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Beyond clicks: Navigating e-commerce attitudes in Southeast Asia's digital landscape of news, easy payment, and exclusive discounts

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Abstract

Online shopping has become a dominant consumer activity in Southeast Asia, driven by rapid e-commerce growth. This study investigates factors influencing e-commerce consumer attitudes in Indonesia, Malaysia, the Philippines, and Thailand. The purpose of this research is to provide a deeper understanding of the key determinants shaping consumer attitudes, helping businesses and policymakers refine their strategies in the evolving digital marketplace. The study collected data from 397 respondents across the four countries. Structural Equation Modeling (SEM) with SmartPLS was employed to analyze the relationships between technology acceptance, marketing communication, enjoyment, and consumer attitudes toward e-commerce. The findings highlight technology acceptance as the most significant factor, with ease of payment playing a critical role. Marketing communication, particularly digital public relations (PR) efforts on news portals, significantly influences consumer trust and brand credibility. Additionally, enjoyment, driven by both hedonic and utilitarian motivations, shapes consumer attitudes toward e-commerce. This study extends the Technology Acceptance Model (TAM) by incorporating the role of payment systems, offering a deeper understanding of consumer attitudes in Southeast Asia's e-commerce landscape. The insights provide practical guidance for businesses and policymakers to refine strategies that foster consumer trust, engagement, and satisfaction in the digital marketplace.

Keywords: Consumer attitudes, e-commerce, Marketing communication, Online shopping, Technology acceptance.

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1. Introduction

The modern society exists in a consumptive environment Wang and Yang [1] characterized by excessive shopping activities regarded as a consumer culture [2, 3]. This phenomenon is currently affected by the evolving landscape of consumerism and global digitalization. The one-click-away feature provided by online stores and e-commerce has made shopping easy. These online stores have revolutionized the shopping experience, creating a digital marketplace that delivers goods and essentials directly to doorsteps. Therefore, analyzing the factors affecting consumer attitudes towards online shopping on e-commerce platforms is an intriguing experience.

The global e-commerce sector has developed rapidly due to technical advances, impacting consumer attitudes and the widespread acceptance of online purchasing platforms [4]. Southeast Asia, in particular, is a prominent region with a high interest in online shopping. The e-commerce sector in Southeast Asia tends to be rapidly evolving as the world embraces digital transactions [5]. The dynamic digital economy of the region consists of a young, tech-savvy population and an increasing middle class, which collectively increases the demand for online retail [6, 7]. Despite the significant growth and potential of e-commerce in Southeast Asia, most existing literature tends to focus on individual countries rather than providing a comprehensive analysis of the region as a whole. Prior research often analyzed the e-commerce sector in a few countries, such as Indonesia [8] or the Philippines Capistrano, et al. [9], without considering the broader regional trends and interconnections. This gap outlines the need for more comprehensive research comprising multiple Southeast Asian countries to obtain a better understanding of the regional dynamics and consumer behaviors in the rapidly evolving market.

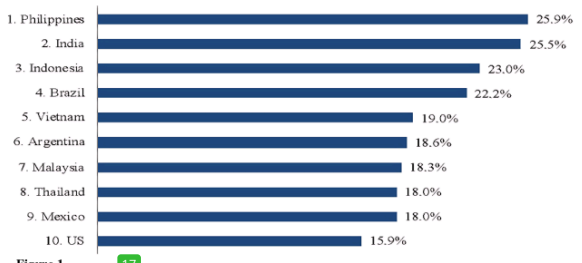

Figure 1.
Top Ten Countries in the World with the Highest Percentage of E-Commerce Sales Growth.
Source: eMarketer, January 2022.

Figure 1 shows the top ten countries with the highest percentage of e-commerce sales growth, focusing on significant increases across various regions. The Philippines is leading with a growth rate of 25.9%, followed closely by India and Indonesia at 25.5% and 23%, respectively. Brazil and Vietnam also showed significant growth rates of 22.2% and 19%. Furthermore, other countries in the top ten include Argentina, Malaysia, Thailand, Mexico, and the United States, with growth rates ranging from 18.6% to 15.9%.

Southeast Asian countries dominated the list, with the Philippines, Indonesia, Vietnam, Malaysia, and Thailand featured prominently. This highlights the rapid expansion of e-commerce in the region, driven by increasing internet penetration, mobile device usage, and digital payment adoption. The diverse geographical representation shows a global trend towards digital commerce, reflecting changing consumer behaviors and the growing importance of online retail platforms.

This research was carried out due to the conflicting high percentages of e-commerce growth in Southeast Asia. It is also a well-known fact that the speed of the internet is closely associated with how people use e-commerce [10]. Faster internet enables smoother online shopping experiences, while slower speeds can be frustrating, deterring people from engaging in similar activities [11]. However, these challenges tend to affect e-commerce, specifically in areas with slow internet.

Table 1.
Average internet speeds in every country in Southeast Asia.

No	Country	Mobile speed (Mbps)	Fixed broadband speed (Mbps)
1	Singapore	156.83	294.97
2	Brunei	121.38	61.03
3	Thailand	79.79	254.09
4	Malaysia	56.84	134.40
5	Vietnamese	55.89	102.12
6	Philippines	55.18	103.03
7	Myanmar	35.00	24.85
8	Laos	33.00	43.61
9	Cambodia	28.99	35.39
10	Indonesia	24.80	34.51

Sources: Speed test Global Index Report, October 2022.

Southeast Asia has encountered significant development in the digital economy since the COVID-19 pandemic. The people in this region have embraced new habits of online discovery, consideration, and shopping [12]. The pandemic has increased digital consumption, which is no longer considered a one-time phenomenon but rather a way of life for Southeast Asians [13]. The research focuses on Indonesia, the Philippines, Thailand, and Malaysia to understand why people aggressively shop online without considering the local economy or low internet speed, as can be seen in Table 1.

