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Predicting the effects of EWOM and product innovation on purchase decision and the impact on customer loyalty

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Abstract: Purpose: The dynamics of consumer behavior have undergone a transformative shift, especially in today's digital age where most customers read online reviews before making purchase decisions. Online reviews are one example of the many examples of Electronic Word of Mouth (EWOM). However previous research states that not only does EWOM have an impact on purchasing decisions, but product innovation has also played a big role in purchasing decisions and purchase decision has an impact on customer loyalty. Therefore, this study aims to see how EWOM could affect purchase decisions by involving product innovation through online reviews of body care products Iswhite on the e-commerce Shopee. Research design, data, and methodology: This research adopts a positivist paradigm and employs a quantitative approach that is explanatory through a cross-sectional survey with 100 participants. The study utilizes theoretical approaches such as the Planned Behaviour Theory. After all the data was collected through Google Forms all the data was processed Statistical Package for Social Science (SPSS) software. Results: The result shows that the variables EWOM have an insignificant effect and the variables product innovation have a significant effect towards purchasing decisions and purchasing decisions has a significant effect towards on consumer loyalty. Conclusions: The results have shown that EWOM has an insignificant influence on purchasing decisions. Product innovation also has a significant influence on purchasing decisions and purchasing decision variables have a strong influence on consumer loyalty.

Keywords: *Customer Loyalty, E-Commerce, Electronic Word of Mouth, Product Innovation, Purchase Decision.*

1. Introduction

In recent decades, the world of communication has undergone dramatic changes. The current digital revolution has significantly altered the global communication landscape. This causes the communication revolution to indirectly combine old and new cultures, which then creates friction between social and new technology [1]. This has a significant impact on the realm of marketing communication, particularly the evolution of word-of-mouth (WOM) into electronic word-of-mouth (EWOM). According to Mothersbaugh and Hawkins [2] and Litvin, et al. [3] before the emergence of EWOM, there was word-of-mouth (WOM), which is a communication process by consumers to share information about opinions aimed at potential buyers to buy or avoid certain products, brands, and services.

Kotler and Amstrong [4] say EWOM is the internet version of word-of-mouth advertising. Even mentioned in Gruen, et al. [5] EWOM is a communication tool to exchange information about products or services that have been used by consumers who do not know each other. EWOM is unique in that the source of information is independent and not bound by an institution [6]. This proves that the information generated by EWOM is the personal opinion of consumers who are independent and not bound by a particular company or institution. As a result, EWOM is a new phenomenon in which

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communication technology plays a role in sharing experiences, reviews, and recommendations related to certain products or services.

EWOM can occur in several conditions, such as when consumers post their reviews and opinions about a product or service on blogs, websites, social networks, discussion forums, or review features [7, 8]. Given these conditions, a number of phenomena encourage the occurrence of EWOM today. These include the prevalence of e-commerce and its features, such as the review feature, which encourage consumers to rely on e-commerce online platforms for product and service search, comparison, debate, and purchase. In this context, e-commerce is one of the places where EWOM can occur, where consumer reviews, comments, and recommendations are shared through e-commerce [9]. Shopee e-commerce is one of the Indonesian e-commerce sites that attracts consumers' attention. Data from Hootsuite 2023 shows that Shopee is the marketplace category e-commerce site with the most visitors in Indonesia, surpassing its main rival, Tokopedia [10].

Business people also take advantage of the massive market opportunity in Shopee e-commerce, using it as a medium to sell their products or services online. This is utilized by one of Indonesia's body care brands, Iswhite. Not only that, Iswhite has made an achievement as a beauty product brand with the Top Innovation Choice Award in 2024. Through the innovation of its flagship product, the Whitening Ultimate Body Mask, Iswhite managed to sell more than 300,000 pieces in the Shopee marketplace while getting the award as the number one best body mask in Indonesia. This phenomenon sparked positive conversations and led to the spread of EWOM through e-commerce on the Iswhite Shopee account. Around 15 thousand to 26 thousand reviews about Iswhite's Whitening Ultimate Body Mask are scattered in the review feature on the Iswhite Shopee account.

Moreover, it's important to note that both a brand and a company consider purchasing decisions as an integral part of their business operations. This is based on previous research conducted by Kapferer and Laurent [11] and Adnan [12] which found that the pleasure of buying a product is one of the five dimensions used to determine the involvement of a product purchase decision. Not only that, Adnan (2019) also proved that purchasing decisions affect consumer loyalty. Through this phenomenon, it can be interpreted that consumers do not only stop at the time of the purchase decision, but there are indications that consumers have pleasure in buying products.

The observation of positive conversations on the Shopee e-commerce review feature, coupled with Iswhite's notable achievements in product innovation, serves as the objective basis for this study. It aims to investigate how the EWOM phenomenon and product innovation can influence purchasing decisions, and how these decisions can impact consumer loyalty. This research marks a significant departure from previous studies. This research focuses on how EWOM and product innovation play an important role in purchasing decisions and how purchasing decisions influence consumer loyalty in the beauty industry, especially for body care products in e-commerce.

While previous studies have primarily focused on the food or service industry through social media, this research delves deeper into the role of EWOM and product innovation in purchasing decisions. Not only that, this research also focuses more on the Theory of Planned Behavior perspective, which is different from previous studies that used Diffusion of Innovation Theory and Marketing Behavior Theory. Based on the explanation that has been given, it can be concluded that this study wants to show the effect of EWOM and product innovation on purchasing decisions and how they impact consumer loyalty.

2. Literature Review

2.1. Theory of Planned Behavior

The use of theory in research primarily aims to help predict and explain the phenomena that occur in the study. The theory used in this study is planned behavior theory. Indeed, planned behavior theory (TPB) is derived from the theories of multiattribute attitude (TMA) and reasoned action (TRA), which were discovered by Ajzen and Fishbein [13]. This theory was designed in 1975–1980 to predict

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volitional behavior or decisions while understanding the psychological supporting factors [14]. Initially, the TRA model assumed that all individual behaviors have the ability to control themselves by involving attitude, normative belief, and behavioral belief [15]. But over time, this theory developed and expanded, giving birth to the Theory of Planned Behavior (TPB).

It is known that TPB theory develops into six variables, including behavioral beliefs, normative beliefs, control beliefs, attitude toward the behavior, subjective norms, and perceived behavioral control [16]. This theory aligns with our research because it provides a comprehensive foundation for the subject under investigation. Additionally, the variables provided by the Theory of Planned Behavior (TPB) align well, providing a solid foundation for understanding the phenomenon under investigation. Departing from this, this study wants to see whether factors such as EWOM and product innovation are factors that are influential enough in determining individual behavior in purchasing decisions and how purchasing decisions impact consumer loyalty.

2.2. Electronic Word of Mouth

Electronic Word of Mouth (EWOM) refers to the word Word of Mouth (WOM), which has been used frequently for centuries [17]. According to Westbrook [18] WOM is an informal communication addressed to other consumers or potential consumers regarding the ownership, use, or characteristics of certain products and services. The development of the times encourages WOM to continue to evolve in social networks, which then turns into online word of mouth [19]. EWOM itself is defined as a form of informal communication conveyed by consumers through internet-based technology regarding the use or characteristics of certain products, services, or sellers [8]. Not only that, EWOM is also defined as a two-sided information exchange between consumers and communicators regarding the use of products and services via the internet [3].

