al. (2021). As indicated by González-Rodríguez et al. (2016), the length of the reviews reflects the level of the knowledge of the reviewer about the reviewed product or service. Considering H6, which examined the positive impact of eWOM readability on e-trust, the result of the analysis was also supported. In previous literature, several studies have indicated that readable information is more likely to gain users' trust (Banerjee and Chua, 2014; Rowley et al., 2015). The readability of the review, in terms of the written style, reflects the level of easiness in which the review is likely to be understood and it impacts its value. Previous literature explored the influence of the linguistic characteristics of the review on its value broadly (Kusumasondjaja et al., 2012; Liu and Park, 2015). A low level of online reviews' readability will confuse the user and impact their understandability, in which they will not trust the provided information (Deng et al., 2021). Korfiatis et al. (2012) indicated that the review's readability is more important than its length. Considering H7, which hypothesized the positive impact of eWOM helpfulness on e-trust, the result of the analysis was confirmed. Focusing on the impacts of source trustworthiness, source credibility, and source expertise on e-trust, the analysis outcomes have supported these hypotheses. Two sources of comments are presented on online portals; consumers; who provide their comments based on their experiences or the experts in the product or service to be reviewed or opinion leaders (Chen and Xie, 2008), and service providers (Dickinger, 2011). However, customers reviews have a higher impact on other customers' choices than service providers, as customers trust the feedback provided by their peers more than vendors or service providers (Zhang et al., 2014). In fact, consumers have more trust in comments generated by their peers than those written by experts or vendors of products and services.

H8 suggested that there is a positive impact of source trustworthiness on e-trust. In previous literature, the specific attributes of trustees were considered as antecedents of e-trust, such as trustworthiness and the reputation of the source (Pennanen, 2011). The result provides additional proof to previous literature in this context. H9 proposed that there is a positive impact of source credibility on e-trust, which was confirmed in the result of the analysis. Thus, users are more willing to accept eWOM from a reliable source. This outcome has been indicated in previous literature, such as the work by Bansal and Voyer (2000). Generally, the credibility of the source has been linked with a positive impact on attitudes. Referring to H10, which examined the positive impact of source expertise on e-trust, previous studies indicated the importance of experts' information on the receiver (Lis, 2013). Based on their experience, experts often present more influence of persuasion and convincing of others with their opinions (Wangenheim and Bayón, 2004).

Customers' perceptions about the quality of the eWOM or its source depend on a variety of cues (Greer, 2003). Users' perceptions of source trustworthiness, credibility, and expertise can be impacted by several factors. First, To develop a sense of trust among users of the portal, there is a need to trust that the source of the reviews is trustworthy and credible. Users need to trust that the source of the reviews is not fake and the provided reviews will reflect the actual experience of the user. The quality of the online reviews is hard to be evaluated by customers, as service providers might try to influence customers' reviews or provide fake reviews about the products (Lee

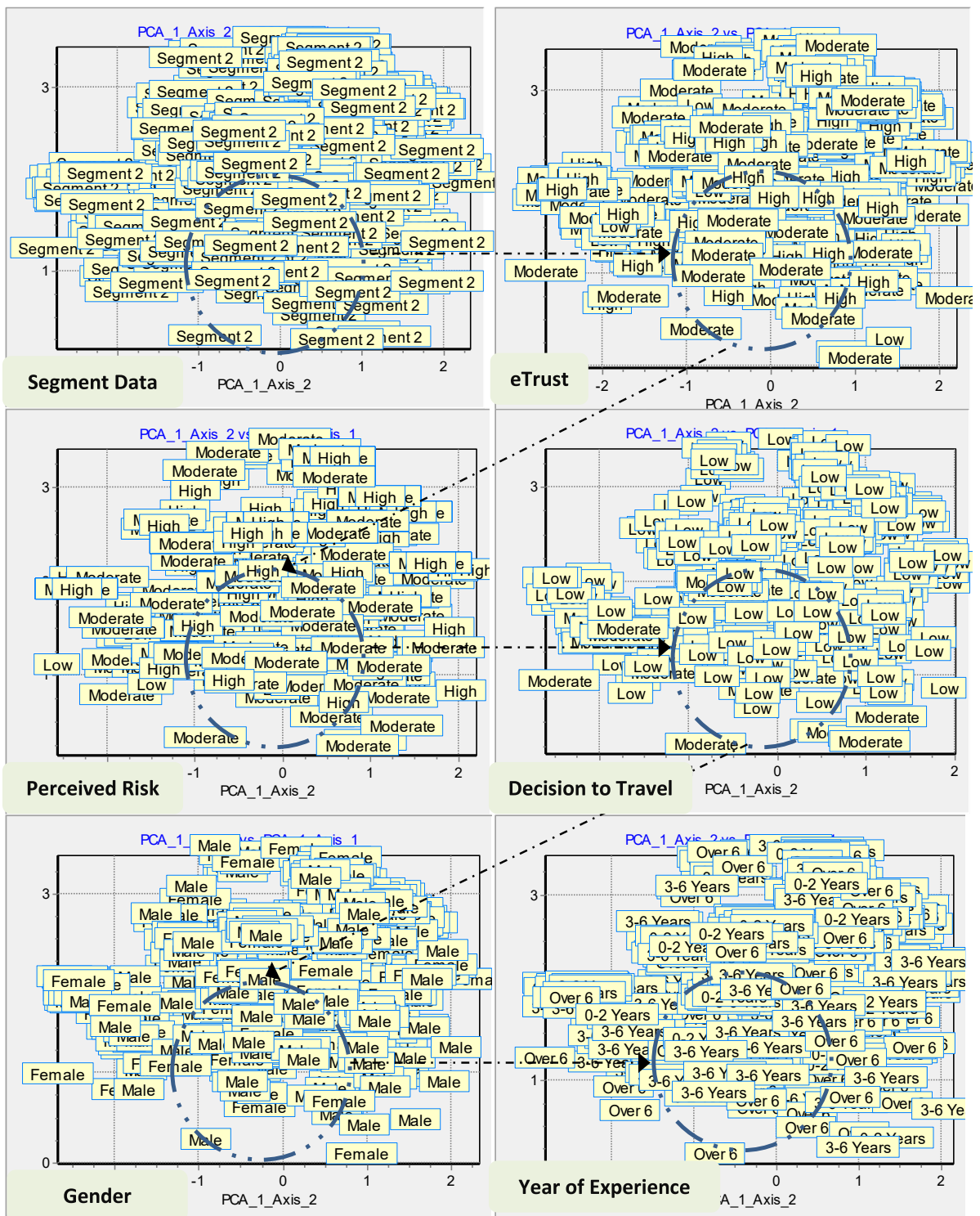


Fig. A1. Results for Segment 2.

and Youn, 2009). The credibility of eWOM portals has a great role in impacting customers' perceptions of the credibility of the presented eWOM or the source of the eWOM (Xue and Phelps, 2004). TripAdvisor is a trusted website that provides credible online reviews and blocks fraudulent content to enhance the users' experience. As indicated by TripAdvisor (Thatcher, 2019), "more than 1 m fake reviews were blocked from reaching the platform in 2018 and said it is "far from complacent" dealing with fraud detection".

