

THE CREDIBILITY OF CONSUMER REVIEWS ON THREE E-COMMERCE IN INDONESIA: MIXED METHOD APPROACH

Cep Abdul Baasith Wahpiyudin¹, Raditya Kasih Mahanani¹, Ismie Leona Rahayu¹,
Megawati Simanjuntak^{1*)}, Ujang Sumarwan¹, Lilik Noor Yuliaty¹, Moh. Djemdjem Djameludin¹,
Irni Rahmayani Johan¹, Istiqlaliyah Muflikhati¹

¹Department of Family and Consumer Science, Faculty of Human Ecology,
IPB University, Bogor 16680, Indonesia

^{*)}E-mail: mega_juntak@apps.ipb.ac.id

Abstract

Online stores with more than 3000 reviews have made it difficult for consumers to find reviews that can be used as the main source of information to decide on a purchase. This research aims to investigate the credibility of reviews that consumers can be trusted. This research used mixed methods (quantitative and qualitative) through sequential explanation. In this quantitative study, 300 respondents were collected using a voluntary sampling technique, and 900 reviews from three e-commerce sites in Indonesia were selected purposely. The qualitative approach used in-depth interviews with three consumers and a selected seller using a purposive sampling technique. The data was processed by multiple linear regression and descriptive using SPSS 25.0 and Nvivo 12. Research results confirmed that the motivation to read reviews and consumer attitudes toward reviews significantly affect online purchasing decisions, but a third of consumers still rarely provide reviews. Furthermore, based on source credibility, E-WOM quality, and recommendation rating, in the three e-commerce sites, almost half of the reviews studied were hard to be trusted. Based on these findings, this research summarizes the policy implications for consumers and governments and suggests future research.

Keywords: content analysis, credibility, electronic commerce, online review, sentiment analysis.

Kredibilitas Ulasan Konsumen Pada Tiga *E-commerce* di Indonesia: Pendekatan *Mixed Methods*

Abstrak

Toko *online* yang memiliki lebih dari 3000 ulasan telah menyulitkan konsumen dalam menemukan ulasan yang dapat dijadikan sebagai sumber informasi utama untuk memutuskan pembelian. Penelitian ini bertujuan untuk menyelidiki kredibilitas ulasan yang dapat dipercaya konsumen pada tiga *e-commerce* di Indonesia. Penelitian ini menggunakan metode campuran (kuantitatif dan kualitatif) melalui strategi eksplanatori sekuensial. Dalam studi kuantitatif, terkumpul 300 responden menggunakan teknik *voluntary sampling* dan 900 ulasan dari tiga situs *e-commerce* di Indonesia dipilih secara purposive. Pendekatan kualitatif menggunakan wawancara mendalam dengan tiga konsumen dan seorang penjual yang dipilih menggunakan teknik *purposive sampling*. Data diolah dengan regresi linier berganda dan deskriptif menggunakan SPSS 25 dan Nvivo 12. Hasil penelitian menegaskan bahwa motivasi membaca ulasan dan sikap konsumen terhadap ulasan berpengaruh signifikan terhadap keputusan pembelian *online*, namun sepertiga konsumen masih jarang memberikan ulasan. Selanjutnya, berdasarkan sumber kredibilitas, kualitas E-WOM, dan peringkat rekomendasi di tiga situs *e-commerce*, hampir setengah dari ulasan yang dipelajari sulit dipercaya. Berdasarkan temuan, penelitian ini merangkum implikasi kebijakan bagi konsumen dan pemerintah, serta menyarankan penelitian di masa depan.

Kata-kata Kunci: analisis isi, analisis sentimen, *e-commerce*, kredibilitas, ulasan *online*

INTRODUCTION

The number of internet users in Indonesia in 2020 reached 202,6 million (73,7%) of the total population of 274,9 million in January 2021 (Hootsuite, 2021). The high number of internet users is accompanied by increased online buying and selling transactions, especially during the COVID-19 pandemic. This is

supported by Bank Indonesia data in 2021 that the value of e-commerce transactions in the first and second quarters increased 63,36 percent to IDR186,75 trillion and is projected to increase by 48,4 percent to reach IDR395 trillion for the whole of 2021. E-commerce with the third highest ranking based on web traffic in 2020, namely Shopee, Tokopedia, and Lazada (IPrice, 2020).

According to IPrice (2020), interest in shopping for health products has increased significantly during the COVID-19 period. This increase is evident from Tokopedia data as of October 2020; transactions in health products are almost 2,5 times compared to the same period in 2019 due to their use to prevent the spread of COVID-19.

The increase in online transactions is often not accompanied by an increase in sellers' quality of products and services. Improving the quality of products and services is essential for sellers to create consumer satisfaction (Kaya et al., 2019). Based on data from the National Consumer Protection Agency (BPKN), between January and October 2021, the total number of complaints in the e-commerce sector was relatively high, at 427. The e-commerce sector has the second-highest complaints after financial services, with a total loss of IDR553.741.000,00 (BPKN, 2021).

Reviews are one source of information for consumers when shopping online (Zhang, Wu, & Mattila, 2016). Reviews are part of word of mouth, a consumer's positive or negative evaluation of the products purchased or used and poured through short and meaningful words (Singh et al., 2017). Reviews are critical because they influence purchasing decisions, purchase intentions, and consumer confidence (Chakraborty, 2019; Huang & Pape, 2020; Liu, et al., 2020; Ventre & Kolbe, 2020).

Reviews are also considered essential because they have been shown to improve a store's reputation (Barbado, Araque, & Iglesias, 2019). However, according to Barbado et al. (2019), many businesses are behaving dishonestly by writing fake reviews to increase the store's reputation. In addition, the large number of reviews submitted by consumers on e-commerce causes information overload, so consumers will find it difficult to find credible reviews (Hu & Krishen, 2019). A review is redundant if there are more than 3000 reviews for one product (Kwon et al., 2015). Credible reviews are honest arguments accompanied by videos or photos of products that have been purchased so that they can build consumer buying interest (Nariswari, 2021).

