

Impact of E-Payment System on Consumer Buying Behaviour

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Abstract: Electronic payment (e-payment) technologies have revolutionised financial transactions in the digital age, changing consumer purchasing behaviour. This study will evaluate e-payment uptake and customer behaviour to better understand the complex interaction between e-payment systems and consumer purchasing patterns. This study evaluates e-payment adoption's usage frequency, preferred methods, affecting variables, comfort level, barriers, and suggestion frequency using literature and empirical analysis. Mixed techniques use quantitative survey data and qualitative in-depth interviews. The research approach uses snowball sampling to gather a wide range of consumer opinions and experiences to examine consumer preferences and e-payment acceptance trends. The survey questionnaire asks about e-payment usage, preferred methods, decision factors, comfort, challenges, and willingness to recommend e-payment systems. E-payment system familiarity, convenience, security, rewards, and merchant acceptance influence consumer choices, according to early study. Although simplicity drives adoption, security concerns and reward availability also affect customer preferences. Technology and e-payment system distrust may also hinder adoption. E-payment system effects on customer purchase decisions are added to the data pool by the study. This research clarifies the factors that affect e-payment acceptance and usage trends, helping firms, governments, and financial institutions enhance their e-payment services and customer experience in the digital marketplace.

Keywords: Consumer Buying Behaviour; E-Payment Systems; Security and Snowball Sampling; Merchant Acceptance; Global Financial Ecosystem; Technological Difficulties; Digital Finance; Information and Communication Technology.

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1. Introduction

Electronic payment (e-payment) systems have transformed how people and organizations transact in the modern digital era. They are now essential parts of the global financial ecosystem. Compared to conventional cash-based techniques, these systems offer unmatched simplicity, security, and efficiency by utilizing modern technology to enable the electronic exchange of payments [1]. E-payment systems significantly impact customer behaviour, changing expectations in the marketplace, product preferences, and ways of making purchases as they spread and develop [3]. Market dynamics are fundamentally shaped by customer buying patterns, which also shape brand perceptions and eventually affect the performance of businesses by creating demand [5]. Consumer behaviour assumes additional dimensions in electronic payment systems as people manoeuvre through a convoluted maze of payment choices, from digital currencies and online banking transactions to credit cards and mobile wallets. Consumer preferences and decisions about electronic payment systems are significantly influenced by various factors, including but not limited to convenience, security, rewards, business acceptance, and familiarity [6]. Businesses looking to maximize their e-payment options and improve the consumer experience must comprehend these variables and how they interact [9].

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The complex relationship between e-payment systems and customer purchasing behaviour is investigated in this study using the snowball sampling method as a research approach [11]. This approach, distinguished by its capacity to reach populations that are hidden or difficult to reach through referrals, provides a strong foundation for gathering a range of viewpoints and experiences related to adopting e-payments [13]. The snowball sampling method allows researchers to gain detailed insights into the factors influencing consumer acceptance and usage patterns of e-payments by utilizing pre-existing social networks and relationships [14].

This study has two goals: first, it will evaluate the consumer acceptance rate and usage trends of e-payment systems; second, it will examine the variables that impact the e-payment methods that consumers select. With the help of these goals, the study hopes to shed light on the factors that influence consumer behaviour when adopting electronic payments [15]. By clarifying the intricate relationship between electronic payment systems and consumer preferences, this study aims to assist businesses and regulators in making strategic decisions as they navigate the constantly changing field of digital finance [17].

1.1. Objectives of This Study

- To assess the adoption rate of e-payment systems among consumers
- To analyze the factors influencing consumers' choice of e-payment systems

1.2. Aim of This Study

In order to develop methods for improving customer happiness and usage, this study intends to investigate elements that impact the adoption of e-payments, including security, convenience, rewards, merchant acceptance, and familiarity.

2. Review of Literature

Kabir [2], due to their effectiveness, timeliness, and ease of use, e-payment systems are becoming increasingly popular in the corporate sector. As a result, much scholarly research has been done on their adoption. This study examines prior research on the global adoption of electronic payments, focusing on the scope, methodology, and Information System (IS) models used by those earlier researchers to pinpoint research gaps. Recent studies from 2010 to 2015 were analyzed using Google Scholar to assess research methodology, theoretical frameworks, and geographical coverage. The study aims to direct future research by highlighting trends and suggesting additional research topics related to e-payment adoption.

