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A STUDY ON THE ADOPTION OF ELECTRONIC PAYMENT SYSTEMS AND THEIR IMPACT ON CUSTOMER SATISFACTION IN CHENNAI

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ABSTRACT

A digital payment system is an electronic platform that enables consumers to conduct electronic commerce transactions for their purchases and financial activities. The primary goal of the survey is to determine the level of customer satisfaction with electronic payment options. The study focused on clients who use electronic payment methods as respondents. This study uses primary data from a structured questionnaire to examine the perspectives of customers who use electronic payments. This study utilized 119 samples, and a convenient sampling strategy was employed to choose the respondents. Various multivariate approaches, such as ANOVA, Chi-square, and t-test, were employed to evaluate the different hypotheses. The analysis showed no notable disparity in satisfaction levels with electronic payment services based on respondents' education qualifications. However, there was a significant disparity in satisfaction levels with electronic payment services based on respondents' age groups. Security and privacy are the key elements contributing to trust, the primary criteria influencing the acceptance of electronic payment for customer pleasure.

Keywords: *Digital payment system, electronic payment method, customer satisfaction.*

1. Introduction

Due to advancements in technology and an increase in population, clients now desire financial transactions that are both convenient and effortless. An electronic payment system is the optimal method for clients to transact at any location and time. A digital payment system is an electronic platform that enables consumers to conduct electronic commerce transactions for their purchases and financial activities. Electronic payment systems in India facilitate money transmission between individuals using electronic means. The Reserve Bank of India has implemented adequate measures to establish a robust technology-driven system for electronic payments, enabling smooth movement of funds between two parties at a meager transaction cost. The following are the many modes of electronic payments, namely:

1.1 Credit Card

Credit card payments are a popular form of contemporary electronic payment. When a consumer purchases using a credit card, the bank that issued the credit card pays for the item. The customer is then given a certain period to settle the credit card bill. Typically, it refers to the monthly payment cycle on a credit card.

1.2 Debit Card

Prior to obtaining a debit card from the bank, it is necessary to have a bank account. The primary distinction between a debit card and a credit card is that when making a payment with a debit card, the funds are instantly subtracted from the associated bank account, necessitating a sufficient balance for the transaction to be successfully processed. However, a credit card transaction does not have this need.

1.3 Smart Card

A smart card resembles a credit or debit card in terms of its physical look, but it contains a compact microprocessor chip that is integrated within it. The system can store both the professional and personal information of a customer. Smart cards are utilized for monetary storage, with the deducted amount reduced following each transaction. Access to intelligent cards is restricted to customers granted a unique Personal Identification Number (PIN). Smart cards offer high security by storing information in an encrypted format. Additionally, they are cost-effective and enable speedier processing capabilities. Mondex and Visa Cash cards are both instances of intelligent cards.

1.4 E-Money

E-money transactions are electronic transactions where payment is conducted over a network, and the funds are transmitted directly between financial institutions without an intermediary. Electronic monetary transactions offer expedited processing, enhanced convenience, and time-saving benefits. Electronic money transactions, such as online payments made using credit cards, debit cards, or smart cards, serve as instances. Another renowned illustration is electronic cash. For e-cash transactions, clients and merchants must register with the bank or organization that issues the e-cash.

1.5 Electronic Fund Transfer

Electronic funds transfer is widely used to transfer money between bank accounts. Accounts may be held at either the same bank or other banks. ATM or computer can be used to perform fund transfers. Currently, online electronic funds transfer (EFT) is becoming increasingly widespread. In this scenario, a customer utilizes the bank's website, accesses their account by logging in, and enrolls for an additional bank account. The subsequent are the fundamental categories of electronic fund transfers.

1.5.1 NEFT (National Electronics Funds Transfer)

The NEFT payment system was implemented in 2005 to streamline individual fund transactions. The National Electronic Payments Transfer (NEFT) is a comprehensive and widespread system for transferring money. It enables clients to electronically transfer payments from their bank accounts to another account within the same bank or any other bank within the network. NEFT technology can be utilized by individuals, firms, and corporate organizations for fund transfers. NEFT transactions necessitate both an originating bank and a receiving bank. The RBI enables practically all banks to carry out NEFT transactions by

centralizing the bank branches' records in a database. Before initiating a transfer of funds using NEFT, clients must complete the registration process for the recipient of the funds. The customer must provide specific details, including the receiver's name, the recipient's bank name, a valid account number owned by the recipient, and the IFSC code of the recipient's bank. Completing these areas is essential for authorizing and processing a money transfer. The NEFT system allows for transferring any amount of money, up to a maximum of Rs. 10 00 000/-. NEFT transactions can be initiated at any time, including holidays, except for Sundays and recognized bank holidays. Nevertheless, the settlements of transactions occur in batches as determined by the Reserve Bank of India, based on predefined time intervals. Currently, there are 12 settlement batches in operation from 8 am to 7 pm on weekdays and 6 settlement batches from 8 am to 1 pm on Saturdays.