Research on reviews, in general, has been carried out by several researchers, including von Helversen et al. (2018), Chakraborty (2019), Huang and Pape (2020), Liu et al. (2020), Ventre and Kolbe (2020). However, these studies only focus on online consumer reviews of one e-commerce site and are carried out using a single method. The novelty of this research is that it

focuses on online consumer reviews on the three highest e-commerce sites in Indonesia's health products and is carried out using mixed methods that analyze consumer reviews' credibility through content analysis. Therefore, this research is essential so that consumers who shop online can find reviews worthy of being the primary source of information in deciding on purchases and for business actors to be used as input in assessing reviews that are useful for their business.

This study applied purchasing decisions and Information Processing Theory (IPT). The decision-making model is a consumer action to seek more information on various alternative products purchased (Willman-livarinen, 2017; Wang & Yu, 2017). The purchase decision referred to in this study is that reviews directly influence purchasing decision-making. The more product reviews read, the higher the consumer's decision-making in shopping (Firmansyah, 2018). Furthermore, Information Processing Theory (IPT) is the process of absorbing and applying knowledge through internal psychological activities such as sensory perception, attention, recognition, transformation, and memory (Wang, 2021). Information processing in a social environment is essential for consumers, especially risky information such as reviews on e-commerce (Ismagilova et al., 2020). In this study, information processing refers to reviews as a source of information for consumers to make purchasing decisions.

This study also wants to confirm the influence of motivation and attitudes toward reviews on online purchasing decisions. There have been many studies related to motivation, attitudes, and purchasing decisions, including the influence of motivation on purchasing decisions (Ali, 2021; Choi & Johnson, 2019; Wijanarko & Fachrodji, 2020; Won & Kim, 2020) and the influence of attitudes on purchasing decisions (Amoako, Dzogbenuku, & Abubakari, 2020; Aziz et al., 2019; Bashir, 2019). However, this research differs from previous research because the object of motivation and attitude studied is a review.

Based on the description above, the main question answered in this study is how the credibility of consumer reviews can be used as a source of information in online purchasing decisions. Furthermore, the objectives of this study are: (1) to identify consumers' online shopping behavior; (2) to analyze the influence of motivation to read reviews and attitudes toward reviews on purchasing decisions; (3) to identify the characteristics of the review data, (4)

to classify the sentiment class of health product reviews on three e-commerce; and (5) to analyze the credibility of consumer reviews based on source credibility, E-WOM quality, and recommendation rating.

METHODS

This study applied a mixed-methods research design with a sequential explanatory strategy by collecting and analyzing data in stages (Creswell, 2016). The quantitative approach performed a descriptive research design, while the qualitative approach used exploratory research. The research was carried out for three months, from June to September 2021, in a mixed manner (online and offline). Offline activities were carried out in Bogor West Java, while online activities were conducted through the Zoom application and social media.

A total of 900 reviews from the three e-commerce sites (Shopee, Tokopedia, and Lazada) were taken as samples to answer the third, fourth, and fifth objectives. Reviews were taken using a purposive sampling technique with the lowest 300 review criteria for the last five months related to personal protective equipment (mouth masks). Furthermore, for survey respondents, a voluntary sampling technique was performed. The data collected were 328, but only 300 were selected because several respondents filled in double and did not meet the criteria. The respondent's criteria were the consumer who purchased health products through online shopping in one of the three e-commerce sites studied in the last five months and filled the reviews after shopping online. The

survey was conducted to answer the first and second objectives.

The total informants on the qualitative approach were six people: three consumers and three sellers. The determination of informants was done using a purposive sampling technique with the criteria of having a product store in an e-commerce store and responding directly to reviews submitted by consumers (seller informants), while the criteria for consumer informants were having purchased health products in the last five months and had provided reviews.

Quantitative research focused on three variables, namely motivation to read reviews (X1), attitudes toward reviews (X2), and online purchasing decisions (Y). Motivation is the impetus for consumers to read reviews (Raiy & Aras, 2021), an attitude refers to the consumer's assessment of reviews (Akhtar et al., 2019), and online purchase decisions stand for consumer actions to buy a product online (Raiy & Aras, 2021). The operational framework of the research is presented in detail in Figure 1.

The research hypotheses to be investigated were:

- H1: Motivation has a significant effect on online purchasing decisions
- H2: Attitudes toward reviews have a significant effect on online purchasing decisions
- H3: The credibility of consumer reviews can be used as the primary source of information in deciding to purchase online (for qualitative research).