Tyagi [4] wants to succeed and must prioritize satisfying its customers, highlighting the need to understand consumer behaviour in the face of changing lifestyles and technological improvements. Because consumer preferences are always changing, it isn't easy to draw firm conclusions even after much research. Indian businesses must learn from their Western competitors to predict and adapt to changing trends. Marketers must understand the elements that impact consumers' decision-making processes to customize methods that effectively connect to their audience.

Bigne [7], Mobile phones have quickly gone from a luxury to an essential everyday tool for people worldwide. Even with its widespread use, there is still a lack of study on the habits of mobile shoppers in many nations. This study aims to describe the M-shopper profile and clarify the variables affecting purchase behaviour. Utilizing seven focus groups and analytical instruments such as logistic regression and Chi-Square, the study examines data from 2,104 Spanish Internet users. Results provide important insights into mobile consumer behaviour by indicating that customer age, financial status, and non-store shopping behaviour patterns influence M-commerce decisions.

Halim et al. [8] expressed that the increasing ability of impulsive buying behaviour, made possible by e-payment systems in e-commerce, is the driving force behind this pilot study. Online shopping's efficiency and convenience encourage customers to make impulsive, more frequent purchases. We intend to examine the impact of e-payment systems, impulsive buying, trust, and behaviour control on purchase intention in e-commerce using structural equation modelling (SEM) and purposive sampling. Information was gathered in May 2020 from 51 Indonesian online shoppers who primarily used electronic payment methods. All five of the study's hypotheses, which draw on earlier findings and the Theory of Planned Behavior, are confirmed, showing the important influence of these factors on e-commerce purchase intention.

Yu et al., [10], because direct contact and actual money exchange are absent from electronic business transactions, online payment security and accuracy are crucial. Electronic payment systems, such as online credit card payments, electronic cash, electronic checks, and small payments, must be evaluated based on several characteristics, including merchant-consumer acceptance, future development potential, and adaptability to different circumstances. This article provides an organized review of these systems to help businesses implement or improve electronic payment systems, highlighting their benefits and drawbacks.

Vinitha [12] informed that using many digital techniques, including debit cards, credit cards, and mobile platforms, e-payment systems enable digital transactions between organizations like banks, corporations, governments, and individuals. The digital ecosystem of India has been greatly improved by programs like the 'Digital India' program, Unified Payments Interface (UPI), and Bharat Interface for Money (BHIM), in addition to the country's demonetization efforts. Encouraging widespread involvement and trust requires strong security measures, user-friendly features, and regulatory frameworks. Real-time gross settlement (RTGS) and retail electronic payments have led to a significant growth in digital transactions, according to the Reserve Bank of India. This indicates a growing trend towards a digitalized financial landscape.

Kumar [16] depends on understanding consumer behaviour and the elements influencing purchasing decisions. Customers, frequently called "kings," direct producers' focus and efforts. A range of elements, including social contacts, brand recognition, personal experiences, and product advantages, influences their perceptions of brands and organizations. Marketers display items that appeal to consumers' signals to attract new clients and win them over as devoted ones. Marketing tactics that work rely on the marketer's knowledge and anticipation of consumer behaviour, considering factors including product expertise, peer influence, and the product's capacity to meet demands.

Asokan et al. [18] said that Electronic payments have replaced the traditional face-to-face transaction method, posing new security risks in addition to the old ones. In opposition to paper-based transactions, digital transactions involve hazards such as loss of anonymity, illegal digital signatures, and perfect duplication. On the other hand, when compared to conventional techniques, well-designed electronic payment systems provide increased security and flexibility. In order to facilitate extensive electronic commerce, this article explores electronic payment systems, highlighting security challenges and the possibility of better security measures.

Ali [19] denoted that Consumer buying behaviour refers to the complex interactions between different traits and factors that affect people's decision-making and purchasing habits. Cultural background, culture, socioeconomic class, group relationships, family dynamics, personality traits, and psychological effects are some of these elements. Societal contexts and cultural trends also mould customers, influencing their purchasing decisions even more. By being aware of these factors, brands are better able to create strategies, messaging, and advertising campaigns that are specific to their target market and increase sales and customer satisfaction. This information is priceless for brands looking to satisfy consumer demands and preferences in a constantly changing market.

