

Determinants of digital financial literacy: an exploratory study

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Abstract: Digital financial literacy is an important attribute for understanding consumer behaviour and financial decisions in the digital financial domain. This study aims to explore determinants of digital financial literacy (DFL) that influence customer's decision making. A quantitative approach was adopted for the study and data was collected with the help of a structured questionnaire. Sample respondents of 438 who use digital financial services, were used for the study. The study also aimed at finding association between demographic details of the respondent and digital financial services been consumed. Findings reveal seven factors being identified that influence consumer's decision making namely digital responsibility, risk awareness, financial planning, digital competency, prudent finance, budgeting skills and short-term financial focus. The study also found association between age and likelihood of sharing OTP but differed for sharing usernames, passwords and PIN. financial focus

1. Introduction

Digital financial literacy has become a more prominent word as most of the financial transactions are done through digital tools and devices. [1] indicates four factors that impact DFL namely, financial behaviour, financial knowledge, financial awareness and decision making. Hence digitally literate consumers can compare financial products and services and perform secure transactions. Technological advancements in finance like usage of mobile banking, fin tech apps, internet banking, etc pose various challenges to consumers across demographic sections. A literate consumer would be better equipped to detect phishing and scam calls or transactions [2], likewise youth having access to internet and being tech, savvy would avoid being a prey of a financial trap. DFL is essential in the modern economy affecting the financial well-being of an individual and hence continual education and skill enhancement becomes inevitable to navigate in the digital financial landscape. A sound knowledge of these will help and encourage consumers to critically evaluate the financial information and take informed decisions

Moreover, these consumers are more likely to adopt innovative technologies like mobile banking apps and online investment platforms, which offer spending insights, automated savings, and personalized advice, thereby enhancing financial health. The knowledge of online financial literacy also helps them to detect scams

and protect themselves against any form of financial losses.

Financial literacy has an impact on economic implications. An economy with individuals having better financial literacy make better financial investments and decisions which in turn helps the economy to prosper. The economy should focus on providing better financial literacy to its citizens.

An effort by the policy makers and educational institutions should be made to provide sufficient knowledge about advanced technologies in the financial sectors. The pros and cons of financial tools used by the individuals should be known to them before they use any such tools. As the financial market is evolving at a faster pace leading to advancements in products and services along with the threat of cybersecurity, it becomes important to form regulations to monitor the transactions and avoid scams. Investors must be aware about their rights regarding data privacy.

Financial decision making in the technical advanced era where everything is going digital is very important for every investor, without proper digital financial literacy it is difficult to make informed decisions. This highlights the important role DFL plays in investment decision, risk assessment, and investor security [1]. Better knowledge leads to more confident behaviour which leads to proper decision making. Financial knowledge has an positive

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affect on financial decisions and consumer behaviour in using financial services [2].

There is need of a comprehensive financial education system that include digital and financial components in the curriculum from a very young age so that the youth are well informed and make better investment decisions. The above arguments show the significance of DFL in the modern era.

2. Literature Review

DFL is the knowledge about all the financial products available and its trading mechanism in online mode. It impacts the life of every individual as finance and money are connected to a larger population in many ways. Hence its impact with various factors that lead to financial decisions are an important think to study. DFL is required to understand the financial tools and make financial investments wisely [3]. Increase in technology and internet facilities have made it important to perform financial transactions digitally [4].

In the recent years policy makers have given a lot of importance to financial literacy and have made many efforts to reach to individuals in remote areas with the help of mass media like radio and television and internet. This shows the importance of financial literacy and focus of policy makers to implement it [3,4]. Financial Decision making like budgeting, investment, savings, risk assessment are directly linked to financial knowledge of the individuals [5]. Studies show that knowledge of financial tools and financial decisions are positively correlated [6]. Additionally, DFL has been found to increase investors alertness of financial risks. [7] Poor financial knowledge leads to poor decision making and huge losses due to unplanned investments. Bad financial habits can have negative impact for both individuals and the economy. Individuals capable of using financial knowledge make more informed investment decisions and retirement planning [8]. Better knowledge is directly linked with motivation and self confidence in investment and less frauds and loss of money[9,10].

