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The influence of customer personalization on customer satisfaction, engagement, and loyalty Indonesian E-commerce in the digital age

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Abstract

In the rapidly evolving landscape of Indonesian e-commerce, this research explores the intricate dynamics between customer personalization and its impact on customer loyalty. Positioned within a burgeoning market projected to exceed USD 95 billion by 2025, the study addresses the competitive challenges faced by e-commerce enterprises in retaining customers. Leveraging personalized content and interactions, the research delves into the mediating roles of customer engagement and customer satisfaction in shaping customer loyalty. Employing a quantitative approach, the research collected data through an online survey from individuals who made multiple purchases on Indonesian e-commerce platforms. The study's structural equation modeling analysis confirmed the hypotheses, indicating a significant positive influence of customer personalization on customer engagement and satisfaction, which, in turn, positively and significantly affects customer loyalty. The findings underscore the strategic importance of customer personalization in enhancing customer engagement and satisfaction and ultimately fostering customer loyalty in the Indonesian e-commerce context. The research contributes valuable insights for businesses aiming to utilize personalization initiatives. The recommendations emphasize the need for e-commerce brands to prioritize customer personalization strategies in their marketing efforts, providing personalized content and tailored initiatives to strengthen customer loyalty. Future research is encouraged to explore additional variables, such as customer trust, to further illuminate the determinants of customer loyalty in the context of Indonesian e-commerce.

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1. Introduction

In the ever-evolving digital era, e-commerce has become one of the most dynamic and competitive economic sectors in Indonesia. The Indonesian e-commerce market is one of the fastest-growing in the world, with a projected value exceeding USD 95 billion by 2025 [1]. This rapid expansion is fueled by surging internet penetration APJII [2], a burgeoning middle class World Bank [3], and a growing preference for online shopping [4]. However, the competitive nature of the market poses challenges for businesses in retaining customers and fostering loyalty.

The use of digital technology allows businesses to reach a wider range of customers, but also presents a challenge to maintain strong relationships with customers [5]. Customer personalization is becoming one of the most important strategies. Personalization not only involves recommending products based on customer preferences, but also creating a relevant, unique and enjoyable shopping experience. With more choices available, personalization allows e-commerce to stand out amidst fierce competition [6].

Customer satisfaction is one of the key indicators of personalization success. When customers feel that their experience on an e-commerce platform is tailored to their personal needs and preferences, they tend to feel more satisfied [7]. This is related to the perception that the company understands their needs deeply. Studies show that customer satisfaction resulting from personalization can increase positive perceptions of the brand, thus driving long-term relationships between customers and e-commerce platforms [8].

In addition, customer engagement is also influenced by personalization efforts. Customer personalization has emerged as a pivotal strategy for e-commerce businesses to differentiate themselves and build stronger customer relationships [9, 10]. E-commerce's ability to tailor very personalized content and interactions to individual customer preferences offers a promising avenue for achieving customer loyalty. By providing relevant and interactive content, personalization is able to create a more engaging experience and captivate customer attention. This engagement not only increases the time customers spend on the platform but also opens up opportunities for increased sales conversions. In an era where customers tend to seek meaningful experiences, high engagement becomes a valuable asset for e-commerce [11].

Customer loyalty becomes the ultimate goal of a personalization strategy. Customers who feel valued and cared for tend to return to shop on the same platform and even recommend it to others. This loyalty not only increases customer value in the long run but also provides a competitive advantage for e-commerce businesses [12]. Considering the influence of personalization on customer satisfaction, engagement, and loyalty, this research focuses on better understanding how these strategies can be optimized to support the growth of e-commerce in Indonesia [13].

Previous research conducted by Eandarwati et al. [14] explains that the importance of personalized experience, smooth communication, and reliability are key factors in increasing customer satisfaction among Indonesian online shoppers. By understanding these characteristics, companies can design targeted strategies to increase customer satisfaction while building strong long-term relationships in the Indonesian e-commerce ecosystem.

In contrast to previous research, this study offers a new perspective by integrating customer personalization as a key variable and comprehensively analyzing its impact on three important aspects of e-commerce: customer satisfaction, engagement, and loyalty. In Indonesia, personalization with customer engagement as a driver of loyalty has not been widely explored in the digital era with technological developments such as big data and artificial intelligence. The purpose of this research is to understand how the personalization of the customer experience can improve satisfaction, engagement, and loyalty on Indonesian e-commerce platforms. In addition, this research also aims to provide strategic recommendations for e-commerce businesses in leveraging digital technology to create relevant and memorable shopping experiences, thus supporting business growth in a competitive market.

