

Personalization in Email Marketing: A PLS-SEM Mediation Analysis on Customer Loyalty

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Abstract

Personalization in email is expected to positively affect consumer behavior as a strong direct marketing tool, increasing open rates and repeat purchases. A cross-sectional study was conducted with 241 respondents using survey questionnaires. This quantitative study, based on the TAM model, explored the impact on customer loyalty. The study revealed that brand association mediates the relationship between perceived ease of use and customer loyalty, whereas perceived usefulness does not. Although both perceived ease of use and perceived usefulness positively affect customer loyalty, perceived usefulness doesn't create brand association. This study suggests that relevant product information delivered via personalized email leads to a better shopping experience and repeat purchase behavior. In contrast, excessive email personalization doesn't always lead to stronger brand recall or higher call-to-action rates. The findings extend the TAM model by adding brand association as a mediator in personalized email marketing. Marketers should prioritize easy-to-use email design to build brand associations and drive customer loyalty.

Keywords: E-mail Marketing, Loyalty, Personalization, Mediation, SmartPLS.

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Introduction

Personalized email marketing is growing rapidly because it reaches customers at scale. Among promotional media, marketers consider email marketing a valuable strategy in competitive business landscapes. With 4.48 billion email users worldwide, the demand for the email marketing market can't be overstated. 81% of companies & 64% of small businesses optimize email marketing to promote their products & build long-term customer relationships (Wali et al., 2026). In the coming years, some analysts anticipate a decline in conventional direct mail as marketers shift to more cutting-edge digital channels, like personalized email, which can send messages faster and more affordably. Today, e-commerce businesses constantly consider it to enhance customer engagement & boost Return on Investment (ROI). The historical excerpt reveals an emerging South Asian internet landscape from the mid-to-late 1990s, offering a clear snapshot of early email marketing opportunities in the region. At this stage, email marketing was defined by high first-mover potential but limited overall reach. With India holding nearly a million users and Pakistan reaching 250,000 across roughly 40 ISPs, these two markets represented the primary ground for early B2C and B2B digital communications. Conversely, markets like

Bangladesh and Nepal—each with around 40,000 users—offered highly concentrated, niche audiences primarily limited to corporate elites, tech early adopters, and government institutions (Muhammad & Stukalina, 2026). Because internet access was a luxury, early subscriber lists consisted almost entirely of affluent, educated, high-income demographics, making email an exceptionally potent channel for premium goods, specialized services, and international commerce (Vashishth et al., 2024). Furthermore, before modern spam filters and inbox saturation, open rates and engagement levels were likely very high, provided marketers could navigate the deliverability challenges of an emerging ISP infrastructure. Chadwick & Doherty (2012) argued that people opened 56 of 260 emails sent by commercial senders/companies. Another study by Muminov (2024) shows that younger customers lack the patience to read an email from top to bottom, unlike older customers. So, email marketers need to address message noise by emphasizing personalization to capture a sufficient share of the target audience. Email marketing with personalization is nothing new. However, in recent years it has turned out to be of great importance. Lin et al. (2015) pointed out that very little research has been conducted on websites that involve personalized email marketing. Their study aimed to close this knowledge gap. They merged information management, e-commerce, and media and communication research. They also incorporated customer and marketing research viewpoints. This holistic approach gives a complete picture of the success of email marketing. The digital landscape has come a long way. Today, customers are looking for customization. Saoula et al. (2023) studied the engagement motivational factors in online shopping. They collected data from 295 young online customers. They found that the most important determinant of customer e- trust is reliability. Perceived ease of use and web page design are also crucial. The above factors have a direct and indirect impact on customer e-retention. The study of the e-commerce shopping mall by Yoo et al. (2023) was carried out in South Korea. Their data were gathered from 600 users. They found that customer satisfaction is positively related to information trust and information accuracy. The positive influence of website design was also prevalent. When it comes to customer satisfaction, it was followed by user shopping loyalty. This discovery is important for people who are buying and selling online to know how vital it is to have trustworthy information in e-commerce. Personalization is a complicated idea, to begin with. Nobile and Kalbaska (2020) performed a study of definitions of online personalization. They identified five major elements. They include offering, knowledge, channel and purpose, and contextual factors. They also reviewed key challenges that impede the understanding of the situation. Overlap with customization and perceived personalization are these issues. This complexity implies that conceptualization of personalization research is critical. Sahni et al. (2018) conducted randomized field experiments in three companies. They targeted their email ads at millions of people. The open rate for emails with the recipient's name in the subject line was 20% higher. This also helped boost their sales leads by 31%. The drop in unsubscribe rate was 17 percent. The results of this study show the real-life value of personalization in email marketing. This study is relevant because of the obvious lack in the literature. The majority of the research regarding personalization of e-mail has taken place in Western settings. There is not much information about personalized e-marketing in South Asian countries. The case of Bangladesh is special. There is an expanding e-commerce industry in the country. But personalized e-mail marketing is still not well developed. Bangladesh has different consumer behaviors compared to Western markets. There are cultural factors that affect consumer reactions to personalization. Trust is a key aspect of digital communication. The technology acceptance model is a good model to use. It provides an understanding of how users use technology. This study extends the justification of TAM model in personalized e-mail marketing. It tackles the question of how it affects customer loyalty. Brand association is a possible mediator. This study focuses on direct and indirect effects. Some of the antecedents are perceived ease of use and perceived usefulness. This is a study that adds to the increasing body of knowledge surrounding email marketing. It gives practical insights to the e-commerce industry

in Bangladesh. It also provides theoretical implications for the TAM literature. The results will be used to make marketing campaigns more effective. They will also inform on-going and future studies in this area.