In previous research, it was said that EWOM has changed the buying environment by allowing customers to access comparative evaluations of product attributes on social networks with just one click [20]. Meanwhile, Yildiz, et al. [17] define EWOM as an online exchange of information between customers. According to EWOM's explanation, it can be said that EWOM is a form of informal information sharing by consumers regarding the use of products or services online. Several studies have classified several dimensions in EWOM, including source credibility, source homophily, message credibility, message quality, receiver's characteristics, and website credibility [21].

2.3. Product Innovation

Product innovation plays an important role in a company. This is based on maintaining the value of product benefits for consumers [22]. With technological advances that are increasingly fast and instant, companies are faced with intense competition to continue to create attractive products with the best solutions and quality for consumers. This is consistent with Rayi and Aras [23], who demonstrate that product quality, product modification, and meeting market needs are elements of product innovation that influence purchasing decisions.

Departing from this phenomenon, of course, makes product innovation also play an important role in the company's strategy for running its business. Product innovation itself can be defined as the creation of products that involve processes and marketing to improve business mechanisms Kotler and Amstrong [4]. Kotler and Keller [24] also refer to product innovation as the outcome of diverse processes merging and influencing each other, which can be measured by its occurrence, activities, and results. According to previous research, there are several dimensions to product innovation, including technological innovation, service innovation, new products, and market breakdown [25].

2.4. Purchase Decision

According to Kotler and Keller [24] a purchasing decision is an action that consumers take to purchase products or services. Consumers make purchasing decisions by searching, providing, using,

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evaluating, and spending products or services to meet their needs [26, 27]. In determining purchasing decisions, there are several factors to consider, such as product selection, brand selection, channel selection, purchase time, purchase amount, and payment method [24].

2.5. Consumer Loyalty

Indeed, consumer loyalty is crucial for a company. This not only shows that customers buy the products and services used, but also serves as a long-term symbol for a company. Loyalty itself is a feeling of attraction or affection towards people, companies, products, or services [28, 29]. Consumer loyalty, however, is the emotional feeling of customers towards a particular brand that leads them to repurchase products or services that are used regularly Mollah [29]. Griffin [30] also defines loyalty as routine purchasing behavior based on decision-making units.

In achieving consumer loyalty, there are two steps that must be fulfilled, among others: (1) the company must be able to meet the needs and desires of customers; and (2) the company must maintain a relationship with customers so that they can carry out repurchase activities for the product or service [4]. According to Kotler and Keller [24] consumer loyalty consists of three dimensions repeat purchases, retention, and referrals.

2.6. Research Methods and Materials

This research uses an explanatory quantitative approach, where the use of hypotheses is a very important issue in testing the sample so that researchers can draw conclusions about the sample that has been determined. The method used in this research is the survey method, in which researchers systematically ask the same questions to large numbers of people and then record their answers [31]. Researchers use a cross-sectional survey, in which data collection is carried out on a sample of selected respondents and is carried out once [31]. The data to be processed in this study will be analyzed using statistical methods, with the help of SPSS (Statistical Package for Social Science) software.

2.7. Hypothesis Development

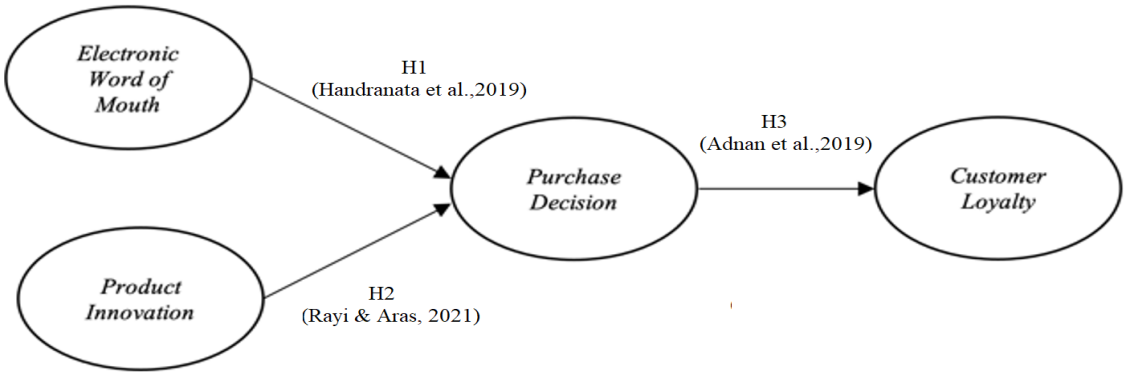

Figure 1.
Framework Model.

2.8. The Effect of Electronic Word of Mouth (e-WOM) on Purchasing Decisions at Shopee

According to previous research by Pratminingsih, et al. [32] EWOM influences purchasing decisions. Handranata, et al. [33] also conveyed the same thing: consumer reviews on EWOM have a huge influence on purchasing decisions. So based on previous research, it can be temporarily assumed that EWOM has a significant influence on purchasing decisions. Therefore, the following hypothesis was formulated:

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H1: Electronic word of mouth on Shopee Iswhite e-commerce has a significant influence on purchasing decisions.

2.9. The Effect of Iswhite Product Innovation on Purchasing Decisions at Shopee

In research conducted by Rayi and Aras [23] significant involvement was found between product innovation and purchasing decisions. The same results were also proven in research conducted by Pulungan, et al. [34] which found that product innovation provides significant results on purchasing decisions. Seeing the results of some of these studies, it can be temporarily assumed that Iswhite product innovation in Shopee e-commerce has a significant influence on purchasing decisions.

H2: In Shopee e-commerce, Iswhite product innovation has a significant influence on purchasing decisions.

2.10. The Effect of Purchasing Decisions on Consumer Loyalty for Iswhite Products at Shopee

In research conducted by Hariyadi, et al. [35] also proves that Purchasing Decisions have a significant influence on Consumer Loyalty. On the other hand, Adnan [12] stated the same thing that purchasing decisions have a significant influence on consumer loyalty. Seeing some of the results of these studies, it can be temporarily assumed that the decision to purchase Iswhite products in Shopee e-commerce has a significant influence on consumer loyalty.

H3: Purchasing decisions for Iswhite products in Shopee e-commerce have a significant influence on consumer loyalty.

2.11. Data Collection and Research Method

The quantitative research method was chosen because researchers wanted to get more accurate data through numbers. Another method used in this research is the survey method, which is the process of collecting information, facts, and analyzing social data in a structured and detailed manner through questionnaire instruments [36]. The questionnaire to be used is a closed questionnaire, meaning that data collection is carried out by asking respondents questions and providing answers in the form of choices. The study selects a population based on specific characteristics: individuals who use and purchase Iswhite body mask products through Shopee e-commerce in 2023. Respondents are made up of three generations, namely generation X, the Millennial generation, and generation Z, with an age range of 12–59 years, and the sample size was 100 people.