2. Literature Review

2.1. Personalization in E-Commerce

Personalization involves the use of customer data, such as purchase history, preferences, and online behavior, to provide more relevant product recommendations and more personalized responses. This can create a more satisfying experience for customers, increase the likelihood of purchases, and build a stronger relationship between customers and e-commerce platforms.

Customer engagement is a key factor in increasing customer loyalty. For example, chatbots that are able to provide helpful information, answer questions quickly, and provide relevant solutions can increase customer engagement. The higher the level of customer engagement, the more likely customers are to remain loyal to the e-commerce platform.

Customer satisfaction also plays an important role in increasing loyalty. Personalization initiatives, such as tailored product recommendations that can meet customer expectations, resolve issues efficiently, and provide a smooth shopping experience, can increase customer satisfaction levels. High customer satisfaction is likely to lead to greater customer loyalty.

A study by Gartner [15] found that 69% of customers are more likely to do business with companies that offer personalized experiences. Leggett [16], Vice President of Forrester said that companies that personalize their customer experiences can increase customer retention. In another report, Clarke [17] found that 83% of customers who feel valued due to personalization experience created by the brand plan to purchase more from the brand.

These studies suggest that personalization can be a valuable tool for increasing customer engagement, satisfaction, and loyalty.

2.2. Customer Loyalty

Customer loyalty is a measure of the extent to which customers are committed to a particular brand, product, or service. It is a key concept in marketing and business management because it can lead to a number of benefits for companies, such as increased sales, profitability, and customer retention.

Customer engagement and customer satisfaction are important predictors of customer loyalty. Customer engagement refers to the level of emotional involvement and interaction between customers and a brand or company. Customer satisfaction refers to how satisfied customers are with the products or services they receive.

Research has shown that customer engagement and customer satisfaction are positively correlated with customer loyalty. Customers who are engaged and satisfied with a brand or company are more likely to repurchase, recommend the company to others, and be less likely to switch to a competitor. Customer loyalty is a valuable asset for companies. Companies can improve customer loyalty by focusing on improving customer engagement and satisfaction.

2.3. Customer Engagement

Customer engagement is the interaction between a customer and a brand or organization. It can be physical, digital, or a combination of both. Strong customer engagement can lead to loyal and satisfied customers.

Previous researchers have defined customer engagement in various ways. Kumar et al. [18] define Customer Engagement as relationships between brand and customers, whether they are transactional or non-transactional. While Lemon and Verhoef [19] define it as a process that involves emotions, cognition, and behavior. The grand theory that supports customer engagement is the social interaction theory. This theory explains that humans are social creatures who need interaction with others.

The indicators that affect customer engagement can be categorized into internal and external factors. Internal factors come from the customer, such as needs and wants, perception of value, and behavior. External factors come from outside the customer, such as marketing and communication strategies, products and services, prices, and ambient marketing.

Customer loyalty is the level of customer attachment to a brand or organization. Loyal customers are more likely to make repeat purchases, recommend the brand or organization to others, and stay with the brand or organization for the long term.

Customer engagement can increase customer loyalty in several ways, such as enhancing customer satisfaction, increasing customer value, and fostering customer emotional attachment. By boosting customer engagement, a brand or organization can create long-term profits.

2.4. Customer Satisfaction

Customer satisfaction is the pleasant or contented feeling experienced by customers after utilizing a company's products or services. This definition was put forth by Oliver [20] as "a post-consumption judgment of product or service performance relative to expectations."

The grand theory that supports the variable of customer satisfaction is the theory of consumer satisfaction. This theory elucidates that consumer satisfaction results from the comparison between the perceived performance of a product or service and the expectations or anticipations of the consumers.

A study by Winata [21] found that customer satisfaction positively influences customer loyalty. A study by Zeithaml et al. [22] found that customer satisfaction positively affects customer retention as well as loyalty. Oliver [20] found that customer satisfaction positively influences customer recommendations. A study by Wardaya [23] found that customer satisfaction significantly influences customer loyalty. A study by Ariesty [24] also found that customer satisfaction significantly affects the loyalty of Carrefour customers.