Literature Review

One of the primary areas of technological investment in the coming years is personalization, a high priority for businesses. Of those surveyed, 78% purchased because of an email, and 59% used an email promo in-store. A third of those surveyed said they had clicked on an email and bought something right away (Defau & Zauner, 2023). According to Ahmad (2025), 64% of consumers prefer to learn about new deals, goods, and services via email. Email participants are not affected by cues like vocal nuances or physique. They have more opportunities for self-censorship and are better able to plan. E-retailers do not need to teach their staff how to dress, smile, appear interested, or behave professionally while interacting with shoppers via email. Email offers many advantages for connecting with shoppers. E-retailers can foster customer loyalty, improve service quality, and strengthen customer relationships through personalized emails. This study also shows that personalized emails improve relationship quality more for women than for men, since women place greater importance on relationships than men do (Thomas et al., 2022). Sahni et al. (2018) found that adding a name to the email subject line increases the open rate for commercial emails by 20%. Although the company doesn't incur additional costs by including a name in the subject line, it can achieve a higher rate of Calls to Action (CTAs) in those personalized emails. Nobile & Cantoni (2023) argued that ROI can be achieved through a personalized email marketing campaign that drives high sales and open rates. In the era of digital communication, personalized email marketing facilitates interaction and increases engagement with customers, as customers are less responsive to generalized messaging and more selective about unsolicited messages (Lubis et al., 2025). Conventional A/B testing is time-consuming and limited because it often tests only one or two variables at a time. Machine learning lets marketers test several formats, images, calls to action, and subject lines simultaneously. AI systems help marketers optimize campaigns more effectively by quickly identifying the best combinations. AI-powered A/B testing can also be done continuously. Rather than running a single test and using the results, machine learning algorithms may evaluate each campaign's performance and adjust parameters in real time (Dasanayaka et al., 2026). As a result, campaigns become more flexible, since real-time data can be used to maximize performance. Frequent A/B testing enables marketers to adapt to consumer preferences and maintain the effectiveness and relevance of email content (Patil, 2024).

The technology acceptance model was explored in China's computer industry by Wilson et al. (2021). They surveyed 346 people in five cities. Their results indicated that the perceived usefulness and perceived ease of use have a positive effect on customer satisfaction. The same factors have an effect on trust and customer loyalty. These relationships were mediated by satisfaction and trust. Trust served as a better mediator compared to satisfaction. The current study adds to the body of TAM literature as it pertains to marketing. Tran et al. (2024) focused on branded apps using the perspective of TAM and value co-creation. They gathered information from 372 users of branded apps. Their results verified that branded apps offer an engaging and customized path to brand loyalty. This is in addition to the more traditional mechanisms. This can be done through a customer relationship management or loyalty program. This study combines TAM and value co-creation theory in a unique way. The study by Tran et al. (2026) examined the effects of branded apps' attributes on brand love. They gathered information from 323 users of branded apps. Their findings showed that only perceived usefulness is a significant factor in brand love. The attitude towards the app can be improved if it is entertaining. But it doesn't help build brand love. Perceived ease of use has no impact on attitude or brand love. These results can

be useful to researchers and managers. Prasetya and Hidayat (2021) examined the factors influencing purchase intention. They surveyed 200 people. The results of their research indicated that brand awareness, brand association, and brand loyalty have positive relationships with purchase intention. There was no effect of perceived quality on purchase intention. Brand loyalty is positively related to brand awareness, brand association, and perceived quality. The theory of planned behavior approach was applied in this study. Vukasović (2016) suggested and validated a conceptual model to grasp the essence of brand equity. The study identified the drivers that affect the performance of brand equity. Two European countries were used to gather data from consumers. It was observed that brand awareness has a positive effect on brand associations and perceived quality. The positive brand associations have a positive impact on brand loyalty. Brand equity is positively impacted by brand loyalty, perceived quality, and brand associations. The study can be used as part of the international brand equity literature. Ha and John (2010) modeled brand loyalty development. The aspects they studied were customer orientation, perceived quality, brand associations, and satisfaction. The data collection was done on retail banking services and discount store retailing services. Brand loyalty was directly impacted by customer orientation. It was also indirectly related to customer satisfaction, perceived quality, and brand associations. Brand loyalty was positively influenced by perceived quality. There was also an indirect effect with satisfaction as a mediator. Badenhop and Frassetto (2021) investigated online grocery shopping at multichannel supermarkets. They gathered data from 154 customers from Germany. Structural equation modeling was used to test their model. The results indicated that the brand equity variables of retailers are significant in explaining the intention to shop online. The variables are: retailer awareness, retailer associations, retailer perceived quality, and retailer loyalty. Intention was also explained by perceived usefulness. Lin et al. (2015) suggested a permission-based model of the success of email marketing websites. They collected data from 294 respondents in Taiwan. They found that functional and process benefit indirectly impact relationship outcomes. These outcomes include user loyalty and positive word of mouth. These relationships were mediated by the quality of the relationship. Quality of the relationship is the level of satisfaction and commitment of the customer. There was no significant effect on the outcomes of the relationships due to relational benefits. The results differ from brick-and-mortar settings. Saoula et al. (2023) explored website design, reliability, and ease of use. They polled 295 young online customers. They found that reliability is the key determinant of customers' e-trust. Perceived ease of use and website design came next. There was a significant mediation effect of e-trust. This mediation was between customer e-retention and engagement factors. The study provides novel insights in relation to online customer retention. Yoo et al. (2023) explored the factors affecting the quality of online information and website design. The 600 users they gathered data from were Korean. From their findings, they concluded that information trust and information accuracy have positive effects on customer satisfaction. Website design also proved to have a positive impact. Customer satisfaction then resulted in customer shopping loyalty. When using e-commerce, retailers are expected to offer verifiable and correct information. They also need to be able to give their website a comfortable design that will appeal to and keep their customers. Nobile and Kalbaska (2020) have summarized the research on personalization in online fashion. They identified directions for further research. They found that understanding of personalization is still disjointed. It is not easy to define it clearly and keep it up to date. Five elements have been identified, such as offerings, knowledge, channels, purpose, and contextual factors. Overlap with customization and perceived personalization concepts is a critical issue. Sahni et al. (2018) investigated possible mechanisms behind personalization effects. They theorized that when the content is not informative, consumer effort rises. This is aimed at interpreting other information within the ad. Their paper quantifies the benefits of personalization. It offers insight into the value of noninformative advertising content. External validity for psychological mechanisms. There are definite implications for firms planning