Previous research carried out in Vietnam has stated that perceived ease of use, usefulness, subjective norms, and attitudes positively impact customer purchase intention regarding online shopping during the pandemic [14]. Factors such as perceived awareness of security and usefulness, including personal innovativeness, play a significant role in influencing consumer intentions and attitudes towards online purchasing, as indicated in the technology acceptance model (TAM) and the theory of reasoned action [15].

The TAM, introduced in the late 1980s, has remained relevant and widely used in recent research on consumer behavior over the years. This is due to its adaptability and robustness in explaining users' acceptance and adoption of new technologies. TAM plays a crucial role in understanding user perceptions and acceptance of online purchasing platforms. Prior research has proven that factors including perceived utility, ease of use, and behavioral intention to use serve as major components influencing customer decisions to adopt online shopping applications [16]. Additionally, perceived usability, risk, and ease of use have been identified as variables affecting customer intentions to make online transactions. This outlines the importance of these factors in influencing consumer behavior in the online marketplace [17]. The impact of perceived usefulness and ease of use on consumer usage attitudes, trust, loyalty, and usage intention has been explored in the context of e-commerce platforms, focusing on the significance of these factors in driving customer engagement and loyalty in online shopping environments [18].

Marketing communication is another external factor that significantly impacts e-commerce consumer behavior, in addition to TAM. This factor comprises various strategies such as personalized recommendations, targeted advertising, and interactive experiences [19]. These strategies play a critical role in impacting consumer attitudes and preferences by enhancing the perceived value and relevance of e-commerce platforms [20]. Effective marketing communication directly affects consumer preferences and needs, mediating purchase behavior and decisions [21]. Therefore, incorporating this variable into the analysis of e-commerce offers a comprehensive understanding of factors that drive consumer attitudes and behaviors in e-commerce.

Enjoyment is another factor considered alongside TAM in affecting consumer behavior in the digital market. This factor includes the emotional and experiential aspects of online shopping, which tend to significantly enhance consumer engagement and satisfaction [22, 23]. The following factors: gamification, social interaction, and perceived enjoyment contribute to a positive shopping experience, motivating consumers to return to the platform [24]. Enjoyment increases the likelihood of repeated purchases and fosters a positive emotional connection with e-commerce platforms [25]. However, by understanding and enhancing this factor, e-commerce platforms can create more engaging and satisfying shopping experiences, positively influencing consumer behavior. Given the rapid growth of e-commerce in various fields, understanding these factors is crucial.

In line with the background described, this research aims to explore the relationship between factors that influence e-commerce online shopping attitudes of Southeast Asian consumers in Indonesia, the Philippines, Thailand, and Malaysia. This leads to the formulation of the following research questions:

RQ1: Does marketing communication have a positive relationship with consumer attitudes towards e-commerce in Southeast Asia (Indonesia, Philippines, Malaysia, Thailand)?

RQ2: Does technology acceptance (perceived usefulness and ease of use) have a positive relationship with consumer attitudes towards e-commerce in Southeast Asia (Indonesia, Philippines, Malaysia, Thailand)?

RQ3: Does enjoyment have a positive relationship with consumer attitudes towards e-commerce in Southeast Asia (Indonesia, Philippines, Malaysia, Thailand)?

This research aims to determine whether the variables of technology acceptance, marketing communication, and enjoyment have a positive relationship with consumer attitudes towards e-commerce in Southeast Asia. Another objective is to determine the new indicators that have a strong and positive relationship with consumer attitudes. This research specifically focuses on filling the gap of prominent factors associated with online shopping attitudes, specifically in Indonesia, the Philippines, Malaysia, and Thailand.

2. Theoretical Review

2.1. Technology Acceptance Model (TAM)

TAM for online purchasing has evolved over multiple decades, resonating with the revolutionary journey of e-commerce and the unrelenting growth of technology [26]. The concept, formulated in the late 1980s, aligns with the fundamental TAM designed by Fred Davis, which was initially intended to explain consumer acceptance of information technology by focusing on perceived ease of use (PEOU) and perceived usefulness (PU) [27]. The increased popularity of online shopping led to the need to adapt TAM to this specific context, resulting in the model being used to explore the adoption of online shopping platforms.

The model experienced major changes throughout the years to meet the complexities associated with online shopping [28]. External elements, namely trust, perceived risk, and social influence, were smoothly incorporated into the model to reflect the larger spectrum of effects impacting customer attitudes and intentions towards online purchasing [29]. TAM was

able to transition beyond its original boundaries, becoming a versatile framework adaptable to the complications generated by digital commerce as a result of this development [30, 31].

Several recent research studies have investigated the determinants of online shopping behavior in many contexts motivated by the TAM framework. This relevance was reinforced by the adoption of TAM to explore online shopping assistants (OSAs) in e-commerce. The integration of factors such as trust, anthropomorphism, and privacy concerns showed how the framework continued to effectively capture evolving digital behaviors and AI-driven interactions [32]. Another research study found that perceived usefulness and ease of use significantly affected consumer attitudes, trust, loyalty, and usage intentions by adopting the Dcard Goodies Lab e-commerce platform [18]. The results were in accordance with the research on POI-retailers in cross-border e-commerce, where perceived usefulness and ease of use were important in building trust and commitment, which increased consumer purchase intentions [33]. Both studies focused on the enduring relevance of TAM in understanding digital consumer behavior across different e-commerce contexts. Similarly, research on online booking applications reported that perceived usefulness, ease of use, and trust significantly and positively impacted buying intentions Sutantio, et al. [34], further reinforcing the importance of these factors in influencing consumer behavior in digital environments.

This research uses Technology Acceptance (TA) as a variable, specifically the following dimensions: perceived ease of use and usefulness. The use of TA in the hypothesis was justified by its foundational role in understanding consumer behavior towards technology adoption. These two dimensions are integral to the Technology Acceptance Model (TAM), which has been extensively validated in various contexts to predict user acceptance and usage of technology. Perceived ease of use reflects the degree to which a consumer believes that using a particular technology would be effortless [35]., while perceived usefulness indicates the extent to which a consumer believes that technology will enhance performance [36]. These dimensions critically impact consumers' attitudes and intentions towards e-commerce platforms, as they directly influence the perceived value and convenience of online shopping. The incorporation of these variables aims to capture essential factors that drive consumer acceptance and engagement, providing a robust framework for analyzing how technological attributes impact consumer attitudes in the rapidly evolving digital marketplace.