Fatonah [22] said that a major shift from cash-based to electronic-based commercial transactions has been sparked by the quick development of digital innovation and information and communication technology (ICT). Electronic payment systems were established to speed up trade, not to replace cash, but to provide a better option. E-payments, computerized processes that do not require actual cash, are essential to the e-commerce industry. This study aims to analyze the body of research on e-payment systems in e-commerce. It looks at its scope and methodological fundamentals to find knowledge gaps and provide directions for future investigation. We hope that this thorough study will shed light on the state of the field and provide doors for future research in this constantly evolving area.

3. Research Design

A common non-probability sampling strategy in social science research is the snowball sampling approach, which is especially useful for populations with populations that are difficult to reach or for issues whose population numbers are unknown [20]. This approach involves the initial selection of volunteers, called "seeds," depending on particular research-related characteristics [21]. As the sample size increases, a "snowball" effect occurs because these seeds are asked to recommend or suggest other potential participants who fit the requirements [23].

One of its main advantages is the potential of the snowball sampling approach to reach disadvantaged or hidden communities that may be challenging to reach with conventional sampling techniques [24]. It also enables researchers to get in touch with people who might be unwilling to participate in studies because of delicate subjects or unique personal circumstances [25].

The "impact of e-payment system in consumer buying behavior" research benefits greatly from using the snowball sampling approach [26]. It makes reaching a wide range of volunteers with various experiences from various demographic groups and geographical areas easier, enhancing the study's findings [27]. This technique makes it possible to identify distinct customer subgroups, which advances our understanding of how e-payment systems affect the purchasing decisions of different types of consumers.

Additionally, recruiting obstacles can be overcome by utilizing already-existing social networks, which builds participant and researcher confidence [28]. In the end, the snowball sampling technique guarantees diversity, comprehensiveness, and

significance when collecting qualitative information, improving the study's ability to clarify the complex connection between the uptake of electronic payments and consumer behaviour (Table 1).

H_{0a} There is no significant difference in the adoption rate of e-payment systems among consumers.

H_{1a} There is a significant difference among consumers' adoption rates of e-payment systems.

Table 1: Adoption rate of e-payment system

Groups	Count	Sum	Average	Variance
E-payment Usage Frequency	105	382	3.638095	0.713919
Preferred E-payment Methods	105	213	2.028571	0.624176
E-payment Usage Factors	105	222	2.114286	1.102198
E-payment Comfort Level	105	327	3.114286	1.063736
E-payment Challenges	105	275	2.619048	0.622711
E-payment Recommendation Frequency	105	360	3.428571	0.997253

Here, the P-value is higher than 0.05, thereby accepting the null hypothesis and rejecting the alternative hypothesis. Therefore, there is no difference between the means of "To assess the adoption rate of e-payment systems among consumers" (Table 2).

Table 2: One-way ANOVA for Significant difference in the adoption rate of e-payment systems among consumers

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	240.5476	5	48.10952	56.33442	2.44E-48	2.228465
Within Groups	532.8952	624	0.853999			
Total	773.4429	629				

The variance digit for "E-payment Challenges," which is 0.622711, shows that there is not much variation in the answers to this question. This implies a degree of consistency in the respondents' thoughts and experiences regarding the difficulties posed by using electronic payments [29]. We see a similar low variability in respondents' preferences for particular e-payment methods when we go on to the second least variance digit for "Preferred E-payment Methods," which is 0.624176.

This suggests consistency in the decisions made by participants about their favored electronic payment method [30]. The value of 0.713919 for the third least variance digit is "E-payment Usage Frequency." This variation shows reasonably consistent trends in the frequency of e-payment usage among respondents, albeit slightly greater than the preceding two (Table 3).

