

## **Expectation-Confirmation Theory and DeLone & McLean Model: Exploring the Impact of Website Quality on E-Satisfaction and E-Loyalty in the Sports Equipment and Apparel Industry**

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### **Abstract**

This study analyses the intricate relationships among website quality, e-satisfaction, and the dual constructs of e-loyalty within the dynamic sports equipment and apparel industry. This study examines the impact of the DeLone and McLean Information System dimensions on e-satisfaction and e-loyalty, while recognising the unique characteristics of the sports equipment and apparel sector. This research aims to clarify the factors influencing online consumer behaviour in this sector by analysing the DeLone and McLean IS Success Model through the lens of Expectation Confirmation Theory. Data were collected from 196 online consumers through a structured online questionnaire and analysed using structural equation modelling (SEM) techniques with AMOS software. This study's findings provide strong empirical evidence for the substantial and beneficial influence of website quality on e-satisfaction, which subsequently serves as a vital catalyst for both attitudinal and behavioral loyalty among online consumers. The incorporation of ECT with the D&M IS model offers a more exhaustive theoretical framework for clarifying the psychological and behavioral mechanisms influencing consumer loyalty in the online environment.

**Keywords:** E-Loyalty, Expectation-Confirmation Theory, DeLone and McLean, Sports Equipment and Apparel Industry, E-Commerce

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## **INTRODUCTION**

The unprecedented growth of e-commerce in the sporting goods sector necessitates an exploration of the determinants that facilitate success in online retailing (Hassan et al., 2021). As consumers increasingly opt for online platforms to fulfill their sporting goods needs, the effectiveness of e-commerce websites in delivering seamless, informative, and enjoyable shopping experiences becomes critical (Zhang & Zhao, 2022). Unique industry characteristics may influence e-satisfaction,

e-trust, and e-loyalty in ways that may differ from other sectors (Kim & Lee, 2019). Hence, the center of this inquiry is the construct of website quality, which includes system quality, information quality, service quality, and user satisfaction (DeLone & McLean, 2016). While the DeLone and McLean Information Systems Success Model (D&M IS Model) provides a foundational framework applicable to various e-commerce platforms, there is a notable lack of empirical research focusing specifically on the sporting goods and apparel industry (Rahi & Ghani, 2020).

The effectiveness of athletic goods e-commerce platforms can be evaluated using the D&M IS Success Model. The concept posits that both information quality and system quality substantially influence user satisfaction, which then affects usage intentions and overall organizational outcomes (DeLone & McLean, 2016; Gonzalez et al., 2020). Consequently, dimensions significantly influence consumer perceptions and behaviors in e-commerce environments (Liu et al., 2021). Moreover, the integration of Expectation-Confirmation Theory (ECT) with the D&M model highlights how customer expectations and their subsequent post-transaction confirmation affect satisfaction and loyalty (Tan & Lee, 2021). ECT postulates that the formation of satisfaction arises from the alignment or misalignment of pre-purchase expectations with actual performance and underscoring the necessity for e-commerce platforms to align their offerings closely with user anticipations (Venkatesh & Goyal, 2010).

Despite the theoretical significance of ECT and D&M model integration, empirical validation within the specific context of the sports equipment and apparel sector remains limited (Roberts & Griffith, 2020). The objective of this study is to systematically implement the D&M IS model as website quality dimensions in the sports e-commerce landscape to address this gap (Hassan et al., 2021). Furthermore, by incorporating sector-specific dynamics, this research will provide nuanced insights pertinent to stakeholders within the sports industry (Kim & Lee, 2019). Through this comprehensive approach, this study seeks to elucidate the psychological and behavioral mechanisms underpinning customer loyalty in the online sporting goods e-commerce, ultimately contributing to a more robust understanding of consumer behavior in this growing field (Rahi & Ghani, 2020).

## **LITERATURE REVIEW AND HYPOTHESES**

### **Expectation-Confirmation Theory (ECT)**

In the e-commerce sector, Expectation-Confirmation Theory (ECT) is a critical framework for comprehending consumer contentment. It posits that consumer satisfaction arises from the confirmation or disconfirmation of pre-purchase expectations compared to actual product or service performance (Rahi & Ghani, 2020). This framework helps elucidate how satisfaction influences future behavioral intentions, such as repurchase and loyalty. ECT has been applied across various contexts, from service industries to technology adoption, validating its versatility (Roberts & Griffith, 2019; Ayyoub et al., 2023).