2.2. Marketing Communication

E-commerce marketing combines both offline and online techniques to promote products and increase sales [37]. Traditional advertising channels such as television, radio, print media, and direct mail are examples of offline techniques Dinner, et al. [38] that aid in reaching a large audience and increasing brand awareness [39]. A well-crafted TV commercial promotes products while creating a memorable brand image. Similarly, print advertisements in newspapers or magazines tend to target specific populations [40].

Digital e-commerce marketing frequently comprises search engine optimization (SEO), email marketing, and social media promotion [41]. SEO raises the ranking of e-commerce websites in search engine results, making them more visible to potential buyers [42]. Email marketing focuses on sending properly crafted messages to a list of subscribers to promote products and inform customers about deals or new arrivals. Social media platforms are used to create brand awareness, engage with customers, and perform targeted advertising campaigns to drive visitors to e-commerce sites [43]. However, traditional e-commerce marketing tactics have developed a unified and multi-channel method to reach and convince potential customers [44].

Traditional marketing refers to a variety of conventional tactics adopted by firms to sell respective products and services [45]. Advertising through this means, including television, radio, print media, and outdoor billboards, is a significant component [46]. These methods strive to attract a large audience and develop brand recognition through visually and audibly appealing communications [47, 48]. For example, advertising through television uses the power of sight and sound to produce unforgettable impressions, while print advertisements in newspapers or magazines target specific groups [49, 50]. Direct mail strategies, such as brochures or catalogs, focus on mailing real promotional items to potential buyers [51].

Public relations initiatives, including news releases, events, and sponsorships, are another aspect of traditional marketing [52]. These are frequently used by businesses to create a positive public image, generate media coverage, and increase brand credibility [53]. Currently, public relations also utilize social media as a part of marketing [54]. Traditional marketing methods often focus on establishing a one-way communication flow in which the company disseminates information to the public [55]. Digital marketing has become popular in recent years, and when combined with traditional marketing methods, it develops a comprehensive and well-rounded strategy [45].

2.3. Enjoyment Towards Consumer Attitudes

Aspects of enjoyment played a critical role in molding consumer attitudes and experiences of online purchasing [56]. The interactive component, which centered on the level of participation through online purchasing platforms, is a major aspect [57]. Methods such as live conversations, personalized recommendations, and virtual try-ons improved user engagement and fostered a sense of connection [58]. An interactive experience helped to create a more enjoyable purchasing experience, developing a positive attitude among consumers who value the attempts of the platform to actively engage the users [59]. Aside from utility, the entertainment factor enhanced the online purchasing experience [60]. Gamification, interactive movies, and engaging information were all used to create an immersive and pleasurable journey [61]. This dimension extended beyond simple transactional exchanges, attracting users and contributing to a memorable purchasing experience [62, 63]. The entertainment factor impacted positive sentiments, as customers preferred platforms that effortlessly combined functionality with an attractive and engaging setting [64]. The significance changed to the emotional aspects of satisfaction from the online purchasing experience in the hedonic dimension [65, 66]. This was enhanced by aesthetically

beautiful interfaces, emotionally resonant content, and exceptional emotional experiences [67]. Consumers who identified online shopping with emotional fulfillment possess favorable opinions toward the platform Chang, et al. [68], viewing it as a practical solution, as well as a source of joy and contentment [69].

In practice, the utilitarian dimension considered the efficiency and practical benefits of online buying [70]. This dimension prioritized functionality, convenience, and the meeting of relevant needs [71]. Efficient navigation, practical benefits, and a smooth shopping experience all led to utilitarian pleasure [72]. Positive views were also fostered when consumers realized the platform's utility value was regarded as a delightful experience and the effective fulfillment of practical necessities [73].

Understanding and managing these factors is critical for firms navigating the competitive landscape of digital retail [74]. Businesses tend to build a comprehensive and pleasant retail environment by adding interactive features, amusing components, hedonic experiences, and utilitarian efficiency [75]. This strategy develops favorable consumer sentiments, improving overall satisfaction and establishing the platform as a preferred alternative for online purchasing [76]. As consumers prefer more engaging and pleasurable experiences, businesses may use these factors to improve user perceptions and develop long-term loyalty in the ever-changing landscape of digital commerce [77].

3. Research Methodology

3.1. Type of Research and Description of Research Population

This research adopted a quantitative method, including the systematic collection of survey and numerical data in line with statistical analysis [78]. The method focused on objective measurement, structured research designs, predefined hypotheses, and large, representative sample sizes. The aim was to draw statistically supported conclusions about patterns, relationships, or trends within the studied population, often relying on quantifiable variables and standardized measurement instruments. Survey data collection methods required administering standardized sets of questions to the research sample to gather information on opinions, behaviors, or characteristics [79]. This was realized through various channels, including face-to-face interviews, telephone, and mailed surveys as well as online questionnaires, with the aim of obtaining quantifiable data for statistical analysis [80].In this context, population refers to the entire group of people, items, or events that meet specific criteria and are the subject of investigation [81]. The population was mainly Southeast Asians residing in urban areas in the capital cities of Indonesia, Malaysia, the Philippines, and Thailand. Sampling was used to select a representative subset from the larger group, allowing the gathering of manageable data while drawing meaningful conclusions about the entire population. This process refers to the selection of a subset of people, items, or events from a larger population with the aim of drawing inferences or generalizations based on the characteristics of the selected subset [82].

3.2. Sampling Technique

This research adopted a combination of cluster random and convenience sampling techniques. Cluster random sampling required dividing the population into clusters or groups and then randomly selecting an entire cluster for inclusion in the research [83]. This method is useful, specifically when the population is naturally organized into groups, as the procedure simplifies the sampling process while maintaining a level of representativeness [84].