The studies also show that age plays a significant role in financial decisions and frauds. Better financial knowledge leads to safety in online transactions and lower the risk level in investment [11]. Risk assessment is directly connected with financial knowledge. Individuals with financial literacy can analyse their risk and make investments in the portfolio of risky and risk-free assets [12,14]. A recent study by [13] highlights that online financial literacy can mitigate the impact of misinformation on consumer decision-making. The authors argue that consumers with sound DFL are less vulnerable to frauds thereby making more rational decisions. A lot of individuals invest without knowledge and their investment decisions rely on the advice and influences framed by the society or financial advisors that may lead to loss of investments and financial scams.

Proper financial knowledge can remove the effect of social influences on investors decisions [15].

Traders with higher DFL are better prepared to assess financial products and make decisions that align with their needs and goals [16]. [17] Determines how overconfidence in financial information can affect behaviour, signifying a need for digital financial literacy involvements to improve decision-making accurateness. The connection between financial literacy and cognitive biases requires targeted educational plans that encourage a complete understanding of risk management. Various research has proven a strong correlation among higher levels of financial literacy and saving rates, investment decisions, retirement planning, risk assessment and market analysis

The connection between financial literacy and decision-making is predominantly noticed among older adults and millennials. [18] Illustrate how increased financial literacy among grownup adults can lead to better financial choices in selecting to adopt various financial tools. Custom-made educational plans can empower investors to make sound decisions, thereby improving their overall financial well-being. On the contrary, [19] examine the financial behaviors of Indonesian millennials, highlighting a positive correlation between digital financial literacy and responsible financial behaviors.

[7] Multiple factors contribute to the difference in financial literacy between genders in making financial choices. [20] highlight that financial decision-making is often decentralized within couples, signifying that both partners should be financially literate to make knowledgeable choices effectively.

In summary, the body of literature strongly supports the notion that digital financial literacy influences consumer behaviour, enhances risk awareness, and improves decision-making. Consumers equipped with DFL are likely to engage in more responsible financial activities, assess risks accurately, and make informed decisions that contribute to their financial stability. [21]

3. Research Methodology

The study is exploratory research done to analyse the dimensions if digital financial literacy on three factors such as consumer behaviour, risk awareness and decision making. A quantitative analysis technique is used. A structured survey was done to collect the quantitative data by using a questionnaire . The data was collected through online survey and convenience sampling was applied for selecting the samples Factor analysis was applied to determine the primary elements of financial literacy. [22] The questionnaire was developed with reference to the OECD's Financial Literacy Assessment Framework, and survey items were adapted from [23] to identify factors that contribute to digital financial literacy.

3.1. Population and Sampling

The research is focused on respondents of the age group of 18 and above who use smart devices to do online financial transactions. A convenience sampling technique was adopted for data collection. The analysis was conducted on a sample size of 438 respondents.

3.2 Research Instrument

The demographics section captures information on respondents' gender, age group, marital status, education level, income, and source of internet access. The other section assesses digital financial literacy, focusing on respondents awareness, skills, attitudes, and behaviors concerning online payments, financial planning, and digital security. Responses to these items are measured using a 5-point Likert scale.

3.3 Statistical Tools

The study begins with descriptive statistics, which provide a summary of respondent demographics and their digital financial behavior. Categorical variables such as age and OTP sharing behavior were examined using Chi-square tests. Factor analysis was used to identify the factors of digital financial literacy.

3.4. Research Objectives

1. Analyse the demographic characteristics and financial behaviours that affect digital literacy.
2. Identify the key factors influencing digital financial literacy.