The questionnaire, compiled in the form of a Google Form, will be distributed via the customer's WhatsApp number, which the researcher can obtain from the company's internal information. The researcher will then contact the customer. This questionnaire will be distributed to 100 respondents according to predetermined criteria. The Statistical Package for Social Science (SPSS) software will process all the collected data. Data collection through questionnaires can be seen in Table 1.

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Table 1.
Questionnaire.

Variable	Dimensions	Item	Questionnaire	Source
Electronic word of mouth	Source credibility	XA1	I feel that the information provided about iswhite body mask in the product review colums on shopee is accurate information	Rani and Shivaprasad [37]
		XA2	I trust review about iswhite body mask using the reviewer's real name rether than a pseudon ym	
		XA3	I trust review if the reviewer has knowledge about iswhite body mask products	
	Source homophily	XA4	I have more trust in product reviews where the reviwer is the same age as me	
		XA5	I have more trust in reviews where the reviewer is the same gender as me	
		XA6	I have more trust in reviewr where the geographical residence is the same as mine	
	Message credibility	XA7	I think positive review about iswhite body mask products have a big influence on my purchasing decision	
		XA8	I think negative reviews about iswhite body mask products have a big influence on my purchasing decision.	
		XA9	I think the number of reviews on iswhite body mask products influences my purchasing decision	
		XA10	I think reviews with high ratings or likes on iswhite body mask products at shopee influence my purchasing decisions	
	Message quality	XA11	I think reviews about siwhite body mask products that are emotional in nature influence my purchasing decisions	
		XA12	I think reviews with positive or negative arguments about iswhite body mask products influence my purchasing decision	
		XA13	I think reviews uploaded along with photos or vidios about iswhite body mask products influence my purchasing decisions	
	Receiver's characteristics	XA14	I prefer to do semething that doesn't require much consideration	
		XA15	I only read reviews that contain information that is relevant to me	
		XA16	I read all the reviews and decide which ones are relevant to me	
		XA17	I have the intention to leave a similar review regarding iswhite body mask products	
	Website credibility	XA18	Reviews on shopee iswhite e-commerce influence my purchasing decision.	
		XA19	The popularity of shopee iswhite e-commerce in providing review services influences my purchasing decision	
Product innovation	Technological innovation	XB1	I feel iswhite body mask products are superior to other brand.	Shiau [25]
		XB2	I feel that the performance of iswhite body mask products has satisfactory technological quality	
		XB3	I feel that the technology in is white body mask products is able to adapt to new technologies	
		XB4	I feel that is white body mask products have high quality technology	
	Services Innovation	XB5	I feel that the serbis provided by is white through shopee e-commerce is very statisfying.	
		XB6	I feel that the service provided by is white through the shopee e-commerce is very resposive	

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		XB7	I feal that the service method provided by is white through the shopee e-commerce is very efficient	
		XB8	I feel that the quality of service provided by is white through shopee e-commerce is very effective	
	New products	XB9	I think is white body mask products are unique and worth using	
		XB10	I think is white body mask products are superior to similar products from other brands	
		XB11	I think is white body mask product are different from other similar products	
		XB12	I think is white body mask products launch the latesh innovations compared to similar products from other brands	
	Market breakthrough	XB13	I think is white body mask products attactcertain consumer groups	
		XB14	I think Is white body mask products update their products to meet market needs	
	Product selection	Y1	I think the validity of the is white body mask product is a suitable product for me	Kotler and Keller [24]
		Y2	I think the quality of the is white body mask product is what I need	
	Brand selection	Y3	I think is white is a brand that has superior product quality to other brands	
		Y4	I think is white has a pretty good reputation	
	Distribution selection	Y5	I chose to buy is white body mask products through Shopee e-commerce	
		Y6	I choose to buy is white body mask products through resellers	
		Y7	I choose to buy is white body mask products offline	
	Time of purchase	Y8	I buy is white mask products when I need them	
		Y9	I buy is white body mask products when they are out of stock	
		Y10	I buy is white body mask product when there is a discount	
	Payment method	Y11	When purchasig body mask is white products, I prefer to use mobile banking/shopee pay/other online payment method	
		Y12	When purchasing is white body mask products, I prefer to make transactions with debit cards	
		Y13	When purchasing is white body mask products I prefer to transact with cash	
Customer loyalty	Repeat	Z1	I buy is white body mask products on a recurring basis	Kotler and Keller [24]
		Z2	I buy the is white body mask products more than once	
		Z3	I use is white body mask products on a recurring basis	
		Z4	I use is white body mask products several times a week	
		Z5	I use is white body mask products every day	
	Retention	Z6	I feel that I am already suitable and loyal to is white body mask product	
		Z7	I feel that is white body mask products have become part of my life	
	Referrals	Z8	I would recommend is white body mask products to ather people	
		Z9	I would give a rating or review about is white body mask products	

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3. Result and Discussion

3.1. Respondent Attributes

The total number of respondents collected in this research survey was approximately 100, consisting of 63 female respondents and 37 male respondents. The proportion of respondents consisted of Generation Z, Millennials, and Generation X respondents. The majority of respondents live in Jakarta and other major Indonesian cities such as Surabaya, Palembang, Bandung, and Yogyakarta. The number of responses submitted total 100, and each question on this form has been filled in according to the opinion of each respondent. In this study, respondents' characteristics will be classified based on gender, age, education, domicile, occupation, and Shopee E-Commerce users. The demographic characteristics of these respondents can be seen in Table 2.

Table 2.
Demographic Characteristics of Respondents.

Category	Classification	No. Sample	Percentage (%)
Gender	Male	37	37.0
	Famale	63	63.0
Age	12-27 years old	59	59.0
	28-43 years old	36	36.0
	44-59 years old	5	5.0
Province	DKI Jakarta	36	36.0
	West Java	28	28.0
	East Java	9	9.0
	Central Java	8	8.0
	Banten	8	8.0
	South sumatra	5	5.0
	South Kalimantan	2	2.0
	Riau	2	2.0
	Bali	2	2.0
Job	State Civil apparatus	6	6.0
	Private employee	49	49.0
	Entrepreneur	20	20.0
	Student	22	22.0
	Others	3	3.0
Education	SMA	30	30.0
	S1	51	51.0
	S2	18	18.0
	S3	1	1.0
Shopee E-Commerce usang periode	< 1 Years	12	12.0
	1-2 Years	39	39.0
	>2 Years	49	49.0

3.2. Validity and Reliability Analysis

In doing validity, of course, it is closely related to how well a questionnaire is able to measure each item of the questionnaire itself. The following are the results of the validity test in Table 3.

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Table 3.
Convergent validity test result.