advertising campaigns. The reviewed literature reveals several important gaps. First, most studies focus on Western or East Asian markets. Research on South Asian email marketing is scarce. Second, the mediating role of brand association is underexplored. Few studies examine how brand association connects TAM variables to customer loyalty. Third, mixed findings exist regarding personalization effectiveness. Some studies show positive effects. Others reveal diminishing returns. Fourth, the role of perceived usefulness in building brand association remains unclear. Some studies suggest a direct link. Others find no significant relationship. Fifth, contextual factors receive limited attention. Cultural and regional differences may influence personalization outcomes. These gaps justify the current study. This research addresses these limitations. It examines personalized email marketing in Bangladesh. It tests brand association as a mediator. It explores both direct and indirect effects of TAM variables. The findings will contribute to theory development. They will also provide practical guidance for marketers. This study extends TAM to a new context. It offers fresh insights into consumer loyalty formation. It advances knowledge on email personalization effectiveness.

Conceptual Framework & Hypothesis Development

In this research, the TAM model has been utilized to show how customers adopt & engage with personalized emails sent by e-commerce companies based on two factors: Perceived Ease of Use (PEU) and Perceived Usefulness (PU). Perceived ease of use indicates how effortlessly a user can open, read, and interact with the email (Anwar et al., 2022). The significance of perceived ease of use in digital contexts is further supported by Saoula et al. (2023), who found that perceived ease of use significantly influences customer e-trust and e-retention in online shopping environments, with e-trust mediating this relationship. Their study of 295 young online customers demonstrated that ease of use, alongside website design and reliability, serves as a critical engagement motivational factor. Similarly, Yoo et al. (2023) confirmed that website design and information quality positively influence customer satisfaction, which subsequently leads to user shopping loyalty in e-commerce contexts. Wilson et al. (2021) further validated the TAM framework in China's computer industry, finding that perceived ease of use positively and significantly impacts customer satisfaction, trust, and customer loyalty, with trust serving as a better mediator than satisfaction. These findings collectively suggest that when customers find personalized emails easy to navigate and interact with, they are more likely to develop loyalty toward the brand.

H1: *Perceived Ease of Use has a significant impact on Customer Loyalty.*

H4: *Perceived Ease of Use has a significant impact on Brand Association.*

Besides that, Perceived Usefulness indicates that personalized emails are perceived as highly useful and valuable when they offer relevant, timely solutions tailored to a customer's needs, behaviors, and interests (Maryanto & Kaihatu, 2021). Tran et al. (2024) examined branded apps through the lens of TAM and value co-creation, finding that personalization and value co-creation significantly enhance brand loyalty. Their study of 372 branded app users confirmed that apps providing entertaining and personalized experiences foster brand loyalty through both conventional mechanisms and novel digital pathways. Moreover, Tran et al. (2026) investigated how branded app attributes influence brand love, revealing that perceived usefulness serves as a key driver of brand love, although perceived ease of use showed no significant impact in that specific context. This suggests that while ease of use may facilitate initial adoption, it is the perceived usefulness of personalized content that may drive deeper emotional connections with brands. Wilson et al. (2021) also found that perceived usefulness positively impacts customer satisfaction, trust, and loyalty, with both satisfaction and trust mediating these relationships.

H2: *Perceived Usefulness has a significant impact on Customer Loyalty.*

H5: *Perceived Usefulness has a significant impact on Brand Association.*

Shen & Ball (2009) argue that properly done personalization of a service should obviously improve customer satisfaction, which is a primary antecedent of customer loyalty. Al-Abdallah and Abo-Rumman (2013) showed in his study that brand association can affect customer loyalty in the Jordanian market. The association of the customer with the brand creates the brand image in the mind of the customer (Keller & Jr., 2004). This relationship is further corroborated by Prasetya & Hidayat (2021), who found that brand association has a positive effect on both brand loyalty and purchase intention, while brand awareness and perceived quality also positively influence brand loyalty. In the context of food industry branding, Vukasović (2016) demonstrated that brand awareness positively influences brand associations and perceived quality, while brand associations positively influence brand loyalty, and all three dimensions contribute to overall brand equity. Ha & John (2010) further revealed that customer orientation has both direct and indirect effects on brand loyalty through customer satisfaction, perceived quality, and brand associations as mediators, suggesting that effective brand loyalty management requires tracking customer perceptions of a firm's orientation, quality, and brand. Badenhop & Frassetto (2021) extended this understanding to online grocery shopping, finding that retailer brand equity variables—including retailer associations—contribute together with perceived usefulness to explain intentions to shop online at multichannel supermarkets. These findings collectively support the mediating role of brand association in the relationship between technology acceptance factors and customer loyalty.