Based on previous studies, Customer satisfaction has a positive and significant relationship with customer loyalty. The higher the customer satisfaction, the greater the likelihood of customers being loyal to a company. Customer satisfaction is a critical variable that companies need to pay attention to. The higher the customer satisfaction, the greater the potential for a company to gain profit from loyal customers.

2.5. Customer Personalization

Customer personalization is the practice of tailoring the customer experience to meet the individual needs and preferences of each customer. It is a powerful tool that can be used to improve customer engagement, loyalty, and ultimately, company profitability.

A number of studies have shown that customer personalization is positively correlated with customer engagement. For example, a study by Verhoef et al. [25] found that using big data analytics to personalize marketing campaigns can increase customer engagement. Another study, by Noor et al. [26], found that personalizing content on social media ads can affect customer engagement significantly. This is because personalized content is more likely to be relevant and interesting to customers, leading to increased interaction and engagement.

Finally, a study by Chandra et al. [27] found that giving customers control over their personal experience can also increase engagement. This is because customers who feel they have a say in their experience are more likely to be satisfied and engaged.

In conclusion, the research suggests that customer personalization is a valuable tool for companies that want to improve customer engagement. By tailoring the customer experience to meet the individual needs and preferences of each customer, companies can create a more personalized and engaging experience that is more likely to lead to repeat business and increased profitability.

3. Hypothesis Development

3.1. Customer Personalization and Customer Engagement

The notion that customer personalization significantly influences customer engagement has evolved over time, driven by advancements in technology, data collection, and analytical capabilities. However, it was the rise of e-commerce and digital marketing in the late 1990s and early 2000s that truly propelled the personalization agenda.

With the ability to collect and analyze vast amounts of customer data, businesses began to recognize the potential for tailoring product recommendations, marketing messages, and website experiences to individual preferences and behaviors. This shift towards personalized marketing was further fueled by the development of artificial intelligence and machine learning algorithms, which enabled businesses to automate personalization efforts and deliver highly relevant experiences at scale [28].

A growing body of research has since demonstrated the positive impact of customer personalization on various aspects of customer engagement, including increased website traffic, higher open rates for email campaigns, and increased social media engagement [23]. Personalization has also been shown to positively influence customer satisfaction and loyalty [29].

3.2. Customer Personalization and Customer Satisfaction

Early studies in the 1990s highlighted the positive impact of personalization on customer satisfaction and loyalty [30]. The concept of Customer Personalization exerting a significant influence on Customer Satisfaction has gained widespread recognition within the domain of marketing and business strategy. This notion stems from the understanding that tailoring products, services, and interactions to individual customer preferences cultivates a sense of connection, appreciation, and value, ultimately resulting in enhanced satisfaction levels [30]. These findings indicated that customers who perceived their experiences as tailored to their specific needs and preferences were more likely to express satisfaction, repurchase products or services, and endorse the brand [30].

Subsequent research has further corroborated the link between personalization and satisfaction, encompassing a diverse range of industries and customer segments. Studies have demonstrated that personalized product recommendations, Rodrigues [31] targeted promotions, Alam [32] and customized service interactions Asmara et al. [33] have all contributed to enhanced customer satisfaction levels.

The underlying mechanism driving this positive influence is multifaceted. Personalization fosters a sense of understanding and consideration from the business, making customers feel valued and respected. This, in turn, strengthens the customer-brand relationship, leading to increased trust, loyalty, and positive word-of-mouth. Additionally, personalized interactions often address specific customer needs and preferences, leading to a more positive and fulfilling experience.

3.3. Customer Engagement and Customer Loyalty

Customer engagement has emerged as a critical factor in business success, particularly in the realm of marketing and customer relationship management. Defined as the ongoing interaction between a company and its customers, customer engagement fosters positive emotional connections and encourages active participation within a brand's ecosystem [34]. This heightened engagement ultimately translates into increased customer loyalty.

The notion that customer engagement significantly impacts customer loyalty has been substantiated by numerous empirical studies. A prominent study by Chaudhuri and Holbrook [35] delved into the relationship between customer engagement and brand loyalty within 107 brands. Their findings revealed a positive correlation between customer engagement and customer loyalty, indicating that customers with a higher degree of engagement were more likely to maintain loyalty to the brand. Similarly, Thakur [36] examined the impact of customer engagement on customer loyalty in the context of online shopping. Their results demonstrated a significant positive effect of customer engagement on customer loyalty, suggesting that engaged customers were more likely to continue doing business with the company.