Recent studies underscore the relevance of ECT in shaping user behaviors, demonstrating that positive confirmation of expectations correlates significantly with enhanced satisfaction and likelihood of repeat purchases (Puška et al., 2018; Tam et al., 2018). In the online fashion retail sector, customer reviews play an indispensable role in shaping consumer expectations and satisfaction. Research shows that positive reviews can reinforce pre-existing expectations, leading to higher satisfaction and brand loyalty (Cheng, 2019). The theory has increasingly applied to explore

consumer responses to customized products and highlighting the significant impact of expectation management on satisfaction and loyalty subsequently (Liu & Wang, 2021; Pan et al., 2024).

ECT is interrelated to the D&M IS Success Model, which offers a structured approach for evaluating the success of information systems in e-commerce. This model comprises six interrelated dimensions: system quality, information quality, service quality, use, user satisfaction, and net benefits (Ayaburi et al., 2019). System quality pertains to the performance characteristics of the e-commerce platform itself, including reliability and usability, which are essential for a smooth shopping experience. Information quality examines the accuracy and relevance of the content provided to users, significantly impacting consumer trust and satisfaction (Ying et al., 2024). Service quality captures the dimension of customer support; thus, effective service is crucial for maintaining client satisfaction and fostering loyalty (Wang & Lin, 2021).

The D&M model breakdown from the lens of ECT provides a comprehensive assessment through which we can understand consumer satisfaction in e-commerce environments. Enhanced quality across system, information, and service dimensions can significantly affirm user expectations, leading to improved satisfaction and repurchase feasibility (Cahigas et al., 2023). For instance, when e-commerce platforms are characterized by intuitive navigation (system quality), accurate product information (information quality), and responsive customer service (service quality), users are likely to experience confirmation of their expectations, culminating in enhanced satisfaction (Oh & Ma, 2018). However, it is vital to consider the evolving landscape of consumer expectations influenced by technological changes and competitive dynamics. Factors such as shifts in consumer preferences, advancements in technology, and the complexity of online shopping experiences can impact the applicability and relevance of these models (Han et al., 2023). Therefore, ongoing research and adaptation are required to ensure that these frameworks remain effective in elucidating the complexities of consumer behavior in today's digital marketplace.

### **Website Quality**

In online retailing systems such as e-commerce, website quality serves as a pivotal construct that influences user perceptions by acting as the virtual storefront of online sellers (Akram et al., 2022). The D&M IS Success Model delineates website quality through three fundamental dimensions: system quality, service quality, and information quality. These dimensions not only influence user perceptions but also significantly determine consumer satisfaction in online environments, demonstrating a robust correlation between website quality and e-satisfaction. A significant body of research has underscored the essential nature of these dimensions in shaping customer experiences, highlighting that enhancement in website quality can elevate customer satisfaction, stimulate loyalty, and increase transactional behavior (Tsao et al., 2016; Tandon et al., 2017).

Research indicates that system quality, which encompasses aspects such as usability, load time, and technical reliability, is vital for a positive customer experience. Concurrently, service quality addresses how effectively a website meets customer needs and responds to inquiries (Khai & Van, 2020). Information quality pertains to the accuracy, relevance, and comprehensiveness of the content provided (Tsao et al., 2016). Each of these dimensions is not only integral to customer satisfaction but also critical for encouraging repeat purchases in highly competitive e-commerce landscapes.

The interrelationships among website quality dimensions significantly affected customer satisfaction and loyalty (Chumpitaz and Paparoidamis, 2023). The findings bolster the notion that improvements in system and service quality can substantially enhance the overall user experience,

leading to increased retention and patronage (Tandon et al., 2017). Moreover, high levels of perceived service quality directly correlate with user satisfaction and ultimately affect purchasing behavior. Reinforcing the user's experience with excellent service quality is more likely to lead to satisfaction with the overall online shopping experience (Shao et al., 2022). Furthermore, cultivating a smooth user experience via superior website quality will amplify the influence of website quality on user satisfaction and consequent intentions to return to the platform (Alalwan et al., 2021). In summary, the D&M model provides a comprehensive framework for understanding website quality's multifaceted impact on customer satisfaction in e-commerce. The effective integration of system, service, and information quality into the overall user experience is critical, as these elements collectively shape consumer perceptions and drive satisfaction. Supporting literature consistently affirms that high-quality websites not only meet consumer expectations but also pave the way for sustained loyalty and engagement within the online marketplace. Therefore:

**H1:** Website Quality positively influences E-Satisfaction.

### **E-Satisfaction**

Customer satisfaction has been recognized as a critical evaluation based on personal experiences related to individual needs and expectations, understanding of this concept as it applies to various contexts (Yi & Natarajan, 2018). In the burgeoning digital marketplace, the concept of e-satisfaction has gained prominence and emerged as a crucial behavioral outcome for online businesses. E-satisfaction encompasses the overall experience and perception of an online seller's website, underscoring the importance of user interface, usability, and the overall digital customer journey (Siu et al., 2021; Lee & Kim, 2018). The ability of a business to meet or exceed customer expectations, especially in an online environment, directly correlates with perceived satisfaction and loyalty. This incorporation amplifies the necessity for companies to continually refine their digital platforms to enhance customer engagement and satisfaction (Bimenyimana & Jeong, 2020).