1.5.2 RTGS (Real Time Gross Settlement)

Time Gross Settlement (TGS) is a financial system that enables the immediate and direct transfer of payments between banks in real time or on a gross basis. The transaction is immediately processed and does not remain in a queue. The RTGS payment gateway, overseen by the Reserve Bank of India, facilitates electronic bank transactions. The transferred amount is immediately debited from one bank's account and deposited into another. RTGS system enables users, including individuals, organizations, and firms, to transfer significant amounts of money. The minimal threshold for transferring funds utilizing the Real Time Gross Settlement (RTGS) system is Rs. 2 Lakhs or more.

Nevertheless, there is no maximum limit on the amount that can be transferred. Before initiating a money transfer through RTGS, the client making the payment must provide the necessary information about the recipient and their bank account. The necessary information for transferring funds includes the recipient's name, account number, the address of the recipient's bank, and the IFSC code of the corresponding bank. The Reserve Bank of India acknowledges the receiving bank upon a successful transfer. Depending on this, the remitting and receiving banks may or may not inform the consumers.

1.5.3 IMPS (Immediate Payment Service)

Most money moved through electronic channels is typically processed by NEFT or RTGS. Nevertheless, due to the limitation of processing cash in batches through these transfer gateways, the National Payments Corporation of India implemented a trial mobile payment initiative known as the Immediate Payment Service (IMPS). IMPS provides immediate electronic transfer services to the Indian population through mobile phones. The IMPS interbank transfer service is accessible round the clock, enabling mobile phones to access accounts and authorize the movement of payments between different accounts and institutions. The IMPS service includes a secure transfer gateway and instant confirmation of completed orders. IMPS is available on all mobile devices through Mobile Banking or SMS service. In order to transfer money using the IMPS method, the consumer must initially enroll for quick payment services with their respective bank. Upon receiving the Mobile Money Identifier (MMID) and MPIN from the bank, a customer can either log in or request via SMS to transfer a certain amount to a beneficiary.

Simultaneously, the recipient must associate their mobile number with their corresponding account and get the Mobile Money Identifier (MMID) from the bank to receive

funds. In order to initiate a transfer, the client must input the recipient's cellphone number, beneficiary MMID, transfer amount, and MPIN when requesting the fund transfer. It is advisable to note the transaction reference number for future use. IMPS allows users to utilize mobile devices as a quick and efficient method for transferring money, providing convenience and saving time compared to conventional transfer methods.

2. REVIEW OF LITERATURE

Gokilavani R. et al. (2018) conducted a study investigating how consumers in the Coimbatore district perceive digital payment. The researchers randomly picked 300 customers using a simple random sample procedure. The t-test and ANOVA test assess the disparity between consumers' socioeconomic positions and their perception of digital payment. The survey findings indicate a notable disparity between consumer' views of digital payment and their socioeconomic position. The factors of superiority, safety, security, cost-effectiveness, time efficiency, user-friendliness, consumer privacy protection, convenience, and ease of use strongly impact the adoption of digital payment among customers.

Sarika and Vasantha (2018) conducted a study on the impact of trust on the adoption of mobile wallets and its subsequent consequences on user happiness. This paper presents a comprehensive analysis of existing research and puts forth a theoretical framework that examines the impact of trust on consumers' pleasure. This study has examined the relationship between trust, user contentment, and the actual usage of mobile wallets. It has been found that trust directly influences users' pleasure and favorably impacts their usage of mobile wallets. Mobile wallets provide individuals convenience for online transactions at any time, day or night. Trust is primarily influenced by the components of security and privacy, which are the significant determinants of wallet adoption and user happiness. The study determined that trust is the primary determinant of consumers' pleasure and significantly influences their inclination to utilize mobile wallets.

In their study conducted by Khan and Jain (2018) investigated the utilization of e-payments to achieve sustainable growth in online businesses. This study was conducted by selecting a sample of 100 respondents who use e-payments for online purchases. The selection was based on factors such as age, purpose of usage, frequency of usage, challenges encountered, and the impact of e-payments on business growth. The study revealed that most customers make purchases because of discounts and convenience. The advantages of e-payment methods are often associated with the benefits offered by smartphones, such as autonomous payment, convenient access to services at any location and time, doorstep services, easily traceable queues, and cashless transactions. This study proposes that organizations prioritize trust in addressing security and privacy concerns rather than solely emphasizing discounts or cash-back offers.