4. Analysis

4.1 Descriptive Statistics

Table 1. Descriptive Statistics

Dimension		Frequency	Percent	Cumulative Percent
Gender	Female	261	59.6	59.6
	Male	177	40.4	100.0
Age	18 - 24 years	273	62.3	62.3
	25 - 34 years	135	30.8	93.2

	35 - 44 years	30	6.8	100.0
Marital Status	Married	384	87.7	87.7
	Single	54	12.3	100.0
Education Level	High School or equivalent	3	.7	.7
	Undergraduate Degree	81	18.5	19.2
	Postgraduate Degree	348	79.5	98.6
	Doctorate	6	1.4	100.0
Annual Income	Less than Rs.1,00,000	219	50.0	50.0
	Rs 1,00,001 to Rs 4,00,000	93	21.2	71.2
	Rs 4,00,001 to 6,00,000	57	13.0	84.2
	Rs. 6,00,001 - Rs. 10,00,000	39	8.9	93.2
	More than Rs. 10,00,000	30	6.8	100.0
Primary source of internet access	Mobile Data	351	80.1	80.1
	Broadband (Home/Office)	60	13.7	93.8
	Fiber Optic Internet	27	6.2	100.0

Source: Online Survey

From Table 1 the demographic analysis of the respondents shows that men comprise 59.6% of participants, with 62.3% falling in the 18-24 age bracket. A large majority (87.7%) are married, and 79.5% have completed postgraduate studies. Half of the respondents' annual income is below Rs.1,00,000, and 80.1% primarily use mobile data for internet access. Daily digital financial transactions are conducted by 61% of participants, indicating widespread engagement in digital finance. This sample represents a youthful, well-educated, and digitally active population for the research.

4.2 Hypothesis Testing

Researcher tested the association between categorical variables (age group and the likelihood of respondents sharing their OTP) and categorical variable between (age group and attitude towards sharing usernames, passwords, and PINs)

Hypothesis 1

Null Hypothesis (H₀):

There is no significant association between age group and the likelihood of respondents sharing their OTP

Alternative Hypothesis (H_{1a}):

There is a significant association between age group and the likelihood of respondents sharing their OTP

Alternative Hypothesis (H_{1b}):

There is a significant association between age group and attitude towards sharing usernames, passwords, and PINs

Table 2. Chi-Square Test

Chi-Square Test					
Category 1	Category 2	Sig. Value	Test Result	Decision	Result
Age	Likelihood of respondents sharing their OTP	0.026	X ² (8, N = 438) = 17.455, p < .05	Reject H ₀	Significant
	Attitude towards sharing usernames, passwords, and PINs	0.198	X ² (8, N = 438) = 11.065, p > .05	Accept H ₀	Not Significant

Source: Data compilation and computation by researcher using SPSS

From Table 2, the null hypothesis (H₀) gets rejected on the basis of the p-value which is 0.026 which is less than 0.05, hence we can say that there is a association between age group and respondents' behavior regarding sharing their OTP.

Typically, a significant value of 1% or 5% are used for statistical analysis. From Table 2, the calculated p-value of 0.198 exceeds 0.05, which leads to the conclusion that the null hypothesis should not be rejected. As per the analysis there is no meaningful relationship between age categories and individuals' attitudes regarding the sharing of usernames, passwords, and PINs. This means that the distribution of attitudes is likely similar across the different age groups studied

4.3 Factor Analysis

Table 3. Reliability Statistics

Reliability Statistics		
Cronbach's Alpha	No of Items	
.808	30	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		
.833		
Bartlett's Test of Sphericity	Approx. Chi-Square	5878.938
	Sig.	.000

Source: Obtained from SPSS using data from survey

From table 3, The Cronbach's Alpha value is more than 0.8 which suggests that the internal consistency of the questionnaire is good. The data can be processed further the Kaiser-Meyer-Olkin (KMO) measure of 0.833 suggests the sample is suitable for factor analysis, as values exceeding 0.8 are deemed commendable. Bartlett's Test of Sphericity is significant (p < 0.001), indicating that there are adequate correlations between the variables to progress with factor analysis.