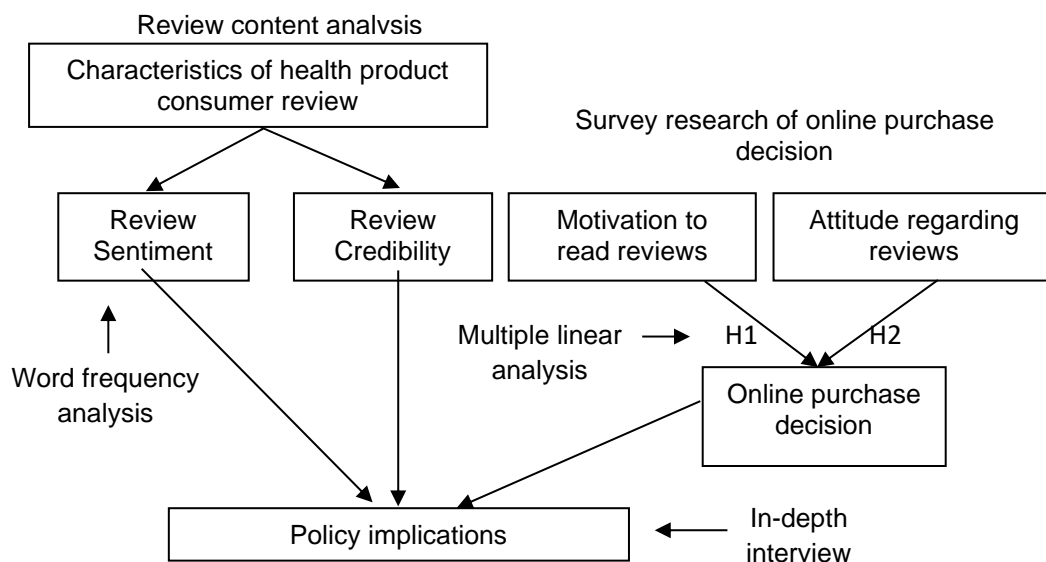


Figure 1 Research operational framework

The motivation for reading reviews and online purchasing decision instruments was modified from Rayi and Aras (2021), while the attitude toward review instruments was modified from Akhtar et al. (2019). Each variable consists of two indicators using a four-point Likert scale (strongly disagree, disagree, agree, and strongly agree). An instrument trial was conducted on 30 respondents not included in the main study. The reliability of the instruments resulted in a Cronbach Alpha value of more than 0,6 (motivation to read reviews was 0,839, attitude toward reviews was 0,644, and online purchasing decision was 0,627). In the validity test, each variable has shown an r-value more than the r-table (0,361) (motivation to read reviews was 0,928, attitudes toward reviews were 0,713 to 0,722, and online purchasing decision was 0,716 to 0,824). Furthermore, this research has received a letter of passing the ethical review from the Human Ethics Commission of IPB by guaranteeing the confidentiality of the respondents.

Sentiment analysis is a technique of grouping judgments, opinions, or personal opinions, which in this study referred to consumer reviews (Liu, 2012; Yang et al., 2020). Reviews were grouped into three sentiments: negative, neutral, and positive, after preprocessing activities. The type of data used in this research was primary data. The quantitative approach was carried out with an online survey distributed for seven weeks via Instagram, Twitter, WhatsApp, Line, and Telegram. Content analysis was conducted by searching and observing consumer review uploads in Indonesia's three highest e-commerce sites using web scraping techniques (Singh et al., 2017). The web scraping technique was used in review sampling by copying and pasting consumer review data into Microsoft Excel. Finally, the qualitative approach was conducted through in-depth online interviews with three sellers and one consumer and offline with two consumers. Offline interviews were carried out by implementing strict health protocols.

The survey data were analyzed using descriptive statistics and multiple linear regression with the classical assumption test: normal distribution, heteroscedasticity, autocorrelation, and multicollinearity. The linear regression models tested in this study were:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2$$

Where: Y= Online purchase decision (index); α = Constant; β_1, β_2 = Beta coefficient; X_1 =

Motivation to read reviews (index); X_2 = Attitude regarding reviews (index)

The review data in this study were processed and analyzed using Microsoft Excel, SPSS 25, and Nvivo 12. The review data were analyzed descriptively and word frequency. Before word frequency analysis on the Nvivo 12, the review data were grouped first through preprocessing activities to determine the review sentiment class. The results of the in-depth interviews were transcribed and then used to follow up on the results of the survey and content analysis and generate policy implications.

RESULTS

Consumer Online Shopping Behavior

Four indicators can be seen from consumer behavior in online shopping: the category of shopping activities, the most frequently used e-commerce, the category of health products that are most often purchased, and the frequency of giving reviews after purchase (Table 1).

Table 1 Consumer behavior in shopping

Consumer behavior in shopping	Percentage (%)
Shopping activity category	
online shopping	74,0
offline shopping	26,0
Most used e-commerce	
shopee	71,0
tokopedia	19,0
lazada	10,0
The most frequently purchased category of health products	
Personal protective equipment (mouth mask)	76,7
antiseptic products	38,0
vitamin	31,8
herbal medicine	14,5
disinfectant products	14,0
chemical drugs	8,5
health check tool	6,1
traditional medicine	4,2
Frequency of giving post-purchase reviews	
never	7,3
seldom	32,5
sometimes	24,6
often	18,8
always	16,4

Now, shopping for health products online is the main alternative to avoid the transmission of COVID-19. The results concluded that almost three-quarters (74,0%) of respondents prefer shopping for health products online rather than offline. In shopping online, consumers were more comfortable using e-commerce platforms such as Shopee, Tokopedia, and Lazada. However, of the three e-commerce sites, almost three-quarters (71,0%) of respondents shopped at Shopee's more often. The reasons respondents choose Shopee e-commerce are quite diverse. Consumers put forward ten reasons: many product choices, payment options, ease of use, lots of promos, the possibility to bargain, famous shopping applications, friendly user interface, cheaper product prices, COD (Cash on Delivery), and many more games with prizes.

Eight categories of health products are most frequently purchased online through e-commerce during the last three months of the COVID-19 pandemic. The eight categories include personal protective equipment (masks), antiseptic products (hand sanitizer, hand or bath soap), vitamins, herbal medicines, chemical drugs, health check tools (thermometer, oximeter, blood pressure, saturation), oxygen and cholesterol test kits), and traditional medicine. As a result, personal protective equipment became the most frequently purchased product (76,7%) during the COVID-19 pandemic.

Before consumers buy the product, consumers first read the reviews on the store and make these reviews the primary source of information to decide on a purchase. Although consumers have considered that reviews can influence purchasing decisions, the study showed that a third (33,0%) of respondents belonged to the category of rarely giving reviews. In addition, interviews with consumers (ZN, female, 22 years) revealed:

"I rarely give reviews because I do not have time. However, I think there are already many reviews in the shop, so I think my review will not affect it either."

The Influence of Motivation and Attitude on Purchase Decisions

Based on Table 2, the first and second hypotheses can be accepted. The higher the motivation to read reviews and the more positive consumer attitudes towards reviews, the higher the online purchase decision.

Table 2 Multiple linear regression results

Independent Variables	Unstandardized Coefficients		Standardized Coefficients	Sig.
	B	Standard Error	β	
Constant	35,658	4,185		0,000
Motivation to Read Reviews (X1)	0,145	0,045	0,174	0,001**
Attitude Regarding Reviews (X2)	0,380	0,048	0,426	0,000**
Sig. 0,000**				
Adjusted R Square 0,267				

Note: *significant at $p < 0,01$

The resulting regression equation was: $Y = 35,658 + 0,145X_1 + 0,380X_2$. The increment of one unit of motivation to read reviews and one unit of attitude toward reviews would increase the online purchasing decision index by 0,145 and 0,380 points, respectively. The value of Adjusted R Square in this study was 0,267, which means that 26,7 percent of online purchasing decisions were influenced by the variables studied.