H3: *Brand Association has a significant impact on Customer Loyalty.*

In addition, Lin et al. (2015) have put forward a success model of email marketing websites based on the concept of permission. This model combines perspectives of information management, media/communication, and customer/marketing. They found that functional and process benefits (information quality, ease of use, and entertainment benefits) indirectly affect relationship outcomes (user loyalty, positive word of mouth) through user satisfaction and commitment (relationship quality). Interestingly, in the context of personalization, relationship outcomes were not significantly influenced by relational benefits (confidence, social and special treatment benefits) as compared to the traditional brick-and-mortar context. This further validates the significance of functional and process benefits in determining email marketing success and provides a theoretical basis to explore the relationship between perceived ease-of-use and perceived usefulness of the email marketing and why brand association acts as the mediator between PEU and PU and customer loyalty. In randomized field experiments with three companies selling a variety of products, Sahni et al. (2018) report that recipients were 20% more likely to open emails when they contained information about the recipient, such as their name; that the return of sales leads rose by 31% and the unsubscribe rate fell by 17% when recipients' names were used in an email. Their investigation indicated that this noninformative material may facilitate consumer efforts in comprehending the remainder of the ad message, and that the psychological mechanisms they observed were externally valid and had implications for firms in designing their ad campaigns. The results of these findings are quite significant and can impact customer purchasing behavior and loyalty when it comes to email marketing. Nobile & Kalbaska (2020) conducted a thorough review of the literature related to the definition of online personalization and found five essential aspects to consider: offer, knowledge, channel, purpose, and context. They spoke about the concerns that have an impact on the understanding of the topic, such as overlaps with customization and perceived personalisation concepts. The analysis of personalization studies specific to fashion in online environments provides directions for further studies and shows the complexity of the personalization construct. The complexity of the relationship between personalization and loyalty implies there is a possibility of multiple variables between them, such as brand association, which should be explored through empirical research. A conceptual framework for the proposed study is presented in Figure 1, based on

theory and arguments presented above and empirical evidence. The framework shows the hypothesized relationships between the other variables: Perceived Ease of Use, Perceived Usefulness, Brand Association, and Customer Loyalty. Specifically, it entails direct effects of both Perceived Ease of Use and Perceived Usefulness on Customer Loyalty, and indirect effects between these two constructs: Perceived Ease of Use and Perceived Usefulness, and Customer Loyalty via the mediator of Brand Association. The framework also indicates that the direct impact of Brand Association on Customer Loyalty, positioning it as an important mediating variable.