	XA	XB	XC	Y	Z
XA1	0.607				
XA10	0.764				
XA11	0.640				
XA12	0.750				
XA13	0.815				
XA14	0.538				
XA15	0.741				
XA16	0.741				
XA17	0.817				
XA18	0.859				
XA19	0.817				
XA2	0.692				
XA4	0.805				
XA5	0.741				
XA6	0.811				
XA7	0.761				
XA8	0.574				
XB9	0.823				
	XA	**XB**	**XC**	**Y**	
XB1		0.595			
XB10		0.785			
XB11		0.814			
XB12		0.824			
XB13		0.548			
XB14		0.737			
XB2		0.847			
XB3		0.812			
XB4		0.832			
XB5		0.872			
XB6		0.849			
XB7		0.816			
XB8		0.847			
XB9		0.823			
	XA	**XB**	**XC**	**Y**	**Z**
Y1				0.539	
Y10				0.759	
Y11				0.725	
Y12				0.469	
Y13				0.519	
Y2				0.817	
Y3				0.791	
Y4				0.836	
Y5				0.832	
Y6				0.845	
Y7				0.828	
Y8				0.834	
Y9				0.574	
	XA	**XB**	**XC**	**Y**	**Z**
Z1					0.588
Z2					0.844
Z3					0.846
Z4					0.674
Z5					0.672
Z6					0.850

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Z7					0.827
Z8					0.842
Z9					0.811

The Average Variance Extracted (AVE) is a numerical measure often used to assess convergent validity. AVE indicates how much variance from the indicators is explained by the construct, compared to the total variance of those indicators. A higher AVE, typically above 0.50, suggests that the construct explains more than half of the variability of its indicators, providing strong evidence of good convergent validity. This value helps evaluate whether the construct can adequately capture the variations among the indicators linked to it.

In addition, factor loadings are also essential in assessing convergent validity. Factor loadings measure how closely an indicator relates to the construct being measured. Higher factor loadings indicate that the indicator strongly correlates with the construct, signifying good convergent validity. Generally, a factor loading above 0.50 is considered sufficient for convergent validity, while a loading above 0.70 is regarded as strong evidence that the indicator reliably measures the construct. In this study, several criteria are typically used to assess convergent validity based on factor loadings and AVE. A minimum factor loading of 0.50 is necessary to ensure that each indicator significantly contributes to the measurement of the construct. Factor loadings above 0.70 further strengthen the validity of the indicator in measuring the same construct. An AVE above 0.50 also signals that the construct explains more than 50% of the variance of its indicators, providing evidence that the construct has good convergent validity.

Additionally, the correlation among indicators measuring the same construct is expected to be positive and significant, meaning that these indicators move in the same direction when measuring the intended construct. Low or even negative correlations between these indicators may indicate issues with convergent validity. Analyzing the data reveals how the convergent validity of each construct is evaluated.

1. Indicators for Construct XA: Based on the provided table, the indicators measuring construct XA (XA1 to XA9) generally show good factor loadings, with most indicators having loadings above 0.50. For example, indicator XA1 has a loading of 0.764, indicating strong convergent validity, and XA9 has a loading of 0.770, further supporting its convergent validity. These results suggest that construct XA has sufficient convergent validity, as most of its indicators show significant factor loadings.
2. Indicators for Construct XB: For construct XB, the indicators show varying factor loadings. For example, indicator XB1 has a lower loading of 0.595, suggesting weaker convergent validity for this indicator. However, other indicators like XB9 have a loading of 0.823, indicating strong convergent validity. Based on these results, although some indicators may not be as strong in measuring construct XB, overall, the construct has acceptable convergent validity.
3. Indicators for Construct Y: Construct Y shows a wide range of correlations between indicators. For example, Y2 has a loading of 0.817, indicating good convergent validity. However, Y12 has a lower loading of 0.469, suggesting that this indicator may not measure construct Y as well. The discrepancies among these indicators imply that some may need to be reevaluated to improve the convergent validity of construct Y.
4. Indicators for Construct Z: Indicators for construct Z show varied correlations among themselves. For instance, indicator Z2 has a loading of 0.844, indicating excellent convergent validity, while Z1 has a lower loading of 0.588, suggesting potential issues with its validity. Despite some indicators having weaker convergent validity, overall, construct Z demonstrates sufficient convergent validity.

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Based on these results, most constructs in this study exhibit good convergent validity, as indicated by factor loadings above 0.50. However, some indicators have factor loadings below the recommended threshold, indicating that their convergent validity may need to be improved or reassessed. Ultimately, strong convergent validity ensures that each indicator accurately and consistently measures the intended construct, which is critical in construct-based research involving multiple indicators. To determine the correlation between items, a reliability measurement instrument using Cronbach's alpha is required. According to Dempster and Hanna [38] cronbach alpha helps present the average correlation between a group of items. Ideally, the ideal Cronbach Alpha value should be greater than 0.7, which means it shows that the items are reliable [38].

Table 4.
Discriminant validity test result.

	XA	**XB**	**Y**	**Z**
XA1	0.607	0.588	0.590	0.521
XA10	0.764	0.670	0.696	0.616
XA11	0.640	0.402	0.521	0.437
XA12	0.750	0.504	0.578	0.497
XA13	0.815	0.560	0.682	0.541
XA14	0.575	0.357	0.302	0.268
XA15	0.538	0.443	0.393	0.348
XA16	0.761	0.504	0.641	0.507
XA17	0.830	0.683	0.744	0.631
XA18	0.719	0.552	0.588	0.480
XA19	0.817	0.628	0.723	0.613
XA2	0.692	0.575	0.639	0.514
XA3	0.760	0.610	0.698	0.556
XA4	0.731	0.623	0.670	0.558
XA5	0.734	0.527	0.601	0.498
XA6	0.761	0.655	0.699	0.590
XA7	0.761	0.668	0.721	0.614
XA8	0.782	0.621	0.711	0.583
XA9	0.763	0.670	0.691	0.616
	XA	XB	Y	Z
XB1	0.410	0.595	0.477	0.448
XB10	0.619	0.785	0.717	0.717
XB11	0.610	0.738	0.752	0.684
XB12	0.627	0.824	0.756	0.654
XB13	0.613	0.737	0.677	0.657
XB14	0.613	0.737	0.677	0.657
XB2	0.659	0.847	0.748	0.639
XB3	0.640	0.737	0.728	0.647
XB4	0.667	0.832	0.754	0.639
XB5	0.660	0.818	0.762	0.665
XB6	0.672	0.844	0.774	0.679
XB7	0.702	0.823	0.728	0.623
XB8	0.702	0.823	0.728	0.623
XB9	0.702	0.823	0.728	0.623
	XA	XB	Y	Z
Y1	0.655	0.679	0.726	0.603
Y10	0.453	0.412	0.448	0.373
Y11	0.453	0.412	0.448	0.373
Y12	0.453	0.412	0.448	0.373
Y13	0.470	0.447	0.431	0.368
Y2	0.714	0.801	0.816	0.797
Y3	0.743	0.789	0.838	0.720

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Y4	0.748	0.773	0.785	0.720
Y5	0.707	0.743	0.765	0.693
Y6	0.697	0.841	0.810	0.720
Y7	0.693	0.741	0.802	0.710
Y8	0.419	0.515	0.704	0.496
Y9	0.592	0.609	0.738	0.574
Z1	0.565	0.676	0.702	0.693
Z2	0.264	0.526	0.448	0.672
Z3	0.592	0.409	0.634	0.697
Z4	0.675	0.574	0.702	0.784
Z5	0.675	0.574	0.702	0.784
Z6	0.675	0.574	0.702	0.784
Z7	0.675	0.574	0.702	0.784
Z8	0.675	0.574	0.702	0.784
Z9	0.684	0.729	0.729	0.811

The correlation matrix presented provides an analysis of divergent validity among four latent constructs (XA, XB, Y, and Z), where the goal is to assess the distinctiveness of each construct from one another. Divergent validity is supported when the correlation between different constructs is low, indicating that the constructs are measuring different concepts. In the analysis, the correlations between XA and the other constructs vary, with lower values such as 0.357 (XA8 with XB) and 0.268 (XA14 with Z) supporting divergent validity, while higher correlations, such as XA19 with Z at 0.850, raise concerns about conceptual overlap.