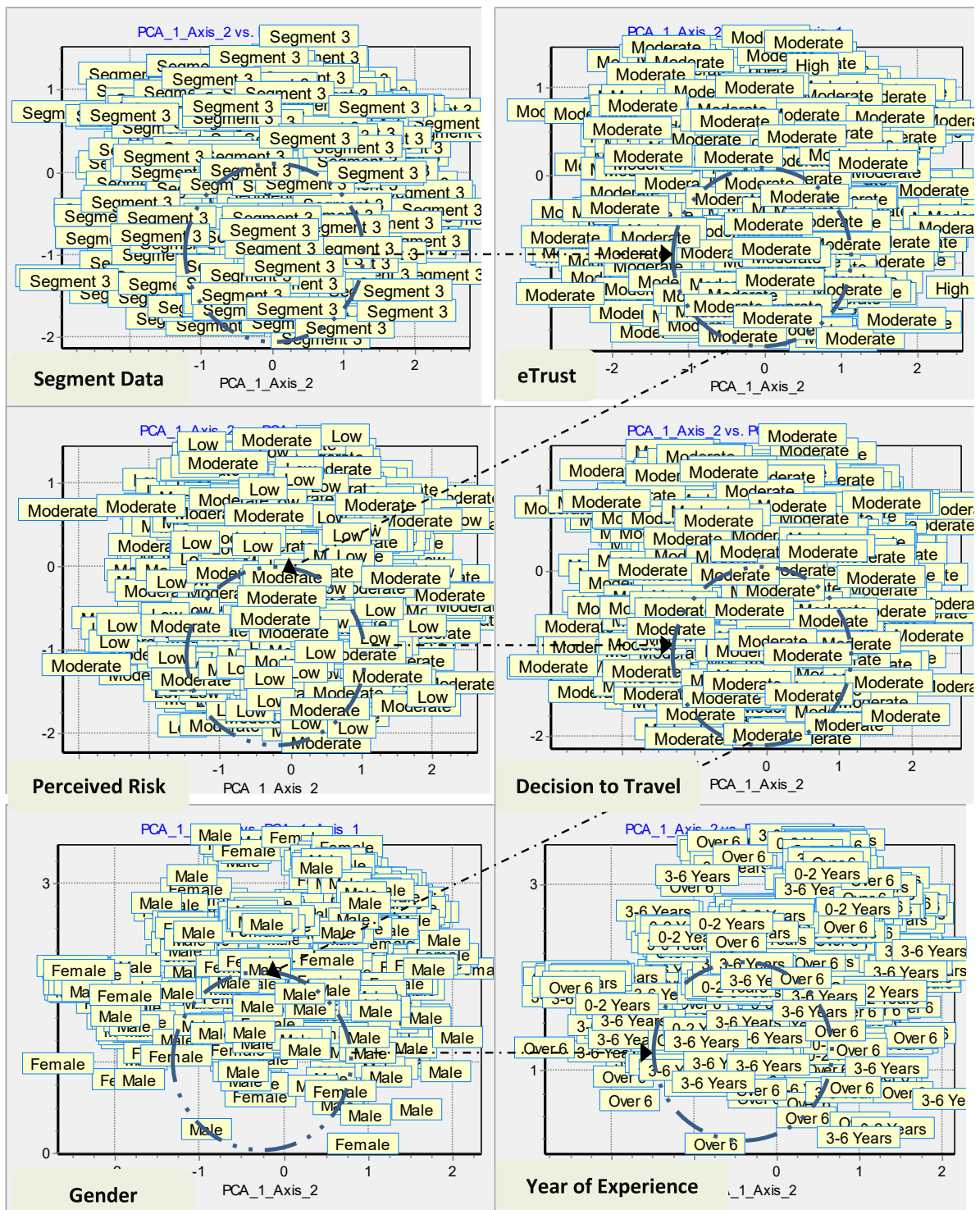


Fig. A2. Results for Segment 3.

Second, demographic data of the reviewer is provided on TripAdvisor to allow the user to evaluate the reviewer. Third, the number of reviews posted by the reviewer is also provided on the portal which enables the user to assess the experience of the reviewer. Besides, the length of the review reflects the knowledge of the reviewer of the products to some degree. The period in which the reviewer has been a member of the platform is another important factor. Fourth, several other factors can be evaluated by the user based on the

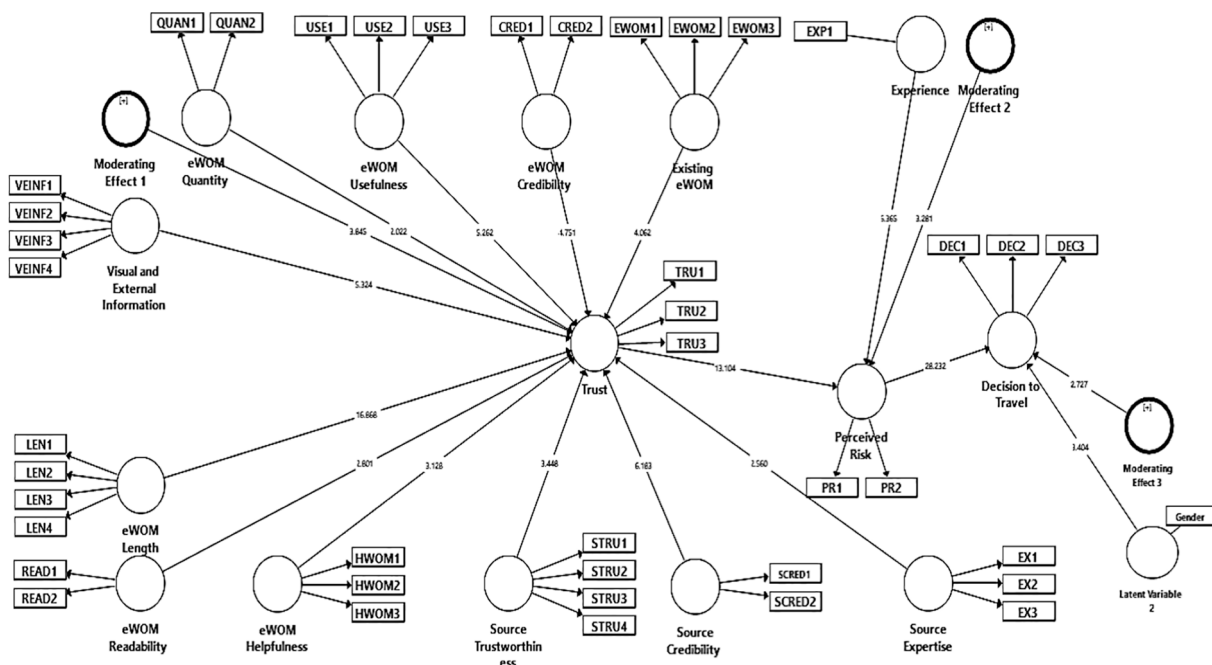


Fig. A3. Results of the Inner Model Analysis from SmartPLS.

context of the eWOM (Ismagilova et al., 2020; Racherla and Friske, 2012).