Review Characteristics

The characteristics of the reviews in this study were seen based on the visible parameters, such as the month of uploading the review, the name of the reviewer, the reviewer's photo, rating, the form of review, seller response, and the number of words in the review (Table 3).

The months of review uploading were categorized by five months (February to June). The month of upload was adjusted for reviews taken from each of the lowest 300 e-commerce reviews in that period.

The source's identity (reviewer) can be seen from the name and photo of the reviewer. The identity of this source was presented directly on every review uploaded so that other consumers would know the identity of each reviewer. This study categorized the reviewer's name using real and anonymous names. Judging from the reviewer's name, the analysis results exhibited that the highest percentage of reviews from the three e-commerce already used real names (65,0%).

Table 3 Characteristics of the reviews and the origin of the reviews

Review characteristics	Origin of review		
	Shopee (%)	Tokopedia (%)	Lazada (%)
Reviewer's name			
The real name	57,0	58,3	79,7
Anonymous	43,0	41,7	20,3
Reviewer's photo			
Real photo	43,0	15,0	0,0
Not real photo	57,0	85,0	100,0
The valence of consumer review			
Not good (1 star)	0	1,0	6,7
Not good (2 stars)	0,3	0,7	3,3
Neutral (3 stars)	3,7	1,7	6,7
Good (4 stars)	10,7	3,3	7,7
Very good (5 stars)	85,3	93,3	75,7
Review form			
Text	4,3	85,0	71,1
Text and photo	2,7	15,0	26,3
Text and video	2,0	0,0	0,0
Text, photos, and Videos	91,0	0,0	2,0
Seller response			
Yes	0,5	97,0	0,0
None	95,0	0,3	100,0
Number of words			
<25 words	85,7	92,0	98,3
25-50 words	13,7	7,0	1,7
>50 words	0,7	0,3	0,0

The source's identity (reviewer) can be seen from the account photo. Photos of reviewers were categorized into two: reviewers using real photos and not real photos/not using photos. Real photos in question are photos of humans showing the reviewer's face (not in the form of cartoon photos, photos of other body parts, photos of plants, and others). Not a real photo/not using a photo, meaning that the message's sender does not use a human photo that displays a face but is replaced with emoticons and cartoons and does not use photos at all. Most (80,6%) review account photos on the three e-commerce sites had not used real photos.

Regarding the rating, they were grouped into five categories, namely bad (one star), not good (two

stars), neutral (three stars), good (four stars), and excellent (five stars). As a result, most of the reviews taken from the three e-commerce sites had a five-star or excellent rating.

The review forms were grouped into four categories: text only, text and photos, text and video, and text, photos, and videos. As a result, on Shopee, almost all reviews (91,0%) were in the form of text, photos, and videos, while on Tokopedia (85,0%) and Lazada (71,0%), most of the reviews were text-only.

Regarding the seller's response, most reviews (95,0%) on Shopee and all reviews (100,0%) on Lazada did not receive a response from the seller, while almost all reviews (97,0%) on Tokopedia received a response from the seller. Finally, the analysis of the word count for each review expressed that most (92,2%) reviews had a word count of fewer than 25 words.

Sentiment Class

Based on the analysis results, reviews from Shopee, Tokopedia, and Lazada were dominated by positive sentiment (91,7%, 91,0%, and 70,0%, respectively), followed by negative and neutral sentiment. Neutral sentiment was then combined into negative sentiment, which was carried out since negative words in neutral sentiment could be used as evaluation material for online stores. For examples of negative reviews the product is damaged, too small or too big, thin, and so on and for examples of positive reviews, good products, comfortable, soft, cool and so on.

Sentiment analysis is especially useful for sellers in e-commerce. This can be used to monitor every review submitted by consumers in the review column so that if there are reviews that have negative sentiments, the seller can immediately evaluate them.

Review Credibility

The credibility of the reviews in this study was seen from three aspects, namely source credibility, E-WOM quality, and recommendation rating (Table 4). Source credibility and the reviewer's identity were grouped into two categories: using real names and photos and not using real names and photos. As a result, most of the reviews studied on the three e-commerce sites did not have a clear identity of the reviewer, even on Lazada e-commerce, all of which were reviews that were not accompanied by a clear identity because the names and account photos used were not real.

Table 4 Distribution of review credibility based on e-commerce and source credibility, E-WOM quality, and recommendation rating

Credibility aspects	Shopee (%)	Tokopedia (%)	Lazada (%)
<i>Source Credibility</i>			
- Using real names and photos	30,0	14,3	0,0
<i>E-WOM Quality</i>			
- Photos or videos according to the product	86,3	85,0	73,7
- The rating according to reviews	94,0	96,7	98,7
- Language can be understood	99,7	100,0	100,0
<i>Recommendation Rating</i>			
- Like	8,3	2,7	1,0

Electronic word-of-mouth quality is seen from three factors: the suitability of photos or videos of products purchased, the suitability of the rating with the reviews submitted in text form, and language usage. As a result, there were still reviews on the three e-commerce sites in photos or videos that did not match the purchased products (Table 4). In addition, the interviews

with consumers (ID, female, 22 years old) revealed:

“Please, put the correct product photo because many people attach photo reviews but not product photos.”

Regarding the suitability of the rating with the reviews, there were still discrepancies even though the proportions were small from all the reviews taken. The suitability in question was when consumers give negative reviews, the rating should be one or two, unbiased reviews with a given rating of three, and positive reviews with a given rating of four or five. Regarding the language used, reviews were taken from one store. In Shopee e-commerce, 0,3 percent of reviews used incomprehensible language, while all reviews from Tokopedia and Lazada e-commerce (100,0%) could be fully understood. Incomprehensible reviews are reviews that consumers give using meaningless words. An example of an incomprehensible review is “kwdgdoldhdhdbjkbdu hdjdhkdh.”

Recommendation rating as indicated by the response was given by consumers to reviews that were considered valuable. Consumer responses were categorized into two: with likes sign and no likes sign. Almost all the reviews that were taken did not have any likes given.