Mamta Brahmbhatt (2018) conducted a descriptive study in Ahmadabad to assess customers' perception of e-wallets. A well-designed questionnaire was constructed, and a representative sample of 102 individuals was selected for this study. The study findings indicate a notable disparity in satisfaction levels among users of e-wallet services based on occupation. Additionally, there is no correlation between respondents' gender and

their sources of awareness regarding the government's efforts to promote e-wallet services. The findings indicated no statistically significant variation in satisfaction with e-wallet services across different age groups and genders. Companies and government entities can raise awareness by organizing workshops and seminars on cashless society at educational institutions, workplaces, and other relevant venues.

De Rose (2017) has endeavored to examine consumer inclination towards electronic payments. This study has reviewed multiple sources of literature on the topic at hand and gained a thorough understanding of the use of electronic payments. According to the researcher in this study, e-payments mitigate the security hazards associated with cash handling. Customers who use electronic invoicing can digitally track their financial transactions. Debit cards and online bill payments enable the prompt movement of funds from an individual's account to a business account, regardless of location, with a few simple clicks, without needing a physical money transfer. This study also indicated that electronic payment is more convenient than conventional payment methods such as cash or check. The study indicated that e-payments provide a range of options instead of dealing with actual currency.

Singh and Rana (2017) surveyed how consumers perceive digital payment methods. This study uses primary data from 150 samples taken from various locations in Delhi. The findings of this study indicate that there is no statistically significant difference in consumer perception depending on demographic parameters such as gender, age, profession, and annual income of the respondents. The study revealed that education substantially impacts the acceptance of digital payments. Most respondents concur that mobile wallets and digital payment offer advantages to individuals in acquiring products, enhancing decision-making quality, and facilitating product acquisition compared to traditional ways. The study found that demographic parameters, except education, did not influence the adoption of digital payment. Additionally, the increased prevalence of smartphones and internet access in these locations has further encouraged digital payment acceptance.

Radhika and Florence John (2016) conducted a study on the propensity of customers in India to utilize electronic payment solutions. This study examines the transition from paper-based banking systems to electronic payment systems and the level of awareness, usage, and advantages of electronic payment systems in the banking sector. Primary data was collected through a structured questionnaire from bank customers in Chennai, Tamil Nadu. A total of 150 samples are gathered from bank customers. The findings of this study indicate a noteworthy disparity between the qualifications of the participants and their level of knowledge regarding technology-based payment systems such as debit cards, NEFT, IMPS, and RTGS. This study also indicated that clients must understand technology payment systems. The bank must offer educational programs to enhance understanding of technology payment methods.

In a study by Kapoor (2015), the objective was to identify the characteristics contributing to customer satisfaction with Internet banking services. Tricity conducted this survey, which included 480 diverse bank clients. The questions were delivered via judgment sampling. The study findings indicate that most clients expressed satisfaction (mean score of 4.346) with the costs levied by the bank for online banking. Additionally,

a lower mean score of 3.05 suggests that Internet banking suits all customers. Internet banking services should be easily accessible and user-friendly for all customers.

Rouibah (2015) did a study to assess the utilization and contentment of electronic payment systems in an Arabic country, specifically Kuwait. This study assesses the extent of present utilization, contentment, inclination to embrace, and perceived hindrances towards existing electronic payment methods. A total of 350 participants were chosen for this investigation, and the findings indicated that the most often utilized methods are credit cards, debit cards, cash on delivery, shop and ship service, prepaid Petronet cards, and mobile payment systems. Customers' primary challenges include the absence of legal frameworks safeguarding online consumers, concerns over potential risks, inadequate security measures, inability to deliver promised services and products, and the need for more trust in electronic payment service providers.

In a study conducted by Chavosh et al. (2011), examined the level of satisfaction among bank customers in Malaysia regarding e-payment services. The comparative study examines the satisfaction rate with e-payment services in Malaysia's banking industry, specifically focusing on two sample groups in Penang. These two groups comprise individuals who own degrees and those who do not, although both utilize electronic payment services. A total of 350 individual samples were chosen for this study. The findings of this study indicate that customers with degrees strongly believe that e-payment services can lower transaction costs compared to traditional payment services offered by banks. On the other hand, customers without degrees have a higher level of trust in the privacy provided by banks in electronic payment systems than traditional ones. The study concluded that bank managers and e-payment service providers must pay greater attention to security concerns.