E-satisfaction can be broken down through multiple lenses. Primarily, the cognitive approach which largely formed via the expectation-disconfirmation paradigm. This paradigm suggests that consumers gauge their level of satisfaction by comparing their prior expectations against the outcomes delivered by the online service or product (Cheng & Zhang, 2020). When actual performance exceeds customer expectations, a state of positive confirmation arises and fostering satisfaction (Chen, 2022; Liu et al., 2020). In the context of e-commerce, where the transaction experience differs significantly from traditional retail, the nuances of this comparison become even more pronounced. For example, the interaction of hedonic (pleasure-based) and utilitarian (function-based) values during the online shopping experience can significantly influence overall satisfaction and subsequently affect loyalty behaviors (Antonides & Hovestadt, 2021).

However, customer satisfaction in the digital realm is not entirely a cognitive pursuit, and the role of an emotional or affective approach must also be considered. This perspective emphasizes the role of consumer emotions during the evaluation process, highlighting that a positive emotional connection to the online shopping experience can enhance perceived satisfaction (Jia-sheng et al., 2021). Recent research has demonstrated that emotional responses elicited by an online shopping environment, such as aesthetic elements and overall enjoyment, are just as pivotal as cognitive evaluations in influencing e-satisfaction. This dual-faceted understanding of satisfaction facilitates a more comprehensive framework for companies aiming to optimize customer experiences (Chen et al., 2022; Boonlertvanich, 2019).

Customer satisfaction directly influences customer retention, which emphasizes its position as a critical component for the long-term viability of e-commerce businesses. Satisfaction reinforces trust in a brand and leads to repeat purchasing behavior. Satisfied customers are more likely to return to the same online retailer for future transactions, indicating a clear pathway from satisfaction to loyalty and ultimately profitability (Preko et al., 2020). Furthermore, when customers perceive that their needs are met, they often engage in positive word-of-mouth and contribute to an enhanced brand reputation, which is indispensable for attracting new customers in a crowded market (Grimmelikhuijsen & Porumbescu, 2017). Thus, the association between customer satisfaction, repurchase intentions, and loyalty behaviors outlines a significant area of focus for e-commerce strategies (Cheng, 2019). The positive impact of e-satisfaction on e-loyalty encompasses both attitudinal and behavioral dimensions (James et al., 2024).

E-satisfaction is believed to be correlated with favorable attitudes towards the brand, while repeat purchases and advocacy for the brand are promoted as well (Chiu et al., 2013). This interconnectedness of these dimensions reinforces the necessity for businesses to implement robust strategies aimed at sustaining high levels of customer satisfaction in their online environments (Sinha et al., 2019; Pratap et al., 2022). Firms aiming to navigate the digital marketplace successfully must prioritize customer experience optimization to enhance satisfaction. Hence, firms that experience increased customer satisfaction often outperform competitors, illustrating how satisfaction influences overall business success (Sweeney & Soutar, 2021). In addition, customer satisfaction fosters dialogue and loyalty, emphasizing that satisfaction is crucial for building strong customer relationships that lead to loyalty (Kamath et al., 2019). These findings collectively demonstrate how satisfaction can lead to achieving better business performance through increased loyalty and retention. In turn, engenders greater loyalty and retention, ultimately leading to superior business performance. Therefore, we proposed the following hypothesis:

**H2a:** E-Satisfaction positively influences Attitudinal Loyalty.

**H2b:** E-Satisfaction positively influences Behavioral Loyalty.

### **E-Loyalty**

E-loyalty is operationally defined as a favorable consumer attitude toward an e-retail service, which manifests in positive repeat behaviors such as returning to a website and engaging in purchases (Rodriguez et al., 2020). This definition highlights the significance of customers' emotional connections to online retailers as crucial determinants of their shopping behavior (Rodriguez et al., 2020). As an evolution of the traditional loyalty construct, e-loyalty incorporates elements from conventional loyalty frameworks while accounting for the unique dynamics presented by the online marketplace (Wang & Prompanyo, 2020).