On the other hand, H11 examined the negative impact of e-trust on perceived risk. In the context of tourism and hospitality sectors, tourists refer to eWOM to handle the uncertainty and the potential risk (Liu and Park, 2015). As the emotional risks are linked with perishable and intangible areas of the travel industry such as quality of services, the eventual decision of the customer is based on other customers' experiences that are documented as online reviews (Luo and Zhong, 2015). Perceived risk has been recognized as a significant obstacle in e-commerce (Hajli, 2015). To overcome the negative influence of this obstacle, trust plays an important role to reduce the uncertainty attached to e-commerce (Ventre and Kolbe, 2020). With the risky environment of the hospitality sector, trust is a basic factor in thriving long-standing relations (Wang et al., 2014), particularly during COVID-19. Trust aids to minimize the vulnerability, uncertainty, and anxiety related to travel and tourism (Ladhari and Michaud, 2015). Considering H12, which examined the negative impact of perceived risk on the decision to travel, the result of the analysis runs smoothly with previous literature in this context. As indicated by Ventre and Kolbe (2020), perceived risk has been considered as a barrier to online purchase. This outcome has been confirmed in previous literature in many contexts such as green products (Zahid et al., 2018), B2C e-commerce (Chiu et al., 2014), and travel booking (Park and Tussyadiah, 2017).

Finally, when we examined the impact of the perceived risk on travel decisions based on the gender perspective, we noticed differences among female and male samples. The perceived risk has a higher impact on the decision to travel in the female sample. This result runs consistently with previous research that examined gender differences in the decision-making process (Venkatesh and Morris, 2000). Female and male differences exist in the evaluation of products and services (Sun and Zhang, 2006). Compared to women, men are less likely to experience anxiety (Sun and Zhang, 2006), while women are more willing to be affected by others' opinions and more aware of others' feelings (Venkatesh and Morris, 2000).

5. Research implications

The research has several practical contributions that can be utilized by service vendors, websites designers, hotel managers, and researchers. First, the research has several implications for decision-makers in the hotel and hospitality sectors in general and during the current health crisis in particular. Positive and negative comments are of great importance to decision-makers to capture tourists' overall perceptions. It is important to investigate travelers' perceptions, which can present several insights for service vendors in the hospitality sector.

To survive during this pandemic, there is a need for service vendors to frame long-lasting plans that can address the uncertainty of travelers, in which travelers' voices should be seriously considered. The study indicated the important role of visual and external information on travelers' trust. Hence, service providers should take advantage of the visual information properly to get a better understanding of customers' needs. Based on the result of the study, it can be inferred that search-based products and experience-based products should utilize visual content when interacting with customers through eWOM. Service providers should not only present textual content to advertise their products and services and they should present a visualization of the products to motivate bloggers to do the same.

Table A1
Survey Items.

NO.	Factor	Items	Survey Questions	References
Part 2	Electronic Trust	TRU1	Overall I trust the eWOM presented on this portal	(Jensen et al., 2013; McKnight et al., 2002)
		TRU2	I am willing to depend on the presented eWOM	
		TRU3	The presented eWOM can be trusted	
	Perceived Risk	PR1	I think that the travel decision entails a large risk during this crisis.	(Li et al., 2010)
		PR2	I think that the travel decision entails a large financial risk during COVID-19.	
	Decision to Travel	DEC1	I am planning to travel in the near future.	(Chowdhury et al., 2015)
DEC2	I already planned for my trip.			
DEC3	I want to travel as soon as possible.			
Part 3	Existing eWOM	EWOM1	The website presents eWOM in a clear way	(Ismagilova et al., 2020)
		EWOM2	I can find the eWOM on the website easily.	
		EWOM3	The website allows travelers to provide eWOM easily.	
	eWOM Credibility	CRED1	The presented eWOM is dependable	(Benlian et al., 2012; Fang, 2014; Luo et al., 2013)
		CRED2	The presented eWOM is credible	
	eWOM Usefulness	USE1	The content of the eWOM aided me in reaching a good decision	(Ismagilova et al., 2020)
		USE2	Using the eWOM can aid me to choose the right place to travel	
		USE3	eWOM can present good directions to me to reach the right choice.	
	eWOM Quantity	QUAN1	I found many reviews on the website	(Bulut and Karabulut, 2018; Park and Lee, 2008; Qahri-Saremi and Montazemi, 2019)
		QUAN2	The quantity of reviews for each item is large.	
	Visual and External Information	VEINF1	I found many pictures with the eWOM.	(Lin et al., 2012)
		VEINF2	The reviewers presented visual content to describe the quality of services.	
		VEINF3	Many reviewers take photos of the destinations.	
		VEINF4	Many reviewers use photos to present the quality of the services.	
	eWOM Length	LEN1	The eWOM is long enough	(Tandon et al., 2021)
		LEN2	The number of characters in the eWOM is enough	
		LEN3	The number of words in the eWOM is acceptable	
		LEN4	The reviewers presented comments with appropriate length.	
	eWOM Readability	READ1	I could easily understand the content of the eWOM	(Tandon et al., 2021)
		READ2	I could easily comprehend the content of the eWOM	
	eWOM Helpfulness	HWOM1	The content of the eWOM helped me	(Benlian et al., 2012; Filieri, 2015; Pentina et al., 2018)
HWOM2		The eWOM helped me to understand the features of the product		
Source Trustworthiness	HWOM3	The content of the eWOM was useful to me	(Jensen et al., 2013; Sussman and Siegal, 2003)	
	STRU1	I think the source of the comment is trustworthy.		
	STRU2	I think the source of the comment is believable.		
	STRU3	I think the source of the comment is accurate.		
Source Credibility	STRU4	I think the source of the comment is reliable.	(Benlian et al., 2012; Fang, 2014; Luo et al., 2013)	
	SCRED1	The source of the eWOM is dependable		
Source Expertise	SCRED2	The source of the eWOM is credible	(Fang, 2014; Sussman and Siegal, 2003; Zhang et al., 2014)	
	EX1	The source of the comment is knowledgeable in the topic of the review		
	EX2	The source of the comment is experienced in the topic of the review		
		EX3	The source of the comment is expert in the topic of the review	

In addition, the research finding indicated the importance of incorporating eWOM in the design of online portals to capture actual travelers' experiences. Designers of online portals should consider how to locate users' feedbacks in an easy-to-use manner and allow them to express their opinions in several forms and consider several aspects (Park et al., 2014). This is particularly vital during an unexpected situation like the current crisis with emerging and unprecedented conditions, in which the tourism and hospitality business has got the greatest hit among other businesses. The posted opinions and ratings on popular websites such as TripAdvisor allow hotel managers to address negative comments and reply to them in the same portal, which will impact tourists' confidence and aid them in their destination choice (Nilashi et al., 2021).