These findings underscore the importance of customer engagement as a key driver of customer loyalty. By cultivating meaningful interactions with customers and crafting positive brand experiences, companies can nurture a loyal customer base that generates long-term value for the business.

3.4. Customer Satisfaction and Customer Loyalty

In recent years, researchers have delved deeper into the mechanisms underpinning the relationship between customer satisfaction and customer loyalty. Khan et al. [37] proposed a compelling model that suggests customer satisfaction fosters customer loyalty by cultivating Technology Acceptance and Online Service Quality. The result shows customer satisfaction to be a significant determinant of customer loyalty. Similarly, Nasir et al. [38] found that customer satisfaction nurtures customer loyalty and reinforces repurchase intentions among two-wheeler owners.

This research article proposes that customer personalization can improve loyalty via the mediation role of customer satisfaction and customer engagement. The hypotheses are supported by previous research and relevant theories. The research is expected to contribute to the understanding of the role of customer personalization in customer relationship management in Indonesian e-commerce. Below is the research model based on the hypothesis.

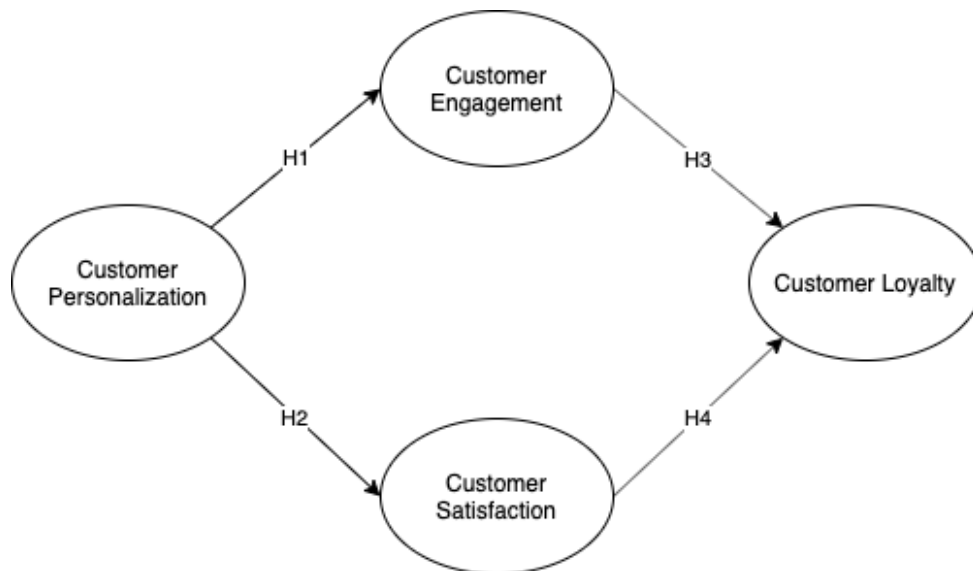


Figure 1.
The Research Model Based on the Hypothesis.

4. Methods

The method used in this research is a quantitative method. Quantitative method is a research method that prioritizes the collection and analysis of numerical data to test hypotheses or answer research questions. In quantitative methods, the data collected is then analyzed using statistical techniques to look for patterns, relationships, or differences between variables, which helps researchers make valid and reliable conclusions [39]. This approach is often used to measure measurable phenomena and to conduct analysis that can confirm or refute certain theories.

4.1. Sampling

This study's respondents are people who bought products from Indonesian e-commerce more than once. Only those who made two purchases from the same Indonesian e-commerce site qualified as respondents. The study used purposive and snowball methods to do sampling methods. It conducted an online survey in Indonesia to examine the hypotheses. A screening question verified whether the participants had experience in buying from Indonesian e-commerce. The study applied the Cochran formula [40, 41]. To determine the minimum sample size. It found that 97 respondents were needed for a 0.10 sampling error margin. The formula is:

$$n = \frac{z^2 pq}{e^2} = \frac{1.96^2 (0.5)(0.5)}{(0.10)^2}$$

$$n = 96.04$$

Where:

n= Number of samples

z= z-value found in Z-score Table, for 5%, the z-value is 1.96

p= correct probability 50% = 0.5

q= incorrect probability 50% = 0,5

e= margin error 10%

The number was then rounded up to 97. The minimum sample size for this study is 97.