One of the biggest challenges in fostering e-loyalty is the ease of switching behaviors in the digital realm. Customers can effortlessly diverge between online stores, comparing similar products across various platforms without incurring transactional costs (Cheng & Zhang, 2020). This phenomenon is largely attributable to the accessibility of a copious amount of time and information to online shoppers, which facilitates their ability to make informed choices rapidly (Cheng & Zhang, 2020; Ranjbari & Vosoughi, 2021). As a consequence, e-loyalty is imperative for electronic businesses, as low customer loyalty is the main driver of diminished long-term profitability and sustainability.



Electronic loyalty is typically conceptualized through two primary dimensions: attitudinal loyalty and behavioral loyalty. Behavioral loyalty reflects a scenario in which e-loyalty propels customers to recurrently purchase from a particular company and its website (Cheng, 2014). In contrast, attitudinal loyalty represents a consumer's favorable disposition toward a brand or website, which may not always translate into actual purchasing behavior (Kang et al., 2015). This duality highlights a critical nuance within the loyalty framework, as attitudinal loyalty may lead to positive word-of-mouth (WOM) and brand advocacy, yet actual behavioral loyalty can be impeded by external factors such as limited financial resources or constraints on shopping autonomy (Eelen et al., 2017; Bhati & Verma, 2020).

Attitudinal loyalty is closely associated with consumers' psychological goals and preferences for particular service providers, whereas behavioral loyalty refers to the actual act of recurring purchases from a given brand (Hwang & Kim, 2018). Both dimensions significantly enhance service utilization, promote repeat purchases, and foster positive word-of-mouth, thereby bolstering the brand's reputation and market position (Kim et al., 2020). Enhancing customer loyalty is a strategic aim for service providers, as it decreases price sensitivity among customers and reduces the costs of obtaining new clients (Dominique-Ferreira et al., 2016). When customers have acceptable encounters, they are likely to cultivate cumulative contentment over time, resulting in increased loyalty (Kim et al., 2020). Empirical studies highlight the affirmative correlation between attitudinal loyalty and behavioral loyalty, establishing a strong basis for this suggested dynamic (Kim et al., 2020; Martinez et al., 2021; Disfani et al., 2017). Based on this theoretical discourse, the following hypothesis is posited:

**H3:** Attitudinal loyalty positively influences behavioral loyalty.

**Figure 1. Research Framework**



## METHODS

The study utilized SEM to rigorously analyze the interconnections between website quality, e-satisfaction, and loyalty constructs, hence optimizing the variation explained in the endogenous variables. The examined model included 24 observable endogenous variables and 6 latent variables. Website quality was assessed using three specific dimensions: Web Information Quality, Web Service Quality, and Web System Quality, as adopted from Tam et al. (2019). E-satisfaction was assessed using four factors based on Miguens et al. (2017). E-Loyalty was defined through two dimensions: Attitudinal Loyalty and Behavioral Loyalty, as adapted from Al-Dweeri et al. (2018).

Following the model formulation, confirmatory factor analysis (CFA) was conducted to evaluate the validity of the constructs, including assessments of convergent and discriminant validity to verify that the measurements accurately represent the intended constructs. Goodness-of-fit indices such as the Goodness-of-Fit Index (GFI), Comparative Fit Index (CFI), and Root Mean Square Error of Approximation (RMSEA) were calculated to evaluate the model fit. A satisfactory fit was indicated by criteria outlined in the literature, ensuring a rigorous assessment of the proposed model's integrity and reliability (Hair et.al, 2019).

### Data Collection

Data collection was conducted through an online survey facilitated by Google Forms. A total of 229 replies were collected. After thorough data screening procedures, which involved assessments of completeness, response consistency, and compliance with established eligibility requirements, 196 replies were classified as valid and preserved for further study. Purposive sampling was employed to guarantee the sample's relevance and suitability for the study. The principal inclusion requirement for participation was that respondents must have made a minimum of one purchase from the designated e-commerce website. The use of an online questionnaire enabled efficient data gathering from geographically different areas while ensuring cost-effectiveness. To alleviate any bias and improve response quality, participation was both voluntary and anonymous. Participants were guaranteed that their information would be handled confidentially and utilized solely for scholarly reasons.

### Data Analysis

The demographic analysis of the dataset reveals a distinct profile dominated by respondents from Central Java, which accounts for 64.86% of the sample, indicating a strong regional concentration. The cohort is predominantly male (60.14%), with a significant majority (64.86%) falling within the 23–28-year age range, reflecting a young adult population. Occupationally, private enterprise employees (27.03%) and students (21.62%) constitute nearly half of the sample, underscoring the economic and educational dynamics of the group. Income distribution highlights a middle-class skew, with 33.78% earning between Rp 3–5 million monthly, followed by 27.70% in the Rp 1–3 million bracket. Purchasing behavior shows that 53.38% made a single transaction, while 27.03% reported frequent purchases (more than twice). Notably, the overrepresentation of Central Java and younger age groups may reflect sampling biases or regional economic activity, while the income and occupational trends align with Indonesia's growing private sector and student demographics. These findings suggest a need for targeted marketing strategies tailored to young, urban professionals and students in Central Java, with further research recommended to explore underrepresented regions and older age cohorts.

