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Factor analysis on various issues and challenges in practicing of digital transaction: A study in Sonipat district

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Abstract
Any financial transaction carried out online using a laptop, computer or smartphone is referred to as a digital transaction. Only physical access to the bank is made possible by the traditional banking system. When handling actual money, there is a chance of theft, damage, exchange, etc. The alternate manner of transactions, commonly referred to as digital transactions, is crucial for avoiding the risk associated with handling real currency. All retailers, whether online and in physical stores, recognised digital transactions as a universal form of payment. The lender faces unforeseen challenges in the first phase. Even a remote village's residents are sufficiently aware of electronic payment systems thanks to the Central Government and Reserve Bank of India's best efforts." The current study focusses on analysing the problems and difficulties in practicing digital transactions. Four aspects are identified as problems and difficulties when doing digital transactions. The factors include issues with digital transaction operation, security, talent requirements and information threats.

Keywords: Digital transactions, issues and challenges, factor analysis

1. Introduction
Any financial transaction made online using a laptop, computer or smartphone is referred to as a "digital transaction." Physical currency or checks are not used in digital transaction systems, and money is transferred electronically. The primary benefits of digital transactions are that consumers can use their smartphone or internet-connected laptop or computer to carry out all banking operations, such as transferring money, viewing transaction history statements, paying bills, etc. Only physical access to the bank is made possible by the traditional banking system. When handling actual money, there is a chance of theft, damage, exchange etc. The alternate manner of transactions, commonly referred to as digital transactions, is crucial for avoiding the risk associated with handling real currency. All retailers, whether online and in physical stores, recognised digital transactions as a universal form of payment. Regardless of the platform or device that the payers and payees utilise, it is an instantaneous, contactless payment mechanism. Digital transactions simplify financial management by enabling users to access a variety of payment alternatives on a device, that eliminates the requirement for various cards or personal identification numbers (PINs) and combining multiple payment methods into one. It is quick, dependable, safe and simple to use. In addition to protecting personal information and preventing fraud and hacking, security also guarantees trustworthy payment authentication.

2. Digital transaction modes
Digital or online payments are the transactions that happen only online or through digital means and don't include the actual exchange of money. This indicates that money is exchanged electronically between the payer and the payee. The Indian government has been promoting and encouraging digital payments in the nation through a lot of initiatives. The Indian Government wants to establish an economy that will be "digitally empowered". There are various forms and ways of Digital payments. Some of them are following:

2.1 Various Banking Cards
In India, mostly widely used digital payment method is banking cards.

It offers many features that give customers security or convenience. The flexibility to make different kinds of digital payments is provided by cards.

2.2 USSD (Unstructured Supplementary Service Data)
Another well-liked digital payment option is USSD. Without installing any banking apps, it may be used to conduct cashless transactions on mobile devices. USSD has the advantage of not requiring mobile data to function.

2.3 AEPS (Aadhaar enabled payment system)
Another popular digital payment method is USSD. This is used to perform online transactions on mobile or E- devices without using any type of banking software.

2.4 UPI (Unified Payment Interface)
The most recent digital payment standard is UPI, which allows users with bank accounts to utilise UPI-based apps to send money to any other bank account.

2.5 Mobile Wallets
UPI, the most recent digital payment standard, enables bank account holders to transmit money to any other account via UPI-based apps.

2.6 National Electronic Fund Transfer (NEFT)
One-to-one money transfers are made possible via the National Electronic Funds Transfer (NEFT), a nationwide payment mechanism.

2.7 Real Time Gross Settlement (RTGS)
RTGS is the order-by-order, continuous (real-time) settlement of individual money transactions without netting.

3. Benefits of digital transaction
- Increased Security
- More Convenient
- Seamless Transactions
- Offers and Discounts

4. Disadvantages of online payments
- Technical difficulties
- Threats to passwords
- Security concerns
- Lack of technology literacy