Similarly, XB shows a mix of moderate to high correlations with other constructs, with XB1 and Z at 0.448 supporting distinctiveness, but higher correlations like XB8 and Z at 0.850 suggest overlap. The same trend is seen in the correlations between Y and other constructs, where Y12 and Z at 0.326 indicate divergent validity, but higher correlations such as Y8 and Z at 0.850 suggest less distinctiveness. While some items demonstrate good divergent validity, several high inter-construct correlations, particularly between constructs like XA, Y, and Z, suggest potential overlap, requiring further refinement of the items. A confirmatory factor analysis (CFA) would be beneficial for identifying problematic items that may need revision to ensure the constructs are indeed distinct. Overall, while many items support divergent validity, certain high correlations indicate the need for a deeper investigation to confirm the distinctiveness of these constructs. A description of reliability can be seen in Table 4.

Table 5.
Reliability Test Result.

Construct reliability and validity-overview		
	Cronbach's Alpha	**Composite Reliability (rho_a)**
XA	0.947	0.954
XB	0.953	0.958
Y	0.924	0.940
Z	0.917	0.933

Cronbach's alpha is the most commonly used measure of reliability to assess internal consistency between items in a scale, producing values between 0 and 1. A value above 0.9, as seen in constructs XA (0.947), XB (0.953), Y (0.924), and Z (0.917), indicates a very high reliability. However, overly high values may suggest item redundancy. Composite Reliability (rho_a), on the other hand, offers a more accurate reliability measure as it takes into account each item's weight, particularly in models like Structural Equation Modeling (SEM). The rho a values above 0.9 for all constructs—XA (0.954), XB (0.958), Y (0.940), and Z (0.933)—demonstrate excellent internal consistency, similarly high to Cronbach's alpha but slightly more precise due to its sensitivity to item weights. The key difference between these two measures is their approach: Cronbach's alpha is more sensitive to the number of

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items and does not consider item weights, whereas composite reliability provides a more stable and accurate estimate, especially in SEM models.

This high reliability indicates that the instrument used in the study is highly dependable and likely to yield consistent results across repeated measurements. However, it's important to note that high reliability alone is insufficient to guarantee instrument quality; the instrument must also have good validity to ensure that the items are genuinely measuring the intended constructs. The normality test determines the final values of the variable of interest in the data under consideration [39]. This is done to show the minimal possible bias of the distributed data [39]. The value of the K-S test statistic is 0.062, which is used to determine the significance of the test results. An asymptotic (2-tailed) significance value of 0.200 indicates that there is insufficient evidence to reject the null hypothesis that the residual data comes from a normal distribution. This value is greater than 0.05, indicating that the residual data is normally distributed. A description of the normality test can be seen in Table 5.

Table 6.
F Test Result.

	XA	XB	Y	Z
XA			0.154	
XB			1.812	
Y				2.480
Z				

It allows us to determine the relative importance of predictors in our model, based on their contribution to the variance in the outcome variable. The F^2 value is used alongside other key metrics like path coefficients and R^2 values to provide a complete understanding of how different factors influence the dependent variable. For each predictor, the interpretation of the F^2 value is categorized into three ranges: small, medium, and large. Specifically, values below 0.02 indicate a very small effect, suggesting the predictor's contribution to the outcome is negligible. Values between 0.02 and 0.15 indicate a medium effect size, implying that the predictor plays a modest yet notable role in explaining the outcome. Finally, values above 0.15 represent a large effect, where the predictor significantly influences the dependent variable. In the context of our research:

- **XA (F^2 = 0.154 to Y)**: This represents a small effect size, implying that XA's contribution to the dependent variable Y is minimal. Though it plays a role, XA is not a dominant factor in predicting Y. However, its effect is still notable enough to be considered as contributing to the model, falling within the medium effect range.
- **XB (F^2 = 1.812 to Y)**: XB exhibits a large effect size, indicating it has a strong and significant influence on Y. This suggests XB is a key predictor, and its contribution to explaining Y is much more substantial compared to XA. The high F^2 value for XB aligns with the high path coefficient, emphasizing its dominant role in the model.
- **Y (F^2 = 2.480 to Z)**: This represents an extremely large effect size, which indicates Y is a dominant predictor of Z. The high F^2 value suggests that Y explains most of the variability in Z. This is supported by the high R^2 value for Z, showing that the majority of Z's variance is accounted for by Y.

In summary, analyzing the F-square effect size gives us a detailed understanding of how each independent variable influences the dependent variable. Variables like XB and Y show significant contributions to their respective outcomes, whereas XA demonstrate smaller but still meaningful effects. Through this analysis, we can better assess the significance and relative strength of each predictor in shaping the dependent variables in model.

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Table 7.
Coefficient path result.

Path coefficients - mean, STDEV, T values, p values					
	Original Sample (o)	**Sample mean (M)**	**Standard deviation (STDEV)**	**T statistics (Io/STDEVI)**	**P values**
XA-> Y	0.135	0.132	0.080	1.693	0.091
XB-> Y	0.556	0.552	0.093	5976	0.000
Y-> Z	0.845	0.650	0.029	28.769	0.000

Path coefficients measure the strength of the direct relationship between variables in a structural model. These values range from -1 to 1, where values close to 1 or -1 indicate a very strong relationship, and values close to 0 indicate a weak or non-existent relationship. P-values are used to test the statistical significance of each path coefficient. If the p-value is below 0.05, the relationship is considered statistically significant.

- XA -> Y (Coef = 0.135, P = 0.091): The coefficient of the path between XA and Y is 0.135, which indicates that there is a weak positive relationship between the two. However, a p-value of 0.091 is greater than 0.05, which suggests that this relationship is not statistically significant. That is, we cannot conclude with confidence that XA has a significant influence on Y.
- XB -> Y (Coef = 0.556, P = 0.000): A coefficient of 0.556 indicates a strong positive association between XB and Y. A very low P-value (0.000) indicates that this relationship is statistically significant. This means that XB is a very strong predictor for Y, consistent with the also large F-square results for this path.
- Y -> Z (Coef = 0.845, P = 0.000): A coefficient of 0.845 indicates a very strong relationship between Y and Z. A very low P-value (0.000) indicates that this relationship is statistically significant. This shows that Y is the dominant predictor of Z, corresponding to a high R^2 result for Z and a very large F-square value for this path.

3.3. Hypotheses Analysis

Hypotheses play a very important role in research, a hypothesis test is used to test an idea or parameter in a population using sample data [40]. A description of the hypothesis analysis can be seen in Table 8.

Table 8.
Hypothesis test.