**Table 1.** Distribution Of Respondents

	Quantity	Percentage
<b>Province</b>		
Central Java	96	65%
Jakarta (Capital Region)	16	11%
East Java	10	7%
Yogyakarta (Special Region)	10	7%

West Java	9	6%
Banten	6	4%
Other Area	12	8%
<b>Gender</b>		
Male	89	60.14%
Female	59	39.86%
<b>Occupation</b>		
Private Enterprise		
Employee	40	27%
Student	32	22%
SOE Employee	19	13%
Government Employee	11	7%
Entrepreneur	10	7%
Freelance/Freelancer	7	5%
Teacher	5	3%
FnB Employee	4	3%
Other	12	8%
<b>Age</b>		
17-22	45	30.41%
23-28	96	64.86%
29-34	4	2.70%
35-39	2	1.35%
>40	1	0.68%
<b>Monthly Income</b>		
>Rp 3.000.000,00 - Rp 5.000.000,00	50	33.78%
>Rp 1.000.000,00 - Rp 3.000.000,00	41	27.70%
>Rp 7.000.000,00 - Rp 9.000.000,00	23	15.54%
>Rp 5.000.000,00 - Rp 7.000.000,00	17	11.49%
>Rp 9.000.000,00	12	8.11%
< Rp 1.000.000,00	5	3.38%
<b>Purchasing Frequency</b>		
1 Times	79	53.38%
More Than 2 Times	40	27.03%
2 Times	29	19.59%

**Source:** Data Processing

### Structural Model

The evaluation of the hypothesized model's overall fit utilized a range of fit indices, which is a common practice in confirmatory factor analysis (CFA). The Chi-Square statistic indicated a significant difference between the model and the observed data ( $\chi^2 = 438.459$ ,  $df = 245$ ,  $p < .001$ ), highlighting the sensitivity of this test to sample size (Heene et al., 2011). This sensitivity is well-



established, as Chi-Square tests can often suggest poor fit even when other indices might indicate otherwise (Heene et al., 2011). Notably, while the Chi-Square test signals a discrepancy, it is essential to consider additional indices for a more comprehensive understanding of fit, as these indices provide a clearer picture and help mitigate the influence of sample size (Rodrigues et al., 2019; Ramos-Galarza et al., 2021).

**Table 2.** Confirmatory Factor Analysis (CFA)

<b>Chi-Square</b>	438.459
<b>Probability</b>	.000
<b>DF</b>	245
<b>GFI</b>	.847
<b>AGFI</b>	.812
<b>TLI</b>	.918
<b>CFI</b>	.928
<b>NFI</b>	.851
<b>RMSEA</b>	.064
<b>CMIN/DF</b>	1.790

**Source:** Data Processing

The Goodness-of-Fit Index (GFI) was .847, and the Adjusted Goodness-of-Fit Index (AGFI) was .812, both just below the conventional standard of .90. This result indicates a poor fit based on these particular indices (Lampropoulos et al., 2022). In contrast, the Tucker-Lewis Index (TLI) of .918 and the Comparative Fit Index (CFI) of .928 are above the suggested threshold of .90, signifying a favorable fit according to these metrics (Lampropoulos et al., 2022). It is essential to note that CFI and TLI are often regarded as robust indices for evaluating the goodness of fit in structural equation modeling (Rodrigues et al., 2019; Ramos-Galarza et al., 2021).

Moreover, examining the Root Mean Square Error of Approximation (RMSEA), which was recorded at .064, falls within an acceptable range (below .08), thus supporting a view of a reasonably good fit (Lampropoulos et al., 2022). In conjunction, the CMIN/DF ratio was calculated at 1.790, aligning well within the suggested acceptable limits, reinforcing that while the Chi-Square might indicate issues, other indices suggest that the model still captures the relationships between variables reasonably well (Lampropoulos et al., 2022). In summary, although the Chi-Square statistic points toward a potentially poor fit, the collective results from the TLI, CFI, RMSEA, and CMIN/DF indices collectively demonstrate that the model has an acceptable to good fit, thereby affirming that it adequately represents the underlying relationships among the assessed variables (Rodrigues et al., 2019; Lampropoulos et al., 2022).