Table 3: Factors influencing customer's choice

Groups	Count	Sum	Average	Variance
Security in E-Payment Selection	105	383	3.647619	1.15348
Influence of Convenience on E-Payment Method Selection	105	340	3.238095	0.93315
The Impact of Rewards on E-Payment System Selection	105	301	2.866667	1.232051
Perceived Feature Richness of E-Payment Systems	105	358	3.409524	1.032601
Merchant Acceptance and E-Payment Preference	105	354	3.371429	0.928022
The Influence of Familiarity on E-Payment Adoption	105	364	3.466667	0.770513

Next, the "E-payment Recommendation Frequency" is the subject of the fourth least variance digit of 0.997253. This indicates some variation in opinions toward promoting electronic payment methods and points to moderate heterogeneity in respondents' chances of doing so [31]. At 1.063736, the fifth least variance digit represents the "E-payment Comfort Level." This variance indicates some fluctuation in respondents' comfort levels with e-payment systems, demonstrating that comfort levels may differ among users, even though it is still relatively low compared to others.

Lastly, "E-payment Usage Factors" is linked to the greatest variance digit of 1.102198. This shows the greatest degree of response variability, indicating that respondents' viewpoints and experiences may differ greatly in the variables driving their use of electronic payments (Table 4).

H_{0a} There is no significant difference among the factors influencing consumers' choice of e-payment systems.

Table 4: One-way ANOVA for Significant differences among the factors influencing consumers' choice of e-payment systems

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	36.81905	5	7.36381	7.303173	1.16E-06	2.228465
Within Groups	629.181	624	1.008303			
Total	666	629				

Here, the P-value is higher than 0.05, thereby accepting the null hypothesis and rejecting the alternative hypothesis. Therefore, there is no difference between the means of "To analyze the factors influencing consumers' choice of e-payment systems."

Beginning with "The Influence of Familiarity on E-Payment Adoption," which has the lowest variance digit of 0.770513, it shows that replies to this topic are generally quite consistent. This implies that respondents' adoption decisions are consistently influenced by their acquaintance with a specific e-payment system. Regarding "Merchant Acceptance and E-Payment Preference," respondents' preferences for e-payment systems based on merchant acceptance had similarly low variability, with a second least variance digit of 0.928022. This suggests that respondents' propensity to use widely established e-payment options is somewhat uniform. At 0.93315, the third least variance digit relates to "Influence of Convenience on E-Payment Method Selection." This variance shows somewhat stable patterns in respondents' selections depending on convenience criteria, even if it is slightly greater than the previous two. This highlights the significance of convenience in the selection of an e-payment option.

The fourth least variance digit of 1.032601 relates to "E-payment systems' perceived feature richness." This shows that respondents' opinions of the features and functionalities provided by e-payment systems vary somewhat, reflecting different viewpoints regarding the variety of supplied features. 1.15348's fifth least variance digit is "Security in E-Payment Selection." This deviation, however still small compared to previous ones, indicates some variation in respondents' security considerations when selecting e-payment systems, suggesting that users may have different security concerns. The last factor affecting the variance digit 1.232051 is "The Impact of Rewards on E-Payment System Selection." This shows the greatest degree of response diversity, indicating that respondents' choices of e-payment systems are greatly influenced by rewards or cashback offers, reflecting a wide range of priorities and preferences.

4. Findings

This research provides valuable insights into the impact of e-payment systems on consumer buying behavior. Several key findings have emerged through a comprehensive analysis of survey responses, interviews, and qualitative data, shedding light on consumer attitudes, preferences, and behaviours related to e-payment adoption.

Firstly, the research findings indicate that e-payment systems are increasingly prevalent in today's consumer landscape, with a significant proportion of respondents reporting frequent or occasional use of digital payment methods for their transactions. Mobile wallets and credit/debit cards emerge as participants' preferred e-payment methods, highlighting the growing popularity of these convenient and accessible payment solutions. Many participants reported regularly using e-payment methods, showcasing a remarkable shift towards ditching cash and checks. This surge in digital transactions highlights the growing popularity of convenient and accessible payment solutions. Among these options, mobile wallets and credit/debit cards reign supreme, likely due to their user-friendly nature and ease of integration into everyday life. This widespread adoption of mobile wallets and cards signifies a consumer preference for streamlined, hassle-free payment experiences.

Secondly, convenience, security, and transaction speed emerged as the top priorities for consumers choosing e-payment methods. Security, however, stood out as the paramount concern. This underscores the critical role of robust security measures in driving wider adoption and usage of e-payment systems. Factors influencing consumers' choice of e-payment systems include convenience, security, and transaction speed, with most respondents prioritizing these features when selecting a payment method. Notably, security emerges as a critical consumer consideration, highlighting the importance of robust security measures in driving e-payment adoption and usage.