Path coefficients - mean, STDEV, T values, p values					
	Original Sample (o)	**Sample mean (M)**	**Standard deviation (STDEV)**	**T statistics (Io/STDEVI)**	**P values**
XA-> Y	0.135	0.123	0.085	1.578	0.118
XB-> Y	0.556	0.531	0.089	6.228	0.000
Y-> Z	0.845	0.845	0.031	27.626	0.000

The closer the coefficient is to these limits, the stronger the relationship. A positive coefficient indicates a positive relationship, and a negative one suggests an inverse relationship. For the XA -> Y path, the coefficient of 0.135 indicates a weak positive relationship, implying a small increase in XA results in a slight increase in Y. In contrast, the XB -> Y path has a coefficient of 0.556, representing a strong positive relationship, where an increase in XB significantly boosts Y, making XB a strong predictor of Y in this model. Meanwhile, the Y -> Z path, with a coefficient of 0.845, shows a very strong relationship between Y and Z, meaning that increasing Y will greatly impact Z, underscoring Y's dominant influence over Z.

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T-statistics assess the significance of these path coefficients, where values greater than 1.96 at a 5% significance level indicate that the relationships are statistically significant. For the XA -> Y path, a T-statistic of 1.578 suggests the relationship is not significant, while a T-value of 6.228 for the XB -> Y path clearly indicates that the relationship is highly significant. For Y -> Z, the T-statistic of 27.626 strongly confirms statistical significance. P-values measure the likelihood that the path coefficients are due to random chance. Values below 0.05 suggest statistical significance. The XA -> Y path, with a P-value of 0.118, indicates that the relationship is not significant. Lastly, the Y -> Z path, with a P-value of 0.000, reinforces that this relationship is highly significant, highlighting Y as a powerful predictor of Z.

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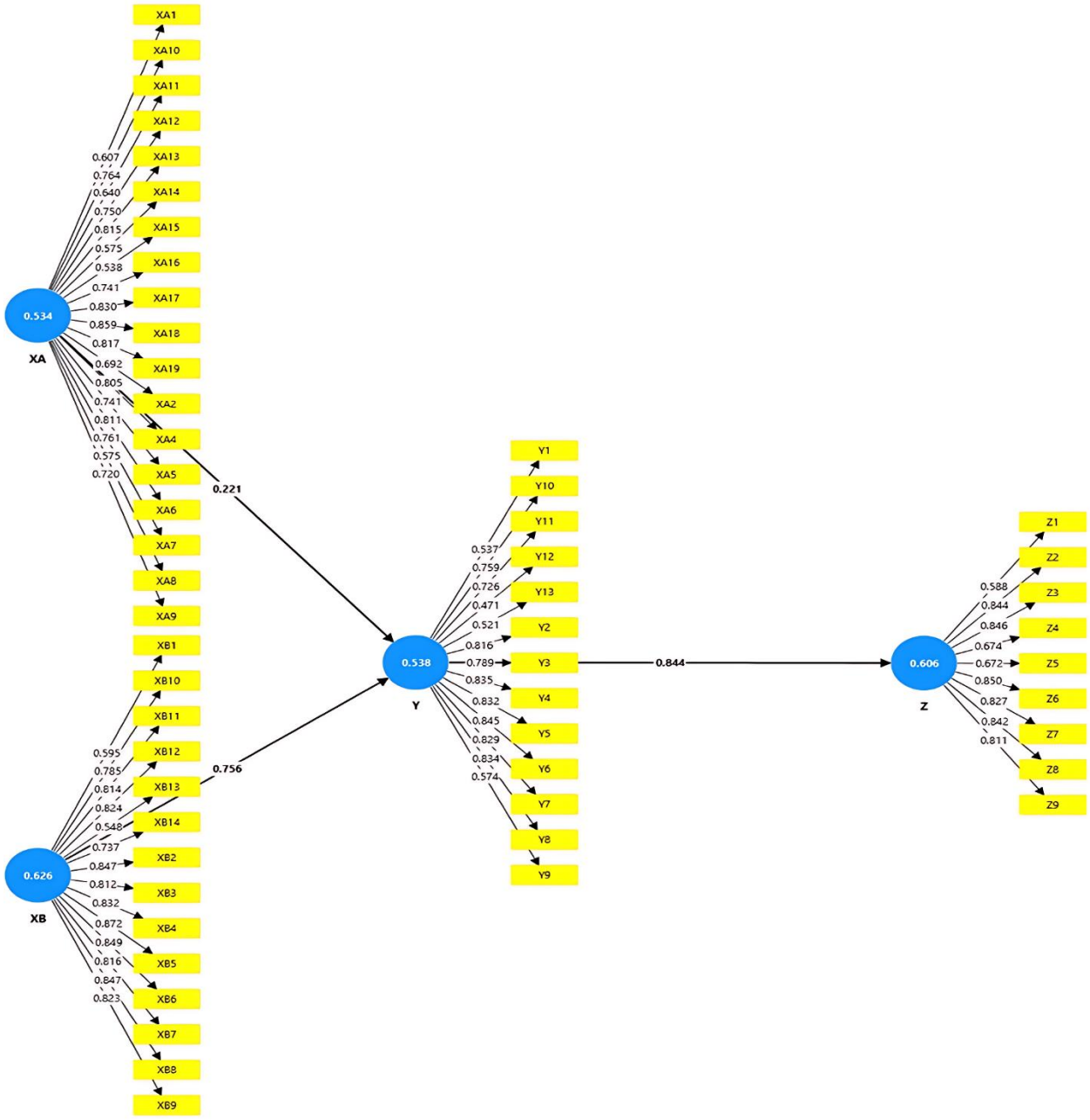

Figure 2.
Hypotheses Testing.

4. Discussion

The F^2 value is used alongside other key metrics like path coefficients and R^2 values to provide a complete understanding of how different factors influence the dependent variable. P-values are used to test the statistical significance of each path coefficient. If the p-value is below 0.05, the relationship is considered statistically significant. • XA -> Y (Coef = 0.135, P = 0.091): The coefficient of the path between XA and Y is 0.135, which indicates that there is a weak positive relationship between the two.

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However, a p-value of 0.091 is greater than 0.05, which suggests that this relationship is not statistically significant. That is, we cannot conclude with confidence that XA has a significant influence on Y. • XB -> Y (Coef = 0.556, P = 0.000): A coefficient of 0.556 indicates a strong positive association between XB and Y. A very low P-value (0.000) indicates that this relationship is statistically significant. This means that XB is a very strong predictor for Y, consistent with the also large F-square results for this path. • Y -> Z (Coef = 0.845, P = 0.000): A coefficient of 0.845 indicates a very strong relationship between Y and Z. A very low P-value (0.000) indicates that this relationship is statistically significant. This shows that Y is the dominant predictor of Z, corresponding to a high R^2 result for Z and a very large F-square value for this path.