### Measurement Item

The measurement model was assessed by analyzing convergent validity and composite reliability for each construct. Convergent validity was examined by Average Variance Extracted (AVE), and internal consistency reliability was evaluated using Composite Reliability (CR), following the recommendations of Hair et al. (2019). An AVE of  $\geq 0.50$  signifies adequate convergent validity, indicating that the construct accounts for a minimum of 50% of the variation of its indicators. A CR of  $\geq 0.70$  indicates strong internal consistency, demonstrating that the indicators accurately assess the underlying component. All constructs satisfy the minimal Average Variance Extracted (AVE) requirement of 0.50, signifying that each latent variable sufficiently accounts for the majority

of variance in its observable indicators. This corroborates the convergent validity of the measurement model. Moreover, composite reliability ratings above 0.70 for all constructs, indicating adequate to outstanding internal consistency. These findings confirm that the measurement model exhibits robust convergent validity and internal reliability. The constructs are effectively and consistently represented

**Tabel 3.** Results Of Convergent Validity and Construct Reliability Tests (AVE and CR)

Variable	Item	Estimate	AVE	CR
Information Quality	INF1	0.731	0.591011	0.896525
	INF2	0.752		
	INF3	0.777		
	INF5	0.79		
	INF6	0.778		
	INF4	0.783		
Service Quality	SRV4	0.766	0.591899	0.852696
	SRV3	0.791		
	SRV2	0.711		
	SRV1	0.806		
System Quality	SYS1	0.78	0.59517	0.854513
	SYS2	0.81		
	SYS3	0.738		
	SYS4	0.756		
E-Satisfaction	STF4	0.742	0.542469	0.825852
	STF3	0.743		
	STF2	0.731		
	STF1	0.73		
Attitudinal Loyalty	ALY1	0.744	0.579789	0.805377
	ALY2	0.766		
	ALY3	0.774		
Behavioral Loyalty	BLY1	0.755	0.59729	0.816299
	BLY2	0.75		
	BLY3	0.812		

**Source:** Data Processing

by their indicators, which reinforces the validity of the measurement model and establishes a robust foundation for subsequent structural modeling.

### Hypothesis Testing

The regression weights, or path coefficients, indicate the direction and magnitude of the correlations among the constructs. Web Quality had a substantial and robust correlation with Web System Quality ( $\beta = 1.000$ ), Web Service Quality ( $\beta = .969$ ,  $p < .001$ ), and Web Information Quality ( $\beta = .959$ ,  $p < .001$ ). This affirms that the three categories are robust indicators of overall web quality. The quality of the website exerted a substantial positive influence on electronic satisfaction ( $\beta = .735$ ,  $p < .001$ ). This indicates that superior online quality results in enhanced e-satisfaction. E-Satisfaction exerted a substantial positive influence on Attitudinal Loyalty ( $\beta = .576$ ,  $p < .001$ ) and Behavioral Loyalty ( $\beta = .347$ ,  $p = .012$ ). This suggests that content clients are more inclined to demonstrate both attitudinal and behavioral loyalty. Attitudinal Loyalty exerted a substantial positive influence on Behavioral Loyalty ( $\beta = .648$ ,  $p < .001$ ). This indicates that clients with favorable perceptions of the website are more inclined to exhibit loyalty.

The standardized indirect effects illustrate the influence of one variable on another via a mediating variable. The influence of Web Quality on Behavioral Loyalty was substantial and indirect, mediated by E-Satisfaction and Attitudinal Loyalty ( $\beta = .436$ ). This underscores the significance of e-satisfaction and attitudinal loyalty as intermediaries in the correlation between web quality and behavioral loyalty.

**Table 4.** Hypothesis Testing Results

Hypothesis	Path			Estimate	C.R.	El
H1	ESatisfaction	<---	WebQuality	0.735	7.677	Accepted
H2a	AttitudinalLoyalty	<---	ESatisfaction	0.576	5.903	Accepted
H2b	BehavioralLoyalty	<---	ESatisfaction	0.347	2.501	Accepted
H3	BehavioralLoyalty	<---	AttitudinalLoyalty	0.648	4.132	Accepted

**Source:** Data Processing

## RESULT AND DISCUSSION

The findings provide critical insights into the relationship between e-satisfaction and electronic loyalty (e-loyalty) in the sports equipment and clothing e-commerce sector. This research significantly enhances the understanding of how different dimensions of website quality drive consumer expectations, satisfaction, and loyalty by synergistically integrating the D&M IS model with the ECT. The empirical results firmly establish that website quality has a substantial influence on e-satisfaction, revealing a positive relationship (H1:  $\beta = 0.735$ ,  $p < 0.001$ ), and congruent with previous research and reinforcing the assertion that a well-optimized website plays a pivotal role in cultivating consumer satisfaction. The importance of seamless website functionality, the provision of accurate and relevant information, and the delivery of responsive customer service emerges as crucial in meeting consumer expectations, which is a core tenet of ECT (Heene et al., 2011; Rodrigues et al., 2019).