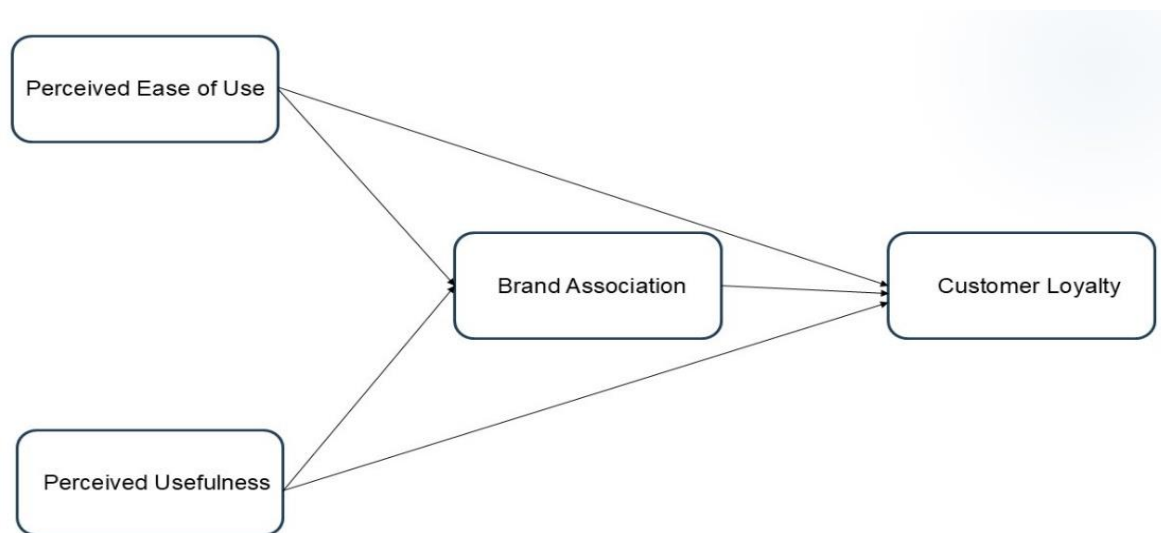


Figure 1: Proposed conceptual framework

Research Methodology

The cross-sectional study design was used because data were collected at a single point in time. Additionally, this study employed a descriptive research design that combined quantitative approaches. The study utilized judgment non-probability sampling. Using this sampling technique, the researcher may select respondents based on their expertise, experience, or knowledge of personalized email marketing. The sample comprises customers in Bangladesh who regularly receive promotional emails from various e-commerce businesses. The minimum sample size estimate is one of the most basic problems with PLS-SEM. Rather than relying on the traditional 10-times rule proposed by Hair et al. (2014), an a priori power analysis was conducted using G*Power 3.1 to determine the minimum sample size required for the study. Following Cohen's (1988) conventional guidelines for multiple regression, a medium effect size ($f^2 = 0.15$) was assumed. The analysis was conducted using an α level of 0.05, statistical power of 0.80, and two predictors, corresponding to the maximum number of predictors directed toward any endogenous construct in the proposed structural model. The analysis indicated that a minimum sample of 68 respondents was required. The study obtained 241 valid responses, substantially exceeding the minimum required sample size. Therefore, the final sample size was considered adequate for testing the proposed structural relationships. The structured questionnaire collected primary data through a Google Form survey on two exogenous variables, one mediator variable, and two endogenous variables. The questionnaire included dichotomous questions, Demographic Information, and a 5-point Likert scale, all of which were administered in this survey. SmartPLS 4 & SPSS 22 software were employed for data analysis to test the hypotheses. There also been used Partial Least Squares (PLS) on 5000 subsamples with a bootstrapping procedure.

Data Analysis

Descriptive Statistics

The pie chart (Figure 2) shows that 61.6% of respondents have never made a purchase decision, while 38.4% made a purchase decision after visiting a particular brand's website via personalized email. This indicates that personalized email marketing is not as popular as it is elsewhere in the world. But it can be a cost-effective way to increase brand awareness within a specific audience segment. The study reveals that a few brands practice this personalized email marketing. With the growing use of digital marketing, more brands are expected to engage in personalized e-mail marketing.

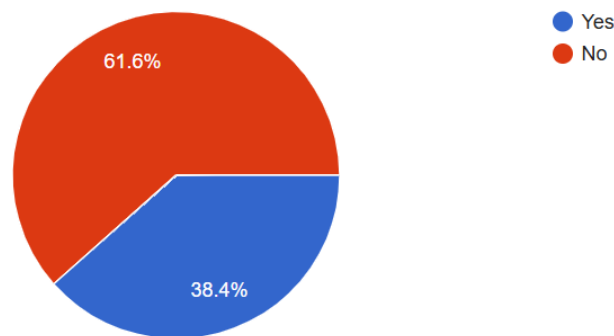


Figure 2: Purchase Decision After Visiting a Brand's Website via Personalized Email

Measurement Model

Reliability & Validity

Table 1: Reliability and Validity

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Brand Association	0.887	0.887	0.886	0.661
Customer Loyalty	0.905	0.909	0.905	0.705
Perceived Ease of Use	0.829	0.831	0.830	0.550
Perceived Usefulness	0.862	0.863	0.862	0.610

Cronbach's alpha, composite reliability (rho_a and rho_c), and average variance extracted (AVE) were used to assess the reliability and convergent validity of the constructs. Most of the constructs had strong internal consistency: Brand Association (Cronbach's alpha = 0.887, rho a = 0.887, rho c = 0.886, AVE = 0.661), Customer Loyalty (Cronbach's alpha = 0.905, rho a = 0.909, rho c = 0.905, AVE = 0.705), Perceived Ease of Use (Cronbach's alpha = 0.829, rho a = 0.831, rho c = 0.830, AVE = 0.550) and Perceived Usefulness (Cronbach's alpha = 0.862, rho a = 0.863, rho c = 0.862, AVE = 0.610) (see table 1). In essence, the constructs demonstrate high reliability and convergent validity, which can be used in the analysis of a structural model.

Heterotrait-Monotrait (HTMT) Ratio of Correlations Test

The Heterotrait-Monotrait (HTMT) ratio of correlations was used to evaluate discriminant validity and assess the extent to which the constructs are empirically distinct (Henseler et al., 2015). A value that is less than 0.85 is usually acceptable, which implies that there is adequate

discriminant validity between two constructs. In this research, all constructs reached HTMT values that are much lower than this mark, such as Brand Association and Consumer Loyalty (0.693), Perceived Ease of Use and Consumer Loyalty (0.714), and Perceived Usefulness and Consumer Loyalty (0.611), indicating good discriminant validity and that each construct identifies that all of the unobserved variables are distinct from others (see Table 2).

Table 2: The Heterotrait-Monotrait (HTMT) Ratio of Correlations

	Brand Association	Customer Loyalty	Perceived Ease of Use	Perceived Usefulness
Brand Association				
Customer Loyalty	0.693			
Perceived Ease of Use	0.752	0.714		
Perceived Usefulness	0.520	0.611	0.600	

Fornell-Larcker Criterion (FLC) Test

The diagonal values (0.813, 0.839, 0.742 & 0.781) have met the Fornell-Larcker Criterion for all the constructs (Table 3). This also indicates no discriminant validity issues for any construct. The square root of AVE for each construct is greater than the correlations with other constructs.