The sampling technique started with the selection of four countries in Southeast Asia, namely Indonesia, the Philippines, Thailand, and Malaysia. Each country was selected based on distinctive significant e-commerce market growth and a diverse consumer base. A major metropolitan area was selected within each nation to represent the cluster for data collection. In Indonesia, the research was conducted in Jakarta, the former capital city known for its high internet penetration and vibrant e-commerce activities. However, in the Philippines, the investigation was carried out in Manila, a central hub for commerce and digital innovation. In Thailand, Bangkok was selected due to its status as a major economic center with a rapidly growing online retail sector. Finally, in Malaysia, Kuala Lumpur was selected for its advanced digital infrastructure and active e-commerce market. Convenience sampling was also adopted to complement the cluster random sampling. The method required the selection of readily available respondents who were willing to participate, making the data collection process more efficient [85]. Additionally, enumerators from universities partnered with each metropolitan city to assist in the selection of respondents, using local knowledge and networks to ensure a diverse and representative sample.

3.3. Data Collection Technique

Data collection was carried out in October 2022, ensuring that the timing was consistent across all selected clusters to maintain uniformity. The research aimed to capture a diverse range of consumer attitudes and behaviors by focusing on major metropolitan cities and using both cluster random and convenience sampling techniques. The results contributed to a more nuanced understanding of the e-commerce landscape in Southeast Asia.

Table 2.
Total population in four countries in Southeast Asia.

Country	Capital City	Total populations
Indonesia	DKI Jakarta	11,074,811
The Philippines	Manila	14,406,059
Malaysia	Kuala Lumpur	8,419,566
Thailand	Bangkok	10,899,698
		Total: 44,800,134

Source: worldpopulationreview.com

As can be seen in Table 2, the total population of four countries is 44,800,134. It was obtained through the Krejcie and Morgan table (KMT), which is frequently used to calculate similar sample sizes. KMT is highly recognized among behavioral and social science research for determining sample size [86]. This table, which is applicable to any defined population, does not require any calculations. According to the KMT, a sample of 384 is sufficient for a population of 1,000,000 and above. The current research successfully collected responses from 397 participants in total across the four countries.

The Likert-type scale, which is widely used in social sciences, economics, and other fields for measuring attitudes and perceptions, Dombi and Jónás [87] was adopted. Furthermore, the Likert scale used ranged from 1 to 4, with 1, 2, 3, and 4 representing Strongly Disagree, Disagree, Agree, and Strongly Agree, respectively. A 4-point Likert scale refers to a forced scale that has been adjusted for measurement purposes. The method facilitated the evaluation of respondent perspectives, specifically those who do not strongly agree or disagree. However, the scale may limit the number of response options and does not provide as much detailed information as larger ones. This type of scale is preferable in psychology and market research due to its conciseness and simplicity in analysis.

The literature review outlined major factors influencing consumer attitudes toward online shopping, comprising technology acceptance (TA), enjoyment (ENJOY), and the influence of marketing communication (MC). TA constituted perceived usefulness and ease of use, while enjoyment comprised hedonic and utilitarian motivations. Additionally, marketing communications consisted of both digital and traditional marketing channels. These dimensions collectively formed the analytical model used to map respondent penetration and adoption of consumer attitudes in the field of e-commerce.

3.4. Research Hypotheses and Analytical Model

These are the following research hypotheses and the research analytical model (Figure 2):

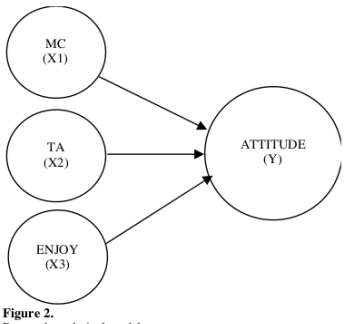

Figure 2.
Research analytical model.

3.5. Data Analysis Technique

Structural equation modeling (SEM) using SmartPLS was adopted to address validity, reliability, and the main research questions. Subsequently, the final model derived from SmartPLS was used to identify the dimensions and sub-dimensions of all three variables in relation to consumer attitudes.

There is a need to address potential biases that could distort the results to ensure the robustness of the findings. Common method bias (CMB) refers to the distortion of results due to the measurement method rather than the constructs being explored. This bias tends to significantly affect the validity of results, particularly in behavioral research where self-reported data is commonly used. CMB arises from various sources, including the use of a single measurement method, item characteristics, or the context in which the data was collected [88]. Procedurally, this research reduced CMB by designing questionnaires that minimized respondent fatigue, incorporating varied response formats, and ensuring anonymity to prompt honest responses.

Traditionally, Harman's single-factor test has been employed to detect CMB. This technique involves performing an exploratory factor analysis (EFA) on all items in a model and examining whether a single factor accounts for a majority of the variance [89]. An alternative and more robust approach is the use of the Variance Inflation Factor (VIF) [90].

VIF was used as a statistical tool to detect and reduce multicollinearity among the independent variables, further addressing CMB. Multicollinearity occurs when two or more predictor variables in a regression model are highly correlated, which inflates the standard errors of the coefficients and leads to unreliable statistical inferences [91]. VIF quantifies the extent of this inflation by measuring how much the variance of an estimated regression coefficient increases assuming the predictors are correlated.

In this context, VIF was calculated for each independent variable, ensuring that multicollinearity does not distort the results. Moreover, a VIF value greater than 10 typically signifies significant multicollinearity, suggesting that the variable may be redundant and should be reconsidered or removed from the model [91]. By keeping VIF values below this threshold,

the research ensured that the independent variables are sufficiently distinct from one another, further enhancing the reliability of the regression analysis.

4. Results and Analysis

4.1. Discriminant Validity

Discriminant validity refers to a construct assessed differently from others based on empirical standards. The evaluation process considered factor cross-loadings and the Fornell-Larcker criterion, a measure that compares the square root of an AVE value with the latent variable relationship. Therefore, the square root value of any AVE structure must be greater than the correlation with other structures. The Fornell-Larcker criterion values Attitude, Enjoy, MC, and TA constructs are shown in Table 5. Lastly, the discriminant validity values were equivalent to the Fornell-Larcker Criterion > square root of AVE.