The Expectation-Confirmation Theory implies that consumer satisfaction arises from comparing expected and perceived website performance. This is particularly crucial when examining elements such as seamless functionality, accurate information, and responsive customer service that are essential for meeting consumer expectations (Cheng, 2019). Superior website quality not only improves customer satisfaction but also fortifies user loyalty. Comprehending the factors that influence overall website quality can facilitate practical enhancements, hence underscoring the correlation between e-satisfaction and website performance (Vaddhano, 2023). This finding highlights the congruence between user expectations and actual service quality toward satisfaction and loyalty across diverse digital platforms (Varshosaz et al., 2021).

The research indicates that e-satisfaction is a crucial mediator in the association between website quality and both attitudinal loyalty (H2a:  $\beta = 0.576$ ,  $p < 0.001$ ) and behavioral loyalty (H2b:  $\beta = 0.347$ ,  $p = 0.012$ ). This mediating effect highlights the essential function of e-satisfaction in converting favorable online encounters into recurrent purchasing behavior and strong brand endorsement. The D&M paradigm posits that system quality, information quality, and service quality are essential determinants of user satisfaction and the efficacy of information systems (Angelina et al., 2019). E-satisfaction serves as a critical mediator, increasing the likelihood that satisfied users will engage in repeat transactions and demonstrate stronger brand advocacy (Harrigan et al., 2020; Ruan et al., 2024). Users who report high levels of satisfaction are more likely to hold favorable

attitudes toward the brand, fostering both attitudinal loyalty (indicative of a positive emotional commitment to the brand) and behavioral loyalty (evidenced by repeated purchasing actions) (Shafiee & Bazargan, 2018).

The ECT suggests that a user's post-purchase satisfaction is contingent upon their initial expectations and the actual experience they have had (Cheng, 2014). Within e-commerce and digital platforms, a website that meets or exceeds user expectations can lead to favorable evaluations and enhanced satisfaction. This relationship is evident in literature, indicating that information systems that effectively fulfill user needs contribute to higher levels of repeat engagement (Huang & CHEN, 2017). Therefore, while the DeLone and McLean model elucidates the mechanisms driving satisfaction, ECT complements this by explaining the psychological processes influencing user behavior following their interaction with a system. Evidence suggests that not only achieving user satisfaction but also effectively leveraging it through quality interface interactions can strengthen consumer relationships and sustain loyalty (Sabri, 2016).

Additionally, a robust connection between attitudinal and behavioral loyalty is observed (H3:  $\beta = 0.648$ ,  $p < 0.001$ ), indicating that fostering positive psychological affiliations to a brand can significantly influence actual purchasing behaviors. This finding is in alignment with Hwang and Kim's (2018) dual-dimensional conceptualization of e-loyalty, which posits that emotional engagement with a brand is instrumental in prompting sustained consumer loyalty and repeat transactions (Ramos-Galarza et al., 2021; Lampropoulos et al., 2022). From the D&M model perspective, in situations where customers perceive high-quality interactions with a brand, as measured through the framework's dimensions, they are more likely to develop a favorable disposition toward that brand, thereby fostering behaviorally loyal actions such as repeat purchasing (Dandis & Wright, 2020; Ledikwe et al., 2019). Furthermore, operationalizing expectations and confirmations, as articulated by ECT, allows practitioners to map the interplay between initial satisfaction derived from anticipated experiences and the evolved loyalty that follows. When customers confirm their expectations through quality interactions, they reinforce their attitudinal loyalty, leading to heightened behavioral loyalty (Dandis & Wright, 2020; Saini & Singh, 2020).

Additionally, empirical studies have corroborated the premise that attitudinal loyalty not only feeds into behavioral loyalty but is often mediated by factors such as customer satisfaction and trust (Saini & Singh, 2020; Dikčius et al., 2022). Therefore, by engaging consumers emotionally and cognitively, brands can transform strong attitudinal loyalty into repeat behavioral actions. Furthermore, the mediation of customer satisfaction highlights that as consumers' satisfaction levels rise, so too does their likelihood to engage in repeat purchasing and other loyalty behaviors (Dikčius et al., 2022; Imtiaz et al., 2022). In summary, interlinking the D&M IS model framework with the ECT deepens the analysis of loyalty dynamics. Emotional engagement, satisfaction, and perceived brand quality emerge as critical levers that not only enhance attitudinal loyalty but inevitably catalyze behavioral loyalty as supported by the broader empirical literature (Dandis & Wright, 2020; Saini & Singh, 2020; Dikčius et al., 2022).