Table 3: Fornell-Larcker Criterion (FLC) Test

	Brand Association	Customer Loyalty	Perceived Ease of Use	Perceived Usefulness
Brand Association	0.813			
Customer Loyalty	0.696	0.839		
Perceived Ease of Use	0.751	0.716	0.742	
Perceived Usefulness	0.522	0.610	0.600	0.781

Structural Model

Path coefficients (Figure 3 and Table 4) were used to evaluate the structural model and assess the strength and significance of hypothesized relationships among constructs. The results indicate that Brand Association has a positive and significant effect on Customer Loyalty ($\beta = 0.323$, $t = 2.861$, $p = 0.004$), meaning that personalizing promotional e-mails leads to attitudinal attachment to a particular brand. Also, Perceived Ease of Use has a strong positive and significant effect on Brand Association ($\beta = 0.685$, $t = 9.414$, $p = 0.000$), as well as a significant impact on customer loyalty ($\beta = 0.326$, $t = 2.660$, $p = 0.008$), supporting the role of user-friendliness & intuitiveness of personalized emails in shaping consumer perceptions. On the other hand, Perceived Usefulness showed a significant positive impact on Customer Loyalty ($\beta = 0.246$, $t = 3.413$, $p < 0.001$) but a non-significant effect on Brand Association ($\beta = 0.111$, $t = 1.345$, $p = 0.179$), suggesting that Perceived Usefulness does not strengthen Brand Association but directly translates into customer loyalty.

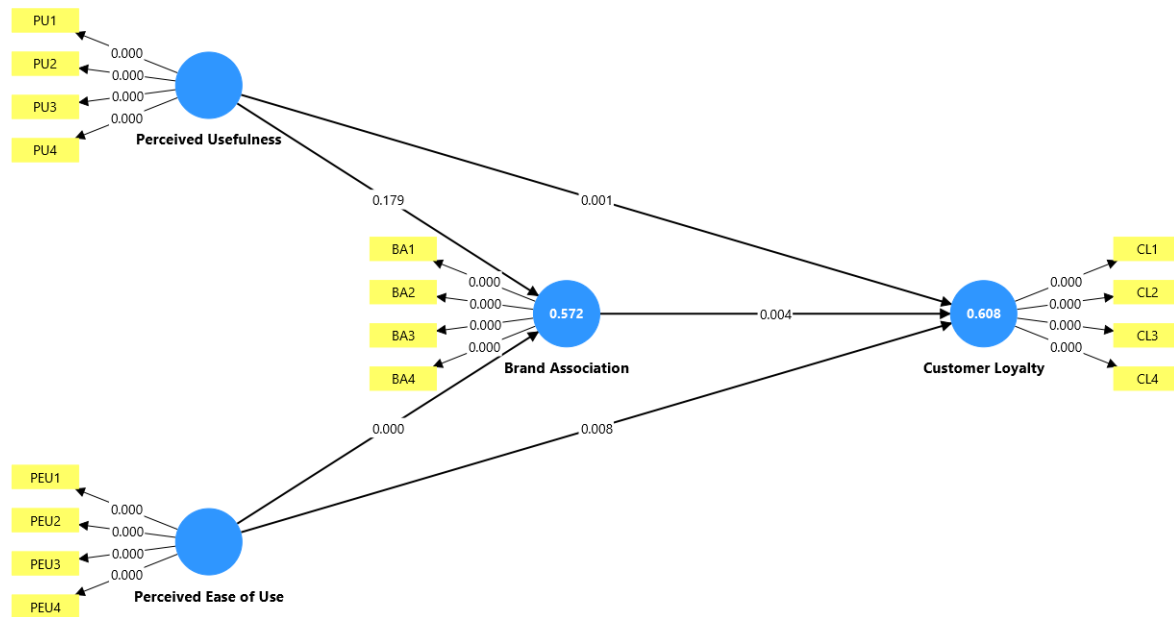


Figure 3: Path coefficients

Table 4: Path Coefficient

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
Brand Association -> Customer Loyalty	0.323	0.322	0.113	2.861	0.004
Perceived Ease of Use -> Brand Association	0.685	0.685	0.073	9.414	0.000
Perceived Ease of Use -> Customer Loyalty	0.326	0.326	0.122	2.660	0.008
Perceived Usefulness -> Brand Association	0.111	0.111	0.083	1.345	0.179
Perceived Usefulness -> Customer Loyalty	0.246	0.248	0.072	3.413	0.001

Specific Indirect Effect (Mediation Analysis)

The indirect effects were evaluated using the specific effects to test the mediating impact of Brand Association between the endogenous and exogenous variables. The results indicate that Brand Association significantly mediates the relationship between Perceived Ease of Use and Consumer Loyalty ($\beta = 0.221$, $t = 2.670$, $p = 0.008$), suggesting that personalized email content fosters consumer loyalty through increased brand association. In contrast, Perceived Usefulness does not show an indirect effect on Consumer Loyalty via Brand Association ($\beta = 0.036$, $t = 1.153$, $p < 0.249$), indicating that relevant product information and a smoother shopping experience through personalized email marketing do not enhance customer loyalty by fostering a positive brand association (Table 5). In addition, Perceived Ease of Use and Customer Loyalty show partial mediation by Brand Association, as both the direct and indirect path coefficients are significant. In contrast, Brand Association does not mediate the relationship between Perceived Usefulness and Customer Loyalty: the direct effect is significant, but the indirect effect is not. At the same time, this study illustrates that Perceived Usefulness doesn't create brand association in customers' minds, whereas Perceived Ease of Use does, leading to repeated purchase behavior.

Table 5: Indirect effect

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
Perceived Ease of Use -> Customer Loyalty	0.221	0.221	0.083	2.670	0.008
Perceived Usefulness -> Customer Loyalty	0.036	0.036	0.031	1.153	0.249

Hypothesis Results

The structural model was assessed using path coefficients, t-statistics, and p-values. Bootstrapping with 5000 subsamples was employed. Table 6 presents a summary of all hypothesis testing results.