3. METHODOLOGY

The primary objective of this study is to examine the implementation of an electronic payment system and its influence on customer satisfaction in the urban area of Chennai. The study focused on clients who use electronic payment methods as respondents. This study uses primary data from a structured questionnaire to examine the perspectives of customers who use electronic payment methods. This study utilized 119 samples, and a convenient sampling strategy was employed to choose the respondents. This study falls within the realm of descriptive research. The survey consists of 13 inquiries specifically formulated to assess the level of electronic payment adoption and gauge customer satisfaction with the service. This study utilizes a 5-point Likert scale, with the endpoints being 'strongly disagree' and 'strongly agree'. The data has been analyzed and interpreted using the research program SPSS. Various multivariate approaches, such as ANOVA, Chi-square, and t-test, were employed to examine and evaluate the different hypotheses.

3.1 Objectives

1. To identify the influence of demographic variables on making electronic payment
2. To identify the customer satisfaction level of electronic payment methods

3.2 Hypothesis

I. There is no statistically significant disparity between the educational qualifications of the respondents and their degree of satisfaction with the electronic payment system.

II. There is no discernible disparity in the satisfaction levels of various age groups concerning the electronic payment system.
III. There is no discernible disparity between the respondents' genders and their level of satisfaction with the electronic payment system.
IV. There is no correlation between the occupation of the respondents and the types of electronic payment systems.

4. FINDINGS AND DISCUSSION

Table 1 Demographic profile

Particulars	Classification	No. of Customers	Percentage
Gender	Male	69	58.0
	Female	50	42.0
	Total	119	100
Age Group	Below 18	17	14.3
	18 to 25	40	33.6
	25 to 35	31	26.1
	35 to 45	21	17.6
	Above 45	10	8.4
	Total	119	100.0
Education Qualification	Illiterates	7	5.9
	School level	26	21.8
	Graduate/Diploma	70	58.8
	Professionals	16	13.4
	Total	119	100.0
Occupation	Private organization	32	26.9
	IT/MNC	40	33.6
	Government employee	16	13.4
	Business and others	23	19.3
	Unemployment	8	6.7
	Total	119	100.0

Table 2 Reliability test

The reliability test for the actual study for a total of 119 respondents, the Cronbach's Alpha coefficient for 13 variables with .870, has excellent internal consistency and is reliable for overall items in the questionnaire. Olorunniwo et al. (2006) stated that if Cronbach's Alpha coefficient is more than 0.70, the reliability of the questionnaire is acceptable.

Table 3 Satisfaction levels of Electronic Payment Methods

Factor	Statement	Mean Score	Std. Deviation

Satisfaction levels of Electronic Payment Methods	Cost and time saving	3.067	1.1254
	Safe and secured	2.831	.9326
	User friendly	3.563	.9264
	Protection of privacy	3.294	.8062
	Suitable for every customer	3.042	.9056
	Highly secure comparing to conventional payment methods	3.369	.9375
	Difficulties of access	2.991	.9432
	Charges for service	3.395	.9407
	High risk	3.327	.9751
	Reliable for the transactions	3.067	.9805
	Benefits for making electronic payments	3.025	1.1005
	Convenient and easiness	3.428	.9439
	Terms and conditions of transactions	3.529	.9551

Table 3 displays the average score and standard deviation outcomes for the satisfaction levels associated with electronic payment systems. The results indicate that electronic payments are user-friendly, as evidenced by a high mean score of 3.563 and a standard deviation of .9264. The mean scores for safe security and access challenges are 2.831 and 2.991, respectively.

Heading 1 There is no discernible disparity between the educational qualifications of the respondents and their level of satisfaction with the electronic payment system.

Table 4 One Way ANOVA

	Sum of squares	**Df**	**Mean Square**	**F**	**P Value.**
Between Groups	303.935	3	101.312	1.567	0.201
Within Groups	7436.418	115	64.665		
Total	7740.353	118			

The calculated P-value is .201, statistically significant at a level greater than 0.05. Hence, we fail to reject the null hypothesis. Therefore, there is a substantial disparity in satisfaction levels when utilizing electronic payment systems, depending on the educational qualifications of the respondents.

H2 There is no Significant difference in the satisfaction levels of different age groups regarding the electronic payment system.