In structural equation modeling (SEM), path coefficients serve as key indicators for understanding the strength of relationships between variables. They quantify the direct impact one variable has on another within a model, and values typically range between -1 and 1. Positive coefficients suggest a direct positive relationship, while negative values indicate an inverse relationship. The closer the coefficient is to 1 (or -1), the stronger the relationship. However, this numerical relationship alone doesn't determine the significance of the effect; the accompanying p-values provide that insight. A p-value below 0.05 is generally considered to indicate statistical significance, meaning that the relationship between the variables is unlikely to have occurred by chance. In the case of the relationship between XA and Y, the path coefficient of 0.135 indicates a weak positive relationship between the two variables. A value closer to 0 suggests that XA has a minimal direct influence on Y. However, the more critical issue is the associated p-value of 0.091. Since this is greater than the commonly accepted significance threshold of 0.05, the relationship between XA and Y is not statistically significant. In practical terms, this means that while there is a slight positive relationship between XA and Y, the evidence is not strong enough to conclude that XA has a meaningful impact on Y in the population being studied. This finding suggests that XA may not be a reliable predictor of Y. In real-world applications, variables like XA might be relevant but could require further refinement, such as including moderating variables or exploring other potential interactions, to better capture their effect on Y. This lack of statistical significance could also imply that the sample size was too small or that there is insufficient variance in the data for XA to demonstrate its true impact on Y.

In contrast, the path between XB and Y presents a much different picture. With a path coefficient of 0.556, the model suggests that there is a strong positive relationship between XB and Y. A coefficient above 0.5 indicates that XB has a substantial influence on Y, suggesting that when XB increases, Y tends to increase as well. More importantly, the p-value of 0.000 indicates that this relationship is statistically significant. With a p-value far below the 0.05 threshold, we can conclude with high confidence that the relationship between XB and Y is not due to random chance. XB serves as a robust predictor of Y, and its effect is both significant and substantial. In practical applications, this strong association might imply that factors represented by XB—whether they are customer behavior patterns, market conditions, or other influences—are critical drivers of the outcome represented by Y. This result aligns with the large F^2 value previously discussed, which also showed that XB contributes a considerable amount to the variance explained in Y. Organizations or decision-makers could focus on improving or leveraging XB-related activities to directly influence the outcome Y. The path coefficient between Y and Z is the strongest among the relationships considered, with a value of 0.845. This near-perfect coefficient suggests a very strong positive relationship between Y and Z. As Y increases, Z increases as well, and the strength of this relationship is unusually high.

Furthermore, the associated p-value of 0.000 reinforces the significance of this relationship. Given the p-value is well below the 0.05 cutoff, we can confidently say that Y is a dominant predictor of Z, and this relationship is statistically significant. This finding is consistent with both the high R^2 value for Z and the large F^2 value discussed earlier, both of which indicate that Y explains a significant portion of the variance in Z. In practice, this could mean that the factors represented by Y are critical for understanding and predicting Z. For example, if Y represents customer satisfaction and Z represents

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customer loyalty, then improving satisfaction would have a profound impact on loyalty. This result suggests that efforts to influence Z should be heavily concentrated on improving Y, as Y appears to be the primary driver of changes in Z. Together, these path coefficients and p-values provide a comprehensive picture of the relationships in this model. The relationship between XA and Y is weak and not statistically significant, indicating that XA may not play a meaningful role in influencing Y, or at least that its effect is not robust in this context. On the other hand, XB has a strong, significant relationship with Y, suggesting that XB is a major predictor of the outcome variable. The relationship between Y and Z is even stronger, indicating that Y plays a crucial role in determining Z.

These findings suggest that, for decision-makers or researchers, it would be more productive to focus efforts on variables XB and Y, as they have the most substantial and statistically significant effects in this model. XA, while exhibiting a positive relationship, does not appear to be as influential or reliable as a predictor. This might indicate that XA is a less relevant factor or that its role is contingent upon other conditions not captured in the current model. The insights derived from this analysis also provide avenues for further investigation. For XA, future research might consider whether additional moderating variables or alternative measurement techniques could reveal a more significant relationship. Alternatively, XA might simply be less relevant in the context of this specific study and could be deprioritized in favour of other predictors. For XB and Y, these findings support their role as critical factors in the model. Future research could explore the mechanisms by which XB exerts its influence on Y, potentially examining whether XB has direct or indirect effects on Z. Additionally, the strong relationship between Y and Z opens opportunities to explore other mediating factors or to generalize these findings across different contexts, industries, or populations. In conclusion, path coefficients and their accompanying p-values offer a robust method for understanding the relationships between variables in structural equation modelling. In this study, the data shows that XB and Y are the most influential predictors in the model, while XA exhibits a weaker and non-significant effect. These findings provide valuable insights for both theoretical development and practical applications, especially for improving outcomes related to variables Y and Z.

5. Conclusion

The results of the data analysis have shown that eWOM has a positive but weak and insignificant effect on the purchasing decision. This indicates that the concept of eWOM remains relevant in the context of digital marketing, where positive reviews can help enhance product credibility and generate initial interest from consumers. Meanwhile Product innovation plays an important role in purchasing decisions, because the results of this study show that product innovation has a significant influence on purchasing decisions. Practically, these findings can provide guidance to marketers to focus more on developing product innovation in order to increase consumer loyalty to the Iswhite Body Care brand in online sales channels. On the other hand, purchasing decisions also have a significant influence on consumer loyalty. This statement confirms that purchasing decisions strongly influence the level of consumer loyalty to Iswhite Body Care products on the Shopee e-commerce platform. So, it can be concluded that both EWOM variable is not have an impact but product innovation variable have a strong influence on purchasing decisions, and purchasing decision variables have a strong influence on consumer loyalty.

Transparency:

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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DOI: 10.55214/25768484.v9i3.5281