Table 4. Communalities

Communalities (initial eigen value =1.000)	
	Extraction
S1	.608
S2	.488
S3	.612
S4	.741
S5	.638
S6	.524
S7	.607
S8	.613
S9	.765
S10	.638
S11	.624
S12	.606
S13	.481
S14	.472
S15	.539
S16	.611
S17	.778
S18	.657
S19	.580
S20	.615
S21	.584
S22	.505
S23	.726

S24	.771
S25	.639
S26	.649
S27	.690
S28	.672
S29	.575
S30	.605

Source: Obtained from SPSS using data from survey

In table 4. most variables exhibit strong communalities (above 0.5), indicating that the extracted factors explain a substantial portion of each variable's variance. Examples include "I use mobile banking" (0.741), "I prefer to spend money rather than to save" (0.765), and "I set financial goals for my family" (0.771).

Table 5. Total Variance

Total Variance Explained									
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.184	27.279	27.279	8.184	27.279	27.279	3.870	12.900	42.900
2	2.791	9.304	36.583	2.791	9.304	36.583	3.191	10.636	53.536
3	1.841	6.138	42.721	1.841	6.138	42.721	2.981	9.936	63.472
4	1.744	5.813	48.534	1.744	5.813	48.534	2.631	8.771	72.243
5	1.508	5.028	53.562	1.508	5.028	53.562	2.511	8.369	80.611
6	1.386	4.620	58.182	1.386	4.620	58.182	1.748	5.827	86.438
7	1.157	3.857	62.039	1.157	3.857	62.039	1.680	5.600	92.039
8	.985	3.283	65.322						
9	.937	3.124	68.446						
10	.869	2.898	71.344						
11	.819	2.730	74.074						
12	.785	2.616	76.690						
13	.753	2.511	79.201						
14	.613	2.043	81.244						
15	.605	2.018	83.262						
16	.551	1.838	85.100						
17	.489	1.630	86.730						
18	.465	1.549	88.279						
19	.422	1.406	89.686						
20	.388	1.294	90.980						
21	.374	1.247	92.227						

22	.361	1.204	93.431						
23	.309	1.029	94.460						
24	.307	1.023	95.482						
25	.286	.953	96.436						
26	.276	.921	97.357						
27	.247	.823	98.180						
28	.225	.750	98.930						
29	.170	.565	99.495						
30	.151	.505	100.000						

Source: Obtained from SPSS using data from survey

The analysis extracted 7 factors, accounting for 62.039% of the total variance. The first factor explains 27.279%, with subsequent factors contributing progressively less.

Table 6. Rotated Component Matrix

Rotated Component Matrix ^a							
	Component						
	1	2	3	4	5	6	7
S17	.853						
S16	.763						
S18	.663				.300		
S20	.596				.318	.316	
S10	.566			.430			
S29	.553				.441		
S21	.510	.357					
S11		.752					
S12		.712					
S22		.555	.321				
S14		.528					
S15		.464	.392			.330	
S13	.319	.442			.376		
S24			.860				
S23			.777				
S25		.317	.617		.308		
S26			.525		.514		
S4				.768			
S1				.651			
S5		.312		.626			
S3	.333	.386		.498			
S2	.389			.491			
S27			.371		.648		

S28		.371	.356		.611		
S30					.600	.383	
S8						.752	
S19	.362	.312				.527	
S6				.370		.519	
S9							.848
S7							.758
a. Rotation converged in 9 iterations.							

Source: Obtained from SPSS using data from survey

From table 6 we find that variables constitute seven distinct factors as under: -

Factor 1: Digital Responsibility (explains 27.279% of the variance)

This factor encompasses cautious behavior in digital financial transactions, awareness of digital payment methods, and a preference for digital financial products.

Factor 2 - Risk Awareness (explains 9.304% of the variance)

This factor centers on understanding digital financial risks (e.g., phishing), digital lending, and protective measures against such risks.