Table 6: Summary of Hypothesis Testing Results

Hypothesis	Path	β	t-value	p-value	Decision
H1	Perceived Ease of Use → Customer Loyalty	0.326	2.660	0.008	Supported
H2	Perceived Usefulness → Customer Loyalty	0.246	3.413	0.001	Supported
H3	Brand Association → Customer Loyalty	0.323	2.861	0.004	Supported
H4	Perceived Ease of Use → Brand Association	0.685	9.414	0.000	Supported
H5	Perceived Usefulness → Brand Association	0.111	1.345	0.179	Not Supported
H6	Perceived Ease of Use → Brand Association → Customer Loyalty	0.221	2.670	0.008	Supported
H7	Perceived Usefulness → Brand Association → Customer Loyalty	0.036	1.153	0.249	Not Supported

H1 proposed that perceived ease of use has a significant impact on customer loyalty. The results support this hypothesis ($\beta = 0.326$, $t = 2.660$, $p = 0.008$). When customers find personalized emails easy to open and read, they develop stronger loyalty. H2 proposed that perceived usefulness has a significant impact on customer loyalty. The results support this hypothesis ($\beta = 0.246$, $t = 3.413$, $p = 0.001$). Relevant and timely information in emails drives customer loyalty. H3 proposed that brand association has a significant impact on customer loyalty. The results support this hypothesis ($\beta = 0.323$, $t = 2.861$, $p = 0.004$). Stronger brand associations lead to higher loyalty. H4 proposed that perceived ease of use has a significant impact on brand association. The results strongly support this hypothesis ($\beta = 0.685$, $t = 9.414$, $p = 0.000$). Easy-to-use emails help build strong brand associations. This is the strongest relationship in the model. H5 proposed that perceived usefulness has a significant impact on brand association. The results do not support this hypothesis ($\beta = 0.111$, $t = 1.345$, $p = 0.179$). Useful content alone does not create brand associations. H6 proposed that brand association mediates the relationship between perceived ease of use and customer loyalty. The results support this hypothesis ($\beta = 0.221$, $t = 2.670$, $p = 0.008$). The mediation is partial. Perceived ease of use influences loyalty both directly and indirectly through brand association. H7 proposed that brand association mediates the relationship between perceived usefulness and customer loyalty. The results do not support this hypothesis ($\beta = 0.036$, $t = 1.153$, $p = 0.249$). Perceived usefulness only has a direct effect on loyalty. It does not work through brand association. Overall, five hypotheses were supported. Two hypotheses were not supported. The findings show that perceived ease of use and perceived usefulness both drive loyalty. However, only perceived ease of use builds brand associations. Brand association mediates the ease-of-use pathway but not the usefulness pathway.

Discussion

Personalized emails not only increase open rates and engagement but also improve customer satisfaction and loyalty. According to our research, 61.6% of participants have never used email to make a purchase decision. To drive call-to-action activity, email personalization is required. Pedrol & Romero (2022) argued that spam makes up 90% of all emails sent, which hinders purchase decisions via email, based on their study. Marketers must balance being obtrusive with providing value. Most ethical marketers now use targeted email marketing, which sends ads only to clients who "opt in," to address these issues. Research by Salesforce (2023) found that 84% of customers expect companies to understand their individual needs and provide a personalized experience. This expectation is even higher among younger consumers, who are more accustomed to receiving tailored content from digital platforms. Nobile & Kalbaska (2020) reported that a medium level of personalization increases open rates. Adding further personalized placeholders does not affect open rates. In an information-rich environment, individuals scroll through emails quickly; hence, a subject line that matches personal attributes captures their attention. Accordingly, this study reflects that higher levels of personalization decrease the probability of purchasing. Personalized emails that include tailored product recommendations or special offers can drive higher conversion rates by addressing the recipient's specific needs and preferences. Sethuraman et al. (2024) found that post-purchase communications and promotional offers influence future purchases, identifying them as strategic areas for improvement to meet consumer expectations and maintain long-term loyalty.

Practical Implications

This study offers several practical insights for email marketers and e-commerce businesses. First, marketers should prioritize ease of use in email design. The findings show that perceived ease of use has the strongest effect on brand association ($\beta = 0.685$, $p = 0.000$). Emails must be easy to open, read, and navigate. Mobile-friendly layouts, clear subject lines, and simple call-to-action buttons can help. When customers find emails easy to use, they develop stronger brand associations. These associations lead to loyalty. Second, marketers should continue providing useful content. Perceived usefulness directly drives customer loyalty ($\beta = 0.246$, $p = 0.001$). Relevant product recommendations, timely offers, and personalized deals matter. However, useful content alone does not build brand associations ($\beta = 0.111$, $p = 0.179$). Marketers should not assume that useful information automatically strengthens brand image. Sahni et al. (2018) support this view. They found that adding a recipient's name increased open rates by 20% and sales leads by 31%. But the content itself was noninformative. This shows that personalization works through different mechanisms. Third, marketers should focus on building brand associations. Brand association significantly drives customer loyalty ($\beta = 0.323$, $p = 0.004$). Al-Abdallah and Abo-Rumman (2013) found similar results in the Jordanian market. Vukasović (2016) also confirmed that brand associations positively influence brand loyalty. Marketers can build associations through consistent branding, emotional messaging, and positive experiences. Easy-to-use emails are one pathway. When customers interact smoothly with emails, they connect positive feelings with the brand. Fourth, marketers should not over-personalize. The study found that 61.6% of respondents never made a purchase decision via personalized email. Nobile and Kalbaska (2020) reported that medium personalization increases open rates. But adding more personalization does not help. In fact, excessive personalization can decrease purchase probability. Marketers should find the right balance. They should personalize enough to capture attention but not so much that it feels intrusive. Fifth, businesses in Bangladesh should invest more in email marketing. The study shows that personalized email marketing is underdeveloped in Bangladesh. This supports the idea that well-designed emails can build loyalty. Sixth, marketers should track both ease of use and usefulness. These two factors work differently. Ease of use builds brand associations. Usefulness directly drives loyalty. Marketers should

measure both. They should test different email designs. They should also test different content types. AI-powered A/B testing can help. Dasanayaka et al. (2026) noted that machine learning allows continuous testing. Patil (2024) also highlighted that frequent testing helps maintain email relevance.