4.2. Data Collection

This research used an online survey to collect data by sending questionnaires to the respondents. The people who participated in this study were customers who had bought more than once from Indonesian e-commerce websites. Out of the 122 questionnaires sent, only 12 were suitable for further analysis of the hypotheses. This number met the minimum sample size needed for this study. The study grouped the respondents according to their gender, highest education level, age, preferred e-commerce platform, and how long and how often they bought from their preferred Indonesian e-commerce site, as shown in Table 1.

Table 1.
Respondent's Profile.

Variable	Category	Frequency	Percentage
Preferred e-commerce	Lazada	9	8%
	Shopee	85	71%
	TikTok Shop	10	8%
	Tokopedia	16	13%
Length of e-commerce usage Time	2 - 3 year(s)	34	28%
	4 - 5 year(s)	19	16%
	More than 5 year(s)	19	16%
	Less than 1 year	6	5%
	3 - 4 year(s)	30	25%
	1 - 2 year(s)	12	10%
Shopping frequency on preferred e-commerce	Several times in each week	15	13%
	Several times in a month	70	58%
	One time in a week	13	11%
	Several times in each day	4	3%
	One time in a month	12	10%
	One time in each day	2	2%
	Only when needed	4	3%
Gender	Male	36	30%
	Female	84	70%
Highest education level	Bachelor	41	34%
	High School	73	61%
	Master	6	5%
Monthly Income (Indonesian Rupiah)	300.000 - 2.137.499	81	68%
	2.137.500 - 3.974.999	16	13%
	3.975.000 - 5.812.499	19	16%
	5.812.500 - 7.649.999	2	2%
	7.650.000 - 9.487.499	1	1%
	9.487.500 - 11.324.999	0	0%
	11.325.000 - 13.162.499	0	0%
	13.162.500 - 15.000.000	1	1%
Age (year(s))	19 - 23	84	70%
	24 - 28	34	28%
	29 - 33	1	1%
	34 - 38	0	0%
	39 - 43	0	0%
	44 - 48	0	0%
	49 - 53	0	0%
	54 - 58	1	1%

Out of 120 respondents, 70% were women; most of them were within the 19-23 years age range. In terms of their highest education level, most respondents had completed high school. Shopee is the most popular e-commerce platform in Indonesia, with 71% of respondents saying they use it. Most respondents (58%) shop on their preferred e-commerce platform several times a month.

4.3. Analysis Methods

The aim of this study was to investigate how Customer Personalization, Customer Satisfaction, and Engagement effect on Customer Loyalty, using the quantitative method of PLS-SEM. The study first used descriptive statistics which helped to prepare for a more detailed analysis. The study then used PLS-SEM to test both the measurement and structural models. The study checked the validity and reliability of the constructs, which included indicator reliability, convergent validity, and discriminant validity [42]. The structural model showed the important relationships and how well they could be predicted [42].

The study measured convergent validity by looking at the correlations between the scores of the items, which were computed using SmartPLS [42]. Indicator validity was strong if the loading factors were more than 0.7, and the study removed

the items that had lower values from the measurement model. The study also used the Average Variance Extracted (AVE) above 0.5 to make the convergent validity stronger. Based on Table 2, all the items are considered as convergently valid.

Reliability means how accurate and consistent a research instrument is Heale and Twycross [43]. A reliable instrument should give similar results when it is used again in the same situation. This study used Cronbach’s alphas with 0.6 value threshold, which were calculated using SmartPLS, to check the reliability of the instrument [44]. Based on Table 2, all the items are considered as reliable.

Table 2.
Items' measurement validity and reliability.

Variable	Item	Outer Loadings	Cronbach's Alpha	Average Variance Extracted (AVE)
Customer Engagement	CEG5	0.776	0.725	0.644
	CEG7	0.807		
	CEG9	0.824		
Customer Loyalty	CLY10	0.769	0.895	0.613
	CLY12	0.771		
	CLY2	0.799		
	CLY3	0.820		
	CLY5	0.727		
	CLY7	0.802		
	CLY9	0.791		
Customer Personalization	CPS1	0.763	0.875	0.572
	CPS10	0.716		
	CPS2	0.768		
	CPS3	0.776		
	CPS4	0.712		
	CPS6	0.787		
	CPS7	0.768		
Customer Satisfaction	CSF1	0.762	0.898	0.585
	CSF10	0.768		
	CSF11	0.728		
	CSF12	0.810		
	CSF13	0.726		
	CSF7	0.781		
	CSF8	0.741		
CSF9	0.797			

Discriminant validity is achieved when a construct’s correlation with an item (indicator) is higher than its correlations with other constructs, which means that the latent construct can predict that item better than other constructs. The study measured discriminant validity by looking at the HTMT Ratio with a threshold value below or equal to 0.9 [45]. Based on Table 3, discriminant validity is reached.