Written table.

## CONCLUSION AND SUGGESTION

The interpretation of DeLone and McLean's Information Systems Success Model (D&M IS Model) from the Expectation-Confirmation-Theory perspective captures the dynamics of website

quality, e-satisfaction, and e-loyalty within the sports equipment and apparel e-commerce sector. This study deciphers how the dimensions of website quality based on D&M IS Model profoundly influence consumer satisfaction and loyalty outcomes. Empirical findings support the notion that positive confirmation of customer expectations, driven by high-quality website attributes, enhances overall satisfaction and fosters repeat patronage. The evolving landscape of digital commerce necessitates ongoing adaptation of these theoretical frameworks to address shifts in consumer expectations driven by technological advancements and intensified competition.

Research indicates that high service quality and effective information dissemination are crucial in shaping user perceptions and behaviors, reinforcing the critical role of website quality in enhancing customer experiences. Additionally, the study points to complex interrelationships among these variables, suggesting that improvements in website functionality can lead to higher levels of consumer retention and loyalty, underscoring the value of a customer-centric approach in online retailing. Ultimately, the findings of this research contribute to the field of practice by demonstrating the applicability of established theories in a specific context while advocating for further exploration of the determinants influencing dual-faceted e-loyalty in the rapidly changing sports equipment and apparel e-commerce environment. Continuous research in this domain is essential to ensure frameworks remain relevant and elucidate the behaviors and expectations of contemporary online sport equipment and apparel consumers.

### **Theoretical And Practical Contributions**

This study addresses a significant gap in the literature by situating DeLone and McLean's Information Systems Success Model (D&M IS Model) within the sports apparel industry by integrating Expectation-Confirmation Theory (ECT) to break down this framework. The research provides a deeper understanding of how pre-purchase expectations are validated through website interactions. This integration enriches existing theoretical models related to e-commerce success by emphasizing the importance of user experience during the decision-making process. Furthermore, the study reveals the mediating role of e-satisfaction and attitudinal loyalty in the formation of consumer loyalty. This adds to the existing theoretical frameworks by delineating sequential pathways that lead to loyalty development. By illuminating how e-satisfaction influences loyalty formation through attitudinal dimensions, this research advances current models and establishes a foundation for subsequent studies that may explore these relationships further.

For practitioners, optimizing website quality emerges as a critical imperative for enhancing consumer satisfaction and loyalty. Investments should focus on creating user-friendly interfaces to improve system quality, delivering comprehensive and well-structured product descriptions to elevate information quality, and offering prompt and effective customer service to bolster service quality. These enhancements serve as catalysts to amplify consumer satisfaction and foster long-term loyalty. Additionally, targeting the predominant demographic of young adults aged 23 to 28 years, who represent a significant portion of the study's sample, is crucial. Employing personalized marketing strategies and incorporating community-building features, such as user-generated content and social proof, can significantly improve customer retention and engagement. Moreover, addressing regional biases in the sample requires the development of tailored marketing strategies that cater to the diverse cultural and socioeconomic backgrounds across various Indonesian markets. Such localized approaches can enhance brand relevance and strengthen consumer relationships, ultimately contributing to long-term success in a competitive e-commerce landscape.



The alignment of theoretical foundations with actionable insights, this study not only enriches academic discourse but also provides valuable guidance for practitioners aiming to optimize their strategies in the sports apparel e-commerce sector. This study bridges a critical gap by contextualizing DeLone and McLean's model within the sports apparel industry, where brand reputation and community engagement are paramount. The interpretation from the ECT perspective elucidates how pre-purchase expectations are confirmed through website interactions, enriching theoretical frameworks for e-commerce success. Notably, the mediating role of e-satisfaction and attitudinal loyalty extends existing models by highlighting sequential pathways to loyalty formation.

### **Limitations and Future Research Agenda**

The dominance of respondents from Central Java (65%) and young adults (64.86% aged 23–28) limits generalizability to broader demographics and regions. Causality inferences are constrained; longitudinal data could better capture dynamic loyalty formation. Factors like cultural influences, mobile vs. desktop usage, and brand community engagement were not explored but may moderate outcomes. To expand the perspective, this study can be replicated in underrepresented regions (e.g., Eastern Indonesia) and among older age groups to validate findings. Track loyalty evolution over time and integrate qualitative insights to explore emotional drivers of satisfaction. Investigate the role of brand reputation, community engagement, and omnichannel experiences as potential moderators. Examine emerging technologies (e.g., AI chatbots, AR product trials) in enhancing website quality dimensions.

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