Table 5 One Way ANOVA

	Sum of squares	**Df**	**Mean Square**	**F**	**P-Value.**
Between Groups	457.896	4	114.474	1.792	0.135
Within Groups	7282.457	114	63.881		
Total	7740.353	118			

The calculated P-value is .135, statistically significant at a level greater than 0.05. Hence, we fail to reject the null hypothesis. Hence, there exists a notable disparity in the levels of contentment experienced when utilizing electronic payment systems, as categorized by the age groups of the respondents.

H3 There is no association between occupation of the respondents and types of electronic payment systems

Table 5 Chi square

Types of electronic payment service							
Occupation	**Credit Card**	**Debit Card**	**Smart Card**	**E-Wallet**	**Net Banking**	**Total**	**Chi square value**
Private organization	9	9	7	1	6	32	
IT/MNC	14	9	7	3	7	40	
Govt. Employees	3	3	0	5	5	16	p-value 0.131
business and others	7	6	2	3	5	23	
Unemployment	1	3	0	0	4	8	
Total	**34**	**30**	**16**	**12**	**27**	**119**	

Given that the significant value is over 0.05, accepting the null hypothesis implies that there is indeed a correlation between the occupation of the respondents and the various electronic payment services.

H4 There is no significant difference between genders of the respondents and satisfaction level of electronic payment system

Table 5 t-test

Analysis of satisfaction levels regarding electronic payment methods and gender	**t-test for Equality of Means**		**p-value**	**Result**
	t	df		
Satisfaction level of e-payment.	-2.314	117	0.021	H0 is rejected

The above table clearly shows a notable disparity in the satisfaction level of electronic payment based on the respondents' gender.

5. Suggestion

An authentic text message from the bank will never request personal or financial information in a message. Do not disclose a one-time password (OTP), debit/credit card number, card verification value number (CVV), or personal identification number (PIN) to anyone else. In the present day, most banking institutions send informative messages to their consumers to safeguard them from fraudulent activities. In order to prevent fraudulent activities during the transaction, consumers must adhere to the guidance provided by the banking institution and maintain a vigilant awareness of potential fraud.

6 Conclusion

An authentic text message from the bank will never request personal or financial information in a message. Do not disclose a one-time password (OTP), debit/credit card number, card verification value number (CVV), or personal identification number (PIN) to anyone else. In the present era, most banking institutions transmit informative messages to their customers to safeguard them against fraudulent activities. In order to prevent fraudulent activities throughout the transaction, consumers are advised to heed the guidance provided by the banking institution and remain vigilant about potential fraud.

References

Chavosh, A., Halimi, A. B., & Espahbodi, S. (2011). Comparing the satisfaction with the banks e-payment services between degree holder and non-degree holder customers in Penang-Malaysia. *International Journal of e-Education, e-Business, e-Management and e-Learning*, *1*(2), 103-109.

De Rose, V. J. L. (2017). A Study on Consumer Preference towards e-Payments. *International Journal of Advance Research in Computer Science and Management Studies,* Vol 5, Issue 2. Pp 1-8.

Gokilavani R, Venkatesh Kumar D, Durgarani M, Mahalakshmi R (2018) can India move towards digital soverign currency? a study on perception of consumers towards Digital payment. *International Journal of Pure and Applied Mathematics. Vol 119. No. 17.* Pp 2167-2175.

Kapoor, H. (2015). Customer Satisfaction and E–Banking services: a Case Study of Tricity. *International Journal of Innovative Research in Science, Engineering and Technology, Vol4, Issue10*, 10270-10277.

Mamta Brahmbhatt (2018) a study on customers' perception regarding e-wallets in Ahmadabad. *IUJ journal of management. Vol 6. No 1.* Pp 11-14.

Radhika R and Florence John (2016). Customers Intention to Use Electronic Payment Systems in India - *A Study. International journal of arts, humanities and management studies.* Volume 02, No. 12. Pp 45-53.

Rouibah, K. (2015). Electronic Payment Systems Use and Satisfaction in an Arabic Country: Evidence from Kuwait.*Issues In Information Systems*, *16*(2).

Sana Khan., & Shreya Jain (2018). a study on usage of e-payments for sustainable growth of online business. *IOSR journal of business and management. 2nd International Conference on 'Innovative Business Practices and Sustainability in VUCA World.* Pp 74-81.

Sarika, P., & Vasantha S (2018) review on influence of trust on mobile wallet adoption and its effects on users' satisfaction. *International journal of management, technology and engineering. Vol 8. Issue 12.* Pp 1731-1741.

Singh, S., & Rana, R. (2017). Study of Consumer Perception of Digital Payment Mode. *Journal of Internet Banking and Commerce*, *22*(3), 1-14.

Websites

www.tutorialspoint.com

www.seshadri.info