The importance of users' perceptions about products and services has motivated several researchers to adopt various quantitative and qualitative methods to evaluate users' overall experiences. Still, to face the uncertainty during this pandemic, it is important to understand how users' trust can be gained using several techniques. Hence, one direction of research is based on assessing users' experiences by deploying a questionnaire among a targeted research sample and using several tools to analyze the collected data.

Table A2
Cross loadings test.

	DEC	EeWOM	PR	SCRED	EX	STRU	TRU	VEINF	CRED	HWOM	LEN	QUAN	READ	USE
CRED1	0.485	0.486	0.462	0.453	0.582	0.669	0.457	0.497	0.917	0.355	0.513	0.597	0.421	0.369
CRED2	0.446	0.536	0.523	0.471	0.553	0.593	0.47	0.531	0.922	0.307	0.534	0.705	0.442	0.426
DEC1	0.898	0.595	0.603	0.477	0.39	0.605	0.387	0.466	0.416	0.474	0.552	0.73	0.439	
DEC2	0.931	0.522	0.624	0.452	0.379	0.589	0.443	0.549	0.459	0.439	0.507	0.546	0.747	0.441
DEC3	0.858	0.425	0.539	0.415	0.396	0.521	0.394	0.503	0.435	0.395	0.467	0.522	0.662	0.395
EeWOM1	0.525	0.901	0.533	0.426	0.398	0.609	0.305	0.526	0.519	0.411	0.464	0.512	0.572	0.387
EeWOM2	0.44	0.875	0.47	0.355	0.329	0.522	0.269	0.416	0.446	0.316	0.487	0.456	0.496	0.278
EeWOM3	0.55	0.864	0.54	0.405	0.389	0.626	0.302	0.524	0.499	0.359	0.454	0.529	0.586	0.375
EX1	0.346	0.34	0.392	0.384	0.822	0.474	0.368	0.354	0.553	0.325	0.378	0.387	0.289	0.247
EX2	0.369	0.381	0.404	0.349	0.817	0.364	0.311	0.364	0.531	0.244	0.338	0.446	0.298	0.307
EX3	0.33	0.306	0.35	0.348	0.771	0.35	0.337	0.349	0.4	0.337	0.357	0.381	0.296	0.332
HWOM1	0.289	0.296	0.327	0.291	0.225	0.281	0.266	0.467	0.232	0.731	0.281	0.264	0.351	0.4
HWOM2	0.416	0.356	0.502	0.383	0.365	0.373	0.462	0.476	0.311	0.878	0.427	0.342	0.405	0.424
HWOM3	0.411	0.352	0.423	0.364	0.306	0.395	0.356	0.585	0.323	0.818	0.391	0.336	0.332	0.559
LEN1	0.347	0.277	0.416	0.458	0.29	0.274	0.797	0.295	0.396	0.344	0.831	0.364	0.388	0.295
LEN2	0.404	0.474	0.424	0.319	0.371	0.531	0.293	0.443	0.415	0.365	0.683	0.472	0.413	0.273
LEN3	0.417	0.519	0.426	0.357	0.335	0.621	0.321	0.477	0.439	0.302	0.692	0.527	0.441	0.302
LEN4	0.517	0.501	0.436	0.373	0.401	0.591	0.332	0.569	0.486	0.363	0.717	0.564	0.502	0.345
PR1	0.407	0.404	0.819	0.536	0.399	0.411	0.63	0.425	0.468	0.473	0.503	0.41	0.418	0.398
PR2	0.678	0.564	0.84	0.457	0.389	0.539	0.35	0.499	0.424	0.402	0.442	0.504	0.714	0.368
QUAN1	0.53	0.535	0.508	0.441	0.47	0.679	0.387	0.579	0.714	0.337	0.544	0.898	0.538	0.44
QUAN2	0.557	0.493	0.49	0.472	0.437	0.659	0.406	0.539	0.568	0.367	0.544	0.908	0.571	0.41
READ1	0.717	0.596	0.654	0.475	0.345	0.588	0.413	0.521	0.426	0.39	0.535	0.563	0.948	0.389
READ2	0.797	0.6	0.653	0.466	0.351	0.599	0.448	0.539	0.466	0.458	0.547	0.605	0.956	0.418
SCRED1	0.46	0.454	0.556	0.923	0.42	0.463	0.54	0.454	0.471	0.391	0.528	0.488	0.483	0.42
SCRED2	0.464	0.378	0.547	0.923	0.411	0.438	0.539	0.452	0.458	0.405	0.467	0.446	0.429	0.444
STRU1	0.54	0.494	0.464	0.417	0.474	0.781	0.379	0.539	0.732	0.346	0.502	0.735	0.499	0.384
STRU2	0.54	0.552	0.451	0.387	0.334	0.822	0.264	0.523	0.442	0.369	0.461	0.516	0.506	0.351
STRU3	0.49	0.581	0.493	0.432	0.343	0.831	0.311	0.472	0.47	0.38	0.446	0.557	0.523	0.36
STRU4	0.509	0.565	0.461	0.341	0.447	0.834	0.263	0.502	0.528	0.321	0.506	0.554	0.504	0.311
TRU1	0.347	0.277	0.416	0.458	0.29	0.274	0.831	0.295	0.396	0.344	0.797	0.364	0.388	0.295
TRU2	0.396	0.253	0.499	0.53	0.382	0.331	0.863	0.376	0.416	0.391	0.551	0.363	0.386	0.413
TRU3	0.388	0.294	0.544	0.46	0.384	0.348	0.781	0.4	0.44	0.412	0.483	0.36	0.345	0.444
USE1	0.432	0.353	0.411	0.423	0.308	0.371	0.382	0.672	0.382	0.443	0.348	0.444	0.362	0.841
USE2	0.38	0.283	0.374	0.375	0.276	0.353	0.383	0.69	0.344	0.452	0.31	0.362	0.332	0.867
USE3	0.381	0.359	0.371	0.377	0.334	0.37	0.392	0.622	0.359	0.516	0.361	0.375	0.372	0.802
VEINF1	0.405	0.349	0.375	0.346	0.257	0.386	0.271	0.762	0.367	0.438	0.301	0.445	0.349	0.661
VEINF2	0.366	0.294	0.357	0.327	0.267	0.384	0.275	0.794	0.341	0.471	0.26	0.362	0.318	0.704
VEINF3	0.376	0.406	0.361	0.338	0.324	0.409	0.297	0.724	0.353	0.596	0.324	0.375	0.397	0.67
VEINF4	0.589	0.552	0.522	0.424	0.424	0.621	0.399	0.712	0.548	0.37	0.631	0.602	0.539	0.398

Decision to Travel: DEC, Existing eWOM: EeWOM, Perceived Risk: PR, Source Credibility: SCRED, Source Expertise: EX, Source Trustworthiness: STRU, Trust: TRU, Visual and External Information: VEINF, eWOM Credibility: CRED, eWOM Helpfulness: HWOM, eWOM Length: LEN, eWOM Quantity: Quan, eWOM Readability: READ, eWOM Usefulness: USE.