Thirdly, while consumers generally express comfort and confidence in using e-payment systems, some challenges and issues persist, including occasional technical glitches, transaction failures, and concerns about fraud or unauthorized access. While consumers express a general comfort level with e-payments, some lingering issues can erode trust and hinder wider adoption. These challenges include:

Technical glitches: Occasional system outages, slow processing times, or app crashes can disrupt the user experience and create frustration.

Transaction failures: Failed transactions due to network issues, insufficient funds, or technical errors can be inconvenient and leave consumers questioning the system’s reliability.

Fraud concerns: Worries about unauthorized access, data breaches, or fraudulent transactions remain a top concern for many users. This highlights the need for robust security measures like multi-factor authentication, data encryption, and vigilant fraud detection systems. These challenges underscore the need to continuously improve e-payment infrastructure and security protocols to enhance user trust and confidence.

Moreover, rewards and cashback offers play a moderately significant role in influencing consumers’ choice of e-payment systems, indicating the importance of incentives and benefits in driving adoption and usage. However, the study finds that the availability of rewards alone may not be sufficient to outweigh concerns about security or convenience for some consumers.

Additionally, the research reveals a strong correlation between familiarity with a particular e-payment system and consumer adoption, with respondents indicating that their level of comfort and confidence increases with experience and familiarity. This underscores the importance of user education and training initiatives in promoting e-payment adoption and usage.

Furthermore, the study finds that merchant acceptance and wide availability of e-payment options are crucial factors influencing consumer behavior, with consumers expressing a strong inclination towards using systems that retailers and merchants widely accept. This highlights the interconnected nature of e-payment ecosystems and the need for stakeholder collaboration to promote adoption and interoperability (Figure 1).

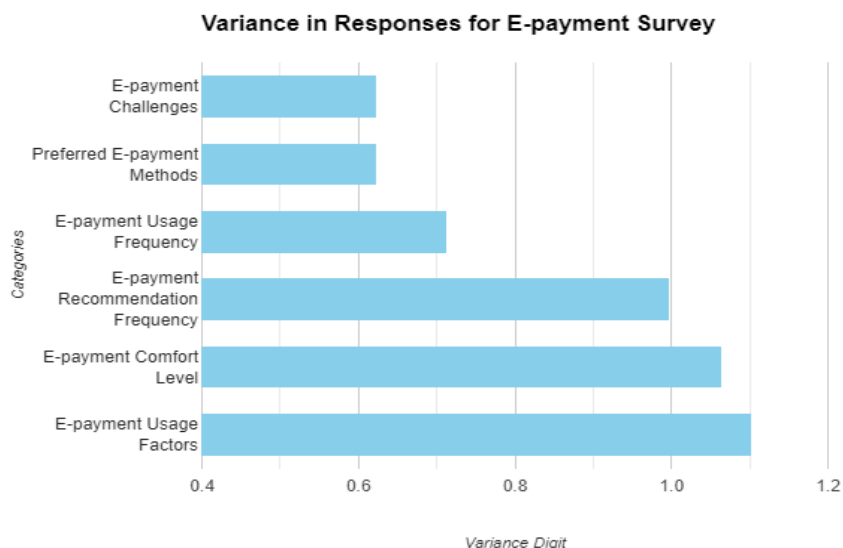


Figure 1: Variance in responses for E-payment survey-A

This research sheds light on the intricate relationship between e-payment adoption and consumer behavior. It underscores the critical role of convenience, robust security measures, loyalty programs, user-friendliness, and widespread merchant acceptance in propelling e-payment use (Appendix A). By acknowledging these elements and actively addressing consumer anxieties, policymakers, financial institutions, and e-payment providers can collaborate to create a digital payment landscape that is secure and efficient and fosters greater financial inclusion for all. This, in turn, can pave the way for a more streamlined and dynamic financial ecosystem.

In conclusion, the findings of this research provide valuable insights into the dynamics of e-payment adoption and consumer behavior, highlighting the significance of convenience, security, rewards, familiarity, and merchant acceptance in driving adoption and usage (Figure 2).