Table 3.
Fornell-Larcker criterion.

	Attitude	ENJOY	MC	TA
ATTITUDE	0.712			
ENJOY	0.575	0.622		
MC	0.533	0.568	0.707	
TA	0.583	0.601	0.304	0.677

The Fornell-Larcker Criterion was used to assess the discriminant validity of constructs in the SEM, requiring each construct's square root AVE to exceed correlations with other constructs [92]. In the matrix, diagonal elements representing the square roots of AVEs—such as ATTITUDE (0.712), ENJOY (0.622), MC (0.707), and TA (0.677)—exceeded their correlations with other constructs, confirming discriminant validity [93]. For instance, ATTITUDE's AVE (0.712) was greater than correlations with ENJOY (0.575), MC (0.533), and TA (0.583). Cross-loading analysis further validated construct distinctiveness by confirming that indicators loaded higher on their intended constructs than on others, supporting model reliability and validity [94-96].

Table 4.
Cross-loadings.

Variables	Question Codes	ATTITUDE	ENJOY	MC	TA
ATTITUDE Attitudes towards online shopping apps (e-commerce)	A_A_C_1	0.742	0.436	0.415	0.430
	A_A_C_2	0.714	0.394	0.432	0.356
	A_A_C_3	0.739	0.492	0.408	0.413
	A_A_C_4	0.570	0.418	0.429	0.344
	A_A_L_1	0.777	0.503	0.447	0.506
	A_A_L_2	0.792	0.417	0.409	0.444
	A_A_L_3	0.789	0.450	0.446	0.535
	A_A_P_1	0.654	0.426	0.423	0.340
	A_A_P_4	0.627	0.398	0.274	0.430
	A_B_P_1	0.679	0.483	0.387	0.402
	A_B_P_2	0.673	0.484	0.478	0.321
	A_C_15	0.717	0.317	0.354	0.427
	A_C_A_2	0.765	0.335	0.291	0.474
	A_C_A_3	0.726	0.345	0.292	0.436
	A_C_A_4	0.749	0.502	0.377	0.494
	A_C_K_1	0.744	0.330	0.344	0.428
	A_C_K_4	0.785	0.347	0.352	0.442
	A_C_K_5	0.728	0.297	0.317	0.264
	A_C_K_6	0.755	0.425	0.343	0.412
	A_C_K_7	0.797	0.406	0.339	0.472
ENJOY (Enjoyment)	ENJOY_EP_1	0.428	0.629	0.269	0.509
	ENJOY_EP_2	0.221	0.591	0.362	0.351
	ENJOY_HM_1	0.245	0.616	0.352	0.353
	ENJOY_HM_2	0.297	0.646	0.446	0.311
	ENJOY_HM_3	0.223	0.615	0.411	0.275
	ENJOY_HM_4	0.483	0.677	0.370	0.397
	ENJOY_IS_1	0.422	0.635	0.473	0.280
	ENJOY_IS_2	0.421	0.640	0.368	0.390
	ENJOY_UM_1	0.401	0.648	0.251	0.474
	ENJOY_UM_2	0.223	0.592	0.240	0.378
	ENJOY_UM_3	0.309	0.540	0.375	0.327
MC (Marketing Communication)	MC_DM_1	0.627	0.506	0.609	0.378
	MC_DM_2	0.374	0.425	0.641	0.269
	MC_DM_3	0.323	0.422	0.780	0.211

Variables	Question Codes	ATTITUDE	ENJOY	MC	TA
	MC_DM_4	0.364	0.409	0.815	0.190
	MC_DM_5	0.365	0.378	0.730	0.204
	MC_DM_6	0.262	0.351	0.768	0.145
	MC_TM_1	0.420	0.383	0.759	0.225
	MC_TM_2	0.338	0.436	0.771	0.135
	MC_TM_3	0.151	0.315	0.667	0.114
	MC_TM_4	0.160	0.357	0.665	0.089
	MC_TM_5	0.349	0.295	0.626	0.166
	MC_TM_6	0.218	0.323	0.610	0.119
TA (Technology Acceptance)	TA_EU_1	0.329	0.345	0.146	0.694
	TA_EU_2	0.381	0.418	0.205	0.690
	TA_EU_3	0.399	0.438	0.192	0.657
	TA_EU_4	0.464	0.481	0.229	0.750
	TA_EU_5	0.479	0.478	0.291	0.750
	TA_EU_6	0.429	0.413	0.223	0.758
	TA_EU_7	0.454	0.405	0.220	0.763
	TA_PU_1	0.394	0.377	0.181	0.658
	TA_PU_2	0.419	0.419	0.202	0.713
	TA_PU_3	0.276	0.437	0.171	0.583
	TA_PU_4	0.393	0.383	0.233	0.611

The cross-loading table highlights the correlations between indicators and their respective constructs [97]. By removing weak indicators, a more refined and reliable measurement model was achieved, strengthening the model's integrity [98]. Table 6 shows that ATTITUDE's indicators, such as A_A_C_1 (0.742), A_A_L_1 (0.777), and A_A_L_2 (0.792), load significantly higher on their construct compared to others, indicating effective measurement. ENJOY's indicators, like ENJOY_EP_1 (0.629) and ENJOY_HM_4 (0.677), also exhibit higher loadings on their own construct, supporting discriminant validity despite moderate cross-loadings. Similarly, MC's indicators such as MC_DM_3 (0.780) and MC_DM_4 (0.815) demonstrate strong relevance, exceeding the 0.6 threshold. Lastly, TA's indicators, including TA_EU_4 (0.750), load higher on TA than on other constructs, confirming strong internal consistency and discriminant validity.

4.2. Descriptive Statistic

Table 5 provides valuable insights into the demographic characteristics of Indonesia, Malaysia, Thailand, and the Philippines, highlighting the composition of the surveyed populations in each country. Significant variations were observed in terms of gender distribution, with Thailand having a higher percentage of males (42%) compared to the other countries. The Philippines exhibited a more balanced gender distribution.