Users' perceptions have been investigated through a survey-based method in several contexts in previous literature (Guo et al., 2017; Lucini et al., 2020). In this study, we aimed to adopt a clustering of the data together with the structural equation modeling of the research variables. While *k*-means is a simple segmentation technique that can group a large volume of data (Kuswandi et al., 2018), SEM is a robust statistical technique that can locate the links between variables, particularly in social science research (Hair et al., 2021). Hence, by adopting these two techniques, the results of the clustering and SEM analysis can present robust insights to researchers.

6. Conclusion

The coronavirus disease (COVID-19) has impacted the travel industry worldwide because travel raises the risk of spreading the infection of COVID-19. People's awareness of the perceived risk of traveling has influenced their decision-making and destination choice. To overcome the potential threat, people seek the aid of electronic word of mouth (eWOM) to arrange their travel plans. Previous reviews presented by travelers during the COVID-19 crisis can improve peoples' decisions. Still, several factors such as the information overload problem and fake comments can impact the quality of traveler decisions. Accurate and relevant delivery of information through suitable portals to resolve people's uncertainty is significant, particularly during the COVID-19 crisis.

The features of eWOM have played a crucial role in the sales of products and business revenues. Nowadays, tourists share their travel experiences by providing related eWOM on electronic portals. EWOM allows travelers to overcome the ambiguity linked with a travel plan. Still, travelers have to decide whether to trust and accept the presented reviews based on particular features, especially during the COVID-19 outbreak. Hence, this research aims to understand how travelers' trust can be impacted by the presence of online reviews and how the trust can impact their perceptions of risk, which accordingly impact their decisions. In addition, it is important to investigate whether gender and experience impact these relationships. We aimed to present an integrated approach that combines both cluster analysis and structural equation modeling to investigate travelers' trust and decisions. In the first stage, a *k*-means algorithm was used to segment the users' data into different groups for trust, perceived risk, and decision to travel. To support the outcomes from the first stage, the second stage was carried out using SEM based on several tests to confirm the validity and reliability of the research model. The results in both stages of data analyses indicated the significant role of the eWOM during the current COVID-19 pandemic for the decision to travel. The results also indicated there is a significant relationship between trust and perceived risk, and perceived risk and travelers' decision to travel. The results also confirmed that gender and experience have a moderating influence respectively on the relationship between e-trust and perceived risk, and perceived risk and travelers' decision to travel.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A

References

- Aakash, A., Aggarwal, A.G., 2019. Role of EWOM, product satisfaction, and website quality on customer repurchase intention. *Strategy and superior performance of micro and small businesses in volatile economies*. IGI Global 144–168.
- Abubakar, A.M., Ilkan, M., Meshall Al-Tal, R., Eluwole, K.K., 2017. eWOM, revisit intention, destination trust and gender. *J. Hospital. Tourism Manage.* 31, 220–227.
- Abumalloh, R.A., Asadi, S., Nilashi, M., Minaei-Bidgoli, B., Nayer, F.K., Samad, S., Mohd, S., Ibrahim, O., 2021. The impact of coronavirus pandemic (COVID-19) on education: The role of virtual and remote laboratories in education. *Technol. Soc.* 67, 101728. <https://doi.org/10.1016/j.techsoc.2021.101728>.
- Akyüz, A., 2013. Determinant factors influencing eWOM Mediterranean. *J. Soc. Sci.* 4, 159, 159.
- Alon A, Brunel F. Uncovering rhetorical methods of word-of-mouth talk in an online community ACR North American Advances 2006.
- Antony, S., Lin, Z., Xu, B.o., 2006. Determinants of escrow service adoption in consumer-to-consumer online auction market: an experimental study. *Decis. Support Syst.* 42 (3), 1889–1900.
- Audrain-Pontevia, A.-F., N'Goala, G., Poncin, I., 2013. A good deal online: The Impacts of acquisition and transaction value on E-satisfaction and E-loyalty. *J. Retail. Consum. Serv.* 20 (5), 445–452.
- Bae, S., Lee, T., 2011. Gender differences in consumers' perception of online consumer reviews. *Electron. Comm. Res.* 11 (2), 201–214.
- Banerjee, S., Chua, A.Y.K., 2014. A theoretical framework to identify authentic online reviews. *Online Inform. Rev.* 38 (5), 634–649.
- Bansal, H.S., Voyer, P.A., 2000. Word-of-mouth processes within a services purchase decision context. *J. Serv. Res.* 3 (2), 166–177.