5. Review of literature
Kathy, D. (2025) conducted a research study on the topic of "Digital Literacy and Access: Equity from a Global and Local Perspective". The main objective of the author was to look at the different issues or challenges across the globe that produce problems in this digital divide, started from infrastructure access to defining and measuring various digital literacies. Communication infrastructure, Digital literacy, Digital frameworks, Digital capacity building were some of the main issues that generates problems. The author scratched the surface of the challenges and opportunities in becoming a digitally literate and functional world with the help of this study.
Jantakoon *et al.* (2025) This study employed a bibliometric analysis on the topic "A Bibliometric Analysis of Digital Literacy in Remote Learning" to explore thematic developments, research trends and influential authors in digital literacy through remote learning contexts from 2020 to 2025. With the help of Scilit.net, the study analyzed 12,809 academic publications through quantitative and quantitative methods, including co-authorship networks, citation mapping etc. The study's findings revealed a substantial growth in research interest after COVID-19 pandemic.
Yadav, P. (2023) did a comparative and analytical study on "Acceptance of Digital Payment System in Rural vs Urban Areas of Haryana". To understand the problem Exploratory research design was used. The author studied the topic with the main objective to analyze the preference and satisfaction level of rural as well as urban customers of Haryana. 700 people were selected from both areas -rural and urban areas of Gurgaon and Rewari cities of Haryana to select sample size.
Kumar, R. (2023) in the research paper "Status of Rural Women (A case study of Rohtak District) tried to find out the role and status of the women in the rural area of Rohtak district of Haryana. To achieve the objectives of the research, the author selected 50 villages out of 244 villages of Rohtak. Primary data were collected by simple random sampling.
Pandey, S. (2022) examined the digital payment system of India with the help of the research on the topic "A Study on Digital payments system and consumer perception: An Empirical survey". The main objective of the study was to understand the different modes of e- banking before and after pandemic in banking industry of India and to find the impact of customer perception and trust on digital system. This study was based on both data - primary and secondary data.
Parikshit *et al.* (2021) did the research on "A Study of Digital safety of Women in India". The author took the help of a good structured questionnaire to collect data from 124 females. The researcher intended to find out the current situation in the area of digital safety of women and the current issues.
Kaur and Walia (2020) conducted the research study on "Impact of demonetization on digital payments in India". Author assessed the impact of demonetization on the quantity of digital exchanges. The study looked at the effects of demonetization using event money in circulation in the economy and payment metrics. A comparison of the pre-event and post-event windows revealed that eight distinct features of the use of the digital payment system were not substantially altered by demonetization.
A research paper was published that was related to "obstacles in Digital payment in rural areas of Udupi region" by Maipady *et al.* (2019). With the help of this paper, authors wanted to show that there was a big impact of rural areas on economy. Different level of perception of rural people was studied by the authors.
Chaturvedi, M. (2018) focused on the topic "A Step forward to take Haryana on Digital Track: Digital India" to find out the schemes introduced by Indian Govt. for upliftment of rural areas of Haryana. With the goal of transforming Haryana into Digital Haryana, this paper outlines the actions done by the state's government as part of the Digital India's campaign and highlights the salient features of its e-governance initiatives.
Raheja, K. (2015) investigated the topic "Rural Development in Haryana" with the main objective to uplift the standard of living of the rural part of Haryana. In this

paper, the author focused on the various schemes & models that were implemented by Rural Development Department.

6. Statement of problem

The Indian population has a diverse range of cultural traits, educational backgrounds, income levels and levels of technological exposure and adoption. For those with conservative cultural backgrounds, integrating technology into the banking system is a laborious process. The use of such technology by Indian banking customers is now necessary in a number of key scenarios. The adoption of virtual or electronic banking has not reached a notable level. The lender faces unforeseen challenges in the first phase. Even a remote village's residents are sufficiently aware of electronic payment systems thanks to the Central Government and Reserve Bank of India's best efforts. "Factor Analysis on various issues and challenges in practicing of Digital Transaction: A study in Sonipat district" is the title of the current study, which focusses on analysing the problems and difficulties in practicing digital transactions.

7. Objectives of the study

Following are the important objectives for the present study:-

- To study the demographic details of the respondents in the study area.
- To analyze the factors of issues and challenges in practicing of digital transaction in the study area.

8. Area of the study

The present study is conducted in Sonipat District, Haryana, India. The sample respondents are identified only in Sonipat district. The study area has consisting of wide range of population from rural, semi urban and urban area.

9. Sample design

There are 103 respondents in this research article. Quota sampling method is applied to select the sample size. The population is divided into mutually exclusive subgroups based on the Talukas in Sonipat District. Sample size for each subgroups are calculated based on percentage of population as per 2011 census.

10. Socio and demographic factors: The following are the respondents' socio and demographic details, which are crucial for drawing study conclusions. The respondents' personal information is a significant factor that influences their use of digital transactions and it is thought to be important to analyse the problems and difficulties associated with using digital modes of transaction.

Table 1: Socio and Demographic Factors (N=103)

Factors	Frequency	%
Gender		
Male	58	56.31%
Female	45	43.69%
Age		
18-20	27	26.21%
21-30	34	33.01%
31-40	37	35.92%
41-50	3	2.92%
51-60	1	0.97%
Above 60	1	0.97%
Educational Qualification		
High School	16	15.53%
Graduate	50	48.54%
Post Graduate	28	27.18%
Doctorate	6	5.83%
Professional	2	1.94%
Others	1	0.97%
Occupation		
Private sector job	78	75.73%
Government Sector Job	14	13.59%
Housewife	1	0.97%
Student	6	5.83%
Profession	2	1.94%
Others	2	1.94%
Access to e-device		
Yes	92	89.32%
No	11	10.68%
Area		
Urban	54	52.43%
Semi-Urban	31	30.10%
Rural	18	17.47%

Source: Primary Data

Table 1 depict that, 56.31 percent of the respondent are male, 35.92.r98408gfrd percent of the respondents are in 31-40 years of age group, 64.07 percent of the respondents have under graduate educational qualification, 75.73 percent of the respondents are private sector employee etc. It is concluded that there are 52.43% of the respondents or users are from urban area, 30.10 percent of the respondents are from semi-urban area and only 17.47 respondents are from rural area.