Table 3.
HTMT Ratio

	Customer Engagement	Customer Loyalty	Customer Personalization	Customer Satisfaction
Customer Engagement				
Customer Loyalty	0.876			
Customer Personalization	0.811	0.722		
Customer Satisfaction	0.847	0.830	0.808	

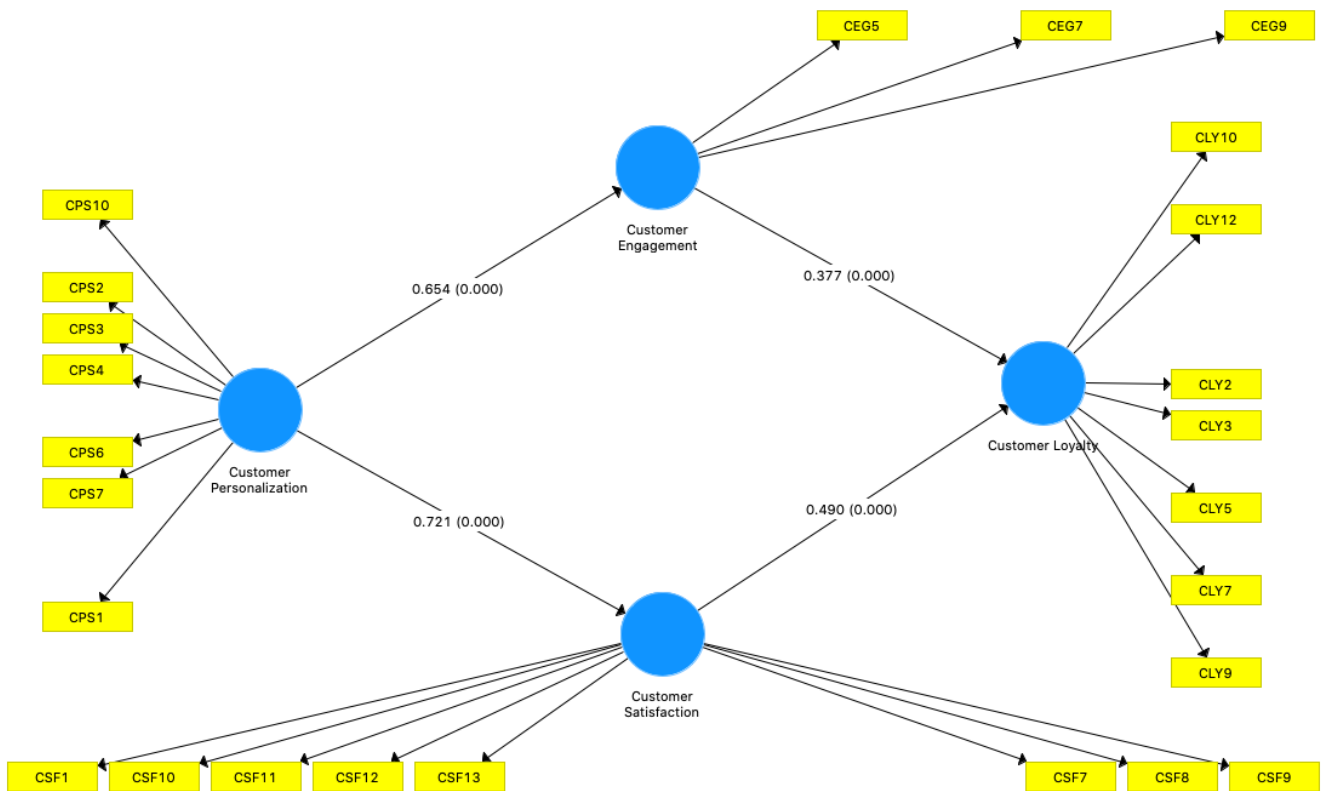


Figure 2. The Research Model Based on the Hypothesis.