- Bartel Sheehan, K., 1999. An investigation of gender differences in on-line privacy concerns and resultant behaviors. *J. Interact. Market.* 13 (4), 24–38.
- Benlian, A., Titah, R., Hess, T., 2012. Differential effects of provider recommendations and consumer reviews in e-commerce transactions: an experimental study. *J. Manage. Inform. Syst.* 29 (1), 237–272.
- Bhandari, M., Rodgers, S., 2018. What does the brand say? Effects of brand feedback to negative eWOM on brand trust and purchase intentions. *Int. J. Advertis.* 37 (1), 125–141.
- Bhatnagar, A., Misra, S., Rao, H.R. On risk, convenience, and Internet shopping behavior. *Communications of the ACM* 2000;43:98-105.
- Blau, P.M., 2017. *Exchange and Power in Social Life*. Routledge.
- Bolander, W., Satornino, C.B., Hughes, D.E., Ferris, G.R., 2015. Social networks within sales organizations: their development and importance for salesperson performance. *J. Market.* 79 (6), 1–16.
- Bosman, D.J., 2013. The review credibility of electronic word-of-mouth communication on e-commerce platforms. *Manage. Dynam.* 22, 29–45.
- Broekhuizen, T., Huizingh, E.K.R.E., 2009. Online purchase determinants: Is their effect moderated by direct experience? *Manage. Res. News* 32 (5), 440–457.
- Bulut, Z.A., Karabulut, A.N., 2018. Examining the role of two aspects of eWOM in online repurchase intention: an integrated trust–loyalty perspective. *J. Consum. Behav.* 17 (4), 407–417.
- Williamson OE. Calculativeness, trust, and economic organization *The journal of law and economics* 1993;36:453-486.
- Chen, Y.-S., Huang, S.Y.B., 2017. The effect of task-technology fit on purchase intention: the moderating role of perceived risks. *J. Risk Res.* 20 (11), 1418–1438.
- Chen, Y., Xie, J., 2008. Online consumer review: word-of-mouth as a new element of marketing communication mix. *Manage. Sci.* 54 (3), 477–491.
- Cheung, R., 2014. The influence of electronic word-of-mouth on information adoption in online customer communities. *Global Econ. Rev.* 43 (1), 42–57.
- Chiu, C.M., Wang, E.T., Fang, Y.H., Huang, H.Y., 2014. Understanding customers' repeat purchase intentions in B2C e-commerce: the roles of utilitarian value, hedonic value and perceived risk. *Inform. Syst. J.* 24, 85–114.
- Chowdhury, S., Ceder, A.C., Schwalger, B., 2015. The effects of travel time and cost savings on commuters' decision to travel on public transport routes involving transfers. *J. Transp. Geogr.* 43, 151–159.
- Coleman, J.S., 1994. *Foundations of Social Theory*. Harvard University Press.
- Deng S, Fu S, Liu Y, Li H. Modelling users' trust in online health rumours: an experiment-based study in China 2021.
- Dickinger, A., 2011. The trustworthiness of online channels for experience- and goal-directed search tasks. *J. Travel Res.* 50 (4), 378–391.
- Doolin, B., Dillon, S., Thompson, F., Corner, J.L., 2005. Perceived risk, the Internet shopping experience and online purchasing behavior: a New Zealand perspective. *J. Global Inform. Manage. (JGIM)* 13 (2), 66–88.
- Fang, Y.-H., 2014. Beyond the credibility of electronic word of mouth: exploring eWOM adoption on social networking sites from affective and curiosity perspectives. *Int. J. Electron. Commerce* 18 (3), 67–102.
- Filieri, R., 2015. What makes online reviews helpful? A diagnosticity-adoption framework to explain informational and normative influences in e-WOM. *J. Bus. Res.* 68 (6), 1261–1270.
- Filieri, R., Raguseo, E., Vitari, C., 2019. What moderates the influence of extremely negative ratings? The role of review and reviewer characteristics. *Int. J. Hospit. Manage.* 77, 333–341.
- Flanagin, A.J., Metzger, M.J., Pure, R., Markov, A., Hartsell, E., 2014. Mitigating risk in ecommerce transactions: perceptions of information credibility and the role of user-generated ratings in product quality and purchase intention. *Electron. Commerce Res.* 14 (1), 1–23.
- Flavián, C., Gurree, R., Orús, C., 2021. Mobile word of mouth (m-WOM): analysing its negative impact on webrooming in omnichannel retailing. *Int. J. Retail Distribut. Manage.* 49 (3), 394–420.
- Fresneda, J.E., Gefen, D., 2019. A semantic measure of online review helpfulness and the importance of message entropy. *Decis. Support Syst.* 125, 113117. <https://doi.org/10.1016/j.dss.2019.113117>.
- Gambetta D. Can we trust trust Trust: Making and breaking cooperative relations 2000;13:213-237.
- Garbarino, E., Strahilevitz, M., 2004. Gender differences in the perceived risk of buying online and the effects of receiving a site recommendation. *J. Bus. Res.* 57 (7), 768–775.
- Ghose, A., Ipeirotis, P.G., 2011. Estimating the helpfulness and economic impact of product reviews: mining text and reviewer characteristics. *IEEE Trans. Knowledge Data Eng.* 23 (10), 1498–1512.
- González-Rodríguez, M.R., Martínez-Torres, R., Toral, S., 2016. Post-visit and pre-visit tourist destination image through eWOM sentiment analysis and perceived helpfulness. *Int. J. Contem. Hospital. Manage.* 28 (11), 2609–2627.
- Greer JD. Evaluating the credibility of online information: A test of source and advertising influence *Mass communication and society* 2003;6:11-28.
- Griffith, D.A., 2005. An examination of the influences of store layout in online retailing. *J. Bus. Res.* 58 (10), 1391–1396.
- Gunawan, D.D., Huarng, K.-H., 2015. Viral effects of social network and media on consumers' purchase intention. *J. Bus. Res.* 68 (11), 2237–2241.
- Guo, Y., Barnes, S.J., Jia, Q., 2017. Mining meaning from online ratings and reviews: tourist satisfaction analysis using latent dirichlet allocation. *Tourism Manage.* 59, 467–483.
- Hair Jr JF, Hult GTM, Ringle CM, Sarstedt M. A primer on partial least squares structural equation modeling (PLS-SEM). Sage publications; 2021.
- Hajli, N., 2015. Social commerce constructs and consumer's intention to buy. *Int. J. Inf. Manage.* 35 (2), 183–191.
- Hsu, C.L., Chuan-Chuan Lin, J., Chiang, H.S., 2013. The effects of blogger recommendations on customers' online shopping intentions. *Int. Res.* 23, 69–88.
- Hu, N., Liu, L., Zhang, J.J., 2008. Do online reviews affect product sales? The role of reviewer characteristics and temporal effects. *Inform. Technol. Manage.* 9 (3), 201–214.
- Huang L, Shao J, Wang W. Research on the relationships between hotel internet word-of-mouth and customers' behavior intention based on trust. 2013 6th International conference on information management, innovation management and industrial engineering, IEEE; 2013. pp. 250–254.
- Ismailova, 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. *Inform. Syst. Front.* 22 (5), 1203–1226.
- Iyer, P., Davari, A., Mukherjee, A., 2018. Investigating the effectiveness of retailers' mobile applications in determining customer satisfaction and repatronage intentions? A congruency perspective. *J. Retailing Consum. Serv.* 44, 235–243.
- Jalilvand, M.R., Ebrahimi, A., Samiei, N., 2013. Electronic word of mouth effects on tourists' attitudes toward Islamic destinations and travel intention: An empirical study in Iran. *Procedia Soc. Behav. Sci.* 81, 484–489.
- Jalilvand, M.R., Samiei, N., 2012. The impact of electronic word of mouth on a tourism destination choice: Testing the theory of planned behavior (TPB). *Int. Res.* 22, 591–612.
- Jarvenpaa SL, Tractinsky N, Vitale M. Consumer trust in an Internet store *Information technology and management* 2000;1:45-71.
- Jensen, M.L., Averbeck, J.M., Zhang, Z., Wright, K.B., 2013. Credibility of anonymous online product reviews: A language expectancy perspective. *J. Manage. Inform. Syst.* 30 (1), 293–324.
- Kim, D.J., Ferrin, D.L., Rao, H.R., 2008. A trust-based consumer decision-making model in electronic commerce: The role of trust, perceived risk, and their antecedents. A trust-based consumer decision-making model in electronic commerce: The role of trust, perceived risk, and their antecedents. *Decis. Support Syst.* 44 (2), 544–564.
- Kim, M., Lennon, S., 2008. The effects of visual and verbal information on attitudes and purchase intentions in internet shopping. *Psychol. Market.* 25 (2), 146–178.
- Kim, S., Park, H., 2013. Effects of various characteristics of social commerce (s-commerce) on consumers' trust and trust performance. *Int. J. Inf. Manage.* 33 (2), 318–332.
- Korfatis, N., García-Bariocanal, E., Sánchez-Alonso, S., 2012. Evaluating content quality and helpfulness of online product reviews: The interplay of review helpfulness vs. review content. *Electron. Commer. Res. Appl.* 11 (3), 205–217.
- Kusumasondajaja, S., Shanka, T., Marchegiani, C., 2012. Credibility of online reviews and initial trust: The roles of reviewer's identity and review valence. *J. Vacation Market.* 18 (3), 185–195.