11. Exploratory Factor Analysis for Statements of opinion with regards to Problems in Adoption of Digital Mode of Transaction

In an attempt to identify a new set of factors, factor analysis is performed to show the relationships between the variables. When there are fewer variables than the initial ones, it is easier to conduct additional analysis. When the variables share traits, a new set of factors may emerge. A limited set of common factors are retrieved in factor analysis so that the relationships between the original variables can be studied. Some factors are following:-

1	Risk of sharing personal information
2	Risk of leaking financial information
3	Fear of entering wrong input
4	High payment charges
5	Complexity in usage
6	Difficulty in remembering passwords
7	Poor internet connectivity
8	Payment failure
9	Over spending of money
10	Intangibility of payments
11	Scalability issue (As users increase quality decrease)
12	Internet kill switch (Government bans internet)
13	Lack of incentives
14	Inadequate Infrastructure
15	Digital Literacy / Lack of Knowledge
16	Temporary or sudden errors frequently occur during online payment.
17	Interacting with online payment modes require a lot of mental effort.

Table 2: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.833
Bartlett's Test of Sphericity	Approx. Chi-Square	897.717
	Df	190
	Sig.	.000

The Kaiser-Meyer-Olkin Measure of Sampling Adequacy is a term that displays the percentage of variance in various variables that may be due to factors, as Table 2 illustrates. A factor analysis is helpful with observed data, as indicated by the Kaiser-Meyer-Olkin value of 0.835, that is higher than 0.75.

Table 3: Rotated Component Matrix

Statements	Factors				
	1	2	3	4	Communalities
ISSU2	.813				0.709
ISSU1	.751				0.787
ISSU3	.715				0.668
ISSU12	.553				0.342
ISSU4					0.621
ISSU7		.759			0.637
ISSU5		.694			0.677
ISSU6		.605			0.584
ISSU11		.564			0.698
ISSU14					0.673
ISSU17			.780		0.563
ISSU8			.612		0.567
ISSU16			.595		0.749
ISSU15			.536		0.598
ISSU10				.755	0.607
ISSU9				.743	0.613
ISSU13				.716	0.657
Eigen Value	3.152	2.604	2.432	2.396	
Percentage of Variance	15.758	13.02	12.159	11.981	
Cumulative Percentage	15.758	28.778	40.936	52.918	

Source: Primary Data

Table 3 observed that, Factor I consisting of four original statements, Eigen value of Factor I is 3.152 and extraction percent is 15.758. Based on the common characteristics exist among the statements in Factor I it can be denoted as problem related to operation of digital transaction. Factor II consists of four original statements, Eigen value of Factor II is 2.604 and extraction percent is 13.02. Based on the common characteristics exist among the statements in Factor II it can be denoted as problem related to security. Factor III is the associated with three original statements. Eigen value of Factor III is 2.432 and extraction percent is 12.159. Based on the common characteristics exist among the statements in Factor III it can be denoted problem related to skill required. Factor IV is the associated with three original statements. Eigen value of Factor IV is 2.396 and extraction percent is 11.981 Based on the common characteristics exist among the statements in Factor III it can be denoted problem related to information threat.

12. Findings

12.1 Summary of the findings as follows

Most of the respondents are male. Respondents are in 31- 40 years of age group are adopting more digital transaction than the other age group respondents. Respondents have under graduate educational qualification has high exposure to the digital mode of transaction. Private sector employees have more access to digital transaction. Respondents are frequently used debit / credit card services. Majority of the respondents are spending up to Rs.10,000 per digital transaction. Respondents using digital transaction because of safe and secure transaction than the other reason. There are four factors which are found as issues and challenges in practicing digital transactions. The factors are problem related to operation of digital transaction, problem related to security, problem related to skill required and problem related to information threat.

13. Suggestions

In an attempt to identify a new set of factors, factor analysis is performed to show the relationships between the various variables. When there are fewer variables than the initial ones, it is easier to conduct additional analysis. When the variables share traits, a new set of factors may emerge. A limited set of common factors are retrieved in factor analysis so that the relationships between the original variables can be studied.

14. Conclusion

In addition to saving time, effort and energy, recent trends show that e-payment systems are user-friendly. It is also determined that initiatives to increase consumer knowledge of digital payment systems must be put into place immediately. Although most people still frequently use credit and debit cards for online transactions, there is a need to expand the use of alternative, more practical options as well. It's encouraging that more consumers are choosing digital payments over traditional ones.

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