Table 5.
Respondents' demographic characteristics.

Demographic characteristics		Indonesia		Malaysia		Thailand		The Philippines	
N= 397		Freq.	%	Freq.	%	Freq.	%	Freq.	%
Gender	Male	22	20%	37	27%	29	42%	38	46%
	Female	88	80%	98	73%	40	58%	45	54%
Marital Status	Married	24	22%	18	13%	20	29%	0	0%
	Not Married	86	78%	114	84%	45	65%	83	100%
	Divorce	0	0%	3	2%	4	6%	0	0%
Age	17-25	84	76%	111	82%	27	39%	83	100%
	26-35	3	3%	13	10%	22	32%	0	0%
	36-45	14	13%	5	4%	11	16%	0	0%
	46-55	9	8%	3	2%	9	13%	0	0%
	> 55	0	0%	3	2%	0	0%	0	0%
Education	No Education	0	0%	0	0%	0	0%	0	0%
	Primary School	2	2%	0	0%	0	0%	0	0%
	Junior High School	3	3%	0	0%	1	1%	0	0%
	Senior High School	77	70%	5	4%	10	14%	24	29%
	Diploma	7	6%	34	25%	20	29%	31	37%
	Bachelor	18	16%	86	64%	38	55%	28	34%
	Master	3	3%	10	7%	0	0%	0	0%

Thailand had a higher percentage of married respondents (29%), while the Philippines exhibited a unique characteristic with 100% categorized as not married, potentially suggesting a younger demographic or a cultural factor. Age distribution showed that the majority of the respondents in Indonesia and Malaysia were within the 17 to 25 age group (76% and 82%, respectively), outlining youthful demographics. Education levels varied, with a significant portion of respondents in Indonesia having completed senior high school (70%), while in Malaysia, a substantial percentage held bachelor's degrees

(64%). Therefore, these demographic insights informed targeted marketing strategies and product or service customization to conform to the unique characteristics of the population.

4.3. Scoring of Variables

Table 6 focuses on perceptions based on the scoring of the respondents' answers across the four major variables: Marketing Communication, Technology Acceptance, Enjoyment, and Attitudes Towards E-Commerce.

Table 6.
Scoring of Variables

		MC	TA	ENJOY	ATTITUDE
N	397		396	397	397
	0		1	0	0
Mean		34.4207	46.5631	35.5013	88.2620
Std. Error of Mean		.49537	0.26660	.28916	0.72791
Median		34.0000	48.0000	35.0000	86.0000
Mode		48.00	52.00	33.00[a]	96.00
Std. Deviation		9.87021	5.30522	5.76152	14.50346
Variance		97.421	28.145	33.195	210.350
Skewness		.359	-.890	-0.318	0.306
Std. Error of Skewness		.122	.123	0.122	0.122
Kurtosis		-.023	-.002	-0.445	-0.138
Std. Error of Kurtosis		.244	.245	0.244	0.244
Range		47.00	23.00	29.00	74.00
Minimum		13.00	29.00	15.00	46.00
Maximum		60.00	52.00	44.00	120.00
Sum		13665.00	18439.00	14094.00	35040.00

Respondents expressed positive sentiments toward Marketing Communication (mean score: 34.42; SD: 9.87) and Technology Acceptance (mean score: 46.56; Std. Deviation: 5.31). Enjoyment had a mean score of 35.50 with a slight negative skew, indicating a mild inclination toward lower scores, while Attitudes Toward E-Commerce scored high at 88.26 (Std. Deviation: 14.50), showing variability in opinions. Skewness and kurtosis values indicated near-normal distributions with minor deviations. These findings suggest favorable respondent perceptions, offering insights for businesses to refine strategies. Strengthening engagement through improved communication strategies, enhancing user satisfaction features, and addressing user concerns in e-commerce can further capitalize on these positive sentiments.

4.4. Outer Loading

Outer loading represents the correlation between an indicator (observed variable) and its associated latent construct in a structural equation model (SEM) [94]. Outer loadings are critical for assessing indicator reliability and ensuring that the measurement model accurately represents the latent constructs.

In this research, an outer loading threshold of 0.5 or higher is considered acceptable for retaining indicators [99]. While the ideal threshold for outer loadings is typically 0.7 or above, a loading of 0.5 is deemed sufficient in this context for several reasons [100, 101]. First, the study may involve newly developed or exploratory constructs, where slightly lower loadings are acceptable due to the evolving nature of the measurement model. Second, retaining indicators with loadings between 0.5 and 0.7 helps preserve content validity by ensuring that important aspects of the construct are not overlooked, especially when theoretical or practical considerations suggest the indicator's relevance.

Table 7.
Outer loading.

	ATTITUDE	ENJOY	MC	TA
A_A_C_1	0.742			
A_A_C_2	0.714			
A_A_C_3	0.739			
A_A_C_4	0.570			
A_A_L_1	0.777			
A_A_L_2	0.792			
A_A_L_3	0.789			
A_A_P_1	0.654			
A_A_P_4	0.627			
A_B_P_1	0.679			
A_B_P_2	0.673			

	ATTITUDE	ENJOY	MC	TA
A_C_A_1	0.717			
A_C_A_2	0.765			
A_C_A_3	0.726			
A_C_A_4	0.749			
A_C_K_1	0.744			
A_C_K_4	0.785			
A_C_K_5	0.728			
A_C_K_6	0.755			
A_C_K_7	0.797			
ENJOY_EP_1		0.629		
ENJOY_EP_2		0.591		
ENJOY_HM_1		0.616		
ENJOY_HM_2		0.646		
ENJOY_HM_3		0.615		
ENJOY_HM_4		0.677		
ENJOY_IS_1		0.635		
ENJOY_IS_2		0.640		
ENJOY_UM_1		0.648		
ENJOY_UM_2		0.592		
ENJOY_UM_3		0.540		
MC_DM_1			0.609	
MC_DM_2			0.641	
MC_DM_3			0.780	
MC_DM_4			0.815	
MC_DM_5			0.730	
MC_DM_6			0.768	
MC_TM_1			0.759	
MC_TM_2			0.771	
MC_TM_3			0.667	
MC_TM_4			0.665	
MC_TM_5			0.626	
MC_TM_6			0.610	
TA_EU_1				0.694
TA_EU_2				0.690
TA_EU_3				0.657
TA_EU_4				0.750
TA_EU_5				0.750
TA_EU_6				0.758
TA_EU_7				0.763
TA_PU_1				0.658
TA_PU_2				0.713
TA_PU_3				0.583
TA_PU_4				0.611