- Kuswandi, D., Surahman, E., Thariq, Z.Z.A., Muthmainnah, M., 2018, 2018., K-Means Clustering of Student Perceptions on Project-Based Learning Model Application 2018. In: 4th International Conference on Education and Technology, pp. 9–12.
- Ladhari R, Michaud M. EWOM effects on hotel booking intentions, attitudes, trust, and website perceptions International Journal of Hospitality Management 2015;46: 36-45.
- Lee, J., 2011. How eWOM reduces uncertainties in decision-making process: using the concept of entropy in information Theory 정보이론의 엔트로피 관점에서의 바라 본 온라인 소비자 리뷰의 소비자 의사결정에 있어 불확실성 감소 효과 How eWOM reduces uncertainties in decision-making process: using the concept of entropy in information theory. J. Soc. e-Bus. Stud. 16 (4), 241–256.
- Lee, M., Youn, S., 2009. Electronic word of mouth (eWOM): How eWOM platforms influence consumer product judgement. Int. J. Advertis. 28 (3), 473–499.
- Li H, Ye Q, Law R, Wang Z. A purchasing-intention model in C2C e-commerce of China: The role of perceived risk, trust, perceived benefit and their antecedents. proceedings of the 12th international conference on electronic commerce: Roadmap for the future of electronic business; 2010. pp. 101-109.
- Liang, T.-P., Lai, H.-J., Ku, Y.-C., 2006. Personalized content recommendation and user satisfaction: Theoretical synthesis and empirical findings. J. Manage. Inform. Syst. 23 (3), 45–70.
- Lim KH, Benbasat I. The effect of multimedia on perceived equivocality and perceived usefulness of information systems MIS quarterly 2000;449-471.
- Lin, T.M.Y., Luarn, P., Huang, Y.K., 2005. Effect of Internet book reviews on purchase intention: a focus group study. J. Acad. Librarianship 31 (5), 461–468.
- Lin, T.M.Y., Lu, K.-Y., Wu, J.-J., 2012. The effects of visual information in eWOM communication. J. Res. Interact. Market. 6 (1), 7–26.
- Lis B. In eWOM we trust Business & information systems engineering 2013;5:129-140.
- Liu Z, Park S. What makes a useful online review? Implication for travel product websites Tourism management 2015;47:140-151.
- Liu M, Zhou M. Understanding the Impacts of Perceived Consumer Online Reviews on Consumer Purchase Intention. WHICEB; 2012. p. 51.
- Lu, S., Wu, J., Tseng, S.-L.A., 2018. How online reviews become helpful: a dynamic perspective. J. Interact. Market. 44, 17–28.
- Lucini, F.R., Tonetto, L.M., Fogliatto, F.S., Anzanello, M.J., 2020. Text mining approach to explore dimensions of airline customer satisfaction using online customer reviews. J. Air Trans. Manage. 83, 101760. <https://doi.org/10.1016/j.jairtraman.2019.101760>.
- Luhmann N. Familiarity, confidence, trust: Problems and alternatives Trust: Making and breaking cooperative relations 2000;6:94-107.
- Luo, C., Luo, X.(, Schatzberg, L., Sia, C.L., 2013. Impact of informational factors on online recommendation credibility: The moderating role of source credibility. Decis. Support Syst. 56, 92–102.
- Luo, Q., Zhong, D., 2015. Using social network analysis to explain communication characteristics of travel-related electronic word-of-mouth on social networking sites. Tourism Manage. 46, 274–282.
- Lwin, M.O., Williams, J.D., 2006. Promises, promises: how consumers respond to warranties in internet retailing. J. Consum. Affairs 40 (2), 236–260.
- Mafael, A., Gottschalk, S.A., Kreis, H., 2016. Examining biased assimilation of brand-related online reviews. J. Interact. Market. 36, 91–106.
- Malthouse, E., Shankar, V., 2009. Measuring and managing interactive environments. J. Interact. Market. 23 (3), 207–208.
- Mariani, M.M., Borghi, M., Gretzel, U., 2019. Online reviews: differences by submission device. Tourism Manage. 70, 295–298.
- Matute, J., Polo-Redondo, Y., Utrillas, A., 2016. The influence of EWOM characteristics on online repurchase intention: Mediating roles of trust and perceived usefulness. OIR 40 (7), 1090–1110.
- Mayzlin D. Promotional chat on the Internet Marketing science 2006;25:155-163.
- McKnight H, Kacmar C. Factors of information credibility for an internet advice site. Proceedings of the 39th Annual Hawaii International Conference on System Sciences (HICSS'06), IEEE; 2006. pp. 113b-113b.
- McKnight, D.H., Choudhury, V., Kacmar, C., 2002. Developing and validating trust measures for e-Commerce: an integrative typology. Inform. Syst. Res. 13 (3), 334–359.
- Milne, G.R., Rohm, A.J., 2000. Consumer privacy and name removal across direct marketing channels: Exploring opt-in and opt-out alternatives. J. Public Policy Market. 19 (2), 238–249.
- Miyazaki, A.D., Fernandez, A.N.A., 2001. Consumer perceptions of privacy and security risks for online shopping. J. Consum. Affairs 35 (1), 27–44.
- Mohseni, S., Jayashree, S., Rezaei, S., Kasim, A., Okumus, F., 2018. Attracting tourists to travel companies' websites: the structural relationship between website brand, personal value, shopping experience, perceived risk and purchase intention. Curr. Issues Tourism 21 (6), 616–645.
- Netto, N., Carneiro, T., Oliveira, P., Monteiro, R., 2016. What must be considered when to perform consumption analytics with Facebook posts? Braz. Bus. Rev. 13 (4), 1–23.
- Nilashi, M., Ibrahim, O., Yadegaridehkordi, E., Samad, S., Akbari, E., Alizadeh, A., 2018. Travelers decision making using online review in social network sites: a case on TripAdvisor. J. Comput. Sci. 28, 168–179.
- Nilashi, M., Asadi, S., Minaei-Bidgoli, B., Ali Abumalloh, R., Samad, S., Ghabban, F., Ahani, A., 2021. Recommendation agents and information sharing through social media for coronavirus outbreak. Telemat. Inform. 61, 101597. <https://doi.org/10.1016/j.tele.2021.101597>.
- Nizar Hidayanto, A., Ovirza, M., Anggia, P., Ayuning Budi, N.F., Phusavat, K., 2017. The roles of electronic word of mouth and information searching in the promotion of a new E-commerce strategy: a case of online group buying in Indonesia. J. Theor. Appl. Electron. Commerce Res. 12 (3), 69–85.
- Park, J.H., Gu, B., Leung, A.C.M., Konana, P., 2014. An investigation of information sharing and seeking behaviors in online investment communities. Comput. Hum. Behav. 31, 1–12.
- Park, D.-H., Lee, J., 2008. eWOM overload and its effect on consumer behavioral intention depending on consumer involvement. Electron. Commer. Res. Appl. 7 (4), 386–398.
- Park, S., Tussyadiah, I.P., 2017. Multidimensional facets of perceived risk in mobile travel booking. J. Travel Res. 56 (7), 854–867.
- Pennanen, K., 2011. Is interpersonal and institutional e-trustworthiness equally important in consumer e-trust development? J. Consum. Behav. 10 (5), 233–244.
- Pentina, I., Bailey, A.A., Zhang, L., 2018. Exploring effects of source similarity, message valence, and receiver regulatory focus on yelp review persuasiveness and purchase intentions. J. Market. Commun. 24 (2), 125–145.
- Pyle, M.A., Smith, A.N., Chevchouk, Y., 2021. In eWOM we trust: using naïve theories to understand consumer trust in a complex eWOM marketplace. J. Bus. Res. 122, 145–158.
- Qahri-Saremi, H., Montazemi, A.R., 2019. Factors affecting the adoption of an electronic word of mouth message: a meta-analysis. J. Manage. Inform. Syst. 36 (3), 969–1001.
- Racherla, P., Friske, W., 2012. Perceived 'usefulness' of online consumer reviews: an exploratory investigation across three services categories. Electron. Commer. Res. Appl. 11 (6), 548–559.
- Ratnasingham P. The importance of trust in electronic commerce Internet research 1998.
- Rodgers, S., Harris, M.A., 2003. Gender and e-commerce: an exploratory study Gender and e-commerce: an exploratory study. J. Advertis. Res. 43 (3), 322–329.
- Rousseau, D.M., Sitkin, S.B., Burt, R.S., Camerer, C., 1998. Not so different after all: a cross-discipline view of trust. Acad. Manage. Rev. 23 (3), 393–404.
- Rowley J, Johnson F, Scaffi L. Students' trust judgements in online health information seeking Health informatics journal 2015;21:316-327.
- Statista. Online reviews - Statistics & Facts. 2021b.
- Statista. Tripadvisor - statistics & facts. 2021c.
- Statista. Coronavirus: impact on the tourism industry worldwide - statistics & facts. 2021a.
- Sun, H., Zhang, P., 2006. The role of moderating factors in user technology acceptance. Int. J. Hum. Comput. Stud. 64 (2), 53–78.
- Susan, M.M., David, S., 2010. What makes a helpful online review? A study of customer reviews on amazon.com. MIS Quart. 34, 185–200.
- Sussman, S.W., Siegal, W.S., 2003. Informational influence in organizations: an integrated approach to knowledge adoption. Inform. Syst. Res. 14 (1), 47–65.
- Tandon, A., Aakash, A., Aggarwal, A.G., Kapur, P.K., 2021. Analyzing the impact of review recency on helpfulness through econometric modeling. Int. J. Syst. Assurance Eng. Manage. 12 (1), 104–111.
- Thatcher N. TripAdvisor 'stopped 1m fake reviews'. 2019.
- Torlak, O., Ozkara, B.Y., Tiltay, M.A., Cengiz, H., Dulger, M.F., 2014. The effect of electronic word of mouth on brand image and purchase intention: n application concerning cell phone brands for youth consumers in Turkey. J. Market. Devel. Compet. 8, 61.