5. Results and Discussions

5.1. Result

The relationship between variables can be understood through the significance of estimated parameters. Hypothesis testing in this study was conducted using SmartPLS. The bootstrapping method is a simulation used in the statistical testing of each relationship in the SmartPLS application. Testing with bootstrapping is intended to minimize the issues related to research data abnormalities.

The results of the study show that CPS has a significant influence on the CEG and CSF, which in turn have significant influence on CLY of Indonesian e-commerce users. The results of the bootstrapping test from the PLS analysis are shown in Table 4.

Table 4. Path Coefficient Results.

	Original Sample (O)	T Values	P Values	Interpretation
H1: CPS -> CEG	0.654	6.772	0.000	Significant
H2: CPS -> CSF	0.721	9.001	0.000	Significant
H3: CEG -> CLY	0.377	4.030	0.000	Significant
H4: CSF -> CLY	0.490	5.719	0.000	Significant

5.2. Discussion

5.2.1. Customer Personalization (CPS) has a positive and significant influence on Customer Engagement (CEG)

Based on the results of the analysis, it is known that CPS has a positive and significant effect on CEG; this can be seen in the path coefficient value in the relationship between the two variables of 0.654. The direction of a positive relationship indicates that the better the CPS, the better the CEG. Path analysis shows a probability of 0.000 with an alpha of 0.05 ($0.05 > 0.000$), proving that H1 is accepted. It shows that the CPS has a positive and significant effect on the CEG variable. This significant effect indicates that CPS is one of the antecedents of CEG.

CPS wields significant influence on CEG. The findings of this investigation align with prior studies conducted by Shanahan et al. [29] and Wardaya [23]. Shanahan et al. [29] discovered that personalized advertising content on the Facebook platform significantly and positively contributes to fostering enhanced Customer Engagement, whether at the service or product level. Ultimately, this CEG significantly impact on Customer Loyalty [29]. Similarly, Wardaya [23] found the same outcomes in the personalization of Augmented Reality (AR) mobile applications, where CPS in AR significantly and positively influences the AR customer engagement.

Thus, the better the customer personalization, the higher the level of customer engagement. This research confirms that well-implemented personalization, such as customization of the shopping experience based on customer preferences, can increase customer interaction and engagement with e-commerce platforms. Better CPS allows customers to feel more valued

and recognized, which in turn encourages them to more actively interact with the brand. This engagement not only includes direct interaction but also forms a stronger emotional connection between the customer and the brand, which is important in increasing long-term loyalty and satisfaction.

5.2.2. Customer Personalization (CPS) Has A Positive and Significant Influence on Customer Satisfaction (CSF)

Based on the results of statistical analysis using the path analysis method, it can be seen that CPS has a positive and significant influence on CSF; this can be seen in the path coefficient value in the relationship between the two variables of 0.721. The direction of a positive relationship indicates that the better the CPS, the better the CSF. The path analysis shows a probability or significance value of 0.000 with an alpha of 0.05 ($0.000 < 0.05$), proving that H0 is rejected and H2 is accepted. It shows that the variable CPS has a positive and significant effect on the CSF variable. CPS is an antecedent of CSF.

CPS has been demonstrably linked to increased customer satisfaction (CSF) according to this study and prior research by Rodrigues [31], Alam [32], and Asmara et al. [33]. For instance, Asmara et al. [33] discovered satisfied customers using AirAsia's personalized self-service kiosks at Kuala Lumpur International Airport 2 (KLIA2), while Alam [32] found personalized social media ads significantly impacted customer satisfaction and loyalty. Similarly, Rodrigues' [31] study on online personalized recommendations by retailers like Amazon and IKEA confirmed their positive influence on customer satisfaction. This study reinforces the notion that businesses seeking to enhance customer satisfaction should strongly consider implementing CPS initiatives.

Thus, Customer Personalization (CPS) has a positive and significant influence on Customer Satisfaction (CSF), which indicates that the better the personalization provided to customers, the higher the level of satisfaction felt. Customization of the shopping experience based on individual preferences, such as relevant product recommendations or customized offers, makes customers feel more valued and understood by the company. This increases customers' satisfaction with the service they receive, as they feel more cared for and served according to their needs. Customers who receive a more customized experience tend to feel more satisfied, as they get what they want in a more efficient and relevant way. Companies that implement effective personalization strategies can increase customer satisfaction, which in turn can have a positive impact on customer loyalty and engagement. Higher customer satisfaction contributes to a better long-term relationship between customers and companies, which is crucial in a competitive e-commerce ecosystem.