References
[1] B. Kovarik, *Revolutions in communication: Media history from Gutenberg to the digital age*. USA: Bloomsbury Publishing, 2015.
[2] D. L. Mothersbaugh and D. I. Hawkins, *Consumer behavior: Building marketing strategy*, 13th ed. New York: McGraw-Hill, 2016.
[3] S. W. Litvin, R. E. Goldsmith, and B. Pan, "Electronic word-of-mouth in hospitality and tourism management," *Tourism Management*, vol. 29, no. 3, pp. 458-468, 2008. https://doi.org/10.1016/j.tourman.2007.05.011
[4] P. Kotler and G. Amstrong, *Principles of marketing*, 15th ed. Boston, MA: Pearson, 2018.
[5] T. W. Gruen, T. Osmonbekov, and A. J. Czaplewski, "eWOM: The impact of customer-to-customer online know-how exchange on customer value and loyalty," *Journal of Business Research*, vol. 59, no. 4, pp. 449-456, 2006. https://doi.org/https://doi.org/10.1016/j.jbusres.2005.10.004
[6] S. Sen and D. Lerman, "Why are you telling me this? An examination into negative consumer reviews on the web," *Journal of Interactive Marketing*, vol. 21, no. 4, pp. 76-94, 2007. https://doi.org/10.1002/dir.20090
[7] C. M. Cheung and D. R. Thadani, "The impact of electronic word-of-mouth communication: A literature analysis and integrative model," *Decision Support Systems*, vol. 54, no. 1, pp. 461-470, 2012. https://doi.org/https://doi.org/10.1016/j.dss.2012.06.008
[8] E. Ismagilova, Y. K. Dwivedi, E. Slade, and M. D. Williams, *Electronic word-of-mouth (eWOM) BT - Electronic word of mouth (eWOM) in the marketing context: A state of the art analysis and future directions (E. Ismagilova, Y. K. Dwivedi, E. Slade, & M. D. Williams, Eds.)*. Cham: Springer International Publishing. https://doi.org/10.1007/978-3-319-52459-7_3, 2017.
[9] H. Siagian, Z. Tarigan, and S. Ubud, "The effect of electronic word of mouth on online customer loyalty through perceived ease of use and information sharing," *International Journal of Data and Network Science*, vol. 6, no. 4, pp. 1155–1168, 2022. https://doi.org/10.5267/j.ijdns.2022.7.004
[10] We Are Social, "Digital 2023. Retrieved from We Are Social website," Retrieved: https://www.hootsuite.com/resources/blog/social-trends-report-2023, 2023.
[11] J.-N. Kapferer and G. Laurent, "Consumer involvement profiles: A new and practical approach to consumer involvement," *Journal of Advertising Research*, vol. 25, no. 6, pp. 48-56, 1985.
[12] A. Adnan, "The effect of product quality, brand image, and advertising on purchase decision and its impact on customer loyalty of morinaga milk in aceh," *International Journal of Innovation, Creativity and Change*, vol. 9, no. 4, pp. 234–249, 2019.
[13] I. Ajzen and M. Fishbein, "Attitudinal and normative variables as predictors of specific behavior," *Journal of Personality and Social Psychology*, vol. 27, no. 1, p. 41, 1973. https://doi.org/10.1037/h0034440
[14] J. Kuhl and J. Beckmann, *Action control: From cognition to behavior*. Berlin, Heidelberg: Springer Science & Business Media, 2012.
[15] A. W. Kruglanski, E. T. Higgins, and P. A. M. Van Lange, *Handbook of theories of social psychology*. London: SAGE Publications, Limited, 2011.
[16] I. Ajzen, *Constructing a theory of planned behavior questionnaire*. Amherst, MA: University of Massachusetts, 2006.
[17] G. K. Yildiz, S. Yildiz, M. A. Yoruk, and S. Sevgen, "A tablet game or training booklet? Two methods for evaluating symptom management and quality-of-life of children receiving chemotherapy," *European Journal of Oncology Nursing*, vol. 61, p. 102190, 2022. https://doi.org/10.1016/j.ejon.2022.102190
[18] R. A. Westbrook, "Product/Consumption-based affective responses and postpurchase processes," *Journal of Marketing Research*, vol. 24, no. 3, pp. 258–270, 1987. https://doi.org/10.1177/002224378702400302
[19] W. Duan, B. Gu, and A. B. Whinston, "Do online reviews matter?—An empirical investigation of panel data," *Decision Support Systems*, vol. 45, no. 4, pp. 1007-1016., 2008.
[20] P. R. Varadarajan and M. S. Yadav, "Marketing strategy and the internet: An organizing framework," *Journal of the Academy of Marketing Science*, vol. 30, no. 4, pp. 296–312, 2002. https://doi.org/10.1177/009207002236907
[21] A. Rani, M. Toni, and H. Shivaprasad, "Examining the effect of electronic word of mouth (eWOM) communication on purchase intention: A quantitative approach," *Journal of Content, Community and Communication*, vol. 15, no. 8, pp. 130-146, 2022. https://doi.org/10.31620/JCCC.06.22/10
[22] S. Syam *et al.*, "The influence of social media marketing, product innovation and market orientation on Indonesian SMEs marketing performance," *International Journal of Data & Network Science*, vol. 6, no. 1, pp. 9–16, 2022. https://doi.org/10.5267/j.ijdns.2021.11.002
[23] G. Rayi and M. Aras, "How product innovation and motivation drive purchase decision as consumer buying behavior," *Journal of Distribution Science*, vol. 19, no. 1, pp. 49-60, 2021.

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 9, No. 3: 660-679, 2025
DOI: 10.55214/25768484.v9i3.5281

[24] P. Kotler and K. L. Keller, *Marketing management*, 15th ed. Boston, MA: Pearson Education, 2016.
[25] H.-C. Shiau, "The impact of product Innovation on behavior intention: The measurement of the mediating effect of the Brand Image of Japanese anime dolls," *The Anthropologist*, vol. 17, no. 3, pp. 777–788, 2014. https://doi.org/10.1080/09720073.2014.11891492
[26] R. D. Santy and R. Andriani, "Purchase decision in terms of content marketing and e-WOM on social media," *Journal of Eastern European and Central Asian Research*, vol. 10, no. 6, pp. 921-928, 2023. https://doi.org/10.15549/jeecar.v10i6.1502
[27] L. G. Schiffman and L. L. Kanuk, *Consumer behavior*, 8th ed. New Jersey: Prentice Hall, 2013.
[28] T. O. Jones and W. E. Sasser, "Why satisfied customers defect," *Harvard Business Review*, vol. 73, no. 6, pp. 88-100, 1995.
[29] A. S. Mollah, "The impact of relationship marketing on customer loyalty at Tesco Plc, UK," *European Journal of Business and Management*, vol. 6, no. 3, pp. 21-55, 2014.
[30] J. Griffin, "The internet's expanding role in building customer loyalty," *Direct Marketing*, vol. 59, no. 7, pp. 50–53, 1996.
[31] L. Neuman, *Social research methods: Qualitative and quantitative approaches*. Harlow, England: Pearson Education Limited, 2014.
[32] S. A. Pratminingsih, E. Astuty, and V. Mardiansyah, "The influence of electronic word of mouth and brand image on buying decision," *Journal of Advanced Research in Dynamical & Control Systems*, vol. 11, no. 3, pp. 61-67, 2019. https://repository.widyatama.ac.id/items/f70641ec-9c55-4a57-95aa-592346b14151
[33] Y. W. Handranata, M. G. Herlina, E. L. Tanaya, and R. Setiawan, "Out-of-Group or In-Group E-WOM affects Consumer Purchasing Decision?," in *E3S Web of Conferences*, 2023, vol. 426: EDP Sciences, p. 02117.
[34] D. Pulungan, A. Fauzi, and E. S. Rini, "The effect of product innovation, consumer attidude, and advertising at the purchase decision of yamaha motorcycle in CV Sejati mitra motor medan Marelan," *International Journal of Business and Management Invention*, vol. 7, no. 6, pp. 42-50, 2018.
[35] S. Hariyadi, A. Ningsih, and J. L. Away, "The effect of effect of store image and store location on purchase decision and customer loyalty of modern retail in the City of Samarinda," *International Journal of Scientific & Technology Research*, vol. 7, no. 9, pp. 66-72, 2018.
[36] C. G. Thomas, *Research methodology and scientific writing*. Cham: Springer, 2021.
[37] A. Rani and H. Shivaprasad, "An empirical analysis of receiver's psychological characteristics in eWOM engagement," *International Journal of Cyber Behavior, Psychology and Learning*, vol. 12, no. 1, pp. 1-19, 2022. https://doi.org/10.4018/IJCBPL.298686
[38] M. Dempster and D. Hanna, *Research methods in psychology for dummies*. Hoboken, NJ: John Wiley & Sons, 2015.
[39] J. P. Verma and A.-S. G. Abdel-Salam, *Testing statistical assumptions in research* Hoboken: John Wiley & Sons, 2019.
[40] G. J. Privitera, *Statistics for the behavioral sciences*. Thousand Oaks, CA: Sage Publications, 2023.

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