Theoretical Implications

This study makes several theoretical contributions.

First, it extends the Technology Acceptance Model (TAM) to personalized email marketing. TAM was originally developed for technology adoption. This study applies it to email marketing in Bangladesh. The findings confirm that TAM is useful in this context. Perceived ease of use and perceived usefulness both influence customer loyalty. Wilson et al. (2021) found similar results in China's computer industry. Tran et al. (2024) also applied TAM to branded apps. This study adds to that growing body of literature. Second, it introduces brand association as a mediator. Previous TAM studies have examined satisfaction and trust as mediators. Wilson et al. (2021) found that trust is a better mediator than satisfaction. This study shows that brand association also plays a mediating role. However, the mediation is partial. Brand association mediates the ease-of-use pathway but not the usefulness pathway. This finding is new. It suggests that different antecedents work through different mechanisms. Ha and John (2010) found that brand associations mediate the relationship between customer orientation and brand loyalty. This study extends that logic to email marketing. Third, it distinguishes between ease of use and usefulness pathways. The findings show that these two TAM variables operate differently. Perceived ease of use builds brand associations. Perceived usefulness does not. This distinction is important. It suggests that TAM variables are not interchangeable. Each has a unique role. Tran et al. (2026) found that perceived usefulness drives brand love while perceived ease of use does not. Their findings contrast with this study. This study found that perceived ease of use drives brand association while perceived usefulness does not. These mixed findings suggest that context matters. More research is needed to understand these differences. Fourth, it contributes to personalization theory. Nobile and Kalbaska (2020) noted that personalization understanding remains fragmented. This study provides empirical evidence on personalization effectiveness. It shows that personalization works through ease of use and brand association. It also shows that excessive personalization can backfire. Lin et al. (2015) found that relational benefits do not affect relationship outcomes in personalized email marketing. This study supports that finding. Functional benefits like ease-of-use matter more than relational benefits. Fifth, it provides evidence from a South Asian context. Most personalization research comes from Western or East Asian markets. Muhammad and Stukalina (2026) noted that South Asian email marketing research is scarce. This study fills that gap. It examines personalized email marketing in Bangladesh. The findings may differ from Western contexts. Cultural factors influence how consumers respond to personalization. Trust plays an important role. This study provides a basis for future cross-cultural research. Sixth, it validates the PLS-SEM approach in email marketing research. The study used SmartPLS 4 with 5000 subsamples. Reliability and validity were established. Cronbach's alpha values ranged from 0.829 to 0.905. AVE values ranged from 0.550 to 0.705. HTMT values were below 0.85. Fornell-Larcker Criterion was met. These results confirm that the measurement model is robust. Future researchers can use similar methods.

Conclusion

As consumers become more discerning, generic emails are less likely to capture attention and engagement. Personalization means tailoring email content based on customer data and preferences. It has emerged as a powerful strategy to improve email marketing effectiveness. This is particularly true for increasing open rates and engagement. This study examined how email personalization affects consumer loyalty using the TAM model. Because of its adaptability,

simplicity, and predictive ability, TAM is widely recognized as a reliable model. It is used for characterizing and forecasting user acceptance of technology. As a result, it is the most widely used and well-regarded model in technology acceptance research. The study found that both perceived ease of use and perceived usefulness positively affect customer loyalty. Perceived ease of use strongly influences brand association. Perceived usefulness does not create brand association. Brand association mediates the relationship between perceived ease of use and customer loyalty. Brand association does not mediate the relationship between perceived usefulness and customer loyalty. The findings suggest that easy-to-use personalized emails build brand associations. These associations lead to customer loyalty. Useful content directly drives loyalty. But useful content alone does not build brand associations. The study also found that 61.6% of respondents never made a purchase decision via personalized email. This indicates that personalized email marketing is not as popular in Bangladesh as it is elsewhere. However, it can be a cost-effective way to increase brand awareness. The research provides a basis for future research on consumer behavior mediated by trust and the effectiveness of digital marketing.

Limitations and Future Research

This study has limitations. First, it is a cross-sectional study. Data were collected at one point in time. Causality cannot be established. Future research should use longitudinal designs. Second, the sample size is 241. While adequate for PLS-SEM, larger samples would improve generalizability. Third, the study focuses only on Bangladesh. Findings may not be generalizable to other countries. Fourth, self-reported data may have bias. Fifth, the study examines only two TAM variables. Other variables like trust, satisfaction, and entertainment could be added. Sixth, the study uses judgment sampling. Random sampling would be better. Seventh, the study does not examine actual purchase behavior. It measures purchase decisions. Future research should track actual purchases. Eighth, the role of trust as a mediator should be explored. Ninth, the effectiveness of AI-powered personalization should be studied. Tenth, cross-cultural comparisons would be valuable.

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