The outer loading table shows how well observed indicators represent their respective latent constructs: ATTITUDE, ENJOYMENT, MARKETING COMMUNICATION (MC), and TECHNOLOGY ACCEPTANCE (TA), with acceptable values typically exceeding 0.50 for exploratory research. As seen in Table 7, ATTITUDE indicators such as A_A_L_1 (0.777), A_A_L_2 (0.792), and A_C_K_7 (0.797) demonstrate strong contributions, though A_A_C_4 (0.570) is weaker yet acceptable. ENJOYMENT indicators, like ENJOY_HM_4 (0.677) and ENJOY_UM_1 (0.648), align well with the construct despite ENJOY_UM_3's lower loading (0.540). MC indicators maintain consistently high loadings, with MC_DM_3 (0.780) and MC_DM_4 (0.815) contributing significantly. Even lower-loading items like MC_TM_5 (0.626) remain acceptable. TA indicators, including TA_EU_4 (0.750) and TA_EU_7 (0.763), show strong construct validity, although TA_PU_3 (0.583) suggests room for refinement. These results highlight the constructs' overall reliability and validity.

4.5. HTMT (Heterotrait-Monotrait) Ratio

The HTMT ratio is a measure used to assess discriminant validity, determining whether constructs intended to differ are indeed distinct [102]. Generally, an HTMT ratio of less than 0.85 suggests good discriminant validity between the constructs [103].

Table 8.
HTMT ratio for construct discriminant validity assessment.

	Attitude	ENJOY	MC	TA
Attitude				
ENJOY	0.595			
MC	0.509	0.623		
TA	0.599	0.686	0.293	

Table 8 showed that the HTMT ratios between ATTITUDE and the other constructs—0.595, 0.509, and 0.599 with ENJOY, MC, and TA, respectively—were less than the 0.85 threshold. This suggested that ATTITUDE was distinct from ENJOY, MC, and TA, supporting the notion of discriminant validity.

Based on the table, the HTMT ratios between ENJOY and MC, as well as ENJOY and TA, were 0.623 and 0.686, respectively—both of which are less than the 0.85 threshold. Additionally, the ratio between MC and TA was significantly less than the threshold at 0.293, indicating a strong distinction between the two constructs. The HTMT ratios suggested that ATTITUDE, ENJOY, MC, and TA are sufficiently distinct from each other, supporting the discriminant validity of the model.

4.6. VIF

VIF is used to assess multicollinearity, which occurs when independent variables in a regression model tend to be highly correlated. This potentially inflates the variance of the estimated coefficients, leading to instability [104]. Generally, a VIF value greater than 10 signifies high multicollinearity, which is a cause for concern. In this table, all VIF values were less than 10, indicating that multicollinearity was not an issue in the model [105]. However, this study applied the criterion that when a VIF is more than 3.3, it is suggested that this is a sign of pathological collinearity and that common method bias may be present in the model. Consequently, the model can be regarded as free of common method bias if all of the VIFs in the inner model that come from a thorough collinearity test are equal to or less than 3.3 [106].

Table 9.
VIF.

	Attitude	ENJOY	MC	TA
Attitude				
ENJOY	2.107			
MC	1.482			
TA	1.571			

Table 9 showed that the VIF values for ENJOY, MC, and TA are 2.107, 1.482, and 1.571, respectively. These values suggest that each independent variable moderately correlates with the others, enabling stable and reliable coefficient estimates in the regression model. The low VIF values indicate that the model is not affected by multicollinearity, thereby supporting the robustness and reliability of the regression analysis involving these constructs.

4.7. Evaluation of Structural Model

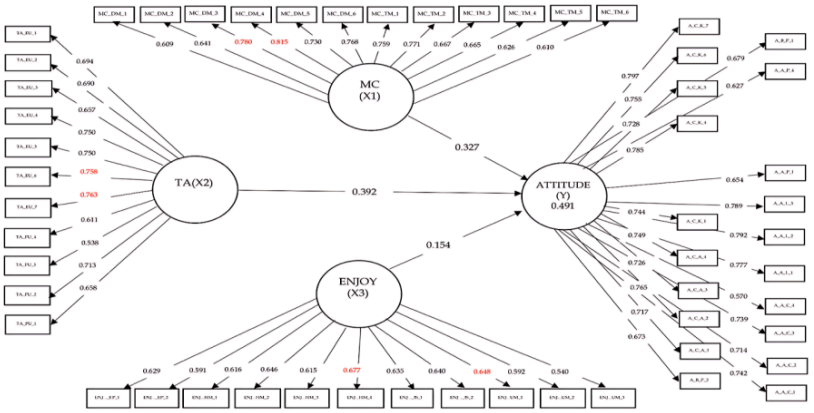

Figure 3.
PLS-SEM framework output

Table 10.
Hypothesis testing.

Direct effects	β
H1a MC -> ATTITUDE	0.327
H1b TA -> ATTITUDE	0.392
H1c ENJOY -> ATTITUDE	0.154

These results provide insights into the strength and significance of the relationships proposed in the hypotheses. The β values represent the standardized coefficients, showing the magnitude and direction of the relationships [107]. Additionally, the t-statistics assess the significance of these coefficients, with higher values suggesting greater confidence in the reliability of the estimated effects [108].