Factor 3 – Financial Planning (explains 6.138% of the variance)

This factor reflects the ability to establish financial goals, manage household finances, and make informed choices regarding digital financial products and service providers.

Factor 4 – Digital Competency (explains 5.813% of the variance)

This factor signifies proficiency in utilizing mobile and internet banking, online shopping, and general digital tools like email.

Factor 5 – Prudent Finance (explains 5.028% of the variance)

This factor represents the desire to apply financial and digital knowledge wisely, coupled with satisfaction from responsible digital financial transactions.

Factor 6 - Budgeting Skills (explains 4.620% of the variance)

This factor emphasizes budgeting abilities, control over impulsive spending, and the capacity to resolve errors in digital financial transactions.

Factor 7 - Short-term Financial Focus (explains 3.857 % of the variance)

This element indicates a propensity to consume rather than save, as well as an inclination to focus on current necessities instead of long-term financial strategies.

5. Findings

The sample consisted of 59.6% male respondents, with a majority (62.3%) aged between 18-24 years. Additionally, 80.1% of the respondents relied on mobile data for internet access, and 61% reported conducting financial transactions online daily

The chi-square tests showed a significant link between age group and OTP sharing behaviour ($p = 0.026$), indicating differences in this practice across age groups. However, no significant association was found between age group and the tendency to share passwords or PINs ($p = 0.198$).

Seven key factors were identified through factor analysis, explaining 62.04% of the variance in digital financial literacy (DFL): Factor 1: Digital Responsibility (27.3%), Factor 2: Risk Awareness (9.3%), Factor 3: Financial Planning (6.1%), Factor 4: Digital Competency (5.8%), Factor 5: Prudent Finance (5.0%), Factor 6: Budgeting Skills (4.6%), Factor 7: Short-term Financial Focus (3.9%)

6. Managerial Implications

1. Financial Education Programs: Policymakers and financial institutions should develop targeted educational programs focusing on digital responsibility and risk awareness. These programs could improve both the adoption and security of digital financial services.
2. Digital Security Awareness Campaigns: Financial service providers should emphasize consumer awareness of digital risks and teach security practices, such as OTP and PIN management, especially targeting younger consumers.
3. Personalized Financial Solutions: Platforms offering digital financial services can leverage behavioral insights to tailor recommendations (e.g., personal finance tools, alerts on overspending).
4. Mobile-First Strategy: With 80.1% of respondents relying on mobile data, financial institutions should enhance mobile interfaces and prioritize mobile banking solutions.

7. Conclusion

This exploratory study identifies the key determinants of digital financial literacy and sheds light on the behavioral, educational, and security-related dimensions of DFL. Seven core factors—including digital responsibility, risk awareness, and financial planning—shape the way individuals engage with digital financial services. The results emphasize the need for targeted financial education programs that focus on security awareness and financial planning skills. Furthermore, the study highlights that age and digital habits influence security behaviors, such as OTP sharing, indicating the need for age-specific awareness campaigns.

In conclusion, this finding contributes to the body of knowledge on digital financial literacy by providing actionable insights for financial institutions, educators, and policymakers. Strengthening digital financial literacy will not only promote responsible financial behavior but also enhance consumer confidence in digital finance.