5.2.3. Customer Engagement (CEG) has a Positive and Significant Influence on Customer Loyalty (CLY)

Based on the results of statistical analysis using the path analysis method, it can be seen that the CEG has a positive and significant influence on CLY; this can be seen in the path coefficient value in the relationship between two variables of 0.377. The direction of a positive relationship indicates that the better the CEG, the better the CLY. Path analysis shows a probability or significance value of 0.000 with an alpha of 0.05 ($0.000 < 0.05$), proving that H0 is rejected and H3 is accepted. It shows that CEG has a positive and significant effect on CLY. CEG is the antecedent of CLY.

CEG has a significant impact on CLY. This result is supported by previous research from Chaudhuri and Holbrook [35] and Thakur [36]. Chaudhuri and Holbrook [35] stated that CEG is the main factor influencing CLY. People with strong CEG will have a high tendency to become loyal customers and recommend products to their colleagues. In his study, Thakur [36] found that CEG has a significant positive impact on CLY in online shopping on mobile devices. Likewise, in this study, people with strong CEG will have a strong tendency to become Loyal e-commerce Customers.

Thus, the higher the level of customer engagement, the more likely they are to remain loyal to the brand or e-commerce platform. High engagement creates a stronger emotional connection between the customer and the brand, where the customer feels more connected and has a greater commitment to the product or service offered. Active interaction with the brand, whether through social media, product reviews, or involvement in loyalty programs, strengthens this relationship.

5.2.4. Customer Satisfaction (CSF) has a Positive and Significant Influence on Customer Loyalty (CLY)

Based on the results of the analysis, it is known that the CSF has a positive and significant effect on CLY; this can be seen in the path coefficient value in the relationship between the two variables of 0.490. The direction of a positive relationship indicates that the better CSF, the better CLY. Path analysis shows a probability of 0.000 with an alpha of 0.05 ($0.05 > 0.000$), proving that H4 is accepted. It shows that the CSF has a positive and significant effect on CLY. This significant effect indicates that CSF is one of the antecedents of CLY.

This study investigates the impact of CSF (Customer Satisfaction) on CLY (Customer Loyalty). The findings reveal a significant positive relationship, aligning with prior researches of Khan et al. [37] and Nasir et al. [38]. Khan et al. [37] explored this association in the context of online shopping in Bhutan, demonstrating that positive online shopping experiences contribute to enhanced customer loyalty. Similarly, Nasir et al. [38] identified a strong connection between CSF and CLY within the two-wheeler industry. These findings suggest that across diverse settings, fostering customer satisfaction leads to increased customer loyalty.

Thus, the more satisfied customers are with the product or service provided, the more likely they are to remain loyal. Customer satisfaction creates a positive experience that encourages customers to return to shop and strengthen long-term relationships with brands or companies. Customers who feel satisfied with product quality, service, and overall experience tend to have higher levels of loyalty, which contributes to better customer retention. Companies that can ensure high customer satisfaction stand a good chance of building strong customer loyalty. Consistent customer satisfaction can create a solid foundation for long-term relationships and increase the chances of retaining customers in an increasingly competitive market, especially in the e-commerce sector.

6. Conclusions

The results show that customer personalization (CPS) has a positive and significant influence on customer engagement (CEG) and customer satisfaction (CSF), which means that a more personalized experience can increase customer engagement and satisfaction. In addition, customer engagement (CEG) is shown to have a significant influence on customer loyalty (CLY), which suggests that higher levels of engagement can strengthen customer loyalty. This study also proves that customer satisfaction (CSF) has a positive influence on customer loyalty (CLY), which indicates that satisfied customers tend to be more loyal.

7. Recommendations

E-commerce brands must pay attention to CPS in their marketing strategy. E-commerce brands need to provide personalized content such as shopping cart reminders via chat or notifications, product recommendations, and personalized offers for their customers. These personalization initiatives will foster customer engagement and satisfaction, ultimately making them loyal customers. Several personalization initiatives can be delivered in various ways: (1) Precise product recommendations based on customer needs and interests. (2) User-generated content. (3) Personalized bestseller lists. (4) Marketing campaigns based on customer behavior. (5) Personalized discounts and offers. (6) Personalized homepages and landing pages. Future research is suggested to add several variables that can help explain the determinants of the CLY variable. Variables such as Customer Trust are said to be able to explain the relationship between Customer Personalization and Customer Loyalty.

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