- TripAdvisor. How to Improve Guest Confidence with Tripadvisor's Travel Safe Initiative. 2020.
- Wangenheim, F.V., Bayón, T., 2004. The effect of word of mouth on services switching: measurement and moderating variables. *Eur. J. Mark.* 38 (9/10), 1173–1185.
- Van Slyke, C., Comunale, C.L., Belanger, F., 2002. Gender differences in perceptions of web-based shopping. *Commun. ACM* 45 (8), 82–86.
- Venkatesh, V., Morris, M.G., 2000. Why Don't men ever stop to ask for directions? Gender, social influence, and their role in technology acceptance and usage behavior. *MIS Quart.* 24 (1), 115. <https://doi.org/10.2307/3250981>.
- Ventre, I., Kolbe, D., 2020. The impact of perceived usefulness of online reviews, trust and perceived risk on online purchase intention in emerging markets: a Mexican perspective. *J. Int. Consum. Market.* 32 (4), 287–299.
- Verma, D., Dewani, P.P., 2021. eWOM credibility: a comprehensive framework and literature review. *OIR* 45 (3), 481–500.
- Viechtbauer, W., 2010. Conducting meta-analyses in R with the metafor package. *J. Stat. Softw.* 36, 1–48.
- Wang, L., Law, R., Hung, K., Guillet, B.D., 2014. Consumer trust in tourism and hospitality: a review of the literature. *J. Hospit. Tourism Manage.* 21, 1–9.
- Watts, S., Zhang, W., 2008. Capitalizing on content: information adoption in two online communities. *J. Assoc. Inform. Syst.* 9 (2), 73–94.
- Xue, F., Phelps, J.E., 2004. Internet-facilitated consumer-to-consumer communication: the moderating role of receiver characteristics. *Int. J. Int. Market. Advertis.* 1 (2), 121. <https://doi.org/10.1504/IJIMA.2004.004016>.
- Yadegaridehkordi, E., Nilashi, M., Nizam Bin Md Nasir, M.H., Momtazi, S., Samad, S., Supriyanto, E., Ghabban, F., 2021. Customers segmentation in eco-friendly hotels using multi-criteria and machine learning techniques. *Technol. Soc.* 65, 101528. <https://doi.org/10.1016/j.techsoc.2021.101528>.
- Yan, L., Tan, Y., 2017. The consensus effect in online health-care communities. *J. Manage. Inform. Syst.* 34 (1), 11–39.
- Yang, L., Cheng, Q., Tong, S., 2015. In: *The Strategies of China's Firms*. Elsevier, pp. 123–135. <https://doi.org/10.1016/B978-0-08-100274-2.00008-X>.
- Zahid, M.M., Ali, B., Ahmad, M.S., Thurasamy, R., Amin, N., 2018. Factors affecting purchase intention and social media publicity of green products: The mediating role of concern for consequences. *Corp. Soc. Responsib. Environ. Manage.* 25 (3), 225–236.
- Zainal, N.T.A., Harun, A., Lily, J., 2017. Examining the mediating effect of attitude towards electronic words-of-mouth (eWOM) on the relation between the trust in eWOM source and intention to follow eWOM among Malaysian travellers Asia Pacific. *Manage. Rev.* 22 (1), 35–44.
- Zarifah Dhabitah Mahat N, Hafiz Hanafiah M. Help me tripadvisor! Examining the relationship between Tripadvisor e-WOM attributes, trusts towards online reviews and travellers behavioural intentions *Journal of Information and Organizational Sciences* 2020;44:83-112.
- Zhang, K.Z.K., Zhao, S.J., Cheung, C.M.K., Lee, M.K.O., 2014. Examining the influence of online reviews on consumers' decision-making: A heuristic-systematic model. *Decis. Support Syst.* 67, 78–89.