7. References

1. W. Abdallah, F. Tfaily, A. Harraf. The impact of digital financial literacy on financial behavior: customers' perspective. *Competitiveness Rev: An Int Bus J.* 2024; Article number pending.
2. S. Munawar. Effect of Financial Literacy on Financial Decision and Consumer Behavior. *Pak J Humanit Soc Sci.* 11(2):2570-2582; (2023).
3. A.C. Lyons, J. Kass-Hanna. Financial Inclusion, Financial Literacy and Economically Vulnerable Populations in the Middle East and North Africa. *Emerg Mark Finance Trade.* 57(9):2699-2738; (2021). DOI: 10.1080/1540496X.2021.1944310.
4. P. Kumar, R. Pillai, N. Kumar. The Interplay of Skills, Digital Financial Literacy, Capability, and Autonomy in Financial Decision-Making and Well-being. *Borsa Istanb Rev.* 21(4):367–378; (2021).
5. N. Garg, S. Singh. Financial literacy among youth. *Int J Soc Econ.* 45(1):173-186; (2018). DOI: 10.1108/IJSE-11-2016-0303.
6. H. Chen, R.P. Volpe. An analysis of personal financial literacy among college students. *Finance Serv Rev.* 7(2):107-128; (1998).
7. A. Ram. Understanding FinTech Gender Gap: A Survey on Financial Literacy, Inclusion and FinTech Use. *Open J Bus Manage.* 11:3518-3538; (2023). DOI: 10.4236/ojbm.2023.116192.
8. A. Lusardi, O.S. Mitchell. The Importance of Financial Literacy and Its Impact on Financial Well-being. *J Finance Lit Well-being.* 52(1):5–44; (2014).
9. L. Klapper, A. Lusardi. Financial literacy and financial resilience: Evidence from around the world. *Finance Manage.* 49(3):589-614; (2020).
10. S. Joo, J.E. Grable. An exploratory framework of the determinants of financial satisfaction. *J Fam Econ Issues.* 25(1):25-50; (2004).
11. Y. Li, I. Fisher. Digital Financial Literacy, Risk Aversion, and College Students' Online Security Behavior. In: 2022 IEEE International Conference on Big Data (Big Data). 2022; pp. 4807-4811. IEEE.
12. A. Atkinson, F. Messy. Measuring Financial Literacy: Results of the OECD/International Network on Financial Education (INFE) Pilot Study. *OECD Working Papers on Finance, Insurance and Private Pensions.* No. 15; (2012).
13. B. Gharleghi, H. Ranjbar. Digital Financial Literacy and Consumer Trust: The Role of Misinformation. *J Behav Exp Finance.* 26:100249; (2020).
14. B. James, P. Boyle, J.S. Bennett, D. Bennett. The Impact of Health and Financial Literacy on Decision Making in Community-Based Older Adults. *Gerontology.* 58:531-539; (2012). DOI: 10.1159/000339094.
15. R. Raut. Past behaviour, financial literacy and investment decision-making process of individual investors. *Int J Emerg Mark.* 15:1243-1263; (2020). DOI: 10.1108/ijoem-07-2018-0379.
16. D.J. Beal, S. Delpachitra. Financial literacy among Australian university students. *Econ Papers J Appl Econ Policy.* 22(1):65-78; (2003).
17. A.L. Kiliyanni, S. Sivaraman. A predictive model for financial literacy among the educated youth in Kerala, India. *J Soc Serv Res.* 44(4):537-547; (2018).
18. G. Fox, R. Connolly. Mobile health technology adoption across generations: Narrowing the digital divide. *Info Syst J.* 28:1019-995; (2018). DOI: 10.1111/isj.12179.
19. T-Y. Shih, S-C. Ke. Determinants of financial behavior: insights into consumer money attitudes and financial literacy. *Serv Bus.* 8:217-238; (2014). DOI: 10.1007/S11628-013-0194-X.
20. R. Fonseca, K.J. Mullen, G. Zamarro, J.M. Zissimopoulos. What Explains the Gender Gap in Financial Literacy? The Role of Household Decision-Making. *Decis-Making Econ eJ.* (2010). DOI: 10.2139/ssrn.1633689.
21. G. Charness, U. Gneezy, A. Imas. Financial Knowledge, Risk Preferences, and the Demand for Digital Financial Services. *Schmalenbach Bus Rev.* 87(3):43–51; (2013).
22. OECD. Financial Literacy Assessment Framework. 2018.
23. T. Ravikumar, B. Suresha, N. Prakash, K. Vazirani, T.A. Krishna. Digital financial literacy among adults in India: Measurement and validation. *Cogent Econ Finance.* 10(1):2132631; (2022).