Table 5 Results of in-depth interviews with consumers and sellers

Question Items	Consumer Informants		
	Consumer 1	Consumer 2	Consumer 3
The primary source of information in online shopping	Consumer reviews	Consumer reviews	Consumer reviews and seller descriptions
Reason for choosing review	Because consumers experience and see for themselves the product they buy	Because consumer reviews are objective based on facts when making transactions.	Because reviews are direct opinions from consumers on the post-purchase experience.
Review benefits	Get information related to other products and services	Assist in making purchasing decisions	Assist in making purchasing decisions
Trustworthy reviews	Some photos and videos match the product purchased	Honest and not too much	There are appropriate photos and videos
Positive reviews are essential in increasing the number of sales	Agree, currently, with reviews, the number of reviews may increase.	Yes, I agree. Positive reviews can improve a store's reputation.	Yes, I agree. Positive reviews can increase store sales.
Question item	Business Actor Informants		
	A seller in Shopee	A seller in Tokopedia	A seller in Lazada
Negative reviews are essential for businesses	Of course, business people know what to fix or improve with negative reviews.	As an evaluation material so as not to repeat the same mistakes.	It is crucial because it can be used to measure success in sales.
Seller response to reviews	Only for negative reviews	Positive and negative reviews	Only for negative reviews
Credible consumer reviews	Clear identity, appropriate photos and videos, and appropriate ratings	Fill in the honest review and not	Honest review, according to the description given

To support the results of quantitative research related to the credibility of reviews, in-depth interviews were conducted with three consumers and three business actors. The results of the in-depth interviews are presented in Table 5.

The interview results confirmed that a clear identity accompanies the reviews considered credible (trustworthy) by consumers and sellers through names and photos, the suitability of photos and videos with the products purchased, and honest reviews. Therefore, the results accepted hypothesis 3 (H3) that consumer reviews' credibility can be used as the primary source of information in deciding online purchases.

DISCUSSION

Shopping for health products online is currently the primary alternative for consumers to avoid the transmission of COVID-19. However, time efficiency forms the basis for consumers to shop online (Soopramanien & Robertson, 2007). In addition, the cost is also one reason that is also considered when shopping online. Therefore, the cost has a significant effect on online shopping behavior. This finding means that by shopping online, consumers will be free to choose the products they want by adjusting their budget, and usually, the prices of products offered on e-commerce are much lower than those offered at offline stores (Hidayati, 2018).

The high consumer interest in shopping online is also supported by the development of shops in every e-commerce, which is increasing along with the high number of internet users in Indonesia (Changchit et al., 2019; Jaller & Pahwa, 2020; Ramadhan & Simanjuntak, 2018). IPrice data (2020) exhibited the largest e-commerce in Indonesia are Shopee, Tokopedia, and Lazada. Furthermore, the category of health products purchased the most during the COVID-19 pandemic was personal protective equipment from the risk of COVID-19 transmission. Masks are one of the examples of personal protective equipment most sought after by consumers, so this study focuses on consumer reviews regarding the purchase of masks.

Before deciding to buy a mask, consumers agreed that the main thing to do is to first look at the reviews on the online store. This finding means that consumers agree that reviews have been used as the main source of information in purchasing decisions. However, the consumer's habit of using reviews was not accompanied by the good faith of consumers in providing reviews. Based on the interviews, consumers felt they did

not have time to provide reviews and felt their reviews would have no effect. Whereas as good consumers, when consumers have made reviews as a source of information that influences purchasing decisions, they should be aware of the importance of providing reviews. The review aims to provide information for other consumers regarding the product selection process and determine the product's quality (Lackermaier et al., 2013).

To prove the consumer statements that reviews influence purchasing decisions for a product, this research investigated the influence between motivation to read reviews and attitudes toward reviews on purchasing decisions. The results are accurate in that this study is in line with previous findings that motivation and attitudes significantly affect purchasing decisions (Amoako et al., 2020; Aziz et al., 2019; Bashir, 2019; Won & Kim, 2020; Ali, 2021). However, most online purchasing decisions are influenced by other variables, such as knowledge (Wen & Leung, 2021), self-concept (Sharma, Saha, Sreedharan, & Pau, 2020), lifestyle (Tarigan, Sabrina, & Syahputri, 2020), reference groups, and personality (Darmawati & Subekti, 2018). Therefore, the results of this study contribute to the theory of purchasing decisions by confirming that motivation and attitudes influence purchasing decisions. Furthermore, reviews, as the primary source of information, were used by consumers in purchasing decisions in line with Information Processing Theory (IPT).

Sentiment analysis is very useful for sellers in e-commerce to monitor every review submitted by consumers in the review column, predominantly negative reviews. According to Metehan and Zengin (2011), these negative reviews can be referred to as complaints about the dissatisfaction felt by consumers. These negative words arise for the following reasons: a) incomprehension of customers' expectations, consumers expect something good for the mask product they buy, but when the product is received, the item is not as expected. For example, the product is damaged, too small or too big, thin, and so on; b) wrong customer satisfaction standard, the seller ignores the quality standards of masks that consumers expect. For example, the stitches are not neat; c) lack of expectation performance, the seller's performance is not as expected by consumers; namely, the seller tends to be slow in packaging the product, resulting in the slow delivery of the product. Therefore, if reviews have negative sentiments, the seller must immediately evaluate them. Evaluating based on reviews provided by consumers can improve the reputation of both

the store and the seller (Narwal & Nayak, 2020; Song, Li, & Geng, 2020).

The credibility of consumer reviews in this study, valuable reviews (reviews with quality and strength that lead to consumer confidence), can be seen from three aspects, namely source credibility, E-WOM quality, and recommendation rating. Conversely, if consumer reviews do not meet these three aspects, it can be said that the reviews are not credible.

Source credibility plays a vital role for consumers because it can be used to assess the credibility of a review (Ismagilova et al., 2020). One way to increase the source of credibility is to have a clear identity of the consumer providing the review. According to Willemsen et al. (2011), giving a real name and a real photo accompanied by a star in a review can increase consumer confidence. Furthermore, based on the interview results, the reviewer's identity is considered very important to be included. If the reviewer does not use a real name and photo, it is feared that consumers will think that the review did not come from the actual reviewer but from a seller intending to increase the store's reputation.