Figure 2 and Table 11 show the direct effects of the three variables on attitudes. For example, Technology Acceptance (TA) had the strongest positive relationship with attitudes, with a beta coefficient (β) of 0.392. Marketing Communication (MC) had a positive relationship with attitudes, although to a lesser extent, with a β of 0.327. Enjoyment (ENJOY) had the least positive relationship with attitudes, with a β of 0.154. This shows that while all three independent variables had positive relationships with attitudes, Technology Acceptance had the most significant relationship, followed by Marketing Communication and Enjoyment. In addition, these results show that H1a, H1b, and H1c were accepted.

Table 11.
Highest β score of each independent variable

MC		TA		Enjoy	
Indicators	**β**	**Indicators**	**β**	**Indicators**	**β**
MC_DM_4	0.815	TA_EU_7	0.763	ENJOY_HM_4	0.677
MC_DM_3	0.780	TA_EU_6	0.758	ENJOY_UM_1	0.648

Based on Table 11, the top two indicators within the independent variables, Marketing Communication (MC) and Technology Acceptance (TA) constructs, showed a cohesive pattern of strong positive relationships. MC_DM_4 (I shop on the online application because I read the information on the news portal) had the highest standardized coefficient (β = 0.815), suggesting a significant role and relation to the overall Marketing Communication construct. This was followed closely by MC_DM_3 (I read the information about an online shopping app on the news portal) with a β value of 0.780.

TA_EU_7 (Several choices of payment methods enabled easy accessibility) was considered the most influential, with the highest standardized coefficient (β = 0.763), signifying the critical role of shaping perceptions within the overall TA framework. This was closely followed by TA_EU_6 (Easy payment process) with a β value of 0.758.

ENJOY_HM_4 (shopping through online apps to get discounts and promotions) was the most influential, showing the highest standardized coefficient (β = 0.677). This represented a crucial function in influencing perceptions within the broader framework of the Enjoyment construct. Meanwhile, it was closely followed by ENJOY_UM_1 (Online shopping apps save time) with a β value of 0.648.

5. Discussion and Implications

The results of the analysis showed that the three independent variables MC, TA, and ENJOY had a positive relationship with ATTITUDE; hence, all hypothesis 1 was accepted. The following important points were obtained from the results acquired:

5.1. Relationship Between Technology Acceptance (TA) with Consumer Attitudes towards e-commerce (ATTITUDE)

TA had the strongest influence among the three independent variables. The TA indicator demonstrated that the greatest contribution was the ease of payment offered by various e-commerce platforms. The respondents were comfortable with the ease of payment and finding various relevant items. This aligned with the research indicating that the use of TA for online purchasing had been refined [109]. The significance had evolved, constituting the entire user experience, with the recognition that acceptability extended beyond the usual measures of ease of use and utility [110].

5.2. Relationship Between Marketing Communication (MC) with Consumer Attitudes towards e-commerce (ATTITUDE)

Based on the six types of marketing communication activities, namely social media, news portals, email, television, newspapers, and billboards, it was found that the strongest indicators influencing respondents' attitudes towards e-commerce were shopping online after reading the information on news portals. This showed that marketing activities such as public relations had a significant impact. Public relations initiatives, such as news releases, events, and sponsorships, were another aspect of traditional marketing [52]. In this era, PR refers to the adoption of digital media, including news portals. It is frequently used by businesses to create a positive public image, generate media coverage, and increase brand credibility [53]. PR does not have a direct effect on purchases; however, developing consumer trust increases visits to e-commerce or marketplaces that carry out related activities using news portals. Further research must be carried out for a thorough exploration of the entire process.

5.3. Relationship Between Marketing Communication (MC) with Consumer Attitudes towards e-commerce (ATTITUDE)

Regarding the enjoyment factor, it was found that the most influential dimensions were hedonic and utilitarian motivation. The results showed that discounts and sales promotions were benefits of hedonic motivation that prompted the majority of consumers in the four Southeast Asian countries to be interested in shopping on e-commerce. Hedonic motivation was further enhanced by aesthetic interfaces, emotionally resonant content, and exceptional emotional experiences [67]. Consumers who derived emotional fulfillment from online shopping were likely to possess favorable opinions toward the platform Chang, et al. [68], viewing it as a practical solution and a source of joy and contentment [69]. In addition, utilitarian motivation enabled consumers to save time.

5.4. Implications

The results had several implications for both academic research and practical applications in the field of e-commerce:

1. Firstly, the identified influential factors, namely — MC, TA, and ENJOY — could serve as a guide in developing and integrating more targeted investigations into specific elements impacting consumer attitudes. The prominence of TA in influencing attitudes suggests the importance of continually refining and adapting models to the Technology Acceptance Model (TAM) in the evolving digital landscape. The significance of ease of payment methods as a major contributor to positive attitudes outlines the dynamic nature of consumer preferences and the need for e-commerce platforms to stay abreast of technological advancements.
2. Secondly, from a practical perspective, businesses operating in this sector could use these results to enhance their adopted marketing strategies. For example, understanding the important role of news portals in influencing attitudes suggests that targeted public relations activities in digital media contribute to the development of a positive image, increasing consumer trust specifically in Southeast Asia. Moreover, the focus on shows featuring discounts and promotions as the main driver of enjoyment implies that incorporating visually appealing and emotionally resonant content in online shopping interfaces improves the overall user experience, fostering positive attitudes.

6. Conclusion

The study highlights key strategies for e-commerce businesses in four countries in Southeast Asia (Indonesia, Malaysia, the Philippines, Thailand), emphasizing Technology Acceptance (TA), Marketing Communication (MC), and Enjoyment. TA emerged as the most significant factor, with ease of payment being crucial. E-commerce platforms should invest in seamless payment options and improved search functionalities to enhance user experience. MC, particularly digital PR efforts on news portals, significantly influences consumer trust and brand credibility, suggesting collaboration with reputable media for enhanced visibility. Enjoyment, driven by hedonic and utilitarian motivations, underscores the need for frequent promotions and time-saving features like express delivery. These strategies, while insightful, should be further refined to account for diverse regional and demographic variations across Southeast Asia.

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