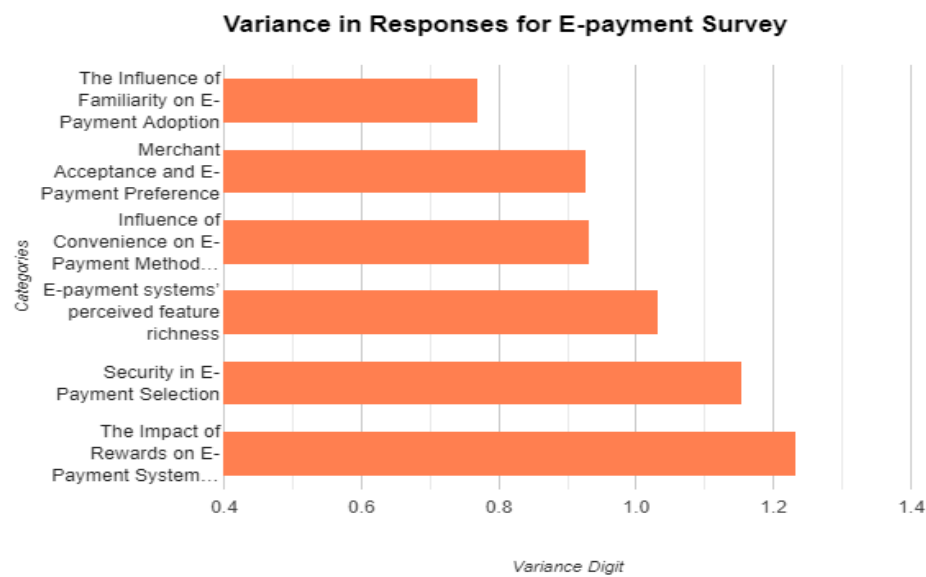


Figure 2: Variance in responses for E-payment survey-B

By understanding these factors and addressing consumer concerns, policymakers, financial institutions, and e-payment providers can work toward fostering a more inclusive, secure, and efficient digital payment ecosystem. This research offers valuable insights into the dynamics of e-payment adoption and consumer behavior. It underscores several key factors influencing e-payment usage: convenience, robust security protocols, loyalty programs, user familiarity, and widespread merchant acceptance. By leveraging these findings, policymakers, financial institutions, and e-payment providers can collaboratively foster a more inclusive, secure, and efficient digital payment ecosystem.

5. Conclusion

Diverse perspectives on customer behavior and preferences can be obtained by analyzing the diversity in e-payment adoption variables. While rewards and security have more diverse effects, convenience and merchant acceptance show relatively low variability, suggesting their continuous influence on the use of e-payments. This shows that various consumers have varied priorities when selecting e-payment options; for example, some may place a higher value on security than others, while others may place a higher value on prizes or incentives. Variability is also evident in the perceived feature richness of e-payment systems, suggesting differing opinions on the functionalities provided by various platforms. Moreover, the mild impact of familiarity on adoption decisions shows the significance of user experience and familiarity in molding preferences. The results highlight the intricacy of consumer decision-making when adopting e-payments. The interests of a broad consumer base must be recognized and met by e-payment providers, who should prioritize security improvements, provide compelling incentives, make sure that features are easy to use, and increase merchant adoption. Providers can improve customer satisfaction and encourage a higher uptake of e-payment systems by accommodating different customer priorities and preferences. Furthermore, future studies should investigate ways to effectively address the underlying causes of the variety in consumer preferences and go deeper into understanding them.

Appendix A.

Questionnaires

To assess the adoption rate of e-payment systems among consumers:

1. How frequently do you use e-payment systems for your transactions?
2. Which e-payment methods do you use most often?
3. What factors influence your decision to use e-payment systems?
4. How comfortable are you with using e-payment systems compared to traditional payment methods?

5. Have you encountered any issues or challenges while using e-payment systems?
6. How likely are you to recommend e-payment systems to others?

To analyze the factors influencing consumers' choice of e-payment systems:

1. How important is security when choosing an e-payment system?
2. What role does convenience play in your decision to use a particular e-payment method?
3. How significant are rewards or cashback offers in influencing your choice of e-payment system?
4. Do you prefer e-payment systems that offer a wide range of features and functionalities?
5. Are you more inclined to use e-payment systems that merchants and retailers widely accept?
6. How much does familiarity with a particular e-payment system influence your decision?

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