Electronic Word of Mouth (E-WOM) quality is the value felt by consumers (readers) of information in the review column (Zhao et al., 2020). Based on the interview results, it can be concluded that attaching photos or videos that match the product purchased, providing a rating under the content of the review, and writing reviews in understandable language are very important because they can help other consumers make purchasing decisions.

A recommendation rating assesses the content of reviews given by other consumers on reviews submitted by reviewers (Liu et al., 2020). When a consumer feels that the review is useful, the consumer will give a like for the review. The greater the number of likes given to the review, it indicated that the review had been used as a source of information for other consumers in deciding to purchase.

For this reason, the obligation to have good faith in making transactions to purchase goods or services by providing correct, transparent, and honest information is not only an obligation for the seller. However, it has become an obligation for consumers to provide information related to products that have been purchased.

E-commerce parties have also realized the importance of a credible review, one of which is Shopee, as evidenced by the information

submitted on the official Shopee website. In 2018 Shopee issued a policy to hide reviews. The factors that cause reviews to be hidden are that: Consumers provide ratings or reviews that are irrelevant to the product. For example, excessive emojis, repeated use of the exact words, repeated use of the same characters, photos and videos that are not relevant to the product, and responses that are not relevant to the buyer's judgment. Furthermore, giving inappropriate ratings or responses, such as product ratings or vulgar responses (use of rude or disrespectful words), and response ratings that offend, such as reviews containing elements of ethnicity, religion, and race.

Here are some points that need to be considered in writing a good product assessment, namely: Include photos or videos of the actual product received and show the product from different angles to help other buyers get a clearer picture of the product; write an honest product assessment based on experience related to the seller's product or service; provide a detailed product assessment regarding the seller's products or services. Furthermore, consumers can also write things related to conformity with expectations or product descriptions; and use polite language.

Based on the study results, implications for consumer policy are business actors and consumers should recognize better reviews that are not credible, so they can immediately report these reviews to e-commerce parties. With these untrustworthy reviews, e-commerce parties are expected to immediately check and follow up on the online store and consumer reports related to non-credible reviews so that these reviews can be hidden immediately. This action is essential so that the reviews provided can be helpful for consumers to be used as a reference in choosing an online store. In contrast, for online stores, it can be used as input for the value of customer satisfaction related to the store and its products.

From a regulatory perspective, legal protection for consumers who shop online has been regulated in the Consumer Protection Law (UUPK) Number 8 of 1999 and Government Regulation Number 71 of 2019 concerning the Implementation of Electronic Systems and Transactions. Furthermore, from the government side, in this case, the Ministry of Trade as the leading sector and the Indonesian E-commerce Association (IdeA) as a communication forum between e-commerce industry players in Indonesia, is expected to continue to play an active role in increasing

consumer awareness of their rights and obligations when transacting by online. In article 4 Consumer Protection Law (UUPK) Number 8 of 1999, consumer rights refer to the right to correct, straightforward and honest information regarding the conditions and guarantees of goods/or services. Consumer obligations are referred to following article 5 of Consumer Protection Law (UUPK) Number 8 of 1999, namely the obligation to have good faith in making transactions to purchase goods or services.

CONCLUSION AND SUGGESTIONS

Online shopping has become the primary choice for consumers. As a result, consumers have made reviews the primary source of information in purchasing decisions in the online shopping process. However, a third of consumers submitted reviews infrequently. It was proven that the motivation to read reviews and consumer attitudes toward reviews significantly affect purchasing decisions. Every e-commerce has provided facilities for consumers to provide credible reviews by creating a complete review feature, including text, photos, and videos. However, most consumers did not use the facilities to prepare good reviews. Although positive sentiment class dominates, in general, the credibility of reviews based on source credibility, e-WOM quality, and recommendation rating, almost half of the reviews studied on the three e-commerce sites were not credible. There were still many online reviews on the three e-commerce sites that were hard to use as trusted references by consumers, so it is possible that these reviews could not assist consumers in the product selection process and the store's quality.

This research has two limitations. First, the review sample is limited to only one store in three e-commerce stores. Second, the research results could not be generalized to the population level because the determination of the sample used was non-probability sampling. The limitations of the method used imply that research related to reviews on e-commerce is important to be explored again. Suggestions for further research can be to examine the credibility of reviews of electronic, beauty, and other products on the five highest e-commerce sites in Indonesia, namely Shopee, Tokopedia, Lazada, Bukalapak, and Blibli.com. In addition, it can examine the influence of motivation to provide reviews and review credibility based on source credibility, E-WOM quality, and recommendation rating on trust, interest, and online consumer purchasing decisions. Furthermore, integrated training programs on mixed methods

approaches can be developed for novice researchers.

ACKNOWLEDGMENTS

The authors express gratitude to the Ministry of Education, Culture, Research, and Technology of the Republic of Indonesia. Gratitude was also delivered to the IPB University and all respondents and informants for their willingness to participate in the data collection process.

REFERENCES

- Akhtar, N., Sun, J., Chen, J., & Akhtar, M. N. (2020). The role of attitude ambivalence in conflicting online hotel reviews. *Journal of Hospitality Marketing & Management*, 29(4), 471-502. doi: 10.1080/19368623.2019.1650684.
- Ali, B. J. (2021). Impact of consumer animosity, boycott participation, boycott motivation, and product judgment on purchase readiness or aversion of Kurdish consumers in Iraq. *Journal of Consumer Affairs*, 55(2), 504-523. doi: 10.1111/JOCA.12350.
- Amoako, G. K., Dzogbenuku, R. K., & Abubakari, A. (2020). Do green knowledge and attitude influence the youth's green purchasing? theory of planned behavior. *International Journal of Productivity and Performance Management*, 69(8), 1609–1626. doi: 10.1108/IJPPM-12-2019-0595.
- Aziz, S., Husin, M. M., Hussin, N., & Afaq, Z. (2019). Factors that influence individuals' intentions to purchase family takaful mediating role of perceived trust. *Asia Pacific Journal of Marketing and Logistics*, 31(1), 81–104. doi: 10.1108/APJML-12-2017-0311.
- Bank Indonesia. (2021). *Report on the implementation of the duties and authorities of Bank Indonesia Quarter III 2020*. Jakarta. Retrieved from https://www.bi.go.id/id/publikasi/laporan/Pages/LaptriDPR_0320.aspx
- Barbado, R., Araque, O., & Iglesias, C. A. (2019). A framework for fake review detection in online consumer electronics retailers. *Information Processing & Management*, 56(4), 1234-1244. doi: 10.1016/J.IPM.2019.03.002.
- Bashir, A. M. (2019). Effect of halal awareness, halal logo and attitude on foreign consumers' purchase intention. *British Food Journal*, 121(9), 1998–2015. doi:

- 10.1108/BFJ-01-2019-0011/FULL/.
- [BPKN] National Consumer Protection Agency. (2021). *Consumer complaints report for the early 2021 period*. Jakarta. Retrieved from <https://bpkn.go.id/posts/show/id/1745>
- Chakraborty, U. (2019). The impact of source credible online reviews on purchase intention: the mediating roles of brand equity dimensions. *Journal of Research in Interactive Marketing*, 13(2), 142–161. doi: 10.1108/JRIM-06-2018-0080.
- Changchit, C., Cutshall, R., Lonkani, R., Pholwan, K., & Pongwirithon, R. (2019). Determinants of online shopping influencing Thai consumer's buying choices. *Journal of internet Commerce*, 18(1), 1-23. doi: 10.1080/15332861.2018.1496391.
- Choi, D., & Johnson, K. K.. 2019. Influences of environmental and hedonic motivations on intention to purchase green products: An extension of the theory of planned behavior. *Sustainable Production and Consumption* 18, 145–155. doi: 10.1016/J.SPC.2019.02.001.
- Creswell, J. (2016). *Research design: qualitative, quantitative, and mixed methods approaches*. California, United State (US): Sage Publications. doi: 10.2307/1523157.
- Darmawati, D., & Subekti, B. S. S. (2018). Analysis of the influence of culture, social, personality and psychological on purchasing decisions (Survey of Bank customers). *Jurnal Personalia, Financial, Operasional, Marketing, dan Sistem Informasi*, 6(1), 16–32. Retrieved from <http://jos.unsoed.ac.id/index.php/perform ance/article/view/727>
- Firmansyah, A. (2018). The Study of obstacles to implementing e-commerce in Indonesia. Telematics and information society. *Jurnal Penelitian Teknologi Informasi dan Komunikasi*, 8(2), 127. doi: 10.17933/mti.v8i2.107.
- Von Helversen, B., Abramczuk, K., Kopeć, W., & Nielek, R. (2018). Influence of consumer reviews on online purchasing decisions in older and younger adults. *Decision Support Systems*, 113, 1-10. doi: 10.1016/J.DSS.2018.05.006.
- Hidayati, N. L. (2018). The influence of viral marketing, online consumer reviews and prices on shopee purchasing decisions in Surabaya. *Jurnal Pendidikan Tata Niaga (JPTN)*, 6(2), 77–84. Retrieved from <https://jurnalmahasiswa.unesa.ac.id/index.php/jptn/article/view/24741>.
- Hootsuite (We are Social). (2021). *Indonesian digital report 2020*. Retrieved from <https://andi.link/hootsuite-we-are-social-indonesian-digital-report-2020/>
- Hu, H. F., & Krishen, A. S. (2019). When is enough, enough? investigating product reviews and information overload from a consumer empowerment perspective. *Journal of Business Research*, 100, 27-37. doi: 10.1016/j.jbusres.2019.03.011
- Huang, M., & Pape, A. D. (2020). The impact of online consumer reviews on online sales: the case-based decision theory approach. *Journal of Consumer Policy*, 43(3), 463-490. doi: 10.1007/S10603-020-09464-Y.
- IPrice. (2020). *List of 50 e-commerce websites & applications in Indonesia 2019*. Retrieved from <https://iprice.co.id/insights/mapofecommerce/>
- Ismagilova, E., Slade, E. L., Rana, N. P., & Dwivedi, Y. K. (2020). The effect of electronic word of mouth communications on intention to buy: A meta-analysis. *Information Systems Frontiers*, 22(5), 1203-1226. doi: 10.1007/S10796-019-09924-Y.
- Jaller, M., & Pahwa, A. (2020). Evaluating the environmental impacts of online shopping: a behavioral and transportation approach. *Transportation Research Part D: Transport and Environment*, 80, 102223. doi: 10.1016/J.TRD.2020.102223.
- Kaya, B., Behraves, E., Abubakar, A. M., Kaya, O. S., & Orús, C. (2019). The moderating role of website familiarity in the relationships between e-service quality, e-satisfaction and e-loyalty. *Journal of Internet Commerce*, 18(4), 369-394. doi: 10.1080/15332861.2019.1668658.
- Kwon, B. C., Kim, S. H., Duket, T., Catalán, A., & Yi, J. S. (2015). Do people really experience information overload while reading online reviews?. *International Journal of Human-Computer Interaction*, 31(12), 959-973. doi: 10.1080/10447318.2015.1072785.
- Lackermair, G., Kailer, D., & Kanmaz, K. (2013). Importance of online product reviews from a consumer's perspective. *Advances in Economics and Business*, 1(1), 1-5. doi:

- 10.13189/aeb.2013.010101.
- Law of the Republic of Indonesia Number 8 of 1999 concerning consumer protection. (20 April 1999). State Institutions of the Republic of Indonesia Year 1999 Number 42. Jakarta.
- Liu, B. (2012). Sentiment analysis and opinion mining. *Synthesis Lectures on Human Language Technologies*, 5(1), 1-167. doi: 10.2200/S00416ED1V01Y201204HLT016.
- Liu, H., Wang, Y., Peng, Q., Wu, F., Gan, L., Pan, L., & Jiao, P. (2020). Hybrid neural recommendation with joint deep representation learning of ratings and reviews. *Neurocomputing*, 374, 77-85. doi: 10.1016/j.neucom.2019.09.052.
- Liu, Z., Lei, S. H., Guo, Y. L., & Zhou, Z. A. (2020). The interaction effect of online review language style and product type on consumers' purchase intentions. *Palgrave Communications*, 6(1), 1-8. doi: 10.1057/s41599-020-0387-6.
- Metehan, T., & Zengin, A. Y. (2011). Demographic characteristics and complaint behavior: An empirical study concerning Turkish customers. *International Journal of Business and Social Science*, 2(9), 42-48. Retrieved from <https://search.proquest.com/openview/be21e0bad49152aba90d3b819e1fb94c/1.pdf?pq-origsite=gscholar&cbl=646295>
- Nariswari, T. (2021). The Effect of argument quality and peripheral cues in building purchase intention through review credibility (Study on Gadgetin Youtube channel). *Jurnal Ilmiah Mahasiswa FEB*, 9(2), 1-21. <https://jimfeb.ub.ac.id/index.php/jimfeb/article/view/7192>
- Narwal, P., & Nayak, J. K. (2020). How consumers form product quality perceptions in absence of fixed posted prices: Interaction of product cues with seller reputation and third-party reviews. *Journal of Retailing and Consumer Services*, 52, 101924. doi: 10.1016/j.jretconser.2019.101924.
- Ramadhan, A. F., & Simanjuntak, M. (2018). Generation z hedonic buying behavior: marketing promotions, reference groups, and self-concept. *Journal of Family & Consumer Science*, 11(3), 243-254. doi: 10.24156/jikk.2018.11.3.243.
- Rayi, G., & Aras, M. (2021). How product innovation and motivation drive purchase decision as consumer buying behavior. *Journal of Distribution Science*, 19(1), 49-60. doi: 10.15722/JDS.19.1.202101.49.
- Sharma, N., Saha, R., Sreedharan, V. R., & Paul, J. (2020). Relating the role of green self-concepts and identity on green purchasing behaviour: An empirical analysis. *Business Strategy and the Environment*, 29(8), 3203-3219. doi: 10.1002/BSE.2567.
- Singh, J. P., Irani, S., Rana, N. P., Dwivedi, Y. K., Saumya, S., & Roy, P. K. (2017). Predicting the "helpfulness" of online consumer reviews. *Journal of Business Research*, 70, 346-355. doi: 10.1016/j.jbusres.2016.08.008.
- Song, W., Li, W., & Geng, S. (2020). Effect of online product reviews on third parties' selling on retail platforms. *Electronic Commerce Research and Applications*, 39, 100900. doi: 10.1016/j.elerap.2019.100900.
- Soopramanien, D. G., & Robertson, A. (2007). Adoption and usage of online shopping: an empirical analysis of the characteristics of "buyers" "browsers" and "non-internet shoppers". *Journal of Retailing and consumer services*, 14(1), 73-82. doi: 10.1016/j.jretconser.2006.04.002.
- Tarigan, E. D. S., Sabrina, H., & Syahputri, Y. (2020). The influence of lifestyle and sales promotion on online purchase decisions for home-cooked culinary during COVID-19 in Medan City, Indonesia. *International Journal of Research and Review*, 7(10), 140-144. Retrieved from https://www.ijrrjournal.com/IJRR_Vol.7_Is_sue.10_Oct2020/Abstract_IJRR0020.html
- 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. *Journal of International Consumer Marketing*, 32(4), 287-299. doi: 10.1080/08961530.2020.1712293.
- Wang, S. H. (2021). The application of information processing theory in higher education. In *2021 2nd International Conference on Education, Knowledge and Information Management (ICEKIM)* (pp. 930-933). IEEE. doi: 10.1109/ICEKIM52309.2021.00209.

- Wang, Y., & Yu, C. (2017). Social interaction-based consumer decision-making model in social commerce: The role of word of mouth and observational learning. *International Journal of Information Management*, 37(3), 179-189. doi: 10.1016/j.ijinfomgt.2015.11.005.
- Wen, H., & Leung, X. Y. (2021). Virtual wine tours and wine tasting: The influence of offline and online embodiment integration on wine purchase decisions. *Tourism Management*, 83, 104250. doi: 10.1016/J.TOURMAN.2020.104250.
- Wijanarko, B., & Fachrodji, A. (2020). The analysis towards the influence of motivation, brand image, price, and groups reference on purchasing decisions of original perfume products (Study Case of Meruya Campus Undergraduate Students, Mercu Buana University). *International Journal of Innovative Science and Research Technology*, 5(1), 932941. Retrieved from www.ijisrt.com932
- Willemsen, L. M., Neijens, P. C., Bronner, F., & De Ridder, J. A. (2011). "Highly recommended!" the content characteristics and perceived usefulness of online consumer reviews. *Journal of Computer-Mediated Communication*, 17(1), 19-38. doi: 10.1111/j.1083-6101.2011.01551.x.
- Willman-livarinen, H. (2017). The future of consumer decision making. *European Journal of Futures Research*, 5(1), 1-12. doi: 10.1007/S40309-017-0125-5.
- Won, J., & Kim, B. Y. (2020). The effect of consumer motivations on purchase intention of online fashion-sharing platform. *The Journal of Asian Finance, Economics and Business*, 7(6), 197-207. doi: 10.13106/jafeb.2020.vol7.no6.197.
- Yang, L., Li, Y., Wang, J., & Sherratt, R. S. (2020). Sentiment analysis for e-commerce product reviews in Chinese based on sentiment lexicon and deep learning. *IEEE access*, 8, 23522-23530. doi: 10.1109/ACCESS.2020.2969854.
- Zhang, L., Wu, L., & Mattila, A. S. (2016). Online reviews: the role of information load and peripheral factors. *Journal of Travel Research*, 55(3), 299-310. doi: 10.1177/0047287514559032.
- Zhao, Y., Wang, L., Tang, H., & Zhang, Y. (2020). Electronic word-of-mouth and consumer purchase intentions in social e-commerce. *Electronic Commerce Research and Applications*, 41, 100980. doi: 10.1016/j.